

Sofia Pagliarin



UNIVERSITÀ DEGLI STUDI DI MILANO BICOCCA  
DEPARTMENT OF SOCIAL SCIENCES AND RESEARCH  
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KU LEUVEN

KU LEUVEN  
ARENBERG DOCTORAL SCHOOL  
FACULTY OF ENGINEERING SCIENCE

DEPARTMENT OF SOCIAL SCIENCES AND RESEARCH  
URBAN AND LOCAL EUROPEAN STUDIES (URBEUR)  
Via Bicocca degli Arcimboldi, 8 - U7 Building  
20126 MILAN, ITALY  
ph. +39 02 6448 7431  
s.pagliarin@campus.unimib.it  
<http://www.sociologia.unimib.it/>



FACULTY OF ENGINEERING SCIENCE  
DEPARTMENT OF ARCHITECTURE  
ARCHITECTURE AND SOCIETY DIVISION,  
RESEARCH GROUP PLANNING AND DEVELOPMENT  
Kasteelpark Arenberg 1 bus 2431  
B-3001 HEVERLEE, BELGIUM  
ph. + 32 16 32 1336  
sofia.pagliarin@asro.kuleuven.be  
[www.asro.kuleuven.be](http://www.asro.kuleuven.be)



TERRITORIAL DISPERSION PATTERNS  
OF RESIDENTIAL AREAS.

# TERRITORIAL DISPERSION PATTERNS OF RESIDENTIAL AREAS

Urban sprawl as an outcome of multi-scalar territorial governance  
processes of land bargaining in the Barcelona and Milan Metropolitan  
regions

November 2014

Supervisor: Prof. dr. **Matteo Colleoni**  
Supervisor: Prof. dr. **Frank Moulaert**

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# **Territorial dispersion patterns of residential areas.**

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Faculty of Engineering Science  
Department of Architecture, Urban Design and Regional Planning

*PhD Candidate:*  
Sofia PAGLIARIN

*Supervisors:*  
Prof. dr. Matteo Colleoni (Bicocca University of Milan)  
Prof. dr. Frank Moulaert (Katholieke Universiteit Leuven)

*Members of the Joint PhD Diploma Examination Committee:*  
Prof. dr. Marisol Soledad García Cabeza (Barcelona University)  
Prof. em. dr. Hubert Gulinck (Katholieke Universiteit Leuven)  
Prof. dr. Serena Vicari (Bicocca University of Milan)

Prof. dr. Patrick Wollants (Katholieke Universiteit Leuven)  
Prof. dr. Pieter Van den Broeck (Katholieke Universiteit Leuven)

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*And I said, mama gonna buy you out.  
I'm a rockstar now.  
(Bran Van 3000, Rock star, Discosis, 2001)*

Writing a PhD dissertation can often turn out to be quite a different concern than what one had previously thought of. I have learned that a PhD thesis, as Frankenstein, gets a proper life on its own, which one has to be able to accommodate and bravely navigate to the end, with a good dose of (self)immolation and (self)irony, to give it finally shape and coherence. Looking back, I cannot conceal that I wished to have experienced a more linear evolution of my PhD dissertation; much time has been spent in solitude, wishing for better when I had no clear sight of where I was headed to.

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I am convinced a dissertation is an on-going process, possibly never-ending. I am thus persuaded that a PhD dissertation is more a beginning than an end.

I dedicate this dissertation to myself, and to the person I will be, to the opportunities that this four year path will disclose, in or out of academia, and to the future that awaits.

sofia p., Mossano, November 2014

## Abstract

This research deals with the territorial dispersion patterns in the expansion of residential areas, i.e. urban sprawl, conceived as an outcome of governance processes.

Urban sprawl, as a type of land use transformation, originates from the decisions over land management carried out by certain actors. An appropriate theoretical framework is proposed, and empirically implemented, to analyze actors' governance dynamics of land management. Such effort is particularly relevant because, in the international literature on urban sprawl, political and planning factors are only limitedly focused on. The attempt to address this lacuna is performed by combining a territorial, multi-scalar and multi-actor governance perspective with the bargaining context model.

Urban sprawl is defined as a predominantly residential phenomenon, and two case studies are considered, namely the metropolitan areas of Barcelona and Milan. In both case studies, urban sprawl is measured through different spatial scales (administrative boundaries, metropolitan delimitations, Larger Urban Zones, Urban Morphological Zones and NUTS 3 level or provinces) for a period of approximately 50 years, employing both local data, for the 1950s–2000s timespan, and the Corine Land Cover (CLC) surveys for 1990, 2000 and 2006. The analysis shows that there has been a decentralization of urban functions (industries, services, housing) in both Barcelona and Milan, facilitated by the growth of transport infrastructures (hypothesis 1). However, evidence has shown that the built-up forms in Barcelona are less territorially dispersed in terms of residential areas than in the case of Milan.

Through the analysis of demographic data (1981–2011), demographic de-concentration processes from the city center to the metropolitan areas and regions of both cities have been identified; however, in the Barcelona case the population remains more concentrated, while in the Milan case it is more dispersed.

Barcelona province is less fragmented than Milan: hence, in general, less administrative fragmentation (number of municipalities per province) can be a sufficient condition to observe a lesser spatially dispersed pattern of residential areas.

With regard to governance processes, the analysis of qualitative data (interviews, documents and planning regulations) reveals that municipalities (the local scale) hold the wider competences over local urban planning (hypothesis 2). Within their relative metropolitan area, local governments take localized planning decisions over urban development in order to compete for attracting resources as compared to the adjacent municipalities (hypothesis 3). Hence, urban sprawl consists of land use micro-transformations carried out by local authorities to obtain a competitive edge with regard to the other municipalities located within the metropolitan boundaries.

The different territorial dispersion patterns of residential areas observed in Barcelona and Milan are explained by the decisive role that the metropolitan and regional governments play(ed) with regard to land management. From the performed analysis it can be concluded that, for urban sprawl containment, not only the metropolitan scale is relevant (hypothesis 4), but in turn the cooperation between actors at the metropolitan and regional authorities is crucial. In particular, the predominant position of the regional government is key for land containment.



## Sommario

Questa ricerca tratta dei processi di dispersione territoriale nell'espansione delle aree residenziali, definiti come sprawl urbano. In particolare, quest'ultimo è concepito come un prodotto di processi di governance.

La dispersione urbana, intesa come un tipo di trasformazione di usi del suolo, ha origine nelle decisioni di determinati attori sulla gestione e l'allocazione degli usi del suolo. Nel tentativo quindi di spiegare il verificarsi dello sprawl urbano così inteso, è necessario proporre, ed applicare empiricamente, un idoneo modello teorico. Questo sforzo analitico è particolarmente rilevante in quanto, nella letteratura internazionale sullo sprawl urbano, le condizioni politiche e di pianificazione, nonché le dinamiche tra attori pubblici e privati, non sono sistematicamente esaminate. In questa ricerca, si propone uno schema teorico per colmare questa lacuna, il quale è composto da due diverse concezioni di governance: da una parte, una prospettiva territoriale, 'multi-scalare' e 'multi-attore', e dall'altra, il modello 'bargaining context'.

La dispersione urbana è definita come un fenomeno prevalentemente relativo all'espansione delle aree residenziali, e le regioni metropolitane di Barcellona e Milano sono considerate come casi studio. Per entrambe, lo sprawl urbano è misurato in ettari sulla base di una serie di scale spaziali (confini amministrativi, aree e regioni metropolitane, Larger Urban Zones, Urban Morphological Zones, e i livelli NUTS3 o province) lungo un periodo di circa 50 anni, utilizzando sia delle banche dati locali per ogni caso studio considerato (1950–2000), sia la banca dati Corine Land Cover (CLC) per il 1990, 2000 e 2006.

L'analisi condotta mostra che, sia per Barcellona che per Milano, sono avvenuti processi di decentralizzazione delle funzioni urbane – industrie e servizi, residenze –, facilitati dalla crescita relativa delle infrastrutture di trasporto (ipotesi 1). Tuttavia, il caso di Barcellona presenta una dispersione urbana delle aree residenziali più contenuta rispetto al caso di Milano.

L'analisi di dati demografici (1981–2011) ha messo in luce dei processi di decentralizzazione della popolazione, che si è ridistribuita all'interno delle regioni metropolitane di entrambi i casi studio. Tuttavia, l'analisi comparativa ha reso evidente una maggior concentrazione demografica nel caso di Barcellona rispetto al caso di Milano, rispecchiandone la minor dispersione territoriale delle aree residenziali.

L'analisi ha anche evidenziato che il minor grado di frammentazione amministrativa (numero dei comuni per provincia) è una condizione sufficiente per il più ridotto manifestarsi dello sprawl urbano; la provincia di Barcellona, meno frammentata amministrativamente, presenta quindi anche meno aree residenziali disperse rispetto alla più frammentata provincia di Milano.

Per quanto concerne le dinamiche ed i processi di governance, l'analisi ha rivelato che, in entrambi i casi studio considerati, i comuni (la scala locale) possiedono la maggiore autorità di decisione sulle strategie di sviluppo urbano (ipotesi 2). Nel competere con gli altri comuni ubicati all'interno dell'area metropolitana, i comuni mettono in atto delle decisioni a forte carattere locale per quanto riguarda le scelte di sviluppo urbano (ipotesi 3). La dispersione urbana è dunque il risultato di micro-trasformazioni degli usi del suolo, compiute dalle giunte comunali con lo scopo di ottenere un vantaggio comparativo rispetto agli altri comuni 'concorrenti' localizzati nel raggio dell'area metropolitana.

I due diversi modelli di dispersione territoriale delle aree residenziali osservati a Barcellona, relativamente più compatta, e Milano, relativamente più dispersa, possono essere spiegati dal ruolo decisivo che le istituzioni pubbliche svolgono a livello metropolitano e regionale rispetto alle strategie territoriali. Dall'analisi condotta si può concludere che, ai fini del contenimento del consumo di suolo, ed in specifico dello sprawl urbano, non soltanto il ruolo delle istituzioni a livello metropolitano è rilevante (ipotesi 4), ma anche le dinamiche di co-

operazione che queste possono instaurare con il governo regionale sono determinanti nelle strategie territoriali. In specifico, la reale possibilità del governo regionale di incidere sulle scelte di sviluppo territoriale e locale è cruciale per contenere l'emergere dello sprawl urbano.

## Samenvatting

Dit onderzoek behandelt de patronen van territoriale spreiding in de uitbreiding van residentiële gebieden, ook wel suburbanisatie of urban sprawl genoemd, beschouwd als de uitkomst van governance processen.

Suburbanisatie, als een type van landgebruikstransformatie, komt voort uit beslissingen over grondbeheer zoals uitgevoerd door specifieke actoren. Het onderzoek stelt een theoretisch kader voor dat empirisch wordt onderbouwd, om de governance dynamiek in grondbeheer te analyseren. Dit werk is in het bijzonder belangrijk omdat in de internationale literatuur over suburbanisatie, politieke factoren en planningsfactoren weinig worden behandeld. Deze lacune wordt aangepakt door een territoriaal, multi-scalair en multi-actor governance perspectief te combineren met een onderhandelingscontext (bargaining context) model.

Suburbanisatie wordt gedefinieerd als een voornamelijk residentieel fenomeen, met de metropolitane gebieden van Barcelona en Milaan als twee case studies. In deze laatste wordt suburbanisatie gemeten op verschillende schaalniveaus (administratieve grenzen, metropolitane begrenzingsen, grotere stedelijke gebieden, stedelijke morfologische zones en NUTS 3 niveau of provincies) voor een periode van ongeveer 50 jaar. Daarbij wordt gebruik gemaakt van zowel lokale data voor de periode 1950–2000 en de Corine landgebruikskaart (CLC) opnames voor 1990, 2000 en 2006.

De analyse toont een decentralisatie van stedelijke functies (industrie, diensten, huisvesting) in Barcelona en Milaan, ondersteund door de groei van transportinfrastructuren (hypothese 1). Nochtans toonde vroeger onderzoek dat residentiële gebieden in Barcelona minder verspreid zijn dan in Milaan.

Met behulp van een analyse van demografische data (1981–2011), werden in beide steden processen van demografische deconcentratie van het stadscentrum naar metropolitane gebieden en regio's geïdentificeerd. Nochtans blijft de bevolking in Barcelona meer geconcentreerd, en in Milaan wordt zij meer verspreid. De provincie Barcelona is minder gefragmenteerd dan Milaan: bijgevolg kan minder administratieve fragmentatie (aantal gemeenten per provincie) in het algemeen een voldoende voorwaarde zijn voor minder ruimtelijke verspreiding.

Wat betreft de governance processen, wijst de analyse van kwalitatieve data (interviews, documenten en planningreglementen) uit dat gemeenten (de lokale schaal) de algemene bevoegdheden hebben over lokale stedelijke planning (hypothese 2). In hun metropolitane gebieden, nemen lokale overheden gelocaliseerde planningsbeslissingen over stedelijke ontwikkeling, en concurreren met naburige gemeenten om het aantrekken van inkomsten (hypothese 3). Suburbanisatie bestaat bijgevolg uit microtransformaties in landgebruik, uitgevoerd door lokale overheden, om een competitief voordeel te verkrijgen in vergelijking met de andere gemeenten in het metropolitaan gebied.

De verschillende territoriale spreidingspatronen van residentiële gebieden waargenomen in Barcelona en Milaan worden verklaard door de beslissende rol die de metropolitane en regionale overheden spelen en speelden in grondbeheer. Uit de analyse kan geconcludeerd worden dat voor het beheersen van suburbanisatie niet alleen de metropolitane schaal relevant is (hypothese 4), maar dat ook de samenwerking tussen actoren op de metropolitane en regionale overheden cruciaal is. In het bijzonder de dominante positie van de regionale overheid is essentieel in het beheersen van suburbanisatie.



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# Chapter 1

## Introduction

### 1.1 Urban sprawl: a land management issue

This dissertation analyzes the patterns of spatial dispersion occurring in the expansion of residential areas, i.e. urban sprawl, conceived as an outcome of governance processes, through the comparative analysis between two Southern European metropolitan areas, Barcelona and Milan. The aim of this research is to single out the patterns of urban sprawl in the European context, with a focus on Barcelona and Milan, and to explain such patterns of urban sprawl by centering on the interplay between public institutions and private actors concerning land transformation. In this doctoral research, sprawled residential areas are considered to be an outcome of mediation processes among a variety of actors who, at different administrative levels and within complex territorial governance settings, decide on the allocation of land uses.

The object of inquiry of this dissertation consists of those governance processes put into practice by a variety of public and private actors leading to the suburban allocation of land, and to the dispersed spatial organization of residential areas (i.e. urban sprawl). Urban sprawl is primarily addressed as a land management issue, therefore a result of governance dynamics among agents, who can be builders, local (municipal) authorities, landowners, citizens, and provincial and regional governments. These dynamics are analyzed from an institutionalist perspective towards urban transformation (Lambooy and Moulaert, 1996).

Cities are addressed as land uses assemblages. Land uses are defined as ‘the purposes for which humans exploit the land cover’ (Lambin and Geist, 2006; cf. Gans, 2002; see also sec. 2.1). ‘Land cover’ represents soil attributes (e.g. forests, croplands, urbanized areas), while ‘land use’ expresses the functions that those land covers fulfil for society. Land cover change can be distinguished into two main processes (Lambin and Geist, 2006), namely:

1. land cover transformation, which is a process that involves substantial land change from one type of land cover to another, for instance from forests to agricultural areas (e.g. deforestation), or from agricultural land to urban land (i.e. urban land development); and
2. land cover modifications, such as to another agricultural use of land (e.g. from vineyards to rice fields), or the ‘recycling’ of urbanized land (e.g. land remediation, urban infilling, brownfield development).

In human– driven land cover transformations or modifications, land cover is changed to fulfil specific *functions*, such as food production, housing, mobility (e.g. roads and railways), or industrial production (e.g. factories, oil extraction, mining), resulting from land management and allocation processes.

In this research, land (use) management and allocation are considered as those broad pro-

cesses through which, in contemporary Western societies, human settlements are established, in general via appropriate planning apparatuses. Land management and allocation are types of ‘settlement modes’ through which societies take possession of and occupy ‘space’, creating human environments, territories, places, cities and urban systems – space planning being a universally recognizable anthropological ‘attitude’ Magnier and Russo (2002, p.98). In synthesis, land (use) management is the process through which land (use) allocation is spatially decided. This, of course, raises complex multi-scalar governance issues<sup>1</sup>.

As will be clarified in Chapter 2, and especially in section 2.5, land management – with a focus on urban sprawl – is composed of two different aspects, namely the land transformation *process* and the occasioned *pattern*. Land transformation processes are multiple and concurrent, and so are their outcomes, which intertwine, add up, overlap and contrast at different times. The urban form resulting from land transformation and allocation processes reflects, although not entirely, a set of political and economic mediations and decisions, which are embedded in social and cultural contexts and historical trajectories, and which have political, economic, social and cultural consequences (Vicari Haddock, 2004, p.7). Furthermore, once land is transformed, land use changes are generally irreversible, fostering path-dependency processes that influence, for instance, city functioning, work-residence mobility patterns, quality of life, territorial economic specialization and future development.

From a sustainability perspective, one can frame and ‘charge’ these land transformation processes with concerns about depletion of resources, thus enabling us to rename land (cover and use) changes as land consumption processes<sup>2</sup>. Transformed land is mainly obtained from open and agricultural soil; the European Environmental Agency reports that agricultural areas are those land cover types experiencing the largest part of transformation of land into urbanized land (between 2000 and 2006, almost 46% of all areas that were transformed into artificial surfaces were arable land or permanent crops), followed by pastures and mixed croplands (approximately 32%), being *residential* areas and construction sites the main land-taker<sup>3</sup> (EEA European Environmental Agency, 2013). Land, as a limited resource, is consumed, highlighting the status of land as a scarce and immobile resource for cities. Natural areas and productive agricultural land are often unprotected, but consumed to satisfy a variety of urban functions (e.g. housing or industrial areas, or transport infrastructures), urban planning being generally the formal tool through which this process is sanctioned (Owens and Cowell, 2002, ch. 1).

The connection of urban sprawl, as a type of land consumption, to the urban sustainability debate and land consumption is relevant in the European context because of the distinctive features that have historically characterized European cities, among which urban compaction is a prominent attribute (Kaelbe and David, 2000; Le Galès, 2002, ch.1 and 2; Weber, 1958; see also the introduction to sec. 2.3.1, and sec. 5.4). In addition, in contrast to the US context where the term urban sprawl originated, European metropolitan areas are polycen-

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<sup>1</sup>The term ‘land management’ is differently employed here than in environmental sciences, where the term generally refers to ‘land handling’, in which ‘land’ refers essentially to the unsealed physical substrate of land use (soil, topography, water,...). In the environmental interpretation, land management includes mainly ‘rural practices’ such as agriculture, application of soil and water conservation techniques, practices of biodiversity conservation, forestry, etc. (I thank Prof. Hubert Gulinck for the useful comments for the illustration of the definition of land management in environmental sciences). In contrast, in this dissertation ‘land management’ refers to a range of governance practices having land use allocation as a result.

<sup>2</sup>For more details on land consumption processes as relationship between land transformations and (urban) sustainability, see Rees and Wackernagel (1996) and Wackernagel and Yount (1998) for the ‘ecological footprint’ debate; Newman and Kenworthy (1999) and Yanarella and Levine (1992) for sustainability and cities; and Owens and Cowell (2002) for the relationship between urban sustainability, land and planning.

<sup>3</sup>Land take is defined as ‘the increase of artificial surfaces (housing areas; green urban areas; industrial, commercial and transport units; road and rail networks; etc.) over time’ (Prokop et al., 2011, p.15).

tric systems, characterized by small and medium size towns. Hence, even recognizing the expansion trends of the urban built forms occurring in the European cities after the Second World War, suburbanization processes occurring in Europe are particularly fascinating, as dispersed residential areas are influenced by specific historical features represented in the European urban systems.

Among the different types of land transformation processes, this dissertation focusses on the processes of land cover change where land is developed into dispersed residential areas, land being mainly obtained from open and agricultural soil<sup>4</sup>. I maintain that it is necessary to qualify ‘residential areas’ as *suburban* housing areas, distinguishing within residential urban development between a dispersed (or sprawled) residential provision and a more compact one. Under this perspective, urban sprawl poses a phenomenological ‘threat’ to the traditional (and ideal?) model of the European compact city, particularly in times when issues on urban sustainability and agricultural land preservation at the European level urge towards land containment<sup>5</sup>.

In this dissertation, urban sprawl is assumed to be a substantial land cover transformation from open and agricultural land into *dispersed* residential areas, with land being consumed, and not efficiently allocated (i.e. land management), according to a low-density pattern and along the urban fringe (i.e. suburban housing or urban sprawl).

Urban sprawl, a term which originated in the USA, comes with an abundance of definitions. The first important step in the analysis presented in this dissertation is to discuss some of the different definitions of urban sprawl in Europe. The aim is both to propose a tentative, theoretical definition of the phenomenon (see sec. 2.5) and also an operationalization of such a definition to quantify patterns of urban sprawl in the European context, and more extensively in the two considered case studies, Barcelona and Milan (see Chapters 5 and 6, and Appendices).

The second step, which consists of the main aim of this research, is to explain the surveyed patterns of urban sprawl by considering them as governance issues, and a the result of land management governance dynamics. In the literature, there is a large variety of factors that are considered relevant driving forces of land use change and, specifically, towards urban sprawl, such as globalization or global tourism (‘macro’ economic factors), transport (mainly roads) infrastructure, land prices, land rent creation and valorization, and land use transformation pressures (‘micro’ economic factors), lack of or weak land use planning (planning factors), municipal fragmentation, lack of coordination and competition among municipalities (political factors) (cf. Chapter 3). Planning and political factors are often considered individually, without further digging into the links between planning and politics. One of the

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<sup>4</sup>As is discussed in Chapter 5 and also in the Appendix, in this dissertation land use flow analysis is not considered, but land use growth rates, measured as relative variations, are analyzed and compared instead. However, I assume (see sec. 2.4.1) that land cover transformation processes into urbanized soil, predominantly allocated to dispersed residential areas, mainly stem from open and agricultural land (e.g. arable land, permanent crops, pastures and mixed croplands, EEA European Environmental Agency, 2013).

<sup>5</sup>The transversal debate on urban sustainability, peri-urban agricultural areas and their potential, although controversial, function as food production sites for the nearby cities is increasingly becoming a prominent issue also in the literature concerning urban sprawl and land consumption. However, by acknowledging that agriculture ‘has been the greatest force of land transformation on this planet’, causing deforestation (Ramankutty et al., 2006, p.12), or the fact that agricultural production increasingly comes from intensification and not expansion (ib.), could also pose a threat for sustainability, as food production would outpace land production capacity. Indeed, farmers working in metropolitan boundaries or peri-urban lands, subjected to urban pressures for land transformation for residential and industrial development, can intensify agricultural land use adjusting crop types to the more rentable urban food demands (Geist et al., 2006). Such considerations give just a clue of the complexities of the topic of urban and peri-urban agriculture, which is tangential to the focus adopted in this dissertation, and which is left for possible future research.



main contributions of this dissertation is to analyze urban sprawl under a coherent framework accounting for territorial governance, in order to explain how land allocation is decided and regulated for suburban residential uses. Multi-scalar, multi-actor governance will be used as a frame to bring together the different planning, policy and public negotiation issues affecting land use and therefore sprawl patterns.

In this dissertation, urban sprawl is examined as mainly a result of governance processes: the object of analysis consists of the factors, planning practices and decisional processes at work, and enacted by a variety of actors, which cause urban sprawl. As a type of built form (*forma urbis*), dispersed residential areas, which are precisely defined and measured (cf. Chapter 5 and Appendices), are considered as a significant outcome of territorial governance processes, where political and economic agents are involved at different administrative levels and territorial scales to negotiate on land allocation for suburban residential uses.

As a type of land use, urban sprawl can therefore be explained by the decisions on land allocation made at different territorial governance scales (i.e. land management). Public institutions at different scales – supranational, national, regional, metropolitan, provincial or municipal – are considered to be crucial actors in land management, as they are entitled to provide the necessary regulations and plans for land transformation and act as they implementers and controllers. Moreover, the theoretical advantage of adopting a territorial, multi-scalar, institutionally diversified governance framework (Gualini, 2006a; Jessop, 2005a, 2006; Jessop et al., 2008) to explain a territorial phenomenon resides in the possibility of including a variety of actors in the analysis, i.e. private and public agents, whose institutional and inter-scalar *interaction* is assumed to be the main driving factor for the allocation of land uses within a certain territory (see sec. 4.8). The reference to the housing model scheme presented by De Decker (2011a) is key, as it is re-elaborated to propose a theoretical model to account for the territorial, multi-scalar and multi-actor dynamics in the material processes of construction of (suburban) houses. In particular, urban sprawl, as a type of land use transformation, is assumed to originate from certain actors' decisions (the 'gatekeepers', cf. De Decker, 2011a, p.32) on land management and allocation, who are analyzed within a territorial, multi-scalar governance perspective. Clear reference to Pahl (1975f)'s 'social gatekeepers', that is those 'who help to distribute and control urban resources' (Pahl, 1975f, p. 201), is made and discussed in section 3.2.

The bargaining context model proposed by Kantor and Savitch (2002, 2005) will be employed as an analytical tool to conceptualize cities as political actors, and to account for urban political choices over land development (see Chapter 4). Their theoretical framework allows the analysis of the 'moves' city governments make by considering the economic, political, social and cultural context where cities make their choices for development. The bargaining model focusses on the resources that a city can offer to private actors (e.g. private companies, real estate agencies, developers) to maximize its development opportunities, which can either be oriented to plain economic growth ('market-centered strategies') or resource redistribution ('socially-centered strategies'), or any other strategy mix. To explain variations among Western cities with regard to market or socially-centered development strategies, the bargaining context model emphasizes the 'political culture' that supports urban development choices, and which is also assumed to be key in explaining the occurrence of urban sprawl.

In this dissertation, on the one hand, the territorial, multi-scalar governance perspective allows us to account for how institutions, organized into hierarchical roles but whose decisional capacity variably adjusts to different governance scales, take part in specific territorial development strategies, negotiating and cooperating with private actors. On the other hand, the bargaining context model allows us to critically dig into the discretionary management

of land transformation, specifically aimed at sprawled residential areas provision, and performed by different actors at the urban level, assuming that land is the crucial resource that European cities bargain with to pursue urban growth.

In other words, the combination of the theoretical framework of the territorial governance perspective and the bargaining context model allows us to account for, respectively, the *territorial and multi-scalar* context in which actors are embedded, and the political choices that actors perform over *urban* development. The combination of both frameworks has the aim of understanding and accounting for the decisional moves undertaken by different actors with regard to land as a resource, and the mediation and interaction between governmental and non-governmental actors at different territorial scales for the allocation of land and, in particular, for the provision of suburban housing areas. Bargaining occurs both when public and private actors define the territorial governance scale for land management and suburban housing allocation (in-between scale bargaining governance dynamics), and also when competences over land management are distributed over the different state levels (within scale bargaining governance dynamics), influencing political choices over urban development. Ensuing from this theoretical framework, ‘cities’ are considered as ‘municipal governments’. This will allow for the analysis of their urban political choices over land management within a set of negotiated territorial governance scales.

### 1.1.1 Case studies

Barcelona (Spain) and Milan (Italy) have been identified as emblematic case studies in a two step selection process. In the first place, the Corine Land Cover dataset for years 2000 and 2006 has been employed to downsize the 1245 units of analysis, which correspond to administrative provinces (i.e. NUTS3), into a pool of eligible cities, from which the two case studies have been selected (for further details, cf. Chapter 5 and Appendix sec. B). The final pool of metropolitan areas with a clearcut dispersal features consisted of 54 provinces with more than 800.000 inhabitants (a proxy for urban agglomerations) and with a variation of dispersed residential areas, i.e. urban sprawl as it has been operationalized in this dissertation (see sec. 5.3.1), above the European median (for further details, see Chapter 5 and Appendix sec. B). Of these, 32 observations (almost 60%) were located in Southern Europe. I was particularly intrigued by this geographical ‘clustering’ of dispersed residential areas in Southern Europe, especially when recalling that Southern European countries are traditionally characterized by urban compactness (Arellano Ramos and Roca Cladera, 2012; Hall and Hay, 1980; Vicari Haddock, 2004).

In the second place, the actual selection of Barcelona and Milan among these 32 Southern European cases has been based on more substantive reasons. They are the biggest non-capital cities in their respective countries, and they have both experienced similar urban development in the past 150 years. After the demolition of their medieval walls around the second half of nineteenth century, they knitted together a mobility network with the surrounding small and medium size centers that contributed to structure their economic developments during the subsequent decades. In addition, both cities perform a crucial role outside their administrative boundaries, since their economic, political, social and cultural influence extends to and beyond the provincial and regional levels. Currently, they are both postindustrial cities, which transitioned from being important industrial poles at the regional, national and international level, to becoming significant players in the global service economy. Furthermore, in both Barcelona and Milan, a metropolitan administrative body, respectively the *Àmbit Metropolità de Barcelona* and the *Piano Intercomunale Milanese*, was established, whose role has been evolving during the last 60 years, and that has tried to guide and harmonize

urban development at a supramunicipal scale. Last but not least, they have been selected because they present different patterns of urban sprawl: although they show a similar variation of dispersed residential areas between 2000 and 2006 (+1,8%)<sup>6</sup>, the impact in the general development patterns characterizing urban development in the two cities is significantly different: sprawled residential areas in Barcelona appear to be relatively more contained than in Milan.

Therefore, it becomes particularly relevant from a territorial, multi-scalar governance perspective to understand how land management has been differently performed and bargained by different public and private actors at different spatial scales for suburban development. Among the diverse factors that can explain the relative urban compactness of Barcelona compared to Milan, the interplay between public and private actors, within the multi-scalar institutional structures in which they operate, is assumed to be responsible for this diversity in sprawl outcomes.

### 1.1.2 Research questions and hypotheses

The research questions focus on how urban sprawl is a territorial outcome produced through the interplay between different public and private actors at different territorial scales. More specifically, the more contained character of Barcelona's suburban residential expansion is assumed to be explained by the different roles that the municipal, provincial, regional administrative layers, and in particular the metropolitan tier, play in the negotiations with private actors (e.g. builders, landowners, private companies) for land development. Land being a bargaining asset for cities, questions on how land is managed for suburban residential provision among the different actors are crucial to account for different patterns of urban sprawl occurrence.

The hypotheses are derived from the theoretical frame adopted on city bargaining power and territorial, multi-scalar governance, and can be listed as follows:

1. *Functional decentralization, (H1)*: Because of its urban hierarchical role, a metropolitan center 'cedes' housing functions to the surrounding municipalities located within its metropolitan boundaries. Mobility infrastructures support urban sprawl processes and specifically the spatial dispersion of residential areas (i.e. urban sprawl);
2. *Governance scales and bargaining 1, (H2)*: Fragmented, small size municipalities, being entitled to local urban planning, compete among each other for investment and pulverize planning outcomes into a fine dust of developable lots, which overall produce a scattered and incoherent territory;
3. *Governance scales and bargaining 2, (H3)*: The dispersed character of housing development is related to local governments' development choices, since the land transformed into sprawled residential areas allows small and medium size urban centers within the metropolitan radius to maximize their bargaining power to attract investment, compared to the metropolitan center;
4. *Governance scales and bargaining 3, (H4)*: The metropolitan body, as interstitial administrative layer between municipalities and regional governments (as provincial governments are 'mere' administrative 'buffers'), plays a considerable role in land allocation for housing provision;

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<sup>6</sup>This figure refers to the Corine Land Cover dataset (EEA European Environmental Agency, 1994a,b) relative variation of the 'discontinuous residential areas' class registered between 2000 and 2006. For further details, see Chapter 5 and Appendices.

The first hypothesis (H1) is related to the post-industrial character of European metropolitan centers, meaning that, as of the 30 years period 1950s–1970s, urban functions are no longer concentrated in a monocentric city, but are delocalized to the surrounding territory. Without embarking on the vast literature covering mainstream urban economic models (Camagni, 1992), this hypothesis serves as premise to account for the ‘outsourcing’ of housing functions into the surrounding areas of the metropolitan center (Magnier and Russo, 2002, ch.1).

Functional decentralization is linked with the extensive evidence on the crucial role that transport infrastructures hold for urban and territorial development. In particular, private car mobility is considered to be the necessary enabling factor to cause the ‘spreading out’ of the city. In contrast to public transport, which requires a certain degree of demographic concentration to be implemented, and which presupposes a rather rigid development structure, road networks, characterized by a more adaptable territorial penetration, and by the unbeatable travel flexibility that private motorization offers, heavily determine the morphological scattering of urban development (see sec. 3.1.2).

The second hypothesis (H2) links multi-scalar governance with urban planning. Fragmented, independent municipalities autonomously decide upon land allotments regardless of surrounding local governments, with sprawled residential areas being one of the incoherent results. Planning that is exclusively focussed on the local disintegrates urban development and provokes territorial incoherence (Settis, 2010). In addition, this second hypothesis qualifies the first hypothesis: urban sprawl occurs not only because housing functions of the metropolitan city are ‘handed over’ to the surrounding municipalities, but also because the discontinuous residential areas provided by small and medium size urban centers centrifugally expand from them, and weld together or towards the central urban entity (Gibelli, 2006). The landscape is thus recomposed through these two different but complementary dynamics, where both (i) a suburban expansion from the center, and (ii) an ‘infilling’ of (rural) spaces are present<sup>7</sup>.

The third hypothesis (H3) stresses the predominant role that local governments play in terms of the allotment of land at their disposal. In contrast to the USA or other contexts, in Europe municipalities generally own a consistent share of municipal land within their administrative boundaries. Local governments tend to bargain with the use of the municipal land at their disposal to attract business and to garner resources. In addition, publicly or privately owned land is negotiated for development, and how and what to build is bargained between local public institutions and a variety of private actors. Given the suburbanization processes at work, local governments will try to orient their housing provision towards a competitive offer that can rival that of the metropolitan center and of other municipalities. According to the type of bargaining game that the municipalities are able to play with private actors, local governments will favor a low, medium or a high standard housing offer to ‘filter out’ new residents. Urban sprawl will occur because of the competitive bargaining power that each municipality pursues, in the attempt to raise the tax base to redistribute resources in terms of public services. As a result, land containment is not attained, and open and agricultural land is not protected<sup>8</sup>, as they do not offer an equally powerful bargaining power to municipalities to garner resources. In addition, this hypothesis suggests that urban sprawl is not connected with population increase, but is a pro-growth strategy to attract residents.

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<sup>7</sup>As will be later discussed (cf. Chapter 2), suburbanism or urban sprawl can be composed of a diversity of uses, hosting houses, industries, transport and commercial areas. Not only housing functions sprawl, but also industrial and commercial areas, supported by mobility infrastructures. Hence, the metropolitan center ‘delocalizes’ to the surrounding municipalities the entire range of urban functions, and the ‘welding’ of scattered areas implies a mixture of uses. However, as has been already clarified, and how will be further reiterated in the following Chapters, this dissertation primarily focusses on sprawled *residential* areas.

<sup>8</sup>This statement links the debate on land consumption for suburban residential areas to the lack of protection of natural areas and agricultural soil as collective goods, i.e. ‘the commons’, cf. Ostrom (1990).

Therefore, housing demands are created by a sprawled housing provision, not the other way round.

The fourth hypothesis (H4) is linked with multi-scalar governance, and refers to the lack of supramunicipal coordination to integrate territorial development. Far from considering supramunicipal cooperation as the panacea for suburbanization, I argue that the lack of political coordination and integration increases the probability of urban sprawl. In particular, the presence of a metropolitan body implies the capacity of municipalities not only to define a supramunicipal scale, but also to jointly act for the benefit of the associated municipalities. The presence of a metropolitan body suggests the existence of a shared and integrated vision for territorial development, ideally standing out against provincial and regional governments. The metropolitan layer is considered to be different from provincial and regional, and hypothetically more appropriated than regions and provinces to handle the transformations occurring in ‘urban agglomeration’ or ‘urban system’, therefore implying the need to overcome boundaries definitions based on administrative conventions. An inheritance from the Napoleonic empire, the Southern European countries’ provinces keep struggling to find political recognition, and act as ‘administrative branches’ of the central government (Gualini, 2003). Regions are considered to have a general perspective on the entire regional territory, nevertheless they tend to control and limit the polarization of activities and functions within and around the metropolitan pole, which is usually the regional capital as well. Barcelona is both the metropolitan center and the capital of the Catalan region (*Comunidad Autónoma*), and similarly, Milan is the metropolitan center and regional capital of Lombardy. Yet, regional governments are hypothetically antagonists of metropolitan bodies, as the former try to re-balance territorial disparities and limit the functional primacy of the metropolitan center.

## 1.2 Research design and thesis outline

In order to investigate the above mentioned hypotheses, and to explain the different patterns of occurrence of urban sprawl in the two selected metropolitan areas, Barcelona and Milan, the research design has been organized as follows (see also fig. 1.1).

In Chapter 2, land uses and land use changes will be presented as a way to narrow down the much broader debate on space-society interactions, by considering urban sprawl as a type of land use. Urban sprawl will be critically analyzed by reporting on – although not exhaustively – its different definitions discussed in the literature. A provisional, theoretical definition of urban sprawl is also presented (sec. 2.5).

Subsequently, in Chapter 3 the wide variety of driving forces leading towards urban sprawl identified in the international literature will be presented in a critical way, and the rationale underpinning the choice to focus on political and planning will be discussed. Specifically, section 3.2 deals with the particular role of governance processes in the occurrence of urban sprawl, and the need to focus on the ‘gatekeepers’ responsible, at the meso level, for the material construction of housing. Explicit reference to the housing model presented by (De Decker, 2011a) will be made (fig. 3.2). Overall, this chapter provides the background information for the theoretical frame that will be more extensively presented in Chapter 4.

Chapter 4 will deal more thoroughly with the concepts of institutions, governance, territorial and multi-scalar governance, and urban political economy. It will be elucidated how governance is not a monolithic concept, but is best conceptualized as a territorial, multi-scalar and multi-actor theoretical framework, where different actors (institutions, stakeholders, civil

society actors) act in different arenas by leveraging their bargaining powers. Land allocation and land management are then problematized and reinterpreted as governance issues in the light of the bargaining context model and a territorial, multi-scalar governance perspective (see sec. 4.8). Such a combination can serve as an effective theoretical frame for the analysis of urban sprawl as a territorial outcome of multi-scalar, multi-actor political and economic interplays. The main assumption underlying this chapter is the acknowledgement that land use transformations from open and agricultural land into urbanized soil, urban sprawl included, stem from a decision on land allocation put into place by certain actors (the ‘gatekeepers’). At the end of the chapter, in section 4.8, an ‘enhanced housing model’ (fig. 4.4) will be presented. This chapter serves as a logical prelude for Chapter 5, where the methods for empirical research will be dealt with.

With chapters 2, 3 and 4 being predominantly theoretical, Chapter 5, 6 and 7 bring in the empirical analysis of this dissertation. Chapter 5 presents the research questions and hypotheses, and spells out the research design. In particular, the main methodological steps (i) to define urban sprawl for Europe, (ii) to select the case studies and (iii) to perform the qualitative fieldwork are outlined. Urban sprawl in Europe is identified by use of the Corine Land Cover (CLC) database (EEA European Environmental Agency, 1994a,b), which provides a methodologically convenient definition of urban sprawl for the European context as ‘discontinuous residential areas’. Then, an account on how the two case studies – Barcelona and Milan – have been selected, and how the qualitative fieldwork has been carried out is given<sup>9</sup>. Interviews have been conducted in Barcelona and Milan at the urban, provincial, metropolitan and regional levels, with planners and politicians, but also with stakeholders and key informants, combining such qualitative data with document analysis. The logic underpinning this case study approach is to clarify the role of different institutional actors for land management and suburban housing provision, and how room is opened up (or not) for negotiations with private actors for the provision of suburban residential areas.

Chapters 6 and 7 present the main findings of the research. Chapter 6 deals with the quantification of urban sprawl as it has been operationalized in this dissertation (Chapter 5 and Appendices), in particular with regard to the 1980s–2006 historical evolution of land uses and urban sprawl in both the Barcelona and Milan areas. Chapter 7 examines the two case studies under the adopted theoretical framework. As the focus of the empirical research is on the understanding of the bargaining over land management for suburban housing provision between public and private actors at different governance scales, the collected qualitative data are reinterpreted within the enriched theoretical framework comprising the bargaining context model on the one hand, and the territorial multi-scalar governance theory on the other. The explanatory power of the adopted theoretical framework deals *first* with the genesis of the multi-scalar governance system in which Barcelona and Milan are embedded, where actors define the different territorial governance scales (urban, provincial, metropolitan and regional scales) as governance settings for negotiation and action; and *second* with the bargaining processes over land management between the state levels, identifying the historical trajectory of the main institutional and planning ‘steps’ that have re-defined the role of and interaction between state levels over competences on land management and allocation. Occasionally, by drawing on the adopted theoretical framework and the stated hypotheses, quantitative data will support the analysis, reference with being made to demographic trends, employment, and municipal fragmentation.

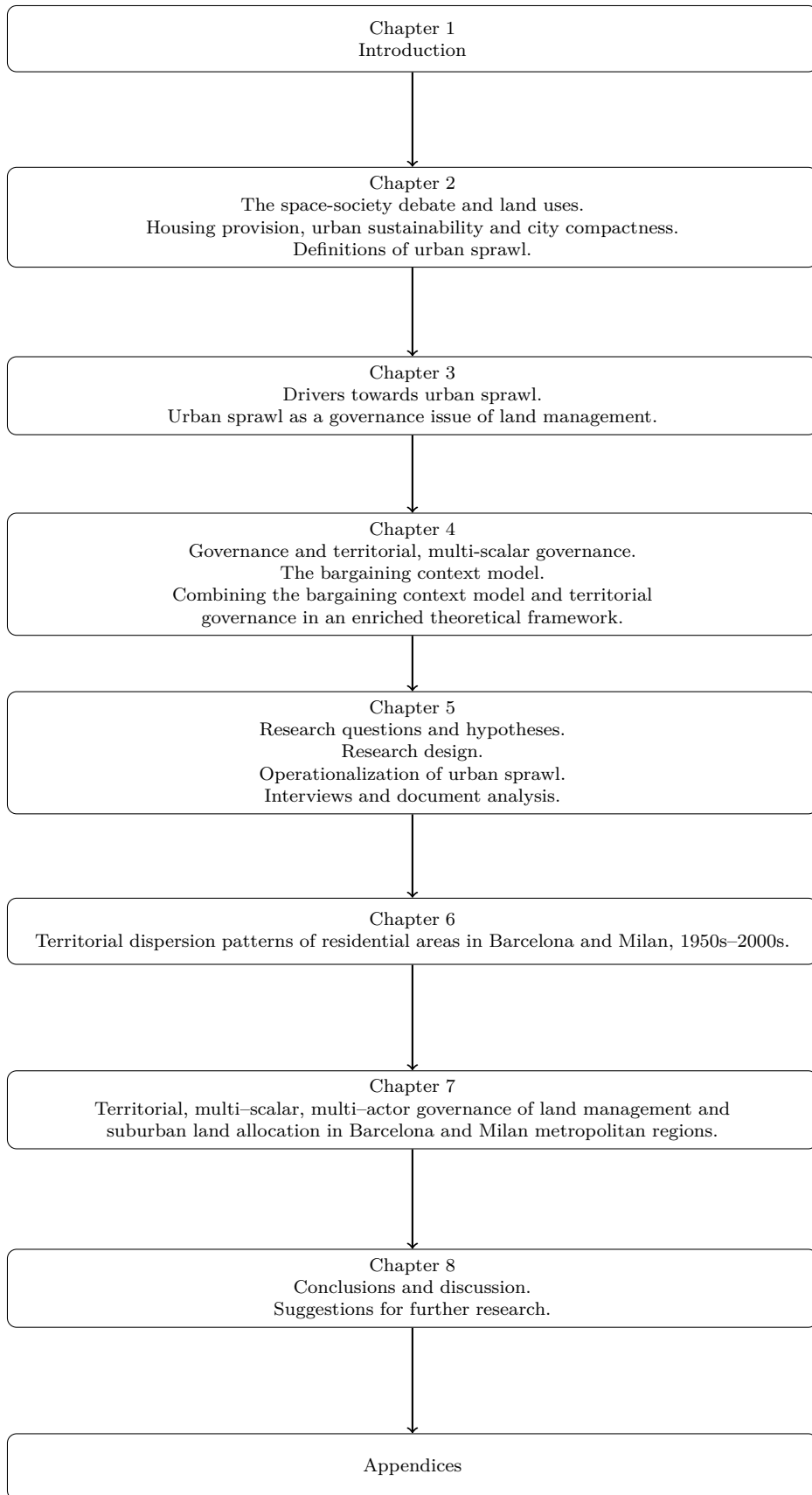
Finally, in Chapter 8, starting from the hypotheses previously presented, the main results will be summed up and discussed. This chapter will also try to ‘take stock’ of the overall

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<sup>9</sup>More details on how the research has been carried out are reported on the Appendix sec. B.

research, and to sketch and propose much needed policy recommendations to control urban sprawl.

**Figure 1.1:** Research outline flowchart. Author's elaboration.







## Chapter 2

### Urban sprawl: a critical review of the literature

*The use of land is a highly political activity.  
(Lambin and Geist 2006:174)*

This chapter will clarify how the analysis of land use and land use change can be a theoretical and methodological expedient to approach and narrow down the much broader debate on space–society interaction. It will be shown how the city, as a specific product of socio–spatial interdependence, can be considered as an assemblage of land use, where land attributes – land functions, values and uses – are socially defined, and are modes by which society interacts with the environment.

A multiplicity of urban sprawl definitions will be presented, underlining the lack of standardized theoretical and methodological definitions of this contextually diverse phenomenon. Urban sprawl can be conceived in terms of urban density or of the diffusion of built-up areas, as a multi–dimensional concept characterized by low levels of concentration, continuity or proximity, or as an overtaking of the rural–urban dichotomy. In section 2.5, a provisional, theoretical definition will be put forward.

The urban sprawl–compact city dualistic opposition will be introduced and discussed, as it is particularly meaningful in the European context, given the cultural predominance of the urban ideal–type of the compact, dense and diverse city. In addition, the tension between urban sprawl and the compact city will be connected with the sustainability debate, as land is a limited and non–renewable resource that is depleted during land use change (i.e. land consumption).

#### 2.1 Space, society and land use

The relationship between space and society entangles a vast ontological and epistemological debate on how it is possible to define and explain the interdependence between humans and the environment. Philosophy, political economy, geography, anthropology and the environmental sciences are among those disciplines that have consistently contributed to this inspiring debate.

In the history of sociology, classical authors have concentrated their attention on the spatial emplacement of social phenomena. In the French tradition, social morphology, introduced by Durkheim (1899) (cited in Bergamaschi, 2008), referred to the understanding and explanation of the occurrence and the development of social phenomena in space. Halbwachs (1938; cited in Bergamaschi, 2008) expanded this first insight by stating that, in the relationships between social phenomena and their spatial emplacement, a visible and an invisible side of the social structure could be identified: the visible side referred to the built environment, to

the distribution and density of the population in space, to their movements and migrations; the invisible side referred to the social and collective perceptions and representations of this material component of the social structure by individuals and groups. Therefore, the object of analysis of social morphology was defined as the process of social construction of the built environment by the collectivity: the built forms represented and intertwined with the collective perceptions and representations of the collectivity itself. In a few words, the built form is how society ‘arranges’ itself in space.

Social morphology was set as a branch of sociology dedicated to the analysis of social space, intended as the interface between physical forms and social life (Bergamaschi, 2008). No determinism or easy conclusion on the coincidence between the built form and the collectivity that produced it was assumed. Sociology needed to consider space as the location of social phenomena, identifying it as the physical setting where social relationships take place and are conditioned.

More recently, there has been a re-elaboration of the dichotomy between the visibility and the invisibility of social phenomena (Antrop, 2000; Davico et al., 2009; Martinotti, 2008; Mignella Calvosa, 2012; Settis, 2010; Walks, 2013). For example, Davico et al. (2009) advocate the relevance of analyzing the binary relationship between the material and immaterial aspects of social structures. On the one hand, the ‘material interface’ consists of the built environment made of artifacts, tools, elements and symbols forming the materiality of social life (e.g. the transformation of the natural environment through the cutting of forests, the construction of cities through multi-storey buildings, mobility infrastructures, sewage systems and so on). On the other hand, the ‘immaterial interface’ consists of the socio-cultural component of the social structure, which produced and impressed specific cultural characteristics onto the urban built form (the material interface)<sup>1</sup>.

The urban built form does not deterministically reflect the society that produced it and, at the same time, the built environment influences society in a continuous and never-ending process of interrelation:

The city is the place where a specific society expresses itself and gets a spatial form, and the way in which it presents itself in morphological and physical terms constitutes the *outcome* of how society has structured itself in that specific place, and which kinds of interactions social actors have been involved in and are currently involved in. Thus, urban sociology tries to understand how urban form and society are ascribable to each other. (Mignella Calvosa, 2012, p.65) [my translation; my emphasis]

As a discipline, urban sociology can not solely be considered as a ‘branch’ of general sociology as, on the contrary, the emergence of sociology is rooted in the analysis of modern urban societies (cf. Magnier and Russo, 2002, ch.1)<sup>2</sup>.

At the beginning of the twentieth century, the Chicago School (Park and Burgess, 1984)<sup>3</sup> elaborated a social theory on the spatial occupation of communities in the urban environment. This perspective, known as ‘ecological theory’, aims at identifying the socio-spatial organization of different ethnic groups in the city, whose dynamics of spatial occupation, displacement and boundary definition are assimilated to animals’ relationship with their environment (hence, the term ‘ecological theory’). The concentric model of city organization presented by Burgess identified a central business district, located in the center of the city,

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<sup>1</sup>The built form can be considered the material ‘hardware’ of society, which is complemented by the socio-cultural ‘software’, without which the hardware could not function (Davico et al., 2009).

<sup>2</sup>See also Mingione (1988), in his Introduction to the Italian edition of Saunders’ *Social theory and the urban question* (1986).

<sup>3</sup>For reference, see Magnier and Russo (2002, ch.2) and Parker (2004).

surrounded by ‘transition areas’; a zone for industries, where workers resided as well, and where ghettos could be found; then residential areas, characterized by ‘high-class apartment buildings’ and ‘single family dwellings’; finally, the commuters’ zones, that is ‘suburban areas or satellite cities – within a thirty to sixty-minute ride of the central business district’ (Martindale, 1958, p. 23). The dynamics of location, displacement and substitution involving ‘human groups’ within the city, considered as organized space, were analyzed in ecological terms, in the attempt to find out laws and processes explaining the city as the ‘natural’ spatial organization of the human kind; ‘[s]ociety was thought to be made up of individuals territorially distributed by competition and selection’ (Martindale, 1958, p. 24) Over time, this model revealed itself to be too static and deterministic. However, it emphasizes the intrinsic urban character of sociology and sociological theory.

Years before the foundation of the Chicago School, Simmel (1995, orig. pub. 1903), in its ‘Metropolis and mental life’, identified the human type characteristic of the metropolis as new urban form, the *blasé* man. Overstimulated by continuous information and encounters with strangers, whose interactions are mediated by money as one of the symbols of modern life, his time articulated by watches and punctuality, the metropolitan man ends up to adopt an indifferent and impersonal (or *blasé*) attitude towards life, formality and reserve characterizing urban encounters. The city, and the metropolis as its new form, was modern because of the psycho-social characteristics of its inhabitants, who had a *blasé* attitude, and in this characteristic lied the difference between past forms of cities, and rural areas as well.

Similarly but differently than Simmel, Weber (1958, orig. pub. 1921) focussed on the meaning of social actions performed by individuals, inscribed in sets of social relations and institutions. Social practices are carried out by individuals as they convey a certain meaning for the parties involved in social relations, which are ‘codified’ in ‘stable patterns of behaviors’ (Martindale, 1958, p. 54), that is social institutions. As individuals belong in different degrees to a diversity of social institutions, they also perform a wide range of social actions and engage in varying social relations.

In his analysis of culturally and geographically different urban settlements, Weber attributes the historical definition of ‘city’ only to Western (Central European and Italian) centers. Urban settlements, generally defined as ‘cities’, in antiquity, medieval or present times, and in India, China, or Mediterranean area, share different degrees of a variety of characteristics, namely size, heterogeneity, the presence of a market (for agricultural or maritime goods) or of military functions. However, such features are not sufficient to properly define the city; Weber argues that a city is defined as such because of the presence of a urban community (‘a fraternal association’, or the ‘city association’) of free men, that is individuals whose social relations were detached from, although connected with, religious hierarchy, aristocracy or military corps. Cities were founded by ‘confederations of individual burghers (house owners)’ (p. 98) who ‘joined the citizenry as single persons’ (p. 102), independently from any clan or kinship. Cities were established through contractual agreements as associations of burghers (‘oath-bound fraternity, or *conjuratio*, p. 108), who were entitled (as well as their successors) with civic rights, thus creating the city as a stable social institutions characterized by political, jurisdictional and military autonomy.

For Weber, the city was a political organization of citizens, that is free men who associated under the liability of a ‘contract’, and identifying a new, common urban law – in replacement of the feudal principle of the personality of the law – , which later supported the institutionalization of territorial corporations, or ‘cities’. Such associations were created to overthrow the lord of the city (as in Italy), or for protective or commercial purposes (as in Northern Germany and England), leading to the establishment of the guild corporations (Weber, 1958,

p. 114–115).

It is hence helpful to analytically conceive the city as a theoretical triad: (i) as built form (*urbs*), (ii) as expression of a society (*civitas*) and also (iii) as government (*polis*; cf. Salzano, 2009; Sebastiani, 2009; Vicari Haddock, 2013). *Urbs*, *civitas* and *polis* are the three analytical tools, understood in broad terms, that help to approach the city as an object of inquiry. The interrelationships between *urbs*, *civitas* and *polis* construct, in a non-deterministic way, the spatial entity that we call ‘city’. This perspective is particularly useful because it allows differentiation of the material, cultural and *political* forces at work in shaping the spatial organization of societies. This distinction is functional to this dissertation, as it emphasizes the role that politics plays in urban management processes and in the transformations of the built environment (see sec. 3.1.7 and sec. 3.2).

If *urbs* is the built environment, and if *civitas* corresponds to the specific context where the built environment is emplaced (culture)<sup>4</sup>, *polis* represents the city government, allowing us to focus on the actual processes through which a society, in a specific context, gives rise to the urban environment where it is emplaced.

From a Marxist point of view, the relationship between space and society has been framed as a dialectal tension, since space is both the context for and the product of social relations. Soja (1980) developed the implications of the political economic perspective on the production of space by proposing a possible distinction between contextual space and created space. The former refers to the abstract, contextual space as a ‘given’, while the latter refers to the production and the consumption of space by society. In this way, space and society are linked but theoretically distinguishable. Thus, the expression ‘social space’ indicates ‘the socially produced organization of space’ (Soja, 1980, p.210), meaning that ‘the organization of space is a social product – that is it arises from purposeful social practice’ (ib.). In addition, ‘[t]he political organization of space in part reflects the social and political order within society – that social, political and spatial organization are interrelated’ (Soja, 1975, p.30)

Further political economy and political geography studies focussed on space as both a product of material conditions and a mechanism of sociopolitical control (Lawrence and Low, 1990, p.489), critically elaborating on how urban space is socially organized for production and consumption (Soja, 1980), and identifying the city as an emblematic *locus* of these processes. From this perspective, urban planning is considered to be functional to social reproduction, and necessary to the dominant classes’ political, economic, and social production and control of built forms and society in space (Lawrence and Low, 1990).

In particular, in the 1970s Marxist debate, scholars conceived space, and especially urban space, as the result of power and class struggles, where capitalism reveals all its contradictions. As such, spatial and urban forms are not ‘inevitable’, but are conditioned ‘by the particular mode of production dominating the society under study’ (Gordon, 1978, p.27). Under this perspective, the city is considered as the place where the class struggle is emblematically apparent (Castells, 1977; Lefebvre, 1991; Tabb and Sawers, 1978), where capitalist forces are responsible for urban change, urban decline and crisis, as the city – and working classes – are subjected to profit-seeking fluctuations.

Neo-weberian approaches similarly underline how ‘a city is clearly not simply a physical artifact’ (Pahl, 1968a, p. 4), however there is a link between the social and the spatial

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<sup>4</sup> *Civitas* does not only refer to the cultural sphere of the city (cf., for instance, Indovina, 2012, p. 96), but also to a normative dimension. *Civitas* can be understood as rights of citizenship, derived by the normative belonging – generally determined by legal residence permits – of people to the city, i.e. citizens with rights and benefits.

structure, giving rise to ‘socio–ecological systems’:

[t]he spatial structure partly reflects and partly determines the social structure. The sheer permanence of the built environment means that the distribution of economic rewards which creates a social structure at one period of time becomes fossilized in, say, the housing situation, at a later period of time when the values and structure of distribution of economic rewards in the society have changed. (Pahl, 1975c, p. 147)

In this particular extract, Pahl was referring to the example of socialist countries that inherited urban environments created, however not deterministically, by another type of social structure where economic resources were differently distributed. Hence cultural, ideological and historical patterns are distinctive as they saturate, and are in turn influenced by, the environment, in specific the urban environment. Furthermore, the link between the social and the spatial structure can emerge when actors are examined, for instance when those social groups (e.g. developers, planners, landowners, households) that participate in land transformations are focussed on (see sec. 2.1.1 and 3.2).

In geography, the challenging task to resolutely define what space is has been acknowledged as an impossible effort. Harvey (2006) proposes to conceptualization of space in three different ways, namely as absolute (Euclidean space), relative (which depends on the observer’s point of view and on the earth surface frictions) or relational (meaning that space contains a number of relationships that differently define it), according to the different human practices that make use of space. For Harvey, ‘processes do not occur *in* space but define their own spatial frame’ (p.273 Harvey, 2006, original emphasis), emphasizing the contextual character of space, where space and time cannot be disentangled. Before, Lefebvre (1991), by moving from a dialectical tension between the morphological (i.e. built forms) and social (i.e. social processes) aspects of space production (Walks, 2013, see), put forward an equally tripartite conceptualization of space by referring to material space (the sensitive experience of space we have, ‘experienced space’), representation of space (how we conceive and represent space, ‘conceptualized space’) and spaces of representation (how we symbolically live space, ‘lived space’). For both Harvey and Lefebvre, the three types of space should not be hierarchically considered; rather, they should be conceived in a dialectical relation, where definition of space – following Harvey’s triad – can be absolute, and/or relative, and/or relational, according to the human practices that take place within it.

### 2.1.1 The focus on land use and land use change

The analysis of the relationship between space and society has hence played a pivotal role in a wide range of disciplines. However, without digging further into the immense debate on space–society interactions, and besides the recognition that all social phenomena are emplaced (Giddens, 1990; Gieryn, 2000, 2002), for the purposes of this research socio–spatial relationships will be limited to the analysis of land use and especially land use change – Gale and Moore (1975, see Introduction to Part One), and see Gans (2002) –. The motivation underpinning this choice relies on the recognition of the social relevance that land or soil performs for individuals and groups, since land is allocated, used, exploited and transformed to exert and satisfy specific social functions.

Of course, this is just one possible entry point in the much broader debate on space and society interdependence, which has been briefly and selectively outlined in the previous section 2.1, and the role it has for urban sociology (Gans, 2002, see). Nevertheless, narrowing down the analysis of the space–society interactions to the study of land use allocation and land use change offers several theoretical and methodological advantages.

Firstly, the broader topic of socio–spatial relationships is empirically defined. Land uses are classifiable, measurable and refer to specific spatial delimitations, as actors engage in land use allocation processes to determine, for example, the industrial or residential use of a certain land plot. Zoning, satellite–photo interpretation, geographical information systems, and qualitative assessments are all methods that can be employed to identify, classify and measure<sup>5</sup> land uses and land use changes. As the geographer Scaramellini points out:

The different forms of land use appear to be a crucial element in interpreting the constitutive characters of a collectivity, and of the relationships it establishes with the section of terrestrial surface it occupies and subsists on; such land uses almost result in the spatial *faciès* of that society, as an expression of its way to concretely relate to its own territorial life habitat. (Scaramellini, 2012, p.37) [my translation]

Secondly, the focus on land uses opens up a common field of analysis for sociology, urban planning, geography, city management and environmental sciences that deal with soil and land transformations. For instance, Kesteloot (2005) suggests that socio–spatial configurations can be understood as how a social group reproduces itself through the physical environment, underlining the instrumental and functional role that environment has for society. If we restrict the meaning of the term ‘environment’ to land uses, ‘environment’ so defined can become a common standard of reference among different disciplines.

Thirdly, and more importantly, land uses are not static, but they result from land use allocation *dynamics* (e.g. from agricultural land to urban soil). Lambin and Geist (2006, ch.1) argue for the emergence of a multi–disciplinary ‘land–change science’ which focuses on the processes of land cover transformation (i.e. the change of the attributes of the planet’s land surface), their causes and impacts. A land change science should connect the ‘pixels’ (e.g. soil attributes, such as land cover types or hydrological characters of a certain land area) with ‘people’ (e.g. individuals, households, institutions; thus, more generally, ‘actors’), and study the interconnections and feedback in land use changes as a type of human–environment interaction.

‘Soil’ or ‘land’, as a general object of inquiry, is thus defined and classified by certain soil attributes, which can be for instance soil chemical composition, steepness, geological characteristics, hydrological characteristics, and also land cover types (e.g. forests, croplands, urbanized areas), *in connection with* soil or land uses, which express the functions that land exerts for society (e.g. food, housing, mobility). In particular, land uses are defined as ‘the purposes for which humans exploit the land cover’ (Lambin and Geist, 2006, p.4).

As a type of socio–spatial transformation, land uses and land use change are produced by social, political, economic and cultural dynamics; land use and land use change analysis becomes a crucial object of study also in sociology, as it can reveal the actors and the processes through which space *becomes* social.

In particular, as one of the results of the complex relationship between space and society, the city can be conceived as a specific product of socio–spatial interdependence, namely as an assemblage of land uses. The urban built form is not considered morphologically, but the city is considered as a patchwork of land use arrangements. In addition, as mentioned in section 2.1, the material city (*urbs*) is the non–deterministic result (outcome) of social, economic and political processes (*civitas* and *polis*). Under this perspective, the attributes of land, and in particular urban land – its functions, values and uses –, are modes by which society interacts with the environment.

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<sup>5</sup>Usually, land uses and land use changes are measured in hectares of transformed land.

According to the perspective of a land-change science (Lambin and Geist, 2006, ch.1), land cover and land use changes can be distinguished into two categories. On the one hand, land cover/use *transformation* (or conversion) implies the change of one land cover type to another class of land cover, completely changing its use. There are many different types of land cover/use transformations, such as dry forests or woodland ecosystems which are transformed into agricultural areas (i.e. deforestation for further agricultural expansion), soil erosion and degradation of cultivated land (which may lead to land abandonment), wetlands alterations, changes in the extent and productivity of pastures, dry land degradation (desertification), or urbanization (transformation of open and agricultural land into built-up areas for industries, mass tourist facilities, transport infrastructures) (Ramankutty et al., 2006, p.29–32). On the other hand, land cover/use *modifications* are subtler and refer to changes in the attributes of the land cover, without necessarily changing the land cover/use definition. Examples of land use modification can be different agricultural uses of land (e.g. from vineyards to rice fields), or the ‘recycling’ of urbanized land (e.g. land remediation, urban infilling, brownfield development)<sup>6</sup>.

Land cover and land use changes, whether transformations or modifications, are generally human-driven, but not necessarily: land cover changes can happen in nature when, because of a variety of factors, the terrestrial surface is modified over a relatively extended period of time. However, for space–society or human–environment interactions, human-driven land use changes are more relevant, firstly, because agency is involved, and secondly, because land cover changes go hand in hand with land use, as soil is transformed and employed to fulfil specific functions. Hence, being mostly human-driven, land cover/use conversions and modifications predominantly occur in order to adapt to and satisfy social functions, such as food production (e.g. cropland expansion and contraction), housing, mobility (e.g. roads and railways), industrial production (e.g. factories, oil extraction, mining), or leisure needs.

From a ‘land use change’ science perspective, land management refers to the ‘specific ways in which humans treat vegetation, soil, and water’ (Lambin and Geist, 2006, p.4)<sup>7</sup> to transform land and to use it for specific purposes, such as the use of fertilizers or the construction of irrigation systems. Land management generally refers to ‘land handling’, in which ‘land’ is used to indicate the unsealed physical substrate of land use (soil, topography, water, etc.). In contrast, this dissertation considers land management in broader terms, indicating the processes through which agents decide how to use land, how to transform it and for which purposes<sup>8</sup>.

Land use transformations and modifications thus indicate the underlying social and economic processes underneath:

Land cover flows [changes] are subsequently linked to the social and economic processes that have generated them in land use accounts that analyze functions such as housing, transport, food production, forestry, tourism and recreation. (Feranec et al., 2007, 244)

Hence, a key motivation to focus on land use is that land uses can be considered as the

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<sup>6</sup>For more details on the difference between land conversion and land modification, see Ramankutty et al. (2006, 33–34).

<sup>7</sup>See also footnote 1 on page 2.

<sup>8</sup>Also Lambin and Geist (2006, p.6) recognize the centrality of land managers in defining land use systems, modifying land covers that will have an impact on social and ecological systems. However, political decisions and the institutional framework, where choices over land change and land uses are defined, are neither sufficiently taken into consideration (as they mostly refers to ‘households’) or specified (as the authors refer to ‘land managers’ without clearly indicating who these land managers are; see also Geist et al. (2006, p.45)). This is exactly what this dissertation tries to explore: actors’ choices of land for the occurrence of urban sprawl; see sec. 3.2 and sec. 4.8



outcomes of agents' decisions within the broader debate on space–society interactions. Land use allocation and land management are processes where land use change is conceived as result of negotiations and struggles among actors.

In particular, the city as a whole can be defined as the artificial<sup>9</sup> outcome resulting from the attribution of specific social functions to land covers, urban space being a combination of different artificial land uses fulfilling social functions:

The space where we live in (city and countryside) is produced by men [sic] because it is – by definition – a social space. It results from economic processes, political decisions, cultural factors, power relationships that variably combine together, modifying the balance between public and private, religious and secular, functional and symbolic. (...) Every society produces its own space. (Settis, 2010, p.51) [my translation]

Under this perspective, the growing of the city (broadly understood as urbanization, cf. Antrop 2000; 2004) corresponds to the transformation of hectares of open and agricultural land into *artificial urban* soil, and is the focus of a specific study area of land use change. Urbanization, broadly intended as development, is a historical, multi-causal process where culture, economy, ideology, hegemony, agency, structure, and institutions combine, and that serve as analytical elements to capture this development trajectory (cf. historical institutional approaches in Moulaert and Jessop 2013).

In particular, in this dissertation, I concentrate on the processes of land cover transformation where land is mainly obtained from open and agricultural soil to be developed into dispersed residential areas, that is a particular type of urbanization process restricted to the phenomenon of urban sprawl (see sec. 2.2). Urban development ('urbanization') does not coincide with urban sprawl, but the latter is a specific *kind* of urban development process.

## 2.2 Land use change and suburban housing

Over the last 300 years, agriculture has been the most powerful factor to cause global land cover changes (Ramankutty et al., 2006, p.12-13). However, nowadays not only have the extent and intensity of land–use changes accelerated, but also regional–scale trends show how arable land is increasingly transformed into urbanized soil (ib.); urbanization, understood as the transformation of open and agricultural land into built–up areas (see last paragraphs in sec. 2.1.1), is currently a major driving force of land use change<sup>10</sup>.

However, in this dissertation I have deemed it necessary to restrict my focus of analysis to a specific type of land use change, namely *dispersed residential* areas. This choice can be doubly justified. Firstly, the analysis of land use transformation processes over time to create urbanized areas ('urbanization'), encompassing the entire range of artificial land uses, bears the risk of being too broad and imprecise, even if it may be methodologically possible to

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<sup>9</sup>Land used for agricultural uses is intentionally excluded here.

<sup>10</sup>From an environmental point of view, urbanization can be defined as *land take*, that is 'the increase of artificial surfaces (housing areas; green urban areas; industrial, commercial and transport units; road and rail networks; etc.) over time' (Prokop et al., 2011, p.15). This definition of urbanization is functional for conceiving territorial transformations in terms of land uses. However, this definition by no means sets the seal on the concept of urbanization; conceiving urbanization as land take is only one of the possible perspectives, as urbanization is obviously a much more complex process (Antrop, 2004; Moulaert and Jessop, 2013, see). For instance, from a sociological perspective, urbanization processes can take into consideration certain social groups and their location (e.g. gated communities), cultural aspects (e.g. in the provision of types of facilities and in the emergence of different urban morphologies), political and power struggles of land use change, and urban functions of urbanized land (e.g. transport areas) meaning that 'the increase of artificial surfaces' is sociologically qualified.

distinguish among the different uses (see Ch. 5 for more details). Although suburbanism is not solely defined in terms of residential land uses, housing land uses characterize urban sprawl by definition: the terms ‘urban sprawl’ or ‘suburbs’ immediately recall a miscellany of detached houses, intertwined with a grid of regularly planned roads, that stretch over the US territory<sup>11</sup>. Secondly, although in this dissertation it is acknowledged that suburbanism is characterized by a mixture of land uses, such as housing, industrial and commercial areas, or transport infrastructures (together with roundabouts, road stations, highways and bypasses), dispersed housing areas were considered to be absolutely relevant in the European context.

As a matter of fact, according to the Corine Land Cover (CLC) dataset, table 2.1<sup>12</sup> (EEA European Environment Agency, 2007; EEA European Environmental Agency, 1994a,b; Feranec et al., 2007)<sup>13</sup>, compared to other land use types, dispersed residential areas amount to over 70% of the total of built up areas in any Corine Land Cover (CLC) surveys (1990, 2000 and 2006)<sup>14</sup>. Table 2.1 shows how, among the different land uses, as defined by the Corine Land Cover (CLC) dataset, that compose artificial areas in Europe, *discontinuous* (i.e. ‘non-compact’ or ‘dispersed’) *residential* areas noticeably characterize the European built environment<sup>15</sup>.

The Corine Land Cover (CLC) statistical database does not allow us to distinguish the morphological patterns of land uses in Europe, as it is a dataset primarily conceived to monitor transformations in land covers<sup>16</sup>. However, as land covers are nevertheless connected with land uses (see sec. 2.1.1), the Corine Land Cover (CLC) dataset offers useful land use specifications for artificial surfaces, as satellite imagery of urbanized land covers have been qualitatively interpreted<sup>17</sup>. From a general examination of the Corine Land Cover (CLC) data reported in tables 2.1 and 2.2, it appears that approximately 70% of the built-up areas can be considered as dispersed (discontinuous) residential uses.

Table 2.2 shows the growth rate of each land use type in 1990, 2000 and 2006 for the considered 1.221 NUTS3 areas. For artificial urban areas, most land change occurred in the 1990–2000 period. Overall, in the 1990–2006 timespan, construction sites (89,7%), roads and railways (89,0%) and sport facilities (63,9%) have strikingly increase, followed by industrial and commercial areas (37,7%), mineral extraction sites (28,6%), urban green areas (18,9%) and discontinuous residential areas (15,8%). The total growth rate of urbanized areas in the considered 1.221 NUTS3 areas reaches 20,5%.

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<sup>11</sup>Recent studies on suburbanism (Keil, 2013a) highlight the morphological diversity of suburbs, and their different characterization in terms of land uses; for instance, retail centers and logistic hubs are also included as urban sprawl, and their appearance and expansion would need further research (see Chapter 8).

<sup>12</sup>Despite this dissertation is written in American English, data are conventionally presented with commas separating decimals, and points separating thousands. The international metric system is also employed, hence territorial data are expressed in hectares, kilometers or squared kilometers, rather than miles or acres.

<sup>13</sup>More information on the Corine Land Cover (CLC) data and the relative surveys can be found in Chapter 5 and in Appendix sec. A.

<sup>14</sup>In tables 2.1 and also 2.2, Corine Land Cover (CLC) surveys at NUTS3 levels (provinces, counties and *arrondissements*) have been compared and merged, resulting in the inclusion of 1.221 NUTS3 areas in the considered tables. In table 2.1, the total hectares (512.859.447) of the Corine Land Cover (CLC) survey in 2000 is taken as a reference for the 1990 and 2006 Corine Land Cover (CLC) datasets as well, all three referring to the same 1.221 NUTS3 areas (for further discussion, see tab. B.1 in Appendix sec. B). Consequently, for the 1990 Corine Land Cover (CLC) dataset, the cumulative percent amounts to 80,5%, less territory being surveyed than the two more recent surveys in 2000 and 2006.

<sup>15</sup>More details on how urban sprawl can be operationalized as ‘discontinuous residential areas’ by the use of the Corine Land Cover (CLC) dataset will be given in Chapter 5. At this point, it is sufficient to stress how discontinuous residential areas permeate the European landscape.

<sup>16</sup>For more information on the dataset, see Appendix sec. A.

<sup>17</sup>Ibidem.

**Table 2.1:** Land uses in Europe for (1.221) NUTS 3 levels in hectares. Source: EEA Corine Land Cover (CLC) surveys 1990, 2000, 2006. Author's elaboration.

Land use type	Hectares in 1990	% to total areas in 1990	Hectares in 2000	% to total areas in 2000	Hectares in 2006	% to total areas in 2006
Continuous residential areas	610 558,0	4,0	618 303,0	3,5	625 519,0	3,4
Discontinuous residential areas	11 375 831,0	74,2	12 975 762,0	72,5	13 173 668,0	71,3
Industrial and commercial areas	1 537 138,0	10,0	1 979 392,0	11,1	2 116 731,0	11,5
Roads and railways	127 182,0	0,8	188 228,0	1,1	240 317,0	1,3
Ports	80 945,0	0,5	86 704,0	0,5	88 665,0	0,5
Airports	236 232,0	1,5	266 408,0	1,5	272 779,0	1,5
Mineral extraction sites	491 820,0	3,2	583 778,0	3,3	632 455,0	3,4
Dumps	89 240,0	0,6	98 324,0	0,5	97 274,0	0,5
Construction sites	126 832,0	0,8	162 532,0	0,9	240 635,0	1,3
Urban green areas	193 738,0	1,3	230 917,0	1,3	230 394,0	1,2
Sport facilities	455 953,0	3,0	697 391,0	3,9	747 469,0	4,0
Total urbanized areas	15 325 469,0	100,0	17 887 739,0	100,0	18 465 906,0	100,0
Total urbanized area	15 325 469,0	3,0	17 887 739,0	3,5	18 465 906,0	3,6
Agricultural land	218 257 332,5	42,6	215 698 335,0	42,1	215 214 871,0	42,0
Forest and semi-natural land	170 831 915,5	33,3	254 184 428,0	49,6	254 073 875,0	49,5
Wetlands	3 926 943,7	0,8	11 916 807,0	2,3	11 873 230,0	2,3
Water bodies	4 448 747,0	0,9	13 172 138,0	2,6	13 231 565,0	2,6
Total area hectares	512 859 447,0	80,5	512 859 447,0	100,0	512 859 447,0	100,0

**Table 2.2:** Growth rate of land uses in Europe for (1.221) NUTS 3 levels. Source: EEA Corine Land Cover (CLC) surveys 1990, 2000, 2006. Author's elaboration.

Land use type	% of variation		% of variation	
	1990-2000	2000-2006	1990-2000	2000-2006
Continuous residential areas	1,3	1,2	1,2	2,5
Discontinuous residential areas	14,1	1,5	1,5	15,8
Industrial and commercial areas	28,8	6,9	6,9	37,7
Roads and railways	48,0	27,7	27,7	89,0
Ports	7,1	2,3	2,3	9,5
Airports	12,8	2,4	2,4	15,5
Mineral extraction sites	18,7	8,3	8,3	28,6
Dumps	10,2	-1,1	-1,1	9,0
Construction sites	28,1	48,1	48,1	89,7
Urban green areas	19,2	-0,2	-0,2	18,9
Sport facilities	53,0	7,2	7,2	63,9
Total urbanized areas	16,7	3,2	3,2	20,5
Total urbanized area	16,7	3,2	3,2	20,5
Agricultural land	-1,2	-0,2	-0,2	-1,4
Forest and semi-natural land	48,8	0,0	0,0	48,7
Wetlands	203,5	-0,4	-0,4	202,4
Water bodies	196,1	0,5	0,5	197,4

By considering both tables (tab. 2.1 and tab. 2.2), despite other land use types (such as construction sites, transport or industrial and commercial areas) show a high growth rate between 1990 and 2006, the predominance of discontinuous residential areas in absolute values is striking, hinting that most Europeans live in dispersed residential areas<sup>18</sup>. Provocatively, but reasonably enough, Keil (2013b, p. 9) calls for a change in paradigm in urban studies, ‘re-loading urban studies via the suburbs’, that is reframing (and rejuvenating) the analysis of *urbanization* processes through the focus on *suburbanization* processes. As global suburbanization is now generalized, urban theory should hence consider what happens outside the delimited boundaries of the *urb*, and focus the attention on the vast territory which is occupied by suburbs.

By overlooking contextual differences among regions and cities, these general figures give a glimpse of the dispersed character of European built-up areas, and underpin the relevance of understanding the factors responsible for *urban sprawl as a phenomenon predominantly composed of residential areas*.

However, the focus on housing is not only quantitative, but also qualitatively relevant. As a good of primary necessity, houses are a long-term investment that is also affectively qualified as home, the emblematic place where the nuclear family settles down (Couch et al., 2007a). In addition, as distinct from other commodities, houses own specific characteristics related to their use and exchange value (Harvey, 1975). While for the user (buyer or tenant) houses attain a certain use value with regard to location (e.g. type of neighborhood, urban or suburban environment), size, accessibility to services (e.g. schools, hospitals, public transportation) and/or to workplace, they are particularly prone to becoming an object of financial investment, being, on top of their use value features, geographically immobile and a good of primary necessity. Hence, housing by definition is subjected to speculative activities, boosting future expectations on the use value of houses in the market. In synthesis, housing is both a commodity and a necessity (Stone, 1978).

Furthermore, the focus on the residential functions of land uses is significant because of the specific trajectories that have characterized housing policies in Europe. Housing patterns, such as patterns of urban sprawl, may intertwine with housing policies, which in Europe generally pivot around the promotion of home ownership (Chin, 2002; De Decker, 2008). ‘[H]ousing policies are fundamentally linked to the economy’ (De Decker, 2011b, p. 29), as they are the state corrective to ‘market failures’, housing tenures defining ‘the basic rights of possession and exchange that are fundamental to a capitalist economy’ (Meert and Bourgeois, 2005, cited in De Decker, 2011b, p. 29).

After the end of the Second World War, housing policies were one of the main assets of an increasingly redistributive welfare state, acting on the market through massive social housing projects, control of rental markets and tax relief and exemptions on home-ownership (Balchin, 1996; Balchin and Rhoden, 2002; Le Galès, 2002). The oil crisis (1973–1974) posed a serious challenge to the welfare system, and free-market oriented policies (privatization) were allowed to erode the previously protected and subsidized housing market, among many others.

Especially in Southern Europe (Allen et al., 2004), suburban residential areas have been a means to provide an affordable housing supply to the working population<sup>19</sup>, taking advantage of the more convenient agricultural land to be transformed, and of fewer regulations and

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<sup>18</sup>To better qualify this remark, please refer to Chapter 5 on methodology.

<sup>19</sup>In Central Europe, Belgium is an emblematic case where suburbanization has been fostered as an intentional, anti-urban national housing policy to accommodate and control working classes; see De Decker (2008, 2011a,b) and sec. 3.1.7.

technical difficulties for housing construction when compared with inner-city architectural interventions. Furthermore, the lack of good social housing policies and of private rental housing market regulations in the Southern European welfare systems stimulated suburban housing construction.

Nowadays, limited housing policies and a prevailing privatization of the housing market characterize the majority of Western European countries. Decision-making processes over housing policies are now shared by public and private actors, consequently having an impact on land use policies as well (Jensen-Butler et al., 1997, p.499)<sup>20</sup>. De Decker (2011b) states that:

The dominant provision of housing through the market, and the fact that social housing companies occupy the subsidy field, limit the state's capability to substantially enlarge the share of alternative forms in the housing market. (...) [h]ousing policies do not arise overnight. They are the result of a long evolution and a complex interplay of numerous historical and social processes at different scales. (De Decker, 2011b, p.30)

As other types of built forms, and as a non-deterministic result of space-society interactions, the spatial fixity of housing generates a path-dependent track, historically cumulating in and inexorably influencing future development i.e. housing models or regimes (Bengtsson and Ruonavaara, 2010; De Decker, 2011b).

In addition, the focus on the residential functions of land uses is relevant because of the 'traditional' association between urban planning and housing policies, the process of transformation of open and agricultural land into residential areas being a common study area between land use and housing policy analysis. In late nineteenth century Europe, population cramming, congestion, poor housing conditions, and insufficient building standards characterized housing conditions in European industrial cities, requiring 'the first generation of housing legislation [which] laid the foundation for modern physical planning' (Jensen-Butler et al., 1997, p.485; cf. (Parker, 2004)). Haussmann's reforms in Paris, slum clearance processes in Manchester and London, urban renewals, and the construction of garden cities are examples of the connection between land use planning and housing policy. Later, after the Second World War, the demographic increase of Western cities was generally accompanied by an increase in housing demand, as the population could no longer be accommodated within central cities' boundaries (Chin, 2002), without mentioning the need to make room for other urban functions, such as industries and transport infrastructures (and their related land uses).

The characteristics of the housing market have an effect on the patterns of how cities grow in terms of hectares consumed for housing needs and, in particular, housing systems play a considerable role in the occurrence and extension of urban sprawl (Couch et al., 2007b, p.50). The understanding of how decisions over land allocation influence housing policies, and vice versa, is a relevant urban policy issue, and the focus on residential areas serves as a strategic connection with land uses and the literature on housing and housing policy.

### 2.3 Defining urban sprawl

In the literature, the growth and 'stretching out' of the city are referred to by a wide variety of terms, such as urbanization, metropolization or *metacittà* (Martinotti, 1993), *città diffusa* (Indovina 1990), metapolis (Ascher, 1995), *ville éparpillée*, *ville émergente* (Dubois-Taine and Chalas, 1997), *étalement urbain*, edge city, land take, *péri-urbanisation*, suburbanization, urban dispersion or diffusion (Camagni et al., 2002a), urban sprawl, and land consumption.

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<sup>20</sup>See also sec. 4.8, and Allen et al. (2004) in sec. 5.3.3.

This has resulted in a proliferation of definitions, many of which overlap, and is further complicated by the fact that different disciplines, ranging from environmental to social sciences (planning, sociology, geography, architecture, biology, environmental engineering, and so on) share an interest in the topic.

Furthermore, ‘urban sprawl’ is a general expression that encompasses the dispersed character of city expansion through a diversity of uses, often not explicitly specified by the researchers. In terms of urban form, urban sprawl can refer to scattered urban development ‘to a certain degree’, while in terms of land use, it can comprise residential areas (e.g. suburbs), industrial and commercial areas (e.g. shopping malls) or transport infrastructures (e.g. highways), or a mixture of all of these uses, such definitions necessarily referring to a range of land uses<sup>21</sup>. As Hamel, 2013, p. 34 states, ‘the periurban zone is (...) liminal, (...) neither urban nor rural. Physically, it contains a wide range of land uses as is imaginable, and in no apparent order. Socially, it is diverse and disconnected’.

Urban sprawl or suburbanism is a kaleidoscope of different morphologies and contexts, whose phenomenologies should be approached from a global perspective (Keil, 2013a): suburbs are morphologically diverse, are found in different contexts and are produced by different processes. Suburbs in US, Britain or Italy, gated communities or shanty towns in the Global South are just some examples of the global suburbanization process transforming cities, urban systems and territories all over the world. Such empirical diversity has to be addressed by clarifying the theoretical and methodological standpoint(s) employed to define urban sprawl and to approach a specific suburban context.

Chin (2002) argues that the term ‘urban sprawl’ should be considered as an umbrella term. In her article, she recalls that one of the possible definitions of urban sprawl indicates that urban ‘[s]prawl is most commonly identified as low density development with a segregation of uses’ (Chin, 2002, p.4). However, she claims this seemingly precise definition to be opaque, as it can allude to several possible types of urban forms, to different definitions of low or high density, to which land uses should be contemplated and to what extent they should be considered segregated.

The variety of terms is not necessarily negative: it may indicate an actual phenomenological and contextual diversity. However, if, on the one hand, the use of general terms carries a risk of vagueness, on the other hand, a multiplicity of definitions and expressions of urban sprawl hinder the finding of a common, broader reference among different disciplines, and the identification of typologies of urban sprawl according to shared criteria. Beyond the unanimous acknowledgment that ‘sprawl occurs in the urban fringe in rapidly growing areas’ (Chin, 2002, p.2), there is little consensus among scholars regarding its nature, impacts and causes. Therefore, some authors (Chin, 2002; Couch et al., 2007b; Galster et al., 2001; Peiser, 2001; Sohn et al., 2012; Wolman et al., 2005) tried to systematize and classify definitions and to propose their own frame of understanding within the wide literature on the issue. In what follows, without the ambition of being exhaustive, some of the definitions on urban sprawl will be discussed, following as a blueprint the classification proposed by Chin (2002).

### **Definitions based on morphological urban form**

Definitions based on urban form try to distinguish urban sprawl according to morphologically diverse types of urban growth, such as ‘scattered’, ‘leapfrog’ or ‘ribbon’ development. Comparative research (Fregolent et al., 2005) showed that there are different but similar patterns of urban sprawl among cities, and that it is possible to recognize typologies of urban spread.

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<sup>21</sup>However, Galster et al. (2001), Couch et al. (2007b), or Rudel (2009) and Rudel et al. (2011) precisely refer to one type of land use to define *residential* urban sprawl.

Nevertheless, which urban forms can be univocally considered as sprawl is still an open debate, resulting in a certain amount of uncertainty among scholars with regard to whether and how an urban form can be considered urban sprawl as such.

Continuity or discontinuity of urban development add more complexity to the definition of urban sprawl in morphological terms. For instance, urban sprawl can be discontinuous in the case of the leapfrog development, or it can be continuous if we consider ribbon expansion along highways (Galster et al., 2001). Hence, Ewing (1997) and Chin (2002) argue that sprawl can be better understood if it is conceived as a matter of degree – that is, a continuum between a compact city and a completely stretched out city. Therefore, the definition of urban sprawl in terms of urban forms should depend on the level of city compactness or spread (see also sec. 2.4).

However, even if urban sprawl is defined as a matter of degree, it must be acknowledged that there are no common or clear cut points of reference within this continuum, especially for comparative research. Therefore, definitions of urban sprawl based on urban form somehow all assume that the city is not compact at the start; and there seems to be no common agreement or understanding with regard to the extent to which an area can be considered compact or sprawled. It can only be stated that some areas present a more scattered urban form, indicating unrestrained growth, or a more compact urban form, denoting a more planned or ‘ordered’ urban development.

### **Definitions based on morphological and/or demographic density**

The same core problem refers to a second possible definition of urban sprawl, i.e. a definition in terms of morphological and/or demographic density, which considers urban sprawl as a low-density phenomenon. Notwithstanding, density can be calculated differently among studies (clarifications on how it has been measured may be missing), and there may also be different degrees of how density can be considered ‘low’ or ‘high’ among countries or cities. An interesting solution is offered by Couch et al. (2007b) who, by using Urban Audit survey data (Eurostat, 2004, 2007)<sup>22</sup> define urban sprawl in terms of a gradient of population density, which can be traced out by measuring the distance from the city center. City centers are traditionally defined as urban concentrations of high population density, the latter decreasing as distance from the city center increases. According to the authors, urban sprawl occurs when population density is growing beyond a conventional radius of approximately 15 kilometers from the core city, which indicates a spatial concentration of population outside this conventional boundary. The strength of this definition relies on the fact that population density is clearly referred to, and official, comparable European Urban Audit data are employed. However, the (demographic) density gradient is just one of the possible measures of density that are available, and population density still keeps a cultural and locational specificity: it is difficult to state with certainty which is the most appropriate demographic density, as these considerations may vary among different urban environments, cultures and theoretical perspectives (Couch et al., 2007b)<sup>23</sup>. Moreover, the authors do not take into account that the density gradient could indicate the consolidation of a polycentric structure; hence, the density gradient corresponds to a demographic measure, but it does not imply any reference to the morphological (poly-centric) type of urban structure that is forming.

Another measure to define urban sprawl is the sprawl statistical index (SSI), which corresponds to the ratio between the growth of the total urbanized areas and the registered

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<sup>22</sup>Cf. also Appedix sec. C.0.1.

<sup>23</sup>For instance, the conventional 15 kilometers boundary identified by the authors may not be appropriate in comparative research.



demographic variation, over a certain timespan (generally two points in time). If the index is over 1, urban sprawl occurs (Pileri, 2012, p.189). This measure is also called ‘urban density’ (Kasanko et al., 2006), which is the ratio between the growth of built-up areas (as a percentage) and population growth (as a percentage). However, the urban sprawl statistical index does not take into consideration morphological characteristics of sprawl, or different land use type (for instance, residential sprawl), or settlement density (Pileri, 2012).

### **Urban diffusion versus urban dispersion**

Urban economic theories make a distinction between urban diffusion and urban dispersion (Camagni et al., 2002a,b; Gibelli, 2006): the first is a positive long-term phenomenon which indicates the economic success of urban systems (expansion is produced by economic wealth), while the latter is considered to be an unplanned stretching out of the city along the urban fringe through ways that are not economically feasible, leading to an overconsumption of resources such as land or mobility infrastructures. However, urban diffusion and urban sprawl are not considered as concluded processes (i.e. a state), but they are rather conceived as changing spatial developments, which can presumably evolve into a denser urban form. From this perspective, urban sprawl is considered to be one phase of the urban development process that will shift from less dense to denser infilling of land uses (Peiser, 2001). Peiser’s idea of urban sprawl as ‘work in progress’ is suggestive, pointing out how urban sprawl is only the ‘initial phase of a community’s cycle of urbanization’ (Peiser, 2001, p.298), where densification processes should be guided by regional planning, at the same time helping to enhance the aesthetic quality of the urban fringe. Similarly, other authors define urban sprawl in terms of low levels of urban functions and accessibility, i.e. how easily services are accessed by an individual user (Ewing, 1997; Sohn et al., 2012). Therefore, sprawled areas have the potential to convert into non-sprawled areas thanks to densification processes triggered by accessibility and concentration of urban functions.

### **Multi-dimensional definitions of sprawl**

Galster et al. (2001) propose a clear-cut definition of urban sprawl in terms of patterns of land use characterized by a combination of 8 different conditions: density, continuity, concentration, clustering, centrality, nuclearity, mixed uses, and proximity<sup>24</sup>. We can think about these 8 dimensions identified by the authors as a precise operationalization of urban compactness; low degrees on the 8 dimensions define urban sprawl, and the combinations of these 8 conditions define different typologies of sprawled areas. Their attempt to define sprawl is particularly relevant as it tries to account for combinations of conditions that can flexibly identify and describe types of urban sprawl in different locations, as low levels on certain conditions may combine with higher levels on other conditions, but still indicating urban sprawl. They also propose precise statistical operationalizations of each considered condition. They suggest, for example, that demographic density could be better operationalized by dividing the number of residential units by the amount of developable land (therefore, excluding natural areas, urban green areas, or water bodies). The need to account for undevelopable land is emphasized as a crucial step in the measurement of urban sprawl (Wolman et al., 2005). Furthermore, the usefulness of Galster et al. (2001) consists of distinguishing urban sprawl in terms of (predominantly) residential (i.e housing sprawl) or non-residential (i.e. industrial and commercial areas), separating developable land from un-developable land (e.g. excluding forests or mountain tops).

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<sup>24</sup>Despite Galster et al. (2001) do not explicitly refer to comparative configurational methods (Ragin, 1987; Schneider and Wagemann, 2012), combinations of conditions could be effectively examined through Boolean algebra.

The analysis carried out by Galster et al. (2001) considers statistical urbanized areas (UA) rather than metropolitan areas (MA), as defined by the US Bureau of Census<sup>25</sup>. In contrast, Wolman et al. (2005) have worked towards a common understanding of urban sprawl through the RUCA (Rural–Urban Commuting Areas) classification. This measure includes qualitative diversified commuting tracts, selected according to the size and the destination of the commuting flows to various-sized urban centers, where 30% or more of the residents commute and which present a minimum dwelling threshold of 60 houses per square mile. This definition is particularly significant because it attempts to account for the commuting flows that exist between the city center (Central Business District, CBD) and its functional area, consisting of the surrounding towns and villages. It would be extremely interesting to apply this methodology to the European environment<sup>26</sup> and define appropriate thresholds and commuting capacity, as the European Union currently lacks common criteria for the definition of European metropolitan areas, despite some attempts (Arellano Ramos and Roca Cladera, 2012; Boffi et al., 2012, see) (see also Appendix sec. C.0.1 and sec. C.0.2).

### **Definitions based on social and morphological diversity**

More recently, Walks (2013), by drawing on the work of Lefebvre, proposes a dialectical understanding of suburbanism as a subset of urbanism, where sub-urbanism is conceived as an ‘under-urban’ or a partially urban process. For Lefebvre, urbanism is a particular process of space production, where physical forms are constantly created and simultaneously create new spatial forms, as space is both a physical expression and an abstract concept (see Walks 2013). The city is the result of a creative destruction where thesis and anti-thesis co-exist. Under this perspective, urbanism and suburbanism are productive forces on their own, which are conceptually different from the large variety of physical places, generally identified as ‘city cores’ or ‘suburbs’, that are actually and spatially produced by the dialectical tension existing between urbanism and suburbanism. Ensuing from this theoretical framework, there are different types of urbanisms and suburbanisms, which can be variably dispersed, or morphologically and socially diverse. Similarly, there can be different typologies of suburbs as well<sup>27</sup>: suburbs are varying outcomes of the possible combinations between urbanism and suburbanism. Suburbs can be morphologically and socially diverse, or more or less accessible. For instance, some ‘neo-liberal’ suburbs can be morphologically and socially uniform, more dispersed and accessible only by car, while other ‘innovative’ suburbs may present a greater social mix, more diverse morphological characteristics, and be more spatially concentrated, thus promoting sustainable mobility.

### **Definitions based on aesthetic and functional morphology**

As a geographer, Muñoz 2008b defines urban sprawl as a type of ‘*banalscape*’, which is a new, unoriginal landscape characteristic of post-industrial societies, characterized by the morphological ‘banality’ of urban diffusion and dispersion (e.g. shopping malls, regenerated docks, leisurized urban centers, and sprawled residential areas). For Muñoz, it is the banality, the homogeneity, the aseptic character of the urban forms that characterizes the reproducibility of urban development of post-industrial societies, a dynamic he names as ‘*urbanal-city*’ or ‘*urbanalization*’. Urban sprawl is defined as a type of development of the ‘*urbanal-city*’, mainly upon certain morphological and aesthetic qualities, such as the ugliness’ of indus-

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<sup>25</sup>In this dissertation, the concept of metropolis and metropolitan areas are discussed in sec. 5.4 and sec. 5.3.3.

<sup>26</sup>Caiello and Colleoni (2013) applied a similar methodology in the case of Milan; see also sec. 2.3.1.1.

<sup>27</sup>Walks (2013) types of suburbs could also benefit from the analysis of types of suburbs within a comparative configurational framework (Ragin, 1987; Schneider and Wagemann, 2012, see).

trial units or dubiously decorated gardens in a ‘kitch style’ (Galster et al., 2001; Peiser, 2001).

### 2.3.1 Definitions of urban sprawl in the European context

As discussed in the previous section 2.3, definitions of urban sprawl vary, both in terms of the theoretical conceptions employed in framing the phenomenon (e.g. urban form or density), and also in terms of methodologies, each of them showing some flaws.

Within such a broad debate on the definitions of urban sprawl, it is explicitly recognized in the literature that there is a contextual specificity of urban sprawl, for example distinguishing the phenomenon in the United States and in Europe. However, similar to the efforts to identify a ‘general’ (US-based?) urban sprawl definition, the attempts to delineate a distinct character of European urban sprawl give rise to a blooming of terms as well. Different expressions used to refer to urban sprawl, such as de-urbanization, rurbanization, metropolization, peri-urbanization or periphery, may overlap, but do not necessarily refer to the same phenomena in different contexts. Hence, besides the intrinsic difficulty in defining urban sprawl, the task of providing a precise and common terminology to delimit the phenomenon to be employed in Europe turns out to be equally problematic.

The search for a specific type(s) of urban sprawl in the European context is related to the distinctive features of the European cities that would necessarily qualify the phenomenon. Ancient foundations (Roman or medieval), the autonomy of the medieval city and the existence of an urban elite (Weber, 1958), as an antagonist to feudal constraints and religious powers, the dense distribution of the population and the preponderance of middle and small size towns, the primacy of the city center, and the influence of city planning and public institutions in managing the city, constitute some of the specificities of the European city. These make it unique and distinguish it from American, Asian or African cities (Kaelbe and David, 2000; Le Galès 2002, ch.1 and 2; see also sec. 2.4). Furthermore, the idea of the European city characterized by a compact and dense urban form relates to Max Weber’s analysis of the European city as ideal-type (Kaelbe and David, 2000; Weber, 1958).

In addition, and ensuing from European cities’ specificity, metropolitan areas also present a European character, which can be opposed to the US urban and metropolitan structure: metropolitan areas in Europe are polycentric systems characterized by small and medium size towns that create a ‘*pointillisme* of cities’ (Bagnasco and Le Galès, 2000a, p.10) in contrast with US metropolises that are monocentric and disconnected to their suburbs. Because of the diversity of ‘baseline’ contexts, urban sprawl in Europe is geographically diverse and a single typology – as in the case of US cities – is not identifiable (Couch et al., 2007b, ch.2 and 9)<sup>28</sup>. Moreover, Cattani et al. (1994) (cited in Bagnasco and Le Galès, 2000a, p.10) note that, even if both decentralization and suburban development characterized European cities since the 1950s, because of the increase in car-ownership and also given a certain emulation of suburbanization processes occurring in the United States, decentralization nevertheless occurred mainly around larger cities which, in contrast to those in the United States, still maintained their dominance and their economic and political power.

In what follows, some of the possible definitions of urban sprawl discussed in the European literature will be presented and examined. They serve as a ‘background’ against the provisional, theoretical definition of urban sprawl that I employ in this dissertation introduced in section 2.5, and which combines the discussion on land uses introduced in the previous

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<sup>28</sup>For instance, in Southern Europe there has been an *infrastructure-related* urban sprawl, where working-class suburbanism was a means to survival; cf. Leontidou (1990).

sections (sec. 2.1.1 and sec. 2.2) with the brief exploration on urban sustainability that will be traced out in sections 2.4 and 2.4.1.

### *2.3.1.1 The French debate on ‘périurbanisation’*

In the European context, the French debate on sprawl suggests the use of the term ‘periurban’ and ‘periurbanization’ instead of urban sprawl to indicate the phenomenon of urban diffusion, which is generally termed as *étalement urbain* (Bergamaschi and Castrignanò, 2011; Camagni, 1999; Molinari, 2012). Periurban does not mean peripheral, although overlap may be possible, as periurban has an intrinsic urban character which opposes it to peripheral (‘far from the urban’) (Cavalcoli, 1999). The term *peri*-urban suggests the occurrence of discontinuous urban development outside city boundaries, specifically in the urban fringe.

Although it is acknowledged that *étalement urbain* is a historical, *longue durée* phenomenon occurring in Europe, until the beginning of twentieth century it was relatively easy to trace a clear line between ‘the city’ and ‘the countryside’ (Cattan and Berroir, 2005). Given the primacy of city centers, urban diffusion in continental Europe generally originated during the post World War II urbanization process, when cities grew massively in order to host newcomers (Couch et al., 2007b; Kasanko et al., 2006). It is in the 1950s that European cities, despite regional differences between Northern and Southern Europe, historically characterized by, respectively, a more dispersed and a more compact urban form, started to experience a heavy demographic increase due to internal rural–urban migrations, provoking the expansion of cities mainly around industrial centers.

Since the 1970s, thanks to the expansion of mobility infrastructures, the population started to reside in residential areas located outside the city boundaries, nevertheless remaining tied to the city center. Magnier and Russo (2002) define such urban diffusion or *étalement urbain* as ‘ex-urbanization’, which fostered since 1980s the forming of urban agglomerations in Europe.

However, already since the 1970s and 1980s the ‘periurban rings’ (*couronnes périurbaines*) started to register a higher demographic growth than the urban and metropolitan centers (that is, city centers and their immediate suburbs), which had grown more consistently in the previous two decades (Bessy-Petri, 2000; Cattan and Berroir, 2005; Cavailhès et al., 2004). As some urban functions – such as housing – were ‘transferred’ to the rural areas surrounding the larger urban system or agglomeration, the population residing in such areas kept a urban lifestyle, which is the feature that most characterizes periurban rings (Antrop, 2000, 2004; Caiello and Colleoni, 2013).

Decentralization of functions (i.e. ex-urbanization) is the prelude to suburbanization, which is defined as the loss of the productive functions of rural areas, and their paradoxical transformation into the residential quarters of the city center (Magnier and Russo, 2002), clearly connecting periurbanization with residential functions (and land uses).

*Périurbanisation* is preferred to urban sprawl as it better grasps the land use transformations occurring in the proximity of the European city. If suburbanism should refer to urban development of ‘new towns’ around the city center, *périurbanisation* indicates urban expansions occurring farther from the city (Cattan and Berroir, 2005). Distinct from suburbanization, periurbanization is characterized by different dwelling typologies, and the amenities (i.e. a lifestyle ‘in the nature’) comes from the fact that households are surrounded by productive agricultural land. As opposed to the American type of urban sprawl, where ideally agricultural land is developed into similar and homogeneous detached houses with a garden,

peri-urbanization is characterized by a higher diversity in housing typologies. In peri-urban areas, houses generally have a garden, but are variably isolated, individually or in groups, from other buildings by the presence of agricultural land (the ‘insularity’ discussed by Colleoni and Caiello 2013). In addition, suburbanization is characterized by the expansion of a rather dense urban form, being distinguishable from periurbanization (or rurbanization)<sup>29</sup> where morphological discontinuity is the key feature (Bessy-Petri, 2000; Guieyss and Rebour, 2012). Hence, suburbs are, in the French context, assimilable to *banlieues*, and convey an extremely different meaning to the US suburbs, which are dispersed, socially segregated local governments (Ashton, 1978), located away and ‘seceded’ from the CBD and the downtown areas.

In the European context, if suburbs are morphologically dense, have continuous built forms, and are located closer to the city center (the *banlieues*), peri-urban areas are characterized by built forms that are morphologically discontinuous, more distant from the city center, and that are surrounded by productive agricultural land. However, proximity or distance thresholds have similar problems as the density thresholds introduced in the previous section: there are no agreed-upon standards, and distances vary according to the context under analysis. For instance, periurbanization in France is defined by a distance that ranges from 9 to 46 kilometers (Cavailhès et al., 2004; Guieyss and Rebour, 2012). Similarly, morphological continuity and discontinuity are not thoroughly clarified, and the conventional ‘200 meters threshold’ is used to define morphological continuity (see also sec. 5.4 and Appendix sec. C.0.2).

More specifically, periurban is defined as the ‘belt outside the city occupied both by farmers and commuting households’ (Cavailhès et al., 2004, 681–682), whose dwellers depend on cities for their jobs while maintaining strong rural characteristics in terms of land uses and landscape. By drawing from land use theory and urban economics, Cavailhès et al. (2004) define the periurban as a mixed farming-residential space, where agricultural and residential land use patterns are mixed. In a nutshell, as farmers and commuting households (because these still hold jobs in the city centers) compete for land uses, households’ utility function will increase when large amounts of rural amenities (e.g. open space) are available, since for decreasing transport costs households will value the benefits related to living in an agricultural environment, having simultaneously a city associated wage. In the equilibrium situation, the agricultural uses of land in periurban areas are supposed to limit the land take for residential uses, as farmers compete with households to maintain their agricultural bid rent. The interesting point of the model is that it assumes the existence of a periurban belt around the traditional city, surrounded only by rural areas. Under this perspective, (US) urban sprawl is defined as an extreme form of periurbanization, where larger land plots are all taken up by residential functions.

The definition of urban sprawl as presented by Cavailhès et al. (2004) is also relevant as it allows the emphasis of how prime agricultural land is consumed ‘in peri-urban areas for residential, infrastructure, and amenity uses’, blurring ‘the distinction between cities and countryside, especially in Western developed countries’ (Ramankutty et al., 2006, p.26). Peri-urbanization is qualified as a scattered ‘buffer’ between, on one side, the city and the suburbs, and, on the other side, the countryside, allowing the inclusion of agricultural land into the definition of the peri-urbanization processes. This is particularly important, since in Europe agricultural land and permanent croplands are the types of soil that are more consistently transformed into built-up areas, followed by pastures and mixed croplands (EEA European Environment Agency, 2013).

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<sup>29</sup>Rurbanization is defined differently by Le Gléau, Pumain, and Saint-Julien as ‘spread of the urban population into more distant rural zones’ (Le Gléau et al., 1997, p.5) (see also Le Gléau et al. 1996).

However, Guissey and Thierry (2012) underline the problematic statistical procedure used to define periurban areas. In 1990, because of a change in the statistical delimitations of urban and rural areas in France, it resulted that, during the last 50 years, demographic growth in urban areas outpaced rural areas, while it is actually the demographic dynamics of rural areas, and the statistical aggregation of ex-rural municipalities within urban boundaries<sup>30</sup>, that are responsible for this demographic increase (ib.). Hence, the illusory increase of the urban population is achieved through a change in statistical rural-urban delimitations (e.g. the 1990 *zonage en aires urbaines*, ZAU). Guissey and Thierry (2012) argue that, since 1975, rural areas have grown more than urban municipalities, and define this phenomenon as *desurbanisation*, as opposed to the term ‘urbanization’, which becomes obsolete. In France, since the 1970s, the urban-rural migration – a centrifugal spatial dynamic which the authors call a ‘true urban exodus’ – has substituted the rural-urban migration – centripetal spatial dynamics – taking place until then. Periurban areas are thus predominantly characterized by a demographic increase of rural areas given the displacement of urban dwellers to rural areas surrounding urban centers. In this process, especially small-size municipalities (<5.000 inhabitants) show the highest demographic increase. Simultaneously, because of this exodus and the aggregation of rural areas into urban boundaries, densities decrease. Hence, metropolization processes that are assumed to have taken place since the 1980s (i.e. the incessant growth of the larger urban centers expanding over the surrounding municipalities) are rejected, as rural and periurban areas show a positive migration increase instead (Guissey and Rebour, 2012)<sup>31</sup>. In this sense, it is really possible to discuss an *étalement urbain*, that is a centrifugal dynamic of urban diffusion. Bessy-Petri (2000) even identifies three main types of *étalement urbain*: a ‘regular’ urban diffusion (*étalement urbain régulier*), which identifies the general trend from city centers to peripheries; a dynamic suburbanism (*banlieue dynamique*), where the suburb grows more than the city center; and a suburb retrenchment (*banlieue en retrait*), where peri-urban areas are growing more than the *banlieues* and the city center. The last typology increased during the 1990s.

By referring to the extensive French literature on the peri-urban, which has been only briefly mentioned in this section, Caiello and Colleoni (2013) propose some types of indicators to analyze the socio-demographic characteristics of peri-urban areas in the Lombardy region. According to the authors, the morphological characteristics of peri-urban areas are connected with certain socio-demographic types; they thus attempt to qualify peri-urban areas in socio-demographic terms<sup>32</sup>. By considering peri-urbanization as a phenomenon ‘in-between’ city and countryside, the authors propose 8 indicators<sup>33</sup> to describe the socio-demographic attributes of the population residing in peri-urban areas. Results indicate that young couples with small children, with a medium socio-economic profile, generally reside in peri-urban areas. In addition, peri-urban population is highly dependent for jobs and services to urban poles and metropolitan centers, implying that the majority of the peri-urban population consistently relies on private mobility.

<sup>30</sup>This issue emphasizes the difficulty in defining urban, rural or metropolitan boundaries, whose delimitation is key to capture the spatial dynamics of territorial phenomena.

<sup>31</sup>The boasted ‘return to the city’ that has come to appear in different researches (Magnier and Russo, 2002, p.33) may just be a result of a statistical misconception. Recently, Brenner and Schmid (2014) elaborate on the ‘urban age’ as metanarrative and on the problematic definition of urban population thresholds (UPTs).

<sup>32</sup>By focussing on Liverpool, Couch and Karecha (2006) tried to explain the persistence of urban sprawl areas, as opposed to the compact city ideal, through families’ location choices, quality of life and social and environmental problems (noise and crime). Similarly, yet differently than Caiello and Colleoni (2013), Couch and Karecha (2006) tried to explain urban sprawl by accounting for sociological attributes of the population and of the built environment in sprawled areas.

<sup>33</sup>The indicators employed by Caiello and Colleoni (2013) are: household size, percentage of small size households, dependency index, home ownership, building heights, percentage of graduated people, percentage of commuters, urban centrality.

### 2.3.1.2 *Urban sprawl as city–countryside integration and as metropolization*

In contrast, concepts such as metapolis (Ascher, 1995) or *ville émergente* (Dubois-Taine and Chalas, 1997) or *ville urbaine* (Cattan and Berroir, 2005) try to overcome the ‘trap’ of city/countryside opposition, re-elaborating and reconciling ‘the city’ and ‘the countryside’ through the peri-urban. By recognizing and emphasizing the urban culture characterizing continental Europe, as opposed to the US and UK, these scholars try to overcome the archetype of the European city as ‘symbolic center’, characterized by urban compaction, demographic density and functional primacy, which equally emerged as desirable principles for a specific ‘European urban identity’ (Cattan and Berroir, 2005). Periurbanization inescapably dissolves the city/countryside divide that is symbolically represented by the inside/outside opposition made possible by the existence of medieval walls, which protected European cities (although not all of them) from the external, dangerous ‘unknown’. The refusal of the confinement of urban forms in Europe to the single urban archetype of the compact, dense city (see sec. 2.4 and sec. 2.4.1), the peri-urban, the metapolis or the *ville émergente* puts into question the desirability of the compact, dense, and diverse European city center (Breheny, 1997; Couch and Karecha, 2006) (see also sec. 2.4), and the dialectically opposition (or continuum) between city and countryside (Cattan and Berroir, 2005). As Pahl (1968b) already discussed, the analytical use of the rural–urban continuum hides overlapping and complex processes (or ‘meshes’, as he calls them) behind such a dichotomy (p. 293).

Instead of focussing attention on the inexorable city expansion over the countryside, an innovative inversion of perspective would more usefully allow a focus on how the countryside enters into the city. By adopting a centripetal view, this perspective asks how the countryside could define the city ‘from the outside’, relating to polycentric territorial development, sustainable development and peri-urban agriculture (Cattan and Berroir, 2005).

For instance, Gulinck et al. (2011) in an interesting way consider the role of gardens in the urbanization process. They argue that ‘[w]ith gardens in mind, the villainous concepts of urban sprawl, ribbon development and the consumption of open space seem to be clad and cushioned with greenery’ (Gulinck et al., 2011, p. 17). Gardens are generally overlooked, while they create, together with urban public parks and green spaces, an ‘open space matrix’ where city and countryside integrate. The role of gardens is heightened also thanks to their multi-functionality, as gardens ‘produce food and shelter, help to recycle organic products, provide a medium to express art and social status, and are setting for resting, recreation and care for children’ (ib). However, gardens imply a paradox: on the one hand, they are part of the urbanization process, hence they are a type of land consumption (see sec. 2.4) and an aspect of urban culture; on the other hand, they create this ‘open space matrix’, that is a ‘green infrastructure’, which can have decisive transformation potential in environmental, economic and social terms (cf. the sustainability debate in sec. 2.4). In connection to this last aspect, Moulaert and Van Dyck (2011) provocatively stress the need to critically assess the role of gardens in order to unfold all their potential. Even as part of an interconnected urban green infrastructure, gardens bear the risk of fostering a ‘splendid peri-urban isolation’, while, if their potential as common good were really exploited, gardens could (and should) prospectively emplace a multiplicity of resilient practices, such as ‘new forms of sharing, cooperation, producing and distributing’ (p. 7).

However, even in this original way of overturning the opposition between the city and the countryside (e.g. agricultural areas or gardens as ‘nature entering the city’), Cattan and Berroir (2005) claim that the cultural predominance of the urban is still present. Alternatively, as the ‘urbanity’ extends over the countryside and re-composes it, a re-elaboration of the city–countryside divide should lead towards new concepts, such as *territoires ville–campagne*,

‘city of fluxes’ or *ville reticulée*, without however substituting the archetype of the compact city with the symbolism of the ‘mobile city’, and being trapped again in dualist thinking (Cattan and Berroir, 2005). It seems that the *étalement urbain*, or the peri-urban, calls for a change of scale: city boundaries should not be defined by the physical continuity of urban forms, but should be adapted to a larger, territorial scale, dissolving the city itself and requiring a definition for this ‘supra-city’ entity (see also sec. 5.4).

By considering the case of Bologna (Italy), Bonora (2012) examines the crossing of city boundaries in Europe since the 1950s (*sconfinamento*, the ‘trans-passing’ over boundaries), alluding to the crucial question over boundaries definition, demarcation and blurring when approaching and analyzing spatial phenomena (see also sec. 5.4).

In 1993, Martinotti went forward on the discussion on the subject by introducing the term *metacittà* (‘metacity’) to point out the ‘trans-passing’ of the city over morphological and administrative boundaries (*s-confinamento*). By recognizing that the city is a social product in constant transformation, Martinotti (2008) analyzes the morphological and sociological changes occurring in contemporary (Western) cities. The starting point of his analysis is the recognition that, as long as the European traditional city extended beyond its (walled) administrative boundaries, the city constantly evolves and transforms itself, in this case into a metropolis. Martinotti (1993, 2008) proposes framing such transformations into three waves of metropolization, or three types of ‘meta-cities’ (*metacittà*).

The first metropolitan type (*metropoli di prima generazione*) emerged at the end of the nineteenth century, following the industrial revolution. Ancient medieval walls were demolished and the city started to expand. In the European context, one could no longer *enter* into the city, but *arrive* at it. Morphologically, the bolt forms of the first type of metropolis expanded and displayed heterogeneous building and settlement types, which were characterized by a complex network of transport infrastructures. This first type of metropolis was socially segregated (i.e. workers vs. elites) and defined by residents (i.e. inhabitants) as the main sociological type, but also, and more importantly since 1950s, by *commuters*. The transport infrastructures that greatly characterized and influenced the first metropolitan type facilitated the emergence of commuters, that is a new sociological type distinct from residents: a growing mass of persons who did not reside in the city, but commuted to work in the city while residing in the outskirts (suburbs, *banlieues*, peripheries). Since the 1970s, the second metropolitan type emerged (*metropoli di seconda generazione*), which is sociologically characterized by *service and leisure users*, that is ‘commuters’ that mainly use a variety of services located in the metropolitan center (i.e. the ‘city’), such as leisure facilities (e.g. cinemas, restaurants, theaters), health (e.g. hospitals and specialized medical services) or education (e.g. universities, courses, training) services. More recently, the third type of metropolis (*metropoli di terza generazione*) is characterized by an additional type of ‘city-users’, as defined by Martinotti. These comprise businessmen/women, high-income tourists, scholars and researchers, experts (e.g. medical staff, finance or ICT consultants), who selectively consume certain kinds of services, such as luxury hotels and restaurants, taxis, and luxury brand shops, requiring a large amount of workforce to serve them (cf. also Sassen, 2000). Indeed, this last type of metropolis implies the presence of a stratum of working class international migrants to uphold the metropolitan service economy.

In synthesis, Martinotti (1993, 2008) analyzes the transition from city to metropolis (i.e. metropolitan development) over the last 50 years by focussing on types of morphological and sociological transformations through the emergence of different city-users. Nowadays, metropolises present a mixture of the different analytical types of metropolises, as residents and city-users (work and leisure commuters, tourists, students, businessmen, migrants) di-



verify the ways in which and the reasons why the metropolitan core evolves, is used and is experienced. Not only do legal residence and workflows define belonging to the city, but the open boundaries of the metropolis, enmeshed in globalization processes, imply the need to consider city-users as legitimate sociological types related to contemporary metropolises, which are thus intrinsically defined by them.

A different, and more ‘geographical–morphological’ approach to urban sprawl from a metropolitan perspective is the one proposed by Camagni (1999), who refers to urban diffusion and dispersion frameworks of an economic nature (see sec. 2.3). By drawing from the debate on peri-urbanization, Camagni (1999, p.16-17) proposes classifying urban dispersion into a diversity of ‘metropolization types’. The specificity of this kind of approach is to examine urban sprawl as part of broader ‘super-urban’ or regional metropolization processes, which are categorized as geographically different phenomena on the basis of residential and work-related settlements and flows.

By the term ‘metropolization’ (*metropolizzazione*), Camagni means the diffuse patterns of urban development and the ‘soldering’ (*saldatura*) of settlements in some of the European wealthiest regions and largest urban systems. With respect to the distinction between urban dispersion and urban diffusion later re-elaborated by Camagni et al. (2002a) and discussed above (see sec. 2.3), this classification of metropolization processes considers the patterns of urban *dispersion* occurring in the processes of urban *diffusion* in metropolitan areas, focussing on the low-density urban development which characterizes large European urban systems or metropolises. The ‘metropolization types’ defined by Camagni are:

- metropolitan processes of diffusion;
- metropolitan processes of concentration;
- regional processes of diffusion and ‘welding’ of regional urban networks;
- coastal urban development.

Metropolitan processes of diffusion refer to the enlargement of important cities in France and Italy. In France, metropolitan processes of diffusion are found in the metropolitan area of Paris and in Rhône-Alpes, along the Mediterranean coast, or in the mobility corridor between Lyon and Marseilles, and between Toulouse and Bordeaux. In Italy, the 80 kilometers wide mobility corridor between Milan and Venice (the *megalopoli padana*) stands out, together with the metropolitan areas of Rome, Turin, Naples and Bari.

Metropolitan processes of concentration are particularly found in Spain (Madrid and Barcelona), in Greece (Athens and Thessaloniki), in Portugal (Lisbon) and in Ireland (Dublin, Limerick, Cork). Such processes differ from the previous category in that they are less related with mobility infrastructures, while simultaneously emerging from a more ‘mono-centric’ metropolitan system that centripetally concentrates’ the dispersed patterns of urban development<sup>34</sup>.

Regional processes of diffusion and ‘welding’ of regional urban networks are located in those areas where there is an absence of a mono-centric metropolitan center, i.e. where there are scattered medium sized urban centers, which are connected through mobility infrastructures. These processes are located in Northern Germany, along the corridors of Frankfurt–Darmstadt, of Dortmund–Essen–Duisburg, of Bonn–Köln–Düsseldorf and of Stuttgart–Karlsruhe; in the Netherlands, in the Randstad region around Amsterdam; in Belgium,

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<sup>34</sup>As it will be discussed shortly in this section 2.3.1.2 (see *infra*), this classification is not definitive. For example, while it is true that Barcelona heavily attracts urban development processes, it is highly questionable to consider only Barcelona within its metropolitan system, as other medium size cities (> 250.000 inhabitants), such as Terrassa and Sabadell, play an important role in orienting metropolization processes as well (see sec. 5.3.4).

around Bruxelles, and along the Liège–Namur axis; and in Italy, along the Bologna–Parma corridor, the Florence–Pistoia corridor and the Verona–Vicenza–Padua–Venice axis.

Finally, coastal urban development refers to those territorial patterns of urban dispersion involving both large urban centers located along the coast, such as Bilbao, Lisbon, Barcelona, Marseilles, Genoa, Rome, Naples, Athens, and also coastal medium-sized urban areas that are also economically dynamic, such as Le Havre, Bordeaux, Nice, Cadiz, Málaga, or Alicante. This category points at the tendency of coastal urban settlements to develop metropolization processes, as the presence of valuable environmental resources attract urban growth, mainly because of tourist functions, as in the case of the Mediterranean coast.

This geographical clustering of urban diffusion in Europe can represent an exploratory approximation of the contextual diversity of metropolization processes, where urban sprawl is inscribed (i.e. suburbanization), and allows the intertwining and mixing of characteristics. For instance, the metropolitan process of diffusion recognized in the Milan–Venice corridor (the *megalopoli padana*), intertwines with a regional process of diffusion, where both the medium size urban centers of Verona, Vicenza, Padua and Venice form the *città diffusa* (Fregolent et al., 2005; Indovina, 1990), and also where smaller towns and villages ‘weld’ together.

The Venetian region thus presents an inter-region metropolization process with the larger system of Milan, belonging to the Lombardy region, and also an intra-regional dispersed urban development over rural areas (*cementificazione della campagna*, i.e. overbuilding in rural areas) that ‘solders’ together medium and small sized urban centers, where neither a hierarchical pattern or a precise ‘urban culture’ are recognizable (Magnier and Russo, 2002). Another example would be Barcelona, which is an economically dynamic metropolis that concentrates urban development and lies along the Mediterranean coast.

However, Camagni’s (1999) classification shall not be considered final, especially as since it is now 15 years old: since the early 1990s, urban and metropolitan systems (might) have changed quite substantially. In addition, these broad, qualitatively different types of metropolitan diffusion processes are possibly too general. As an illustration, the metropolitan process of diffusion that characterizes the Venetian region (Veneto) is not at all similar to what the Milan metropolitan region is witnessing, as in the latter Milan exerts a primary role as a metropolitan and regional capital that is not found in the Venetian regional system, where medium size towns and small villages compose the ‘urban jam’. It is evident that Northern Italy presents a quite interconnected interregional system. Nevertheless different phenomena should not be included in the same category. For instance, although a general network can be recognized, the *megalopoli padana* is not really one united big system, but a whole of scattered and independent medium and small size municipalities (with the exception of Milan) that together form a conurbation, of which the A4 highway is the mobility spine. The poly-centric, metropolitan system formed by medium size cities, such as the Verona–Vicenza–Padua–Treviso–Venice example, is qualitatively different from the so called ‘industrial triangle’, which is composed by three independent, though connected, large size metropolitan centers, namely Milan–Turin–Genoa. Similarly, it can be questioned that Madrid, although its urban primacy in the Spanish territory is indisputable, presents a metropolitan process of concentration, as it has been constantly expanding since the 1950s by appropriating the surrounding municipalities.

### 2.3.1.3 *Urban sprawl, soil sealing and soil erosion*

Other definitions of urban sprawl stem from the measurement of impervious surfaces, a phenomenon usually called soil sealing, and one which is particularly employed in environmental sciences literature. Soil sealing is ‘a subset of land consumed for development of settlements, infrastructure, and commercial and industrial areas’ (Prokop et al., 2011, p.26), which considers only the impermeable parts of land that are irreversibly transformed, and that prevent the infiltration of water into the soil. ‘Sealed’ or ‘impervious’ areas imply a considerable loss of soil functions i.e. soil consumed by urbanized areas. This excludes gardens, parks, greenhouses or football fields (see supra Gulinck et al. 2011 in sec. 2.3.1.1), which are not strictly considered as sealed areas, although influenced by them, as they exhaust soil attributes which reduces ecological soil capacities and the available land to be allocated for forest or agricultural production, affecting the water cycle (e.g. by the use of fertilizers and pesticides) (Barberis, 2006; Barberis et al., 2006; Dewaelheyns et al., 2011; Rueda Palenzuela, 2002, p. 90–98).

Arellano Ramos and Roca Cladera (2012) followed this interpretation and applied a statistical method of identifying sprawled areas in European metropolises by the overlap of urbanized areas and demographic data. Their study concluded that urban sprawl is primarily found in the urban fringes of European metropolitan areas, where small and medium sized urban centers ‘take up’ (i.e. consume, see sec. 2.4) more land as compared to the scale economy that metropolitan core cities achieve.

In particular, the Italian Statistical Institute (ISTAT) interprets urban sprawl as the erosion of rural land because of urban dispersion (*Erosione dello spazio rurale da dispersione urbana*), defining sprawled areas as portions of the territory where the dispersed population is increasing and where agricultural land is decreasing, or increasing to a lower proportional rate (ISTAT Italian National Institute of Statistics, 2001, 2013). Land erosion is opposed to landscape protection, defined as a loss of cultural heritage, emphasizing the role of land and landscape as common (Costanzo and Ferrara, 2013). Land erosion occurs when agricultural land is both abandoned (re-naturalization) and urbanized (urban sprawl). Under this perspective, urban sprawl is defined as a form of land erosion characterized by low density urbanization located on the outskirts of consolidated urban centers and along mobility infrastructures (ib.).

### 2.3.1.4 *Urban sprawl as an unplanned phenomenon*

Documents drafted at the European level describe urban sprawl as a commonly used term to describe:

the physical pattern of low-density expansion of large urban areas, under market conditions, mainly into the surrounding agricultural areas. Sprawl is the *leading edge* of urban growth and implies *little planning control* of land subdivision. Development is patchy, scattered and strung out, with a tendency for discontinuity. (Prokop et al., 2011, p.26)  
[my emphasis]

In this definition, urban sprawl is considered as a phenomenon occurring along the urban fringe and expanding over agricultural areas, in a low-density and discontinuous fashion. By referring to urban sprawl as a low-density and scattered phenomenon, this definition presents the flaws discussed earlier in section 2.3 on the problematic use of morphological density and a ‘variably scattered’ urban form as opposed to urban compactness.

However, the above definition introduces an important assumption, namely that

[u]rban sprawl is synonymous with *unplanned* incremental urban development, characterised by a low density mix of land uses *on the urban fringe*. (EEA European Environmental Agency, 2006, p.6) [my emphasis]

Therefore,

[e]xpansions of towns and cities must be *planned* and fit within an overall long-term strategy, with the environmental impacts identified and minimised, rather than being an *unplanned* process leading to urban sprawl. (CEC Commission of the European Communities, 2004, p.27) [my emphasis]

In this light, urban sprawl is defined as incremental urban expansion in the ‘absence’ (i.e. ‘unplanned’) or flexible use (i.e. ‘little planning control’) of planning regulations, an issue that will be dealt with more in detail in section 3.1.7. Moreover, as already mentioned, these definitions point out the specific location of sprawled areas as necessary and relevant characters for identifying the phenomenon. Urban sprawl is defined as a particular type of urbanization, taking place in the city outskirts: as ‘urbanisation is understood as the conversion of rural areas into urban ones due to the increase of the road network, commercial facilities and housing’, urban sprawl can be defined as ‘new land-take *at the border* of existing cities’ (Prokop et al., 2011, p.15) (my emphasis).

Although there are no quantitative targets regarding land-take for urban development at the European level, various documents reflect the need for better planning to control urban growth and the extension of infrastructures, policies relating explicitly to land-use issues, and especially physical and spatial planning, generally being the responsibility of Member States’ local authorities. The European Commission’s ‘Roadmap to a Resource Efficient Europe’ (EC European Commission, DG Environment, 2011) introduces for the first time the initiative ‘no net land-take by 2050’, stating that all new urbanization will either occur on brownfields, or that any new land take will need to be compensated by reclamation of artificial land (EEA European Environmental Agency, 2013). The consideration of urban sprawl as an unplanned phenomenon is specifically linked with land consumption and the urban sustainability debate (see sec. 2.4), especially prominent in European Union documentation (see sec. 2.4.1).

## 2.4 The tension between the compact and the sprawling city

Sustainability has been at the center of the international arena since the 1960s<sup>35</sup> (Davis, 1991; Mebratu, 1998; Parra, 2010), being the formalization of the concept of sustainable development through the so-called Bruntland Report (on Environment and Development, 1987) the peak of this debate.

Sustainability (and sustainable development) was considered to be a revolutionary concept that would ensure economic development (that is, growth), respect for the environment (to maintain the so-called environmental capital with no net loss on actual resources for future generations) and social justice, with a particular emphasis on resource redistribution. Consequently, sustainability nurtured ‘high expectations for its reconciliatory potential’ (Owens and Cowell, 2002, p.28), however, notwithstanding the initial enthusiasm, sustainability has been later recognized to be a contradiction in terms (Owens, 1994; Owens and Cowell, 2002; Pieroni, 2002).

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<sup>35</sup>An extensive literature on sustainability and sustainable development is available, and some of the key references can be Daly and Cobb (1994); Mebratu (1998) and Pezzey (1992). These authors underline that the popularity of the terms ‘sustainability’ or ‘sustainable development’ is connected with the persistence of concepts such as ‘harmony with nature’ or ‘limits to growth’ as precursors of the sustainability debate.

Without embarking in the extensive debate on sustainability and sustainable development, for the purposes of this dissertation it is relevant to point out how, in 1990s, part of the international and academic debate shifted the attention from sustainability to the concept of *urban* sustainability (Camagni, 1999; Campbell, 1996; Gibelli, 1999; Jenks et al., 2005; Mazza and Rydin, 1997; Rees and Wackernagel, 1996; Wackernagel and Yount, 1998; Yanarella and Levine, 1992). Urban sustainability served as an analytical tool to strategically define the boundaries within which to fight the battle for sustainable development, as a way to delimitate the city as a system within a larger, all-encompassing system at the regional, national and global levels (i.e. multi-scalar urban sustainability; see European Commission, 1998, p. 8). Referring to the literature on ecology, the city could be defined as ‘an heterotrophic ecosystem, highly dependent on large inputs of energy and materials and a vast capacity to absorb emissions and waste’ (Alberti, 1996, p.384), emphasizing the interdependence between the city and its surrounding environment in terms of resource consumption and flow.

As discourse on sustainability has been deeply linked to the local level (‘the multi-scalar agenda’), urban sustainability emerged as a strategic concept to stress the need to contextualize and concretize the general statements on sustainable development at the local level.

Since the onset of this debate, many types of urban policies have been implemented in the name of urban sustainability, the most popular of which are recycling, the request for environmental assessments, the assessment of the local capacity for development, the introduction of environmental taxes, the (attempted) monetary evaluation of environmental resources, participatory planning, biodiversity protection, waste management, raising citizens’ environmental awareness on resource consumption and depletion, urban regeneration, sustainable urban mobility, and integration policies (i.e. the institutional coordination and the inclusion of the private sector for a ‘sustainable *growth*’)<sup>36</sup>.

However, the real benefits and performances of these policies are controversial. For example, participatory planning can be quite problematic in deciding who can participate and how to carry it out (e.g. the URBAN projects, see Vicari 2004). Moreover, there must be a critical consideration about the right to participate, as it should not solely come from the fact of being a local. Besides the positive experiences and outcomes of participatory planning (Ciaffi and Mela, 2011), the emphasis on the role and the ‘right’ of the local community to participate only by virtue of being local puts into question one of the pillars of participatory planning (Owens and Cowell, 2002). Furthermore, the diversified micro-projects ideally devoted to sustainability and implemented at the local level (e.g. community gardens, public bicycle services) are carried out only punctually and within a small, delimited space of the urban trim, thus limiting the breadth of impacts and efforts towards sustainability at the urban local level (Davico, 2004, p.180).

Together with the difficulties and the contradictions in translating the implications of sustainability and urban sustainability into practical terms, radical understandings of the concepts have been put aside in the public debate, and more space has been left to contextual negotiations and compromises. The potential of sustainability and urban sustainability has not been translated into a convincing theory of social change (Keil, 2005). This is particularly true in so far as social equity is concerned (MacCallum et al., 2009; Parra and Moulaert, 2011; Vicari Haddock and Moulaert, 2009), since the social aspect of urban sustainability is resolved,

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<sup>36</sup>There have been attempts to measure the progress towards urban sustainability through a selection of indicators (Alberti, 1996; ISTAT Italian National Institute of Statistics, 2013), among which the Sustainable Development Indicators (SDIs) identified by the European Union since 2000 consist of an extensive, although problematic, example.

for example, through the creation of green collar jobs to absorb the working capacities of the urban poor (McKendry, 2008). In addition, alternative (and more convenient) interpretations of urban sustainability and urban sustainable development have been employed by local entities. Consequently, the outcomes and the strategies adopted in operationalizing sustainability in cities have also been diverse. As radical conceptions of urban sustainability have been avoided in order not to tackle the institutional and economic powers (the ‘hard’ or ‘strong’ interpretation of sustainability), weaker interpretations having experienced a more favorable treatment (Davico et al., 2009; Owens and Cowell, 2002).

The translation of sustainability into policies implies power struggles, where actors negotiate what issue should be considered environmental and sustainable and to what extent (Mela, 2002; Owens and Cowell, 2002). More explicitly, While et al. (2004) propose denominating the inclusion of environmental issues in cities’ neoliberal agenda as ‘sustainability fix’. This term refers, on the one hand, to the ‘greening of development’ process, where urban policies, such as land reconditioning and the reuse of brownfields, waste recycling or sustainable mobility, are strategically employed in order to attract investment and to make a certain locality more appealing for business. On the other hand, it critically focuses the attention on how environmentalism changed the urban governance agenda, therefore on how concerns on urban sustainability affect the political decisions that are made. The concept of sustainability fix does not imply the impossibility of reaching urban sustainability; it rather pinpoints the *selective* assimilation of environmental issues within the neoliberal discourse, where ecological goals become strategic to boosting growth. Sustainability fix is the tool through which urban environmental governance is negotiated and defined among actors, emphasizing how the (urban) sustainability debate has to be critically considered in policy implementation.

Concerning this dissertation, the (urban) sustainability debate re-frames and assimilates urbanization processes, understood as land use transformations from open and agricultural land into urbanized soil, as *land consumption* matters. Land use change thus equals land consumption, or ‘(non)sustainable land or resource use’ (Geist et al. 2006, p.43; see also Ipsra 2011). Urbanization processes become a problematic issue of land consumption only when sustainability concerns are considered, and especially when the compact city is set as a normative ideal to orient urban development (see *infra*)<sup>37</sup>.

Indeed, among sustainable land use policies, the compact city stands out as the normative ideal and as a metaphor for sustainability (Camagni, 1999), supported by the morphological archetype of the densely populated city core of the historic European city (Jenks et al., 2005; Kaelbe and David, 2000; Magnier and Russo, 2002) (see also sec. 2.3, sec. 2.3.1 and sec. 2.3.1.1). There, distances could be covered by walking, cycling and the use of public transport (the Walking city and the Transit city models, see Newman and Kenworthy 1999), and the city center could be kept vital thanks to a multiplicity of social interactions facilitated by the compact urban form (Jacobs, 1961).

The compact city seems to be a sort of ‘sacred space’ in opposition to which any other place becomes a ‘periphery’ (see Eliade, 1965, cited in Magnier and Russo, 2002, p.92). The metaphor of the compact city appears to be related to the historical ideal-type of the European city as a dense, compact and diverse urban center that specifically characterizes the European urban structure. Under this ‘anthropological’ perspective, the compact city model serves as a symbolic tool to re-discover the foundation myth of the European city, whose boundaries are now blurred and whose compactness has been lost by the diffusion of urban functions. Urban sprawl, as opposed to the compact city, converts into a profane, indistinct

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<sup>37</sup>However, urbanization, partially defined as a process of land use transformation (see sec. 2.1.1), should be conceived as a superset of land consumption, as it can not solely correspond to land consumption processes.

space, where the community can not reflect its symbolic boundaries to define its identity. The definition of a specific, bound territorial space (i.e. a place) where the community can symbolically and ritually express its sense of belonging is thus missing in urban sprawl, because of the difficulty of clearly tracing out its physical boundaries (see also sec. 2.3.1.2).

The understanding of urban compaction through ‘the compact city’ metaphor ‘includes a normative dimension, and the search for innovative policies and tools for governing the phenomenon of urban diffusion’ (Camagni et al., 2002b, p.202), which mainly involves urban infilling and densification (Castrignanò, 2008).

The occurrence of urban sprawl poses a challenge to urban sustainability in terms of *urban resource management*, as land is a scarce resource (Owens and Cowell, 2002). Urban sustainability conceived as urban compactness is ultimately connected with the role of values and political choices<sup>38</sup>:

Sprawl is a curious phenomenon in that it is widely criticized, and also extremely popular, which makes it an excellent litmus test for the values necessary to create sustainable cities. (Blassingame, 1998, p.1)

The political commitment towards a compact city reveals precise assumptions of urban resource management and governance process (see sec. 3.2), and the interaction between society and environment in an urban context.

#### **2.4.1 European Union and OECD policies for the compact and sustainable city**

The creation of a ‘sustainable city’ is a powerful idea that guides and stands out in European Union and OECD policies of resource management, territorial re-organization, economic competitiveness and environmental protection.

By adopting and re-elaborating the urban sustainability debate, the European Union has produced documents and directives with the aim to connect sustainable development, sustainable cities and policies as a guidance for its member states, regions and cities<sup>39</sup>.

The process towards a sustainable city has been constructed and presented as a challenging topic for European local urban actors. Since the 1990s, the European Union has been dealing with the concept of sustainability and sustainable development, but it was in 1999 when an official step towards a common understanding of sustainable development was elaborated with the publication of the ‘European Spatial Development Perspective’ (ESDP) (CEC Commission of the European Communities – Committee on Spatial Development, 1999; Faludi, 2004; Richardson, 2002). In this document, member states agreed to promoting a balanced and sustainable territorial development for all member countries, their regions and their cities. This document is particularly important because it outlines the boundaries of common territorial and urban policies which aim at achieving the following general objectives:

- a polycentric spatial development as a key tool for balanced and sustainable urban expansion;
- equal accessibility to infrastructure and knowledge for all European citizens;

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<sup>38</sup>Some authors prefer the term ‘wisely compact city’ (Gibelli 2006) to emphasize the normative character of this ideally urban form.

<sup>39</sup>Le Galès (2002, p.83) effectively explains that the ‘European Union, although it still does not have the attributes of a state, produces public policies, rules, procedures, and norms’, requiring ‘the European space to be viewed as a set of public policy spheres, structured by organizations, committees, agencies, groups, networks, and rules’ (see also sec. 4.3).

- sustainable development respectful of nature, landscape and cultural heritage.

Policies implemented at national, regional and local level should pivot around these main trends for achieving a long-term sustainable territorial development, trying to encompass all three areas of sustainability (economy, society and environment).

The interpretation and the translation of sustainable development guidelines within the boundaries of the European Union's member states were further developed in 2001 through the 'Göteborg Strategy', assessing the position and possible actions of the European Union towards climate change and renewable energies, sustainable transport, sustainable consumption and production, conservation and natural resource management, public health, social inclusion, demography, migration and global poverty. The Göteborg Strategy gave rise to the 'Sustainable Development Strategy' (SDS), adopted by the Council of Europe in 2006 and then revised (CEC Commission of the European Communities - Directorate-General for Regional Policy, 2009), in an attempt to build up a common, unified strategy regarding the diversified and heterogeneous issues brought up by the Göteborg Strategy itself.

Within this framework, cities happen to be the key players<sup>40</sup> in the process of implementation of urban policies – locally and spatially defined, see Cochrane (2003) – that should be coherently developed with the aim of achieving sustainability. In what follows, some of the most relevant documents on the key role of cities in attaining sustainability will be put forward and briefly discussed.

The 'Leipzig Charter on Sustainable European Cities' (EC European Council, 2007) represents a political statement of compromise signed by the European ministers of the member states to engage in a series of strategies towards urban sustainability, encompassing sustainable development, social equity and environmental concerns and defining a series of best practices for 'good urban management'<sup>41</sup>.

In the 'Thematic Strategy on the Urban Environment' (CEC Commission of the European Communities, 2004), the European Union reiterated the centrality of the role of cities to meet the European Union sustainable agenda. The enhancement of the quality of life in the urban environment regarding a variety of issues (environmental quality, e.g. noise levels, air quality, congestion, and social equity and economic competitiveness) is set as policy priority in order to improve cities performance for citizens and investors. As local authorities are the key actors in implementing these policies, the explicit support of the European Union is crucial in developing an 'integrated environmental (technical) management' through guidance, good and best practice, funds, training and knowledge advice.

It is crucial to stress that the European Union's documentation on urban sustainability put much emphasis on economic attractiveness and competitiveness. In this sense, the 'Europe 2020 Strategy for Smart, Sustainable and Inclusive Growth' is a clear example (EC European Commission, DG Environment, 2013). Cities are the motors of regional development: making them strong and competitive is key in ensuring Europe's place in the world (CEC Commission of the European Communities, 2010; CEC Commission of the European Communities -

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<sup>40</sup>Because integrated, economic development should happen in cities and regions, Richardson (2002) defines as 'urban bias' the priority given to cities by the ESPD as compared to rural areas.

<sup>41</sup>Other documents on the understanding of urban sustainability by the European Union are 'Promoting Sustainable Urban Development in Europe' (CEC Commission of the European Communities - Directorate-General for Regional Policy, 2009), or 'World and European Sustainable Cities – Insights from EU research' (CEC Commission of the European Communities, 2010), where the concept of sustainable urban development is proposed and exemplified through some virtuous cases and best practices on how it should be translated into urban policies. In several extracts, it is stressed how a real urban economic development is eventually achieved only when it is convincingly addressed to reducing poverty and to meet social and environmental demands.



Directorate-General for Regional Policy, 2009). Sustainability and a healthy environment are important factors for livable cities to achieve comprehensive and long-term competitiveness (EC European Commission, DG Environment, 2013).

Sustainable development is appealing because, besides enhancing citizens' quality of life, it improves cities' attractiveness for investors and private companies in search for a green, innovative and 'progressive' climate in which to develop their business. Policies for urban sustainability should be implemented because 'greening the economy' becomes a priority in neo-liberal policy agendas, as the sustainability fix tries to convey (While et al., 2004) (see also supra sec. 2.4).

### **The sustainable and compact city**

In sum, the European Union assimilated the theoretical consideration in the sustainability debate that the city is the necessary location where sustainable development should be achieved (ref. sec. 2.4). Within the European sustainability policy framework, which has been briefly outlined herewith, the compact city is presented and established as the ideal and normative model of the European sustainable city which European cities should tend toward (CEC Commission of the European Communities, 1990, 2009, 2010; CEC Commission of the European Communities – Committee on Spatial Development, 1999; EC European Council, 2007; EEA European Environmental Agency, 2006; European Commission, 1998) (see also Magnier and Russo 2002, p.38-42). Technically, the compact city involves:

- the re-use of brownfield and vacant land (urban infill) for residential development;
- the high-density of population and activities;
- the mix of urban functions (land use mixing).

Furthermore, although it is usually recognized that in the European context the sustainable city is mainly conceived as a compact urban environment, with high population density, land use mixes and public transportation (Vicari Haddock, 2004), sustainability is not solely connected with morphology and density, but extends to the more encompassing concept of quality of life (CEC Commission of the European Communities, 2009, 2010; CEC Commission of the European Communities - Directorate-General for Regional Policy, 2009). The criteria listed above emphasize the need for good urban design, aimed at producing less soil sealing (see sec. 2.3.1.3) and an enhanced proximity of green urban areas for citizens (EEA European Environment Agency, 2010b).

Land is considered as a strategic resource that has to be managed in terms of efficiency and equity in order to achieve the compact, sustainable city:

[t]he concentration of people in cities currently helps to keep down energy consumption and the demand transport in Europe. (EEA European Environment Agency, 2010c, p.22)

High population density has to be combined with good urban design to avoid cramming, and to enhance the overall quality of life in cities (EEA European Environment Agency, 2009, 2010c). In order to do so, it is crucial to monitor land use change, as this is the process through which a city expands. Land management is one of the tools through which a better quality of life is achieved and long-term sustainable development is implemented. Specifically, because of the consistent impact they have on the environment, urban land uses are central (EEA European Environment Agency, 2010b).

The European Environmental Agency's 'Report on Urban Sprawl' (2006, p.6) clearly states that '[s]prawling cities are the opposite of compact cities'. Hence, opposed consumption patterns are particularly evident between compact, dense cities and sprawled, periurban and

rural areas: compact cities are virtuous because they are more eco-efficient, while sprawled areas ‘eat up’ more energy, land and resources. Hence, since urban sprawl is opposed to city compaction, urban sustainability converts into a true governance issue for the European Union (see also sec. 2.4):

Achieving more compact urban development and controlled growth necessitates political agreement on planning and zoning objectives and means of implementing them as well as the control of unauthorised developments. (EEA European Environmental Agency, 2006, p.29)

In the European Union’ sustainability policy framework, the analysis of how and how much cities consume land is a way not only to examine how a city is sustainable in terms of resource management, but also to determine the level of policy adjustment to the ideal model of the compact city as defined by the European Union (see also European Commission, 1998). To achieve the sustainable and compact city, a complex intertwining between politics and planning must be set in motion, bringing up urban governance issues.

Similarly, the Organization of Economic and Cooperation Development (OECD) report on city compactness (2012) stresses the centrality of the role of urban governance in achieving a compact city, as there must be a coordination to design and implement a region-wide and long-term strategy towards urban compaction, fostering cooperation between the private and public sector. This coordination and agreement should then be monitored and supported by a set of quantitative indicators that provide (comparable) information on the progress of urban compaction in a specific city.

However, the OECD warns that ‘no single, comprehensive compact city model is applicable to all cities and regions, because each must take local circumstances into account’ (OECD, 2012, p.22), a conclusion supported also by other studies on the concept of the sustainable city (Kidokoro et al., 2008; Newman et al., 2009; Newman and Kenworthy, 1999). The OECD report sets specific governance challenges for compact city policies, underlining how the concept of the compact city evolved from land containment to a multi-dimensionality of policy approaches (energy saving, quality of life, etc.). The OECD stresses how there is a need to understand both the role that the concept of the compact city can represent for each urban context, and also how its understanding is translated into concrete policies. Specifically, the ‘added value’ for a city ‘to keep compact’ is not readily identified by policy makers, therefore the OECD (2012) argues that it is necessary to link urban compactness with an increase in urban attractiveness and competitiveness for the city itself – which is problematic, as it has been mentioned above for the European Union’s sustainability policy agenda (Gibbs et al., 1996; Owens and Cowell, 2002; While et al., 2004, see).

In synthesis, with reference to a ‘sustainability fix’ perspective, concerns on land consumption, land containment and city compactness seem the ways through which neo-liberal urban policy agendas towards economic growth and competitiveness try to be more environmentally friendly. In this way, land use policies are also assimilated within ‘greening the economy’ processes, where vertical development to attain high demographic concentration may only be functional for the increase of urban land rent and to be useful only to investors and the real estate sector.

## **2.5 Urban Sprawl: a provisional, theoretical definition**

This Chapter tried to present and discuss the complexities related to the definition of urban sprawl as a spatial phenomenon. As a large variety of definitions on urban sprawl exist, this

dissertation proposes a provisional, theoretical definition of urban sprawl which clarifies both how urban sprawl is conceived in this research, and how the employed definition stands out with regard to the possible definitions presented above (see sec. 2.3).

Because of the difficulties in defining urban sprawl in terms of urban form, metropolization process, morphological or demographic density, and the arduousness of identifying the specificities of urban sprawl in the European context, this dissertation places an emphasis on land uses. Although the use of the term ‘urban sprawl’ is maintained, this concept is originally reframed and conceptualized both as a type of land use, *and* a substantial land cover transformation from open and agricultural land into *dispersed residential* areas (see sec. 2.1.1). Urban sprawl is thus strategically conceived and analyzed both as an *outcome* (or a noun), that is as a ‘pattern of urbanization’, and also as a *process* (or a verb), that is as a ‘process of urban change’ (Couch et al., 2007b, p.4) (see also Galster et al. 2001 and Wolman et al. 2005).

Such a theoretical expedient is considered useful as it overcomes the intrinsic difficulty of precisely defining a morphologically diverse phenomenon such as urban sprawl, and bypasses controversial demographic thresholds to distinguish urban, peri-urban and rural areas (Brenner and Schmid, 2014, see), which may be however dealt with in future research. Land uses are measurable, and the classification of land cover in spatially delimited classes converts land use into a reliable instrument to theoretically approach urban sprawl as a spatial phenomenon, and as a type of space-society interaction.

We can consequently suggest that, firstly, urban sprawl is conceived as a type of pattern of spatial dispersion occurring in Europe, with urban sprawl being the dispersed spatial organization of *residential* areas. As a phenomenon ideally opposed to the sustainable and compact city (see sec. 2.4), with land being consumed and not efficiently allocated (i.e. land consumption), urban sprawl is spatially dispersed land use occurring in a low-density pattern and along the urban fringe. Secondly, sprawled residential areas are the result of land use transformation processes, which are framed not only within land consumption trajectories, as sections 2.4 and 2.4.1 showed, but also within land management processes, which will be more precisely dealt with in section 3.2 and Chapter 4.

The connection of urban sprawl to the urban sustainability debate and land consumption is relevant in the European context because of the distinctive features that have historically characterized European cities, among which urban compaction is a prominent attribute (Kaelbe and David, 2000; Le Galès, 2002, ch. 1 and 2; Vicari Haddock, 2004, p. 31; Weber, 1958; see also sec. 2.3.1). In addition, and in contrast to the US context where the term urban sprawl originated, European metropolitan areas are polycentric systems, characterized by small and medium sized towns. Hence, even recognizing the expansion trends of the urban built forms occurring in European cities after Second World War, suburbanization processes occurring in Europe are particularly fascinating, as dispersed residential areas are influenced by specific historical features emplaced in the European urban systems.

The focus on the residential character of urban sprawl is motivated, as previously mentioned, by several factors. Firstly, ‘discontinuous residential areas’, so defined by the Corine Land Cover (CLC) data, appear to be the characterizing attribute of European urbanized soil (see sec. 2.2). Secondly, housing policies, generally aimed at home ownership, occupy a central position in Western European welfare states, in an attempt to provide, since the 1950s, affordable dwellings to an increasing urban population attracted by growing industrial and metropolitan centers. Thirdly, ‘houses’ combine both qualitative and quantitative features, such as being a ‘home’, a financial product, or an immobile and long-term consumption good, whose relevance emphasizes the rationale to focus on residential areas as ‘groups’ of

houses.

However, this provisional, theoretical definition opens up further questions. If urban sprawl is considered as a type of land use, how should urban sprawl be operationalized in order to define it as both ‘pattern’ and ‘process’? And given that the city (*urbs*), as an assemblage of land uses (see sec. 2.1.1), is the non-deterministic result (outcome) of social, economic and political processes (*civitas* and *polis*), how should these processes be conceptualized and framed, in the attempt to explain the occurrence of urban sprawl? In other words, how should a quantifiable phenomenon such as urban sprawl, defined in terms of land use patterns and processes, be connected with such ‘qualitative land management’ dynamics that convert open and agricultural land into urban soil?

Chapters 3, 4 and 5 will deal specifically with such questions; as an anticipation, in this dissertation the dispersed territorial expansion of residential areas is conceived as an outcome of governance processes: urban sprawl is primarily addressed as a land management issue (in particular, see sec. 3.2 and sec. 4.8). Urban sprawl is conceived as a result of governance dynamics among agents, who can be builders, local (municipal) authorities, landowners, citizens, and provincial and regional governments. Dispersed residential areas are considered as a significant outcome of territorial governance processes, where political and economic agents are involved at different territorial scales to negotiate on land allocation for suburban residential uses.

However, before discussing how urban sprawl can be explained by governance dynamics (Chapter 4), the following Chapter 3 examines the different main driving forces that, in the literature, are considered to lead to the occurrence of urban sprawl in the European context.

## 2.6 Summary

As a privileged entry point for the analysis of the relationship between space and society, the focus on land use allows the conception of cities as land use assemblages, where a variety of land uses fulfill specific functions (e.g. housing, transport, production). The focus on dispersed residential land uses is particularly relevant because it is a characterizing soil attribute of European urbanized land cover.

Urban sprawl is an expression that is difficult to define; however, in this dissertation, urban sprawl is conceived and analyzed as a type of pattern of spatial dispersion occurring in Europe as the expansion of *residential* areas. Urban sprawl is assumed to be a type of land use, *and* a substantial land cover transformation from open and agricultural land into *dispersed residential* areas. This means that urban sprawl is both a territorial *outcome* and *process*.

In the literature, there is a stated opposition between the two ideal-types of the ‘sprawling’ and the ‘compact’ city, where the compact city becomes a metaphor, a general guideline to orient city development. As for other ‘sustainable city’ policies, urban compactness implies political negotiations among actors on what and how an issue should be considered sustainable. Governance processes are at work when calls for the compact city, as desirable sustainable urban form, urge for efficient land management and land containment by implementing policies such as land remediation, re-use of brownfields, sustainable mobility and land uses mix.

The aim of this research is to clarify and explain why and how land is transformed (and consumed) for building dispersed residential areas, hence urban sprawl, provisionally defined as a land use pattern and a land use transformation process, is conceived mainly as a land management (governance) issue.

# Chapter 3

## Driving factors towards urban sprawl

In this Chapter, different factors and combinations of driving forces, which are identified in the international literature, will be surveyed, in order to investigate the wide variety of possible causes that can lead to the occurrence of urban sprawl.

Among the different driving forces, it will be made clear how political factors are highly significant in determining the appearance of urban sprawl. The key reason underpinning this assumption relies on the acknowledgement that, as a type of space–society interaction in terms of land uses, urban sprawl is the non-deterministic result of multi–actor agency (see sec. 2.1). Land use definition, allocation and transformation (i.e. land management) are ‘socially’ defined, however ‘society’ is composed of the interdependence between structure and agency. Therefore, it is necessary to refer to a convenient theoretical framework that can account for both structure and agency (see sec. 3.2 and Chapter 4).

However, let us first turn to the different driving forces identified in the literature that are considered to be the factors causing urban sprawl.

### 3.1 Explaining urban sprawl in European cities

Besides the wide range of possible definitions of sprawl, the international literature indicates also a wide variety of factors leading to urban sprawl (and more generally to land consumption or landscape change), on the basis of the specific contexts or locations where the fieldwork has been carried out, or on the basis of the data that have been used. It is therefore problematic to precisely single out which factors are more prominent in the occurrence of land consumption in general, or of urban sprawl in particular, as the specifics of social, cultural, political and economic characteristics of the territorial contexts are considered to be determinant (Christiansen and Loftsgarden, 2011). Beyond the difficulties in analyzing and measuring land use changes, for instance for suburban housing or transport infrastructures, ‘explaining the observed change, i.e., identifying and assigning causal power to candidate factors’ (Geist et al., 2006, p.42) is a substantially more difficult task. Nevertheless, it is possible to propose a tentative, non–exhaustive classification of some of the main factors regarded as crucial to the appearance of land consumption, and urban sprawl in particular, which will be thoroughly examined in this Chapter.

In addition, as clarified in section 2.5, the analysis of urban sprawl in the European context is a particularly challenging and fascinating task because of the specific historical characteristics of European cities, and the polycentric character of European metropolitan areas. The emergence of urban sprawl in the European built environment brings into question the traditional European city, spatially defined by precise boundaries. Furthermore, the emergence of the urban sustainability debate and the questions posed to urban development by land consumption, influenced the European Union’s policies by assigning the compact city as the

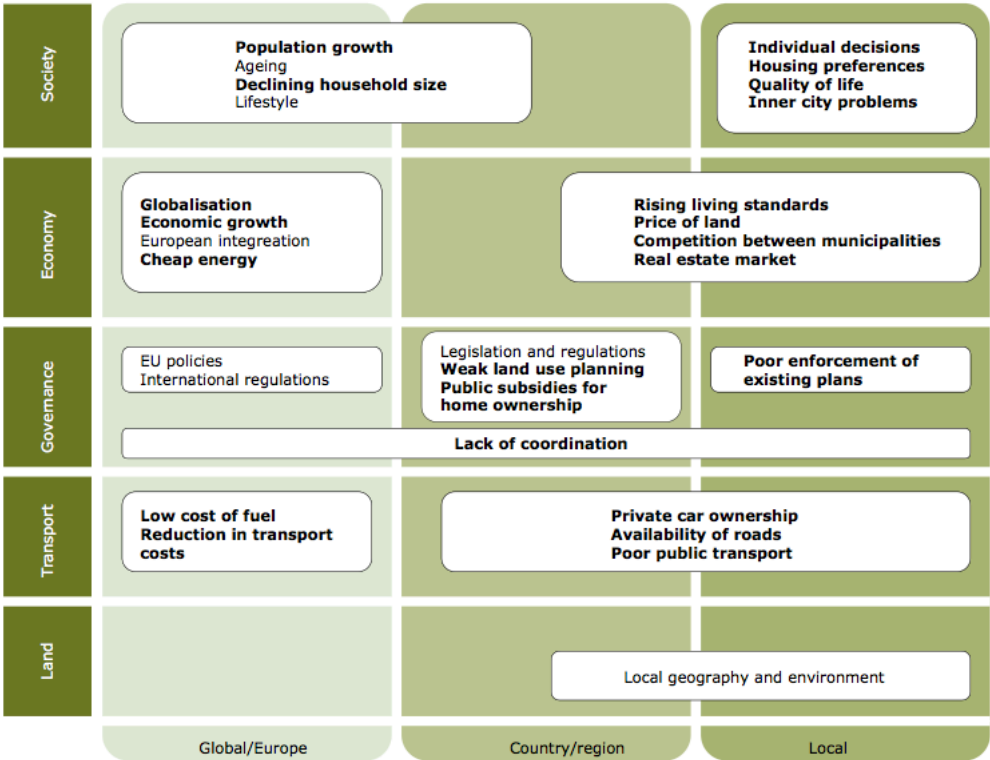
blueprint for the sustainable city. Urban sprawl is thus also a ‘hot topic’ on the European Union’s territorial and economic agenda.

Indeed, the European Environmental Agency’s recent report on urban sprawl (EEA European Environmental Agency, 2006, p.17) traces out a useful scheme of reference in order to analytically classify the main causes producing urban sprawl in Europe. In general, seven types of factors can be enumerated, by re-elaborating the EEA’s classification<sup>1</sup> :

- macro-economic factors;
- mobility factors;
- socio-demographic factors;
- cultural factors;
- micro-economic factors;
- geographical factors;
- political factors and urban planning practices.

More recently, the European Environment report (EEA European Environment Agency, 2010c) re-classified the considered driving forces according to similar broad categories, as figure 3.1 shows. The identified drivers are organized into two dimensions: the type of driver (horizontal) and the spatial scale of reference (vertical). Factors in bold are prime driving forces towards urban sprawl, while the remaining factors may influence urban sprawl under certain conditions.

**Figure 3.1:** Main drivers towards urban sprawl, identified by the European Environment Agency. Source: EEA European Environment Agency (2010c, p.23).



<sup>1</sup>Cultural and geographical factors have been considered a separate category by the author, and have thus been added to the EEA’s list.

In what follows, according to the type of factor as listed above, particular types of urban sprawl are focussed on. For instance, the expansion of transport infrastructures brings about a specific type of ‘ribbon’ urban sprawl, and socio–demographic factors mainly concern residential urban sprawl. Moreover, not all of the identified factors have a direct impact on types of urban sprawl. For example, macro–economic factors boosting tourism specializations in an area may then ‘heat’ the housing market with the provision of a specific type of suburban residential offer related to second–homes, side by side to conventional tourism facilities (e.g. hotels, airports). Similarly, establishment of new industries in the outskirts of a metropolitan area could plausibly attract new residents who may relocate into the urban fringe.

In addition, explaining the factors specifically leading towards urban sprawl can be confusing, for two main reasons. Firstly, it would be necessary to define urban sprawl as precisely as possible, ideally in terms of land use, and land uses should be filtered out. In other words, it is probably unrealistic to expect to be able to clearly distinguish types of urban sprawl and types of driving factors, and consequently analyze their correlation. Phenomenologically, urban sprawl comprises a mixture of land uses, and drivers towards land use change intertwine and have feedback impacts on each other (see sec. 3.1.8). Secondly, and ensuing from this first consideration, even if processes for the provision of suburban residential areas (e.g. detached houses), commercial areas (e.g. office buildings, shopping malls), or transport infrastructures may share factors, actors and dynamics (i.e. governance processes, see sec. 3.2), as they are all processes of land use change, they may arguably be characterized by distinct processes of spatial expansion. Hence, it is difficult to precisely discern the specificity of each land use change by land use type.

Notwithstanding these limitations, this list of factors is an heuristic expedient. In this Chapter, such EEA classifications (EEA European Environment Agency, 2010c; EEA European Environmental Agency, 2006) of driving factors are not obsequiously followed, but are discussed and integrated with the international literature on urban sprawl. They serve as a sort of provisional skeleton to categorize types of factors, given also the ‘educational’ and diagrammatic (i.e. non–academic) character of such reports. Each type of factor leading to urban land consumption and urban sprawl will be presented and commented upon, following the order of presentation indicated in the above list. It must be noted that this classification serves as an analytical tool since, in practice, factors intertwine and influence each other, as has already been mentioned, and as will be discussed in section 3.1.8.

Different systematizations might have been possible, for example by identifying the entirety of economic factors (macro and micro economic factors, mobility factors), political driving forces (political factors and urban planning practices) and socio–cultural factors (socio–demographic factors, and the cultural understating of ‘house’ and ‘home’). Alternatively, Geist et al. (2006) distinguish between proximate (i.e. local, or direct) *versus* underlying (i.e. root, or indirect) causes: the former refer to the human activities or immediate actions that are performed over a certain land cover, generally at the local level, that cause its modification or conversion (e.g. agricultural expansion or extension of built–up areas); the latter indicate driving factors that generally operate at the regional or global levels, and which ‘constitute structural (or systemic) conditions in human–environment relations’ (Geist et al., 2006, p.43), such as ‘technological, economic, political, institutional, demographic and (socio)cultural factors’ (ib.) (e.g. technological advances in oil extraction, demographic transition). Proximate and underlying causes interweave and result in complex interactions that produce land cover and use change. This interplay is also moderated by ‘mediating factors’ or ‘context variables’, such as gender, ethnic affiliation, power relations, institutional arrangements or biophysical properties Geist et al. (2006, p.44).



In synthesis, no agreed-upon classification exists regarding the different factors that, in different contexts, can lead towards land use change (Geist et al., 2006), neither a specific classification of driving forces is available for types of urban sprawl. Nevertheless, the rough classification proposed by the EEA (EEA European Environmental Agency, 2006) has been considered as an appropriate grouping to systematize the wide range of relevant driving forces towards land consumption and urban sprawl that are identified in the literature, given also the reputation and international acknowledgement of the EEA.

It is also important to stress that the identified factors refer to contemporary suburbanization, that is those urban dispersion processes occurring since the 1970s. Historical patterns of urban development and suburban expansion that appeared as early as the 1850s, such as upper class countryside residences, peripheral villas for the industrial elite connected with the nineteenth century European industrial development, or well-off suburbs in the USA growing into independent cities in the outskirts of metropolitan areas, are not considered in detail, although references to these historical processes may be made<sup>2</sup>.

### 3.1.1 Macro-economic factors

According to the classification that has been followed in section 3.1<sup>3</sup>, macro-economic factors refer to the general context in which cities are involved, which is assumed to have an influence on their spatial development (see also sec. 4.1). Industrialization has been a powerful force for historical land use change dynamics as technological innovations have facilitated the transition from an agriculture-based society to an industrial one, modifying also the ways in which crops were cultivated, managed and produced (Geist et al., 2006). Since the eighteenth century, in Western countries industrialization and urbanization have developed together: the lure of finding a job in the industrial sector fostered demographic growth in cities, influencing the spatial patterns of urbanization. Economic spatial specialization and concentration of population and production globally affected land use change dynamics towards land consumption and urban sprawl, especially after World War II (Geist et al., 2006).

Since the 1970s, globalization has been considered to be a major factor leading towards land consumption and urban sprawl (Barberis, 2006; Dematteis, 2009; Hersperger and Bürgi, 2009; Lambin et al., 2001), especially in the sense that macro-regions are forming, metropolization processes are increasingly characterizing European (large) cities (Martinotti, 1993, 2008), and that cities are gaining more and more relevance as entities in a globalized, European market (Le Galès 2002; see also sec.4.1), where more land is needed to keep up with market demands, for example for agricultural products, industries or housing provision. If, macro-economically, a region or a localized economic system are successful, land take and urban sprawl will occur because more room is needed to locate both the industrial and commercial areas, and also the residential zones connected to them that serve to accommodate the workers (Baioni, 2006; Breheny, 1997; EEA European Environmental Agency, 2006; Geist et al., 2006; Hersperger and Bürgi, 2009; Kasanko et al., 2006; Lambin et al., 2001). This is consistent with the perspective assumed by some economists, who consider the urban diffusion of economic

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<sup>2</sup>For further details see Couch et al. (2007b, ch.1 and 2), De Decker (2008, 2011b), Magnier and Russo (2002, ch.1), Tabb and Sawers (1978).

<sup>3</sup>Given the classification of driving forces that has been presented in section 3.1, this section, as well as section 3.1.5 on micro-economic factors, does not take into consideration economic theory debates on urbanization, location theory, land rent and land use prices, although a reference to these issues can be briefly made. As previously stated, this classification is an heuristic expedient adopted to facilitate the presentation and the discussion of the main driving factors towards urban sprawl.

systems as a positive process ensuing from contextual economic vitality (Camagni et al. 2002a; 2002b; Gibelli 2006; see also sec. 2.3).

In contrast, other authors (Couch et al., 2007b; EEA European Environment Agency, 2010c) call attention to the processes of urban land consumption and urban sprawl in situations of economic decline. This perspective draws attention to the fact that urban policies and planning tools are mostly a means of organizing growth, rather than of coping with stagnating urban economies. Economic crises can lead to the abandonment of the city center and to an increase in competition among municipalities along the urban fringe that try to attract inhabitants and economic activity, ‘giving away land’ to the highest bidder (see also sec. 3.1.7), and making short-sighted decisions. In these circumstances, urban development can occur as an attempt to turn the tide of shrinking cities.

European integration is also considered to boost urban land consumption, as cohesion policy and structural funds (cf. Marks, 1992) inject financial resources that are spent in the physical enlargement of the city in the form of industrial, commercial or residential areas, or transport infrastructures (CEC Commission of the European Communities – Committee on Spatial Development, 1999). Territorial cohesion policies, and in particular the sectorial policies such as the Trans European Networks (TEN) and the Common Agricultural Policy (CAP), play a key role in shaping land use patterns (EEA European Environment Agency, 2010c). Several authors underline this connection (Antrop, 2000; Christiansen and Loftsgarden, 2011; Couch et al., 2007b; EEA European Environment Agency, 2010a; Hersperger and Bürgi, 2009; Lambin et al., 2001; Uhel, 2008), which can have both intentional and unintentional, positive and negative impacts on land use change, emphasizing the need to understand the functioning of European integration as a process of multi-level governance having a territorial impact (Piattoni, 2010).

Global (mass) tourism is also considered a macro-economic cause of urban sprawl, as tourism-oriented areas tend to expand in terms of hospitality facilities and second homes (Arcidiacono et al., 2010; Camagni, 1999; Christiansen and Loftsgarden, 2011; Couch et al., 2007b; EEA European Environment Agency, 2010a; EEA European Environmental Agency, 2006; Hersperger and Bürgi, 2009; Padovani, 1996; Uhel, 2008). The phenomenon of second houses is more evident in Southern Europe (Allen et al., 2004), although it has been reported to be occurring in Northern European countries as well. For instance, in Sweden the availability of land and mobility infrastructures foster upper and middle income households to commute to their holiday homes in the countryside, allowing them to escape from the stressful inner-city environment (Arnstberg and Bergstrom, 2007). Nevertheless, there is a substantive difference between the Northern and Southern European second home markets. On the one hand, some authors argue that in Southern Europe the offer of second homes has been (more recently) boosted by foreign demand, while in Northern Europe this market still presents a more consistent domestic character (González Pérez, 2004; González Pérez and Medina, 2004). On the other hand, other scholars claim that second homes are traditionally a phenomenon characteristic of Southern European countries, especially in Spain, where secondary houses could be estimated to amount to 20% of the total housing stock (Allen et al., 2004).

### 3.1.2 Mobility factors

Another type of causes of land consumption and urban sprawl consists of mobility factors, which are connected to the macro-economic factors mentioned above. Transport infrastructures deeply influence territorial spatial organization, and especially the form and development of urban settlements (Boffi et al., 2012; Martinotti, 1993). To be specific, road

availability amplifies and enables urban land consumption and urban sprawl both through a linear morphological form of expansion (Antrop, 1998, 2000, 2004; Bottini, 2006; Chin, 2002; Ewing, 1997; Fregolent et al., 2005) and also by the permeating increase of reticular road networks (Amendola, 1997; Ashton, 1978; Baioni, 2006; Barberis, 2006; Boffi and Palvarini, 2011; Camagni, 1999; Camagni et al., 2002a,b; Castrignanò, 2008; Catalán et al., 2008; Centro Studi PIM, 2011; Colleoni, 2011; Couch et al., 2007b; EEA European Environment Agency, 2010a; EEA European Environmental Agency, 2006; Hersperger and Bürgi, 2009; Muñoz, 2008b; Rudel, 2009; Rueda Palenzuela, 2002; Salata, 2010; Salzano and Gibelli, 2006; Vicari Haddock, 2004). The US context is here paradigmatic, as the growth of private mobility infrastructures has been an intentional territorial policy producing a new urban form connected with a new lifestyle, namely the ‘post Second World War North American suburb’ (Filion, 2013, 40).

It is also relevant to stress that not only the sealed surface taken up by transport infrastructures, such as roads and railways, should be considered, but also the land that is directly consumed to support mobility facilities, such as road and gas stations, roundabouts, parking lots, safety areas, noise barriers, traffic islands and other residual areas in-between roads and railways (Barberis, 2006). While there are some authors that underline private mobility as the key factor in the occurrence of urban sprawl (Newman and Kenworthy, 1999), others point out its necessary but insufficient role (Guieyss and Rebour, 2012).

Road availability is directly connected with the percentage of private car ownership compared with the residential population, a measure which is called the ‘motorization index’ (Camagni et al., 2002a)<sup>4</sup>. This measure tries to give a general idea of the mobility demands and the capacity of road networks in dynamic economic contexts. Additionally, in connection with road networks availability and private car ownership, poor public transport (Camagni et al., 2002a; EEA European Environmental Agency, 2006; Newman and Kenworthy, 1999) and the relatively low price of fuel (Ewing, 1997) are related factors to be considered when attempting to explain the expansion of the urban fabric for mobility reasons.

Mobility infrastructures are the ‘spine’ through which (suburban) residential areas and industrial and commercial areas can be connected and reached through private car ownership. Camagni further argues that:

the models of mobility are cumulatively related to the dynamic of the models of residential settlements, as they both lead to irreversibility: private motorization allows a broadening of locational options both for people and for companies, but once these options have crystallized in diffused spatial choices, they convert into models of mobility that are difficult to modify, both in the short and in the long run. For this reason anticipatory policies are necessary and public choices have to be made with a longer horizon. (Camagni, 1999, p.21) [my translation, my emphasis]

As transport infrastructures literally pave the way for urban land consumption and urban sprawl, the built form and the built environment they produce are not merely a pure accident, but the transport network forms a constituent element of the system structure, generating interlinkages and path-dependent mechanisms for the same social systems which created them (Sheller and Urry, 2000; Urry, 2004)<sup>5</sup>, re-organizing mobility structures through a feedback system (Verburg et al., 2006). Urry (2004) defines this mechanism as the ‘inter-locking

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<sup>4</sup>See also Antrop (2000); Chin (2002); Christiansen and Loftsgarden (2011); Colleoni (2011); Couch et al. (2007b); EEA European Environmental Agency (2006); Ewing (1997); Mazza and Rydin (1997); Rudel (2009); Salzano and Gibelli (2006); Uhel (2008).

<sup>5</sup>For a critical review of ‘mobilities’ and the dynamics and consequences of road mobility, see Featherstone et al. (2005) and Docherty and Shaw (2008).

process of automobility<sup>6</sup>.

The literature on mobility infrastructures almost unanimously agrees in stating that an increase in road building will lead to an increase in the motorization index and therefore in traffic, as urban functions, like industrial and commercial sites, or residential areas, can decentralize and scatter around below the feasible density thresholds necessary to organize an efficient public transportation system (Camagni et al., 2002a,b; Newman and Kenworthy, 1999). In addition, scholars underline that

[o]nce land has been converted into urban use, it is difficult for that land to be converted to agricultural or relatively unmanaged uses. (Lambin and Geist, 2006, p.8)

This is an intrinsic characteristic of path-dependency, that is the difficulty to re-orient the process once the transformation has taken place.

Alternatively, convinced supporters of urban sprawl, such as Glaeser and Kahn (2004), identify private mobility as the only cause of sprawl. Interestingly, they also argue that cities are shaped by transportation modes just as urban sprawl opponents claim, for example Newman and Kenworthy (1999). If both sides the expansion of urban sprawl as predominantly explained by the expansion of private mobility infrastructures, Glaeser and Kahn (2004) advocate urban sprawl as an omnipresent and inexorable phenomenon that has come to characterize the US landscape. They consider the steady expansion of urban sprawl in the US context as an incessant spread out of dwellings and jobs over metropolitan areas, whose beneficial effect has been to enhance people's quality of life. Cars have reduced transportation costs, and free urban development from the ties of mass transit, which needs economies of scale to be economically feasible<sup>7</sup>.

However, mass transit is also considered to be responsible for urban sprawl, as suburbanization processes are facilitated by the enhancement of accessibility and the reduction of commuting time, as in the cases of the UK or Belgium, and the US during the beginning of the twentieth century (Chin, 2002; De Decker, 2008, 2011b; Glaeser and Kahn, 2004; Nuissl and Couch, 2007). This type of urban expansion occurred especially during the development of mass transit, that is from the end of the nineteenth century to the 1950s, before the car increasingly became a mass consumption product. Nevertheless, the type and range of urbanization patterns produced by mass transit is certainly qualitatively different from the much varied and permeating spatial development opportunities offered by the car (Newman and Kenworthy, 1999).

### 3.1.3 Socio-demographic factors

Socio-demographic factors involve a wide array of elements, combining both demographic characteristics of the population and considerations of the quality of the urban environment. These types of factors are less readily identifiable, as they are defined differently in the predominantly non-sociological literature treating them, and as they are variably operationalized

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<sup>6</sup>Mela and Preto (1997) and (Moulaert et al., 2010) also emphasize the relevance of analyzing the spatial dimension of path-dependent dynamics in specific contexts. Furthermore, Moulaert et al. (2007) interestingly add that the same condition could be, in different contexts, a constraint (path-dependent condition) and an opportunity for change (path-breaking condition).

<sup>7</sup>Glaeser and Kahn (2004) further argue that the negative consequences of sprawl have been overestimated: an increase in automobile efficiency will substantially decrease the environmental impacts of urban sprawl in the future, and the social problems (e.g. social and racial segregation) that sprawl brings about are simply a result of the impossibility for certain strata of the population to pay for a 'multi-car based lifestyle', as they define it, in the suburbs.

in a diversity of contexts and studies, making their recognition and comparison relatively difficult. Furthermore, it is more problematic to straightforwardly identify socio-demographic factors leading to urban sprawl in comparison to other factors, since opposite measures employed in different contexts can equally produce urban land consumption or urban sprawl (i.e. equifinality, see Ragin 1987; 2008).

An initial driving force leading to urban sprawl is population decrease, that is the loss of population within the administrative boundaries of the city, given that such statistical measurements generally use administrative delimitations. When population loss is detected, residents flee outside the administrative boundaries of the urban core and relocate in the urban fringe (Antrop, 2004; Baldini, 2010; Bonora, 2012; Camagni et al., 2002a; Castrignanò and Pieretti, 2010; Colleoni, 2011; EEA European Environmental Agency, 2006; Gennaio et al., 2009; Hersperger and Bürgi, 2009; Kasanko et al., 2006; Uhel, 2008)<sup>8</sup>. Such demographic trajectory is also identified in the periurbanization literature as a characterizing factor of peri-urban areas, with the population remaining highly dependent on the city center for jobs and services (Bessy-Petri, 2000; Cattan and Berroir, 2005; Cavailhès et al., 2004; Colleoni and Caiello, 2013; Guieyss and Rebour, 2012; Le Gléau et al., 1997; see also sec 2.3.1.1). Kantor and Savitch (2002, ch. 1) refer to de-densification processes as a demographic dynamics from the center to the outskirts of the city, similarly understood as the term ‘urban diffusion’ employed by Camagni (Camagni et al., 2002a,b), discussed in section 2.3. Alternatively, Kantor and Savitch (2002) use the term deconcentration to more precisely indicate the process of demographic decline that mainly characterized downtown areas of North American cities.

However, population increase can also be considered as a cause of urban sprawl, since more residents have to be accommodated, as happened during the 1950s and 1960s in Europe following widespread economic development (EEA European Environmental Agency, 2006; Geist et al., 2006; Kasanko et al., 2006). When this occurs, more space is needed for housing construction, be it in high-rise buildings or in detached or semi-detached houses. However, as put forward by Chin (2002, p. 3), the urban expansion occurring in Western cities during the 1950s and the 1960s is generally no longer considered as sprawl, but part of the second post-war urbanization process.

In synthesis, both demographic decrease or increase can be principally regarded as sufficient causes for the occurrence of urban sprawl. Nevertheless, they are qualitatively different. Indeed, if an enlargement of urban areas ensues from population increase, there is suppositiously an actual need for residential functions to be fulfilled, while if the population decreases, these functions are transposed to the urban fringe, recomposing the relationship between the urban core and the small and medium size centers around it (see also sec 2.3.1.1). For example, the Centro Studi PIM (2011) shows that, in the case of Milan, between 2001 and 2011 there was a population increase in the municipalities surrounding Milan, while the central city lost population, in contrast with previous demographic trends. Perhaps with the exception of the ‘glorious thirties’ after World War II (1945–1975), in Europe a demographic increase does not solely and predominantly happen through the morphologically continuous enlargement of the urban and metropolitan center, but suburban residential areas, in a morphologically discontinuous fashion, grow instead.

However, in the European context, given the important role that the city center traditionally plays in European cities, upper-classes still mainly reside in it, hence counterbalancing diffusion processes, despite segments of the middle and high income population moving out from the city center locate in suburban, high-standard enclaves (Bagnasco and Le Galès,

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<sup>8</sup>See also the density gradient (Couch et al., 2007b) discussed in sec. 2.3.

2000a; Le Galès, 2002, p.128). In these cases, the upper and middle population fleeing to the outskirts in suburban housing areas may be pushed to do so because of internal rural–urban migration flows, and international migration dynamics: well–offs leave the city center to reside in suburban, more exclusive (and excluding), ‘safer’ and ‘more controlled’ housing environments, such as ‘gated communities’. ‘Enclosure’ in such suburban communities is instrumental to create a (ethnically) homogeneous, family–centered community, where social conflict is left outside and opposed to the ideal lifestyle of such ‘suburban paradises’. Gans (1967, 1968) centered his seminal analysis on Lewittowners precisely on the construction of this sense of community, based on the creation of an idealized suburban home characterized by ethnic, socio–economic and cultural homogeneity.

When suburbs became a mass phenomenon in the USA, they were ideally inhabited by lower–middle classes, as in the example of Gans’ Lewittowners (i.e. ‘normal people’), or by the ‘new middle class’, where young, well-educated breadwinners occupied managerial work positions (e.g. lawyers, salesmen, engineers) or were civil servants (e.g. teachers, bureaucrats). This second type of suburbanites temporarily moved to the suburbs together with their family until a new promotion (upward mobility) made them flee to ‘something somewhat more opulent in the way of a home’ (Berger, 1968, 123). However, Berger (1968) insists that, upon the emergence of a rather homogeneous cultural myth of suburbia (see sec. 3.1.4), there were (and, arguably, there are; cf. Keil, 2013a) nevertheless many types of suburbs, depending on the socio–economic characteristics of the population, their education, age, the relative location of the suburb, the range of housing prices, and so forth.

However, in comparison to the USA, and except some identifiable cases, in general ‘the class structure of the commuting population is quite different and actually almost symmetrical in the USA and in Europe’ (Martinotti, 2005, p. 95). Suburban commuters in the USA are generally middle and upper–middle class, while they are predominantly working class in Europe. In this sense, Kesteloot (2005) suggests that residential spatial arrangements reflect the increasing complexity of class structure.

For example, by focussing on Paris, Prêteceille (2007) demonstrates that upper and upper–middle categories have increased in the French metropolis since the 1960s, and have located both in the city center and in the *banlieue* (the French suburbs, see sec. 2.3.1.1). Between 1990 and 1999, in Haute–de–Seine, Yvelines, Val–de–Marne and Essonne *départments*, traditionally working–class and suburban areas, a higher increase in upper–class and upper–middle–class categories occurred compared to other districts of the Paris area. However, the suburban character of this fleeing is characterized by compact upper and middle–mixed areas, quite close to Paris city center, and contrasts both easy definitions relating to gentrification processes (as working class neighborhoods have been changing their social composition since the 1980s) and to suburbanization trends (because of the closeness to the city center, the neighborhoods being located in the first ring around Paris). The specific type of French suburbanization is here quite clear (as distinct from periurbanization, see also sec. 2.3.1.1), while suburbanization of upper–middle–class categories, following one of the US ideal–types, is not very frequent in the Paris case, as in Europe in general.

Another socio–demographic factor leading to suburban housing provision identified by the literature consists of the variation in the proportion of small households, and especially the increase in the ratio of one person–households (Antrop, 2000; Arcidiacono et al., 2010; Breheny, 1997; Centro Studi PIM, 2009; Chin, 2002; Couch and Karecha, 2006; Couch et al., 2007b; EEA European Environment Agency, 2010a; EEA European Environmental Agency, 2006; Ewing, 1997; Geist et al., 2006; Lanzani, 2012; Mantovani, 2005; Settis, 2010; Uhel, 2008). This socio–demographic change is deemed to lead to a stronger demand for houses

as a higher proportion of small households, i.e. households composed of only 1 to 3 people (Eurostat, 2011a), exert a higher urban pressure on the urban fringe. Small sized households can be both a causing factor and an effect, related to the fact that, culturally, every household, regardless of its size, should own a house (a ‘home’) on its own (Settis 2010, ch.1; see also sec. 3.1.4).

High demographic density is also deemed to cause urban sprawl, given the undesirable consequences that residential cramming has on the quality of urban living (Breheny, 1997; Camagni et al., 2002b; Chin, 2002; Couch et al., 2007b; Hersperger and Bürgi, 2009; Mann, 2009; Mazza and Rydin, 1997). This is particularly challenging as one of the main characteristics of the compact city is precisely high residential density within the city core, achieved through the strategies of land infill, regeneration of brownfields and the renovation of the existing built environment (see sec. 2.4). The problematic issue of which demographic thresholds should be defined as ‘high’ or ‘low’ density narrows the significance of population density as a desirable character of the compact city, as it can also be a crucial factor leading towards urban sprawl (Breheny, 1997, see). For instance, in the case of Switzerland, Mann (2009) reports that the combination of high population density and high income levels are driving factors towards land consumption and urban sprawl.

More importantly, housing preferences are considered the major determinant factor for the occurrence and the provision of suburban housing. As (smaller) households strive to escape inner-city housing cramming and low-quality urban environments, they are also pushed towards the urban fringe in search for a better standard of living (e.g. more green areas, more safety for children, better air quality), but also for a safe, long-term investment for their families and children (Couch and Karecha, 2006; Geist et al., 2006; Glaeser and Kahn, 2004; Lanzani, 2012; Rueda Palenzuela, 2002; Settis, 2010). This relates to the presence of an ‘archaic mentality’ concerning the idea of house property as a ‘shelter-good’ (CRESME 2006 and Settis 2010, p.33; see also sec. 3.1.4). In particular, Allen et al. (2004) argue that Southern European housing systems, compared to Northern, Central and Eastern European countries, are distinctively characterized by the role that families play in housing production, since access to housing is ensured by investment in house property to support younger generations. This is further reinforced by the high rates of home ownership and the limited social housing offer, by the tendency of owning second homes (which may become primary dwellings over the household cycle), and by the Southern cultural connection between the ‘family’ and the ‘house’ (Allen et al., 2004). Furthermore, socio-demographic attributes of the population residing in sprawled areas are connected with cultural factors (see sec. 3.1.4). For instance, younger couples (a type of small size households) may prefer living in sprawled areas because they may consider a big house with a garden more convenient to raise children (Caiello and Colleoni, 2013; Couch and Karecha, 2006).

Housing preferences are considered as a typical feature of the urban middle class that is steadily escaping from the city center, and who is homogeneously expressing its needs through the anti-urban search in the suburbs of a more ‘urban’ livability (Pieretti, 2012).

In sum, households search for the fulfillment of a specific lifestyle<sup>9</sup>, which can be labelled as ‘suburban’, in opposition to the ‘urban’ character of the city (see Sebastiani, 2007; see also Simmel, 1995). However, spatial clustering occurs as different socio-economic groups locate

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<sup>9</sup>See Antrop (2000, 2004); Arcidiacono et al. (2010); Baldini (2010); Bonora (2012); Breheny (1997); Camagni et al. (2002a); Chin (2002); Christiansen and Loftsgarden (2011); Couch and Karecha (2006); Couch et al. (2007b); CRESME Centro Ricerche Economiche e Sociali di Mercato per l’Edilizia ed il Territorio (2006); ESPON (2010); Ewing (1997); Gibelli (2006); Hersperger and Bürgi (2009); Kantor and Savitch (2002); Kasanko et al. (2006); Mantovani (2005); Muñoz (2008b); Peiser (2001); Rudel (2009); Rudel et al. (2011); Uhel (2008).

in different suburban areas, where ‘gated communities’ can also arise.

Finally, the consideration of housing preferences as a possible cause for urban sprawl implies a clear statement on the assumed housing needs of the population. It is argued that households prefer a type of living ‘in the nature’, rhetorically idealizing the countryside, and orienting people to search for a detached or semi-detached house with a garden in the outskirts of the city (a sort of pseudo-countryside) without considering the contradictory aggregated consequences of this choice, and the rising costs of private transport for commuting (Martinotti, 2012). Furthermore, the consideration of housing preferences as a driving factor towards urban sprawl overlooks the predominant housing models established in a certain country, and the strong interdependence between housing policies (i.e. governmental actors) and market forces (i.e. non-governmental actors) in shaping ‘the origin, persistence and changes of housing patterns within their historical contexts’ (De Decker, 2011a; see also sec. 3.1.5 and sec. 3.2).

### 3.1.4 Cultural factors

Housing preferences bring about cultural factors as driving forces towards suburbanism (Geist et al., 2006, p.62). Couch et al. (2007a) and Le Galès (2002, p.128ff) summarize the over one century long shift in urban values connected with peripheral land in different contexts. In the nineteenth century, the English bourgeoisie fled to their weekend and summer houses to escape cramped urban centers fraught with industry and workers. Suburbanization, later systematized and inspired by Howard (1946)’s *The Garden City* was a phenomenon exclusively related to the upper classes, and connected with the rise of the idea of ‘home’ as the paramount place where the nuclear family, a similarly new concept, could enjoy individual privacy. In the US, suburbanism was supported by public transport, as buses, and later trains, allowed commuters to work downtown while residing in quiet areas in the outskirts of the city (see sec. 3.1.2). The automobile hugely facilitated commuting and allowed (white) middle and upper classes to leave the city center (the downtown) to the poor. For Couch et al. (2007b), urban sprawl is mostly an Anglo-American phenomenon: affluent classes live in the outskirts, not in the city center, and low-density residential towns are considered the living ideal (*lifestyle-driven* urban sprawl).

When the term ‘suburbs’ started to refer to those post-second World War mass-produced track-houses located at the periphery of US cities, ‘suburbia’ stood out as ‘a term of cultural reference’, intended ‘to connote a way of life, or, rather, the intent of those who use it is to connote a way of life’ (Berger, 1968, p. 121–122). Suburbia is a myth (Berger, 1968) founded on the (well-educated) heterosexual married couple with children, where the husband is the breadwinner and is commuting to the city. In this myth uniformity of the physical context (e.g. ranch-houses with a garden) is combined with ethnic, socio-economic and cultural homogeneity of suburbanites (see sec. 3.1.3). This homogeneity fosters active participation both in local voluntary associations, church and civic life, and in regular informal meetings among families and gender-based gatherings (e.g. ‘bridge with the girls’), creating solidarity bonds among suburbanites and reinforcing conformity. In this sense, suburbia is ‘classless or one-class’ (Berger, 1968, p. 124). Sets of tract-houses in suburban areas became, in 1960s United States, the materialization of the ‘community dream’, to the point that:

American communities [suburbs] (...) represent the mayor constituency of the latest and most powerful *economic and political* institutions in American society. (Gans, 1967, p. 66, my emphasis)

This is relevant also in the light of the fact that, for instance, as Berger (1968) mentions,



there was curiously a ‘voting shift’ in US suburbs, where former Democrats city-dwellers became active suburban Republicans.

However, since the onset of suburbs in 1960s US as a mass phenomenon, different types of suburbia, and hence communities, existed; differences in education, age and socio-economic level fostered the formation of heterogeneous, however *internally* homogeneous, suburban communities. In this sense, there are different lifestyles connected with different suburbia; more than the morphological similarity of suburbs, suburbia is a cultural myth that segments sociological which, according to this myth, is to be found in the suburban communities (Berger, 1968).

In contrast, continental European cities adopted the ‘French ideal’. Haussmann’s dramatic reform of Paris clearly designed the city center as an exclusive place for the bourgeoisie. Social segregation was spatially accomplished by means of the typical nineteenth century buildings, where the floor plan determined social distance: the ground floor hosted shops and workshops, the mezzanine constituted a ‘buffer’ for the *piano nobile*, leaving the remaining floors and attic to middle and low income workers, with servants’ dwelling facing the back side of the building. The main, finely decorated apartment (*piano nobile*) was large and independent, and entrances and stairs were only used by the residents and their guests. Thanks to their location along the boulevards, the upper class could benefit from the facilities and leisure offered by the city, without renouncing to social distinction. Expelled from their crowded medieval neighborhoods, renovated by Haussmann, the poor located around Paris city center, in the *banlieues*.

However, despite the consolidated primacy of the city center in European cities (see sec. 2.3.1), and the singularity of the French case, Cattani and Berroir (2005) equally recognize in continental Europe, a sort of Anglo-American *aspiration périphérique*, culturally moulding European housing preferences by turning upside down the symbolic meaning of the city, conceived as polluted, run down and unsafe, and the countryside, perceived as more natural, ecological and where individual freedom can be found. As already mentioned, this is one of the reasons why the analysis of urban sprawl in Europe is particularly interesting (see sec. 2.5).

Hence, in connection with socio-demographic factors (cf. Pahl, 1968b; see sec. 3.1.3), the understanding of the cultural factors leading towards urban sprawl implies the analysis of *who* is moving out from the city, not only of why they are moving out<sup>10</sup>. On one hand, more affluent households are able to escape from the city and to locate in the suburbs, a phenomenon that has given rise to the concept of ‘middle and upper middle sprawl’ (Rudel et al., 2011), referring to the US context. On the other hand, a mechanism of imitation among social groups takes place, where also lower and middle income households try to locate in a suburban environment, mainly pushed by the impossibility to afford city center prices for housing<sup>11</sup>.

However, as Pahl (1968b) correctly put forward, in suburban areas, or, in those ‘metropolitan villages’ that have been encompassed within the city’s area of influence, there are several sociological types beyond the dichotomy of upper and lower classes. According to Pahl (1968b),

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<sup>10</sup>By stating this, I consider only push-pull demographic dynamics, between a larger or metropolitan ‘center’ and a set of peripheral poles that attract population fleeing from the center. However, I am aware of the more complex demographic flows analyzed by demographic statistics and mobility experts, these are not integrated in my research however.

<sup>11</sup>An emblematic ‘counter-example’ of this dynamic is Belgium, where housing policies implemented in the late nineteenth century fostered the de-concentration of working classes from the city center to the suburbs, originating a long-term cultural desirability of a single-family, detached house in sprawled areas (De Decker 2008; 2011a; 2011b; cf. also sec. 3.1.7).

suburban areas are sociologically relevant because in them different social groups reside, thus giving way to combinations of different social relations. He identifies a diversity of sociological types of ‘metropolitan villagers’, according to their socio-economic status and hence, he argues, the amount of choice they have to choose a location for living. With regard to socio-economic resources, in descending rank we find: large property owners, managerial workers (‘the salariat’) and the retired urban workers with some capital, who can variably decide to move to the suburbs or an idyllic ‘metropolitan village’; urban workers with limited capital or income, rural working-class commuters, who are obliged to commute to seek opportunities in the city; and, finally, traditional ‘ruralites’, who are traditionally tied to rural and agricultural areas within the metropolitan area of influence of the city center. Such classification is valid for Europe; nevertheless, as above mentioned, US suburbs can be also sociologically heterogeneous.

However, as has been mentioned above (see sec. 3.1.3), a general trend can be recognized differentiating US from European suburban areas. In contrast with the United States, in Europe urban deconcentration more consistently spans over all socio-economic strata, both in the forms of (higher-income) ‘new towns’ or low-income suburbs or peri-urban settlements (Kantor and Savitch, 2002, ch.1). While in the USA the urban poor reside downtown, in Europe they tend to be expelled from the city center; in Europe upper classes are found in the city center, while in the USA they reside in suburban areas. Beyond such dichotomy, as recalled by Pahl (1968b), Berger (1968) and Gans (1968), there are different types of suburbs and different types of suburban dwellers, although the relationships linking suburbs and suburbanites is not deterministic or following a Chicago School’s ecological process of location.

Moreover, an inter-class cultural rationale underneath suburban housing preferences is recognizable, leading some authors to critically argue that the individual, erroneously thinking that one is free or to express his/her own freedom of choice, is subjected to capitalistic ideology when it comes to housing preferences (Ingersoll, 2004; Mantovani, 2005; Salzano, 2009; Soja, 1980). Under this perspective, the mass production of suburban houses is one of the characters defining Fordism, as ‘suburbanization becomes the spatial expression of the expansion of mass consumption’ (Kesteloot 2005, p.132; see also Muñoz, 2008b). The provision of suburban housing becomes a product of mass consumption, imbued with cultural values and symbolism: owning a single house in the countryside, with a garden, a private parking lot, and a swimming pool, is the physical evidence of economic success and individual self-realization. The cultural aspect of suburbanism has to be recognized in the definition of urban sprawl itself as ‘the growing prevalence of qualitatively distinct suburban ways of life’ (Keil, 2011, p. 5). Suburbanism is thus the paradoxical result of an anti-urban culture pivoting around the search for ‘nature’ and household privacy in tract houses, where public spaces are often lacking or underused (Mazzette, 2011b, p. 24).

In contrast, authors like Amendola (2010), Baldini (2010), Ferrari (2002), and also Mantovani (2005), consider urban sprawl as a phenomenon that can reveal the need of a ‘new urban living’, or a ‘new place’, which is different from the categories commonly used to define what ‘urban’ or ‘rural’ are. Urban sprawl is not negative per se, but rather corresponds to the type of city that ‘contemporary societies’ are culturally producing and, to a certain extent, ‘requesting’. Ferrari (2002) argues that peri-urbanization redefines the traditional hierarchical relationship between the city, as centrality, and its outskirts, as periphery, performing specific (new) functions and uses within the metropolitan system (see also sec. 2.3.1.1 on peri-urbanization). The understanding of urban sprawl as a new type of urbanity implies the need to overcome and re-elaborate the European city ideal as a finite, compact and dense urban form (Cattan and Berroir 2005; see also sec. 2.3.1, sec. 2.3.1.1 and sec. 2.4).

Despite the attractiveness in considering urban sprawl as a cultural expression of a ‘new place’ or a ‘new urbanity’, restructuring the center–periphery dichotomy and emphasizing the emergence of a new sense of belonging and citizenship among the residents of sprawled urban areas, perhaps it is too simplistic to argue that, since it has already occurred, urban sprawl is the homogenous expression of a new urbanity in terms of functions and land uses. The critical literature on the topic must be taken into account, such as the international debate on urban sustainability, or on ‘the city as a right’ or a public good owned by the collectivity, and in which citizens should participate in (Dall’Olio, 2010; Harvey, 1973; Rimbart, 1973; Salzano, 2009; Sebastiani, 2009).

Finally, the process of the construction of households’ preferences needs also to be mentioned. The critical analysis of suburbia as cultural myth should also imply the political, economic and social trajectories that have raised urban sprawl as ‘preferred’ housing model in the first place. As it happened with the car (cf. Featherstone et al., 2005), houses are goods that are imbued with values and that can represent identity, both at the personal and also national level (e.g. suburbs as ‘American dream’). Hence the transformation, for instance, of tract houses into a good of mass consumption in the USA has particular historical roots (Ashton, 1978; Filion, 2013), connected with the role of political and economic actors that have had an influence in the setting of housing preferences. Pahl (1975b) analyzed the role that private developers have in providing a certain housing supply, and hence in influencing the type of housing preferences that residents can realistically aspire to (see also sec. 3.1.7 and 3.2). Moreover, house and garden decorations such as garden dwarfs, waterholes and springs, trees and flowers, sculptures or particular curtains are all part of the construction of suburbs as housing ideal (Muñoz, 2008b), together with suburban vegetable gardens as ‘open space matrix’ not only where city and countryside encounter, but also where a potential for neighborhood interactions can be developed (Dewaelheyns et al., 2011, and also sec. 2.3.1.2).

### 3.1.5 Micro–economic factors

Micro–economic factors identified in the literature are contextual economic characteristics such as the presence of industrial and commercial areas (Antrop, 2004; Camagni et al., 2002a; Couch et al., 2007b; Salata, 2010) and the rising standard of living through the population (Camagni et al., 2002a; Couch et al., 2007b; EEA European Environmental Agency, 2006; Gennaio et al., 2009; Lambin et al., 2001; Rudel, 2009; Uhel, 2008). Land consumption and urban sprawl are fostered because of urban diffusion dynamics, where lively local economic systems, both in the secondary and in the tertiary sector, escalate the demand of land.

Nevertheless, the availability of cheap agricultural land is considered as a particularly relevant driving force, since the presence of open land to convert into urban uses (the process of land use change) is necessary to the occurrence of land consumption and urban sprawl (Arcidiacono et al., 2010; Camagni, 1999; Camagni et al., 2002a,b; Christiansen and Loftsgarden, 2011; Couch et al., 2007b; De Decker, 2008, 2011b; EEA European Environment Agency, 2010a; EEA European Environmental Agency, 2006; Kasanko et al., 2006; Rudel, 2009).

Land use change is also related to the expectations for future land use values<sup>12</sup> and land prices<sup>13</sup>, where rental income is a powerful driving factor in giving priority to private interest

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<sup>12</sup>Bonora (2012); Centro Studi PIM (2011); EEA European Environment Agency (2010a); Gibelli (2006); Salzano (2006); Settis (2010).

<sup>13</sup>Antrop (2004); Arcidiacono et al. (2010); Camagni (1999); Chin (2002); EEA European Environmental Agency (2006); Ewing (1997); Salata (2010).

over public interest. Generally, prime agricultural land adjacent to city boundaries and within metropolitan limits, such as peri-urban land, is transformed into urbanized areas (EEA European Environmental Agency, 2013; Geist et al., 2006; see also sec. 2.2). For instance, an industrial or service plant can be displaced to the city outskirts in order to be enlarged and renewed, thus consuming land, while simultaneously giving the opportunity to the same company to speculate over its former emplacement to be converted, for instance, into dwellings (Lanzani, 2012, p.86).

However, the EEA report on land pricing (EEA European Environment Agency, 2010a) argues that land prices alone do not have the potential to shape land use patterns, but that other factors are determinant in this process, such as the proximity to an urban center or even to a natural, protected area, as the potential benefits of this public good increases land values, causing urban sprawl (cf. Brueckner, 2000; Rudel et al., 2011). Land prices are also shaped according to the potential functions that the converted area will provide, such as recreational or housing functions (Bonora, 2012, see also). The EEA report concludes that current land prices and local taxes<sup>14</sup>, together with urban pressure, are the main factors that can prospectively influence land prices and, therefore, land rent creation and valorization. Furthermore, taxes and subsidies are identified as relevant driving forces for land use dynamics for land cover and land use changes, such as subsidies for the agricultural sector or wood production (Geist et al., 2006).

In addition, land prices can be connected with a possible political pressure to modify land uses and thus planning regulations in favor of landowners. Land consumption is triggered by ‘infinite expectations’ regarding land use values connected to land use change (Settis, 2010, p.38). Mazzette, 2011a, ch. 1 refers to this mechanism as ‘territorial private governance’ (*governo privato del territorio*), which is meant to emphasize the underlying contradiction of these kinds of practices, as territory is by definition a collective entity and resource<sup>15</sup>. Hence, the sudden or rapid increase in land prices for subsequent or future transformation (urban pressure), backed up by planning tools, can serve as an effective warning sign to detect trends towards land consumption, and in specific urban sprawl. In synthesis, the EEA report (2010a) states that land prices and land use changes are interconnected, especially for explaining urban sprawl patterns.

As a critique to neoclassical economic theory, based on individual rational choice models, and as a refusal to consider housing preferences or individual choices as consistent factors towards land consumption or urban sprawl, land rent is considered to be the key driving factor:

la majorité des résidents habite là où ses moyens lui permettent de payer la rente et son choix est des plus restreints. Ainsi la mobilité centrifuge procéderait en réalité de deux conditions non exclusives l’une et l’autre: soit le prix de l’habitat urbain est devenu trop élevé, soit les revenus sont devenus trop faibles. (...) c’est bien la valeur du sol et des immeubles urbains qui provoque la mobilité des facteurs et non la concurrence de ceux-ci pour l’usage de ce sol qui détermine son prix, contrairement à ce que prétendent les auteurs néo-classiques. La rente est bien un élément, sinon l’élément, majeur qui structure l’espace géographique en le différenciant... (Guieyss and Rebour, 2012, p.12–13)

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<sup>14</sup>The text refers to the application of a dual fiscal policy: the conversion from open land to urban land should be heavily taxed, while the re-use of brownfields should be fiscally facilitated. However, the EEA report (2010a) is critical towards these governmental instruments, as taxes alone are insufficient environmental policy tools to regulate land prices.

<sup>15</sup>The Ispra Institute (Munafò et al., 2013) considers that territorial planning would effectively counteract land consumption. In contrast, in this dissertation it is argued (see sec. 3.2) that, although necessary, planning tools are not sufficient to counteract land consumption and urban sprawl, since they are a significant part of the problem.

Since the 1970s, decreasing capital profits cause a general trend towards de-densification, which can be defined as ‘rurbanization’ at the regional scale, as ‘decentralization’ at the national scale, and as ‘delocalization’ at supra-national scale (Guieyss and Rebour, 2012).

Land rent theory is crucial in explaining patterns of land use change<sup>16</sup>. Marxist scholars argue that, in the USA, suburbanization processes took place not only to allow the upper class to flee a socially problematic and polluted downtown, but also because it allowed capitalists (we would say stakeholders now) to speculate on land rent. Surrounding areas of the city, where land was cheaper, were occupied, causing farmers to move or to become urban workers. The transformed land was later abandoned when the local government appropriated suburbs to city boundaries and offered services (mainly roads and mortgage subsidies), socializing the costs that developers did not bear (Ashton, 1978)<sup>17</sup>. In addition, recent urban policies such as congestion fees limiting the access to the city center, environmental regulations, or improved environmental conditions in inner city areas, will encourage property investment in suburban locations, as well as making the city center more attractive to property investors (Nuisl and Couch, 2007, p.229). Hence, rising land rent prices in the inner cities may disentangle real estate sector speculation intents, and urban sprawl may just be a similar and related process to keep creating land valorization.

For instance, since the mid 1980s, urban renewal projects, such as museums, waterfronts, or business centers, have been a powerful urban governance tool for cities to improve their attractiveness and competitiveness (Moulaert et al. 1988; see also sec. 4.4). Urban renewal projects have played a significant part of the neo-liberal agendas of European cities, where local governments played a crucial role, whether alone or in partnership with private actors (see also sec. 4.1). Central features of these urban re-developments have, firstly, been facilitating the production of urban land rent, and secondly, ensuring the capital accumulation of stakeholders, with the aim to revitalize the wrecked balance sheets of local governments. However, given the speculative nature of urban land rent, and the flow of public capital into the private sector via the built environment, the state has assumed consistent risks, socializing private losses when needed (ib.). Under a land rent perspective, there is a conflict over land uses, hence between the various urban functions (e.g. infrastructure, food, housing). Housing functions, and especially the supply of suburban housing, have been incorporated in this logic of land rent creation and valorization, where the (local) state has increasingly assumed an entrepreneurial role (ib.).

### 3.1.6 Geographical and urban environment factors

Connected to the availability of natural and agricultural land to boost land rent, physical and topographical conditions are also considered. This section mentions just some of the many geographical and environmental attributes that may have an impact on the occurrence of sprawled areas. How urbanization, and urban sprawl in particular, may be affected by the geographical and environmental characteristics of land covers is an issue that hints to a more extensive debate, which this section only briefly recalls.

Biophysical attributes, such as climate, soil, lithology, topography, relief, hydrology and vegetation, can influence the type of land cover and land use change that can eventually

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<sup>16</sup>Given its prominent role in political economic theory, land rent theory could be also classified within macro-economic driving forces towards urban sprawl (see sec. 3.1.1) However, in this dissertation, reference to land rent theory is here done in connection with rising living standards, price of land and availability of cheap agricultural land defined as micro-economic factors by the EEA (EEA European Environmental Agency, 2006) report on urban sprawl; see also sec. 3.1.

<sup>17</sup>(Pahl, 1975e) reports a similar process for end of nineteenth century London.

take place in a locality. Steepness may impede access and therefore may be a necessary but not sufficient cause for forest protection, as well as highly variable climate conditions (e.g. risk of floods) which may hamper the opportunity to exploit land cover or operate land use change (Geist et al., 2006, p. 45). A city constrained by natural obstacles, e.g. mountains, rivers or the sea, will less likely be prone to presenting urban sprawl. Besides the obvious consideration that it is neither appealing or feasible to build on mountains' tops or on water, topographical conditions are important in spreading out the city, since flood risk, soil erosion or excessive soil slope may hamper urban expansion. Hence, the presence of relatively flat open and agricultural land to transform facilitates land development, and especially dispersed urban development. The fact that in some European cities, such as Naples or Istanbul, or in Third World megalopolises, dwellings have been built in high risk areas does not contradict this statement, as dispersed illegal occupation of land (see sec. 3.1.7) may have encouraged a 'colonization' of areas at risk, shifting the focus from urban sprawl to disaster studies literature.

The availability of cheap agricultural land (or forest areas) should therefore be connected with the qualitative assessment of the actually available developable land, in order to ignore those portions of land that, for certain characteristics, are not apt for urban development (Galster et al., 2001; Wolman et al., 2005; see also sec. 2.3).

Furthermore, the geographical position of the municipality can also influence the probability of developing sprawled urban patterns (EEA European Environment Agency, 2010a,b): the closer the municipality to urban centers, the more it will be subjected to urban pressure (see also the previous sec. 3.1.5), especially when there is a considerable amount of agricultural land available in the municipality for urban development (Mann, 2009). However, municipalities that are dependent on agricultural exploration (croplands or vineyards, or 'protected geographical indication' areas) may resist development in order not to undermine their economic basis (ib.).

In addition, the characteristics of the inner-city environment should also be considered as physical driving forces towards urban sprawl. A run-down inner-city environment can lead to suburbanism, the urban quality of the urban center being insufficient to retain the (upper and middle class) population, which flees towards the urban fringe. A low quality urban environment (e.g. poor air quality, congestion, noise, unsafe environment, lack of urban green spaces) is thus a sufficient cause for middle and upper income households escaping from the undesirable city center and to find shelter in a cozier residential environment in the urban and metropolitan outskirts, especially when mobility factors such as accessibility and private car ownership facilitate commuting (see sec. 3.1.3). However, according to land theory (see sec. 3.1.5), a run down city center may be the result of land consumption and urban sprawl, as capital speculation expands its area of influence by swallowing up peripheral areas, causing the population to flee the city center.

### **3.1.7 Political and planning factors**

Finally, political factors and urban planning practices are identified to be relevant driving forces for the occurrence of urban sprawl, as 'government policy plays a ubiquitous role in land change' (Geist et al., 2006, p.57). Here, political and planning driving forces are merged into the same category, following a regulation approach to policy analysis, where land use policies are generally linked to spatial planning (Nuisl and Couch, 2007). Generally, legally binding spatial planning takes place at different administrative levels, namely municipalities entitled with urban planning, regions and provinces with territorial planning, and nation states

with general laws on spatial planning, which have been recently transferred to sub-national institutions (see Chapter 4).

Poor enforcement of existing plans<sup>18</sup> or weak land use planning<sup>19</sup> are considered as fostering land consumption and causing urban sprawl due to a lack of normative strength. Hence, land allocation is subjected to temporary coalitions and negotiations among actors. Under this perspective, urban sprawl is mostly an unplanned, or ‘variably planned’, phenomenon: it occurs because of a weak enforcement of planning regulations and a limited capacity of land use norms and prescriptions to contain economic and political interests on land use change and allocation. To illustrate this point, in Italy outdated or already approved planning tools can be rather easily modified through *ad hoc* amendments – the so called *varianti* – which practically create a legal framework for situations that were not previously foreseen in the urban plan (Baioni 2006; Mazzette et al. 2011a; see also sec. 7.4.2).

Weak land use planning and a poor enforcement of existing plans can stimulate trends towards land consumption once there is an enlarged pool of actors that can potentially be involved in the definition of competing land uses. Under this perspective, Gibelli (2006) defines urban sprawl as a ‘building bricolage’ (*bricolage edificatorio*) or as planning deregulation (*deregolamentazione pianificatoria*). Hence, it is generally acknowledged that spatial planning can be an effective deterrent for the occurrence of urban sprawl.

However, it is more often its usage by different public agencies, especially at the local level, and not its mere existence as binding documents, that make spatial planning a sufficient legal tool to prevent urban sprawl:

although the planning law provides the local municipalities with the means to counter urban sprawl, the same is true of the opposite as well: such powers are often used to promote growth rather than contain development. (Nuisl and Couch, 2007, p.225)

As a matter of fact, it is the sub-regional or the regional level of spatial planning that can be key to land containment and environmental protection. However, regional planning can also adopt pro-growth strategies or not being sufficiently strong to counteract municipalities’ urban development choices (ib.).

In addition, Rudel (2009; Rudel et al., 2011) reports how land consumption and urban sprawl can paradoxically be further stimulated by environmental protection laws and selective land development: by allowing a limited amount of land to be developed, and by regulating the amount of developed land to be transformed, municipalities will offer larger land plots to be developed into ‘high quality’ land properties to be sold to upper-income residents. Hence, environmental regulations can boost urban sprawl, as they filter out the type of development to be emplaced and, therefore, the type of home buyers that will settle in. This strategy is explained by the municipalities’ effort to maintain and increase property values within their administrative boundaries.

In the literature on land consumption and urban sprawl, a harsh competition among municipalities for attracting residents and economic resources is recognized, especially in the new European scenario where cities and regions are competing among each other (Bagnasco and

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<sup>18</sup>Antrop (2000); Arcidiacono et al. (2010); Camagni (1999); Camagni et al. (2002b); Couch and Karecha (2006); EEA European Environment Agency (2010b); EEA European Environmental Agency (2006); ESPON (2007); Gennaio et al. (2009); Hersperger and Bürgi (2009); Martinotti (2012); Mazzette (2011a); Rudel (2009); Salata (2010); Scano (2006); Uhel (2008).

<sup>19</sup>Antrop (2000); Bonora (2012); Castrignanò and Pieretti (2010); Centro Studi PIM (2011); Couch and Karecha (2006); Dall’Olio (2010); EEA European Environment Agency (2010b); EEA European Environmental Agency (2006); ESPON (2007); Hersperger and Bürgi (2009); Lanzani (2012); Mazzette (2011a); Peiser (2001); Salzano and Gibelli (2006); Uhel (2008).

Le Galès, 2000a; Christiansen and Loftsgarden, 2011; EEA European Environment Agency, 2010a; Jensen-Butler et al., 1997; Le Galès, 2002). Interurban competition can be understood as ‘rivalry between cities in the European urban system for the creation or attraction of economic activity which produces income’ (Jensen-Butler et al., 1997, p.3).

In connection with the consolidated literature on land rent (see sec. 3.1.5), recent contributions recall how municipalities may promote urban sprawl to get higher tax revenues (Christiansen and Loftsgarden, 2011; Dall’Olio, 2010; Nuissl and Couch, 2007). Settis (2010, p.262) suggests that the more local the entity, the more vulnerable regarding the use of its land to increase tax revenues and to exchange it when needed before elections. This political factor is directly linked with the bargaining power that municipalities can manipulate to attract investors (Kantor and Savitch 2002; 2005; see also sec. 4.8): by offering convenient agricultural land for development, they hope to later ensure a stable harvesting of resources through local taxation.

In addition, interurban competition is directly linked with municipal fragmentation (Chin, 2002), and the size of local government units:

It appears to be generally the case that the smaller and more independent the units of local government, the more the[re will be] competition between them to attract development and thereby encourage sprawling patterns of urban development. (Couch et al., 2007a, p.18)

Similarly,

the bigger they [local governments] are the less they are likely to be reliant on one particular investor or project, and less vulnerable to the influence of individual land owners with regard to planning policies and decisions. (Nuissl and Couch, 2007, p.230)

Furthermore, the different planning traditions, and a lack of horizontal and vertical coordination and collaboration among entities are assumed to have an impact on the sprawled expansion of the urban fabric (Chin, 2002; Nuissl and Couch, 2007). If planning competences and political power over land use are decentralized and segmented among authorities, such as municipalities, provinces, metropolitan bodies, counties, or regions, then land is more likely to be less efficiently protected or allocated (Settis, 2010, see), as competition is ‘multiplied’ and played between municipalities, regions or national states (Couch et al., 2007b). Local authorities have been considered the most significant responsible entity for land use change and urban sprawl occurrence as they are the most important decision maker for urban development (Christiansen and Loftsgarden, 2011; Mann, 2009; Settis, 2010).

Arcidiacono et al. (2010) and Couch et al. (2007b) argue that land consumption and urban sprawl are first of all cultural attitudes (see also sec. 3.1.4), before than a planning issue, since the different planning traditions that can be found in Europe influence the tendency in different contexts to develop urban sprawl. Political and planning institutions are imbued in a cultural context where diffuse attitudes towards land consumption are reflected in urban plans and regulations (Settis, 2010, see also). For instance, some authors emphasize the ‘urban planning crisis’ that caused planners to formally abandon the idea that planning should have the responsibility for regulation and ‘order’ of urban development, favoring the establishment of project-oriented developments instead (Balducci, 1995; Bonora and Cervellati, 2009; Dall’Olio, 2010; Muñoz, 2008b; Salzano and Gibelli, 2006).

Under this perspective, Salzano, 2006 (see also Mazzette, 2011b, p. 3) argues that urban planning abandoned its traditional and characterizing role where *ideas* about cities were paramount in orienting development, a shift that is commonly referred to as ‘from plans to projects’. Besides nostalgic considerations on the role of urban planning, Salzano expresses



an increasing disappointment among planners regarding their discipline, as urban planning has culminated in merely arranging potential urban development, no longer being technically oriented at landscape (or territory) protection. Therefore, there is a discrepancy between the objectives of urban planning and the actual built environment produced by it (Bottini, 2006). The result has been a ‘form-less’ city that has expanded beyond its boundaries, converting the term ‘city’ into a theoretically undefined expression; nowadays, cities are more appropriately referred to as metropolitan areas, city regions, or urban systems (Baioni, 2006; Bonora, 2012; Magnier and Russo 2002, ch.1; see also sec. 2.3.1.2).. Hence, a specific spatial phenomenon such as urban sprawl entails the consideration of territorial scales beyond administrative boundaries (see sec. 4.5).

Under this perspective, urban sprawl occurs because there is a lack of a diffused ‘landscape culture’ (*cultura del territorio* or *urbanizzazione culturalmente mediata*) (Centro Studi PIM, 2011; Salzano and Gibelli, 2006; Settis, 2010, see), which not only would protect landscape for aesthetic reasons, but primarily for being a material, cultural heritage characterizing a certain territory, inhabited by a certain population (cf. European Landscape Convention published in 2000). Similarly, Dall’Olio (2010) suggests that there are deep cultural causes leading to land consumption, because there is a lack of consciousness, common to both political and economic actors, as well as to citizens, regarding land as a public good and as a non-renewable resource, allowing the evasion of possible considerations of the long-term negative impacts that the ‘concretization’ of landscape can provoke. In a modernist view of landscape, city expansion, roads, concrete, buildings, cranes and building yards are still considered as powerful signs of ‘progress’ that are usually acclaimed and sought after by municipalities, and higher administrative bodies as well (Dall’Olio, 2010). In such circumstances, land is valuable only because potentially developable, a perspective which is justified and fostered by a diffuse ‘cementification culture’ (*culture del cemento*, in opposition to *cultura del territorio*), combined with a tendency to violate the law (Mazzette, 2011b, p. 6–8). In addition, decision-makers are not sufficiently aware of the path-dependent and long-term effects that decision of land use change can imply for the entire territory (Barberis, 2006; Barberis et al., 2006; Salzano and Gibelli, 2006)<sup>20</sup>.

Linked to political and institutional factors, historical development is also considered to be a crucial cause of urban sprawl (Arellano Ramos and Roca Cladera, 2012; De Decker, 2011b). For instance, in the case of Belgium, housing preferences, that is the housing dream to own a sprawled property, possibly in the middle of the countryside or in the woods, is:

the result of a long-standing dialectical process of political choices and actions, cultural convictions, and economic possibilities, which have reinforced each other over and over again through and in daily practice. (De Decker, 2011b, p.1636)

At the beginning of the nineteenth century, industrialization in Belgium was located and concentrated in cities. This fact confronted the Catholic and the Liberal elites – who had already started to move away from the city – both with a ‘hygienic’ threat related to the dangers of epidemic spreading, and with the menace of revolts that such a concentration of workers would have implied. Hence, specific policies were tailored in order to make, on the one hand, workplaces more accessible and, on the other hand, transportation services (i.e. railways) more affordable. The aim was to keep workers decentralized from the city, which was considered not only polluted and tainted, but also a breeding ground for workers’ uprising. De Decker (2008, 2011b) argues that, in Belgium (and specifically, in Flanders), suburbanization (and even ‘wild building’) was the result of political decision-making to keep control over workers, while nurturing a diffuse anti-urban attitude. In 1889, under

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<sup>20</sup>See also section 2.2 on path-dependency and housing.

the strong influence of the Catholic parties, the diffusion of working classes was coupled with a dedicated chapter of the first labour law on home-ownership stimulation. This law fostered the construction of scattered, detached houses for workers, instead of concentrated block-houses.

In addition, in the Belgian case, the political, social and cultural establishment of this housing model has been further consolidated by other political factors, namely the weakness of spatial planning institutions, the absence of spatial planning policies and the fragmentation of land properties (De Decker, 2008, 2011b). Territorial planning was promoted and crystallized in laws during the 1990s, but an almost two-century long consolidation of urban sprawl, in institutions and people's mind (De Decker, 2011a), nowadays hinders path-breaking initiatives. The Belgian case clearly shows how history creates a political and cultural path-dependency that is almost impossible to break.

Finally, some scholars assume that the illegal occupation of land and the illegal building of houses are the main driving forces for the occurrence of sprawl. These two processes were particularly evident between the 1960s and the 1970s in Europe (Couch et al., 2007b), and in Southern Europe in particular (Allen et al., 2004). Urban sprawl originating through illegal occupation of land shares common characteristics with actual Third World countries, where suburbanism is a means of survival (Leontidou, 1990). Urban sprawl stemming from the illegal occupation of land, and carried out by a variety of individual and collective actors, has been generally normalized through consecutive building sanctions, which have *de facto* legalized those areas, consolidating a diffused culture of land consumption and urban sprawl, permeating institutions as well (Mazzette, 2011a; Settis, 2010). However, the illegal origin of a portion of sprawled residential areas, later converted into legal occupations of soil through periodical building plan sanctions, is an attribute that distinguishes the possible paths towards urban sprawl, but that can not univocally define the origin of urban sprawl. The spontaneous urban sprawl occurring during the 1960s and 1970s in Southern Europe to accommodate migrants in expanding metropolitan areas e.g. a 'planned sprawl' in Northern Italy and a 'spontaneous sprawl' in Southern Italy (Allen et al., 2004, see<sup>21</sup>), the phenomenon of second homes in Spain during the 1960s and 1970s, or the 'disjointed incrementalism' studied by Leontidou (1997) in the Greek case of Athens, are certainly drivers to a *historical* type of sprawl, but may not exclusively explain suburban trends in Europe nowadays.

### 3.1.8 Interaction between factors affecting urban sprawl

As it has been shown in the previous sections, different driving forces towards urban sprawl and land consumption have been classified in different categories. However, as it has been already mentioned, this systematization has been carried out mostly for convenience, in order to facilitate the presentation and discussion of the literature review. Indeed, even when the surveyed studies focus on a limited number of factors, such as in Ewing (1997), Glaeser and Kahn (2004), Newman and Kenworthy (1999), or Rudel (2009) and Rudel et al. (2011), researchers are very aware of the fact that driving forces act concomitantly.

For instance, Hersperger and Bürgi (2009) survey 73 potential factors influencing landscape change, and indicate economic and political driving forces to be the most relevant drivers for land use change, especially for urbanization (i.e. artificialization of soil) processes. In addition, Couch et al. (2007b) offer a comparative analysis of urban sprawl in the US and in

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<sup>21</sup>(De Lucia, 2006, p. 172–178) notes that, in Southern Italy, the illegal construction of houses (*abusivismo*) continued after 1970s as well, when such illegal occupation of soil to build houses was not 'objectively' justified by real housing needs, being driven by speculation activities (see also sec. 7.4.2.1).

Europe, and consider different factors influencing suburbanization in a diversity of European contexts. Couch et al. (2007b) emphasize the complexity and diversity of the phenomenon in Europe, and elaborate on the distinct cultural origins of urban sprawl in Europe and in USA. In addition, Couch et al. (2007b, ch.1 and 2) propose a multi-level theory of urban sprawl, where the intertwining of macro factors (e.g. globalization, declining household size, rising real incomes, high rates of homeownership), meso factor (i.e. place-specific contexts, e.g. local governance, local demography) and micro factors (e.g. individual decisions and actions) determine the diverse geographical occurrence of urban sprawl.

Hence, it is important to stress that ‘causes and consequences (effects or impacts) of urban sprawl are culturally diverse and even contrasting, and also in constant interaction with each other and with the phenomenon of urban sprawl’ (Couch et al., 2007b, p.254; see also Christiansen and Loftsgarden, 2011; EEA European Environmental Agency, 2006). Similarly, although focussing on the Italian case, Salzano and Gibelli (2006) collect different perspectives on urban sprawl from a planning, political, geographical, legal, architectural and environmental point of view, by surveying different contexts in Italy. The result is a kaleidoscope of frameworks to analyze land consumption and urban sprawl, showing the complexity and diversity of the subject.

Furthermore, as mentioned in section 3.1, Lambin and Geist (2006), and in particular Geist et al. (2006), distinguish between proximate and underlying factors to explain land cover and land use change. Direct actions on land cover and land use change intertwine with technological, economic, political, institutional, demographic, and socio-cultural forces at the regional, national or global level. Furthermore, the distinction between proximate and underlying factors depends on the spatio-temporal scale of analysis:

Land-use decisions are made at a variety of scales (individual, household, community, nation and international environmental/trade agreements), and understanding is sought all the way from the very local to the global scale. Factors that appear quite distant and therefore exogenous for the purposes of a local case study (such as a government credit scheme) may be entirely endogenous to a national study aimed at assessing the effectiveness of that very policy. (Geist et al., 2006, p.44)

At the spatial level, decisions over land cover and land use change, including deforestation, wood extraction, or urbanization, made by local actors (e.g. landowners, smallholder farming, households) are influenced by driving forces operating at a more general level, economic factors, institutions and national and subnational policies being the most prominent. In terms of time, factors causing land cover or land use change may function over a long period of time (‘slow land use trajectory’), or may happen more quickly (e.g. contemporary urbanization) or even abruptly (e.g. floods as a trigger event). The authors recognize that in general land use dynamics are influenced by a combination of factors or processes, which work gradually, intermittently, even in contrasting ways, and that include random elements, and that are mediated by contextual or ‘mediating’ factors. For example, deforestation is often linked with unequal socio-economic relations between large-scale farmers or farming corporations and smallholders: deforestation as a land cover and land use change (from forest to agricultural use) at the local level is mediated by the unequal distribution of land ownership, influenced by the global pressure of agricultural intensification and trade.

### 3.2 The particular role of governance processes in the occurrence of urban sprawl

From this literature review, it is clear that there is a large variety of factors to be considered as relevant driving forces towards urban sprawl, and which are closely linked to each other. They are also context-dependent, varying among cities, regions and countries (Christiansen and Loftsgarden, 2011). However, in this research, political and planning factors are specifically examined since, if it is assumed that urban sprawl (i.e. suburbanism) is a specific process of land use transformation, having a certain spatial and territorial outcome (see sec. 2.5), a *decision* on land transformation always must be at the origin of urban sprawl. As ‘the use of land is a highly political activity’ (Lambin and Geist, 2006, p.174), in this dissertation it is similarly argued that urban sprawl is a highly political land management issue: it is the result of governance processes for land management and allocation.

This assumption is related to the theoretical framework presented in the previous Chapter, in particular in sections 2.1.1 and 2.2, where the city (*urbs*) is conceived as the non-deterministic result of social, economic and political processes (*civitas* and *polis*). Land transformation into residential areas, and in particular into dispersed residential areas, is the non-deterministic consequence of social, economic and political practices. This means that land use transformation processes that result in urbanized areas to fulfill specific functions (e.g. housing, transport, services) are necessarily an outcome of actors’ decisions regarding land allocation. To produce urbanized land, intentionality is needed (i.e. land management; see also footnote 1 on page 2).

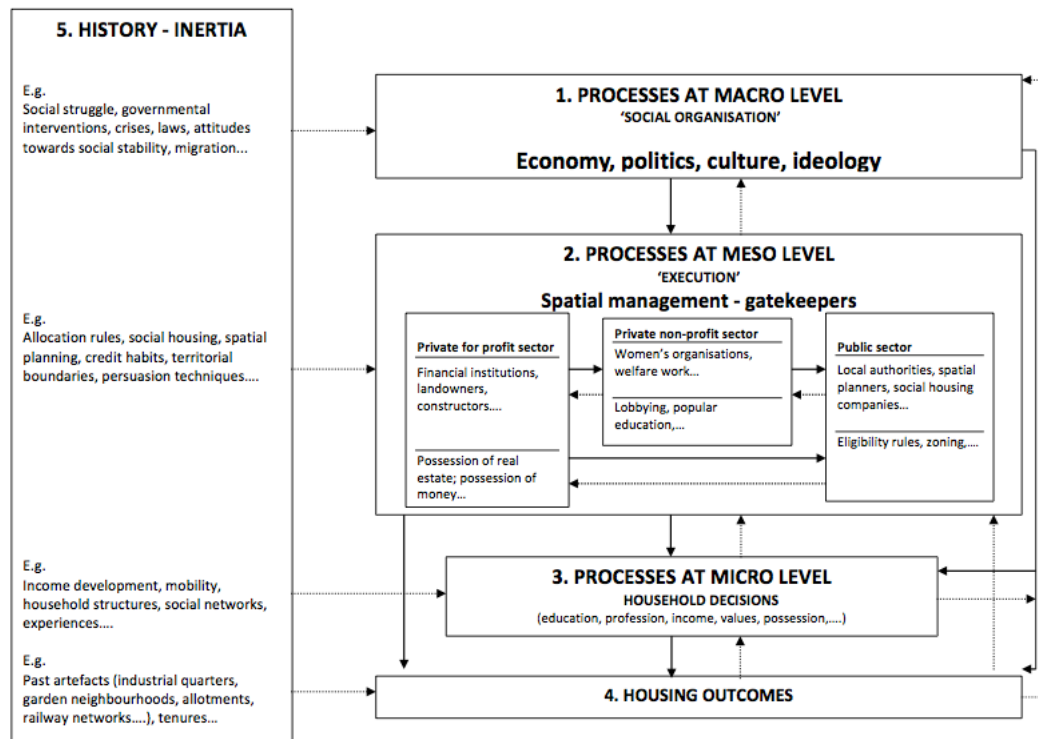
In particular, as mentioned in section 2.2, housing policies (and hence residential urban functions and land use transformations into residential areas) are particularly interconnected with market forces. De Decker (2011a) proposed the following analytical model (see fig. 3.2) that links structures, agencies and processes that, at different levels, identify ‘the playing field’ and ‘the players’ (ib.) responsible for the emergence of housing models. Such a model is particularly useful in this dissertation, as it is precisely tailored to housing, and also as it represents a framework where social, economic and political factors are considered.

With reference to figure 3.2, processes at the macro level refer to the broad and complex social structure that concerns the organization of society, such as capitalist modes of production, social struggles, public institutional changes and the role of cities. Processes at the micro level refer to the choices that individuals and households take in terms of housing preferences; in aggregated terms, they constitute a general trend that characterizes a certain housing models. For instance, if young couples of a certain socio-economic level prefer a flat in the city, in aggregated terms, many of such young couples will have an impact on a certain housing model. The ‘housing outcomes’, at the bottom of the figure, are the model itself in its empirical observable characteristics, such as tall block houses or dispersed, semi-detached dwellings. The ‘meso level’ refers to the ‘gatekeepers’ in charge of spatial management, that is the material execution of a housing model, that is ‘a broad range of agents and institutions that influence the existence and persistence of housing models within the parameters that the macro level allows’ (De Decker, 2011a, p.31). In such a range we find private actors, civil society, and governmental institutional actors<sup>22</sup>. It is also important to stress how historically determined inertia (i.e. path-dependency) is acknowledged to act throughout each level, influencing housing models and patterns.

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<sup>22</sup>At the meso level, the distinction among private, public and civil society actors can be interlinked with the ‘three modalities of suburban development’ identified by (Hamel, 2013, p. 30) as ‘ideal types’, namely ‘self-built, state-led and private-led suburbanization’.

**Figure 3.2:** De Decker's (2011) analytical model of housing patterns in their historical contexts. Source: De Decker (2011a, p.32). Reproduced with permission.



De Decker's analytical model is particularly relevant in this dissertation as it considers housing models as the result of historical processes that involve structures, agencies and processes. Urban sprawl, as defined in section 2.5 as *patterns* of spatial dispersion in the expansion of residential areas (i.e. the built form), which occurs through land use transformation *processes*, can be considered as the empirical and observable result (a 'housing model' type) of the macro, micro and meso levels included in the model presented by De Decker and shown in figure 3.2.

In particular, the focus of this dissertation is on the 'gatekeepers' (the meso level), and especially on those agents that manage land and that make decisions about land allocation in order to materially construct housing models (i.e. the 'execution' of the housing model, see fig. 3.2). Of course, the 'execution' of housing models includes different actors and social practices, such as real estate markets, mortgages and credit systems, banks, cooperatives, local municipalities, land use planning rules, geological analysis on construction sites, builders, architects and soil remediation companies. However, this dissertation pivots around the (quite basic) assumption and acknowledgment that suburbanism implies land transformation (i.e. land use change), and thus decisions on land management. Hence, in this dissertation, the processes at the meso level included in De Decker's model zoom in on the land management decisions by certain actors over land allocation for housing (i.e. 'spatial management'), who constitute the *gatekeepers* (or managers) as key actors in the occurrence of suburbanism.

The term 'housing politics' (Bengtsson, 2009) focuses on 'process rather than outcome, on action, interaction and social relations rather than structure, on the formulation and application of policy rather than on its substantial contents', being 'about conflict and cooperation between actors with interests in housing provision', and deals with 'the macro, meso and

micro levels, corresponding to politics of national housing provision, local governance and planning, and direct housing supply respectively' (Bengtsson, 2009, p. 3–4). In housing politics, meso level politics 'often has to do with games and institutions of steering, implementation and evaluation', and 'consists of several, formally independent though in practice interdependent, actors and institutions: local authorities, contractors, housing companies, non-government organisations, etc.' (Bengtsson, 2009, p. 6).

It must be said that De Decker's model takes in part inspiration from Ray E. Pahl's identification of the determinant role of the 'social gatekeepers' in urban systems, that is those 'who help to distribute and control urban resources' (Pahl, 1975f, p. 201; Pahl, 1975d). In particular,

the *crucial* urban types are those who control or manipulate scarce resources [e.g. land] and facilities such as housing managers, estate agents, local government officers, property developers, representatives of building societies and insurance companies, youth employment officers, social workers, magistrates, councillors and so on. These occupations and professions should be studied comparatively to discover how far their ideologies are consistent, how far they conflict with each other and how far they help to confirm a stratification order in urban situations. These managers of the urban system provide the independent variables of the subject. (Pahl, 1975f, p. 206) [original emphasis]<sup>23</sup>

These managers, or 'social gatekeepers', control and manage scarce resources, such as land, at different degrees, for the allocation and redistribution of facilities, such as housing. Because of the variety of these gatekeepers, conflicts arise over the management and allocation of resources, such as land. Pahl further continues by stating that:

[t]hus there can be a sociology of the organization of urban resources and facilities: *the controllers, be they planners or social workers, architects or education officers, estate agents or property developers, representing the market or the plan, private enterprise or the state all impose their goals and values on the lower participants in the urban system.* We need to know not only the rates of access to scarce resources and facilities for given populations but also the *determinants* of the moral and political values of those who control these rates. We need to know how the basic decisions affecting life chances in urban areas are made. This is particularly likely to be the case where the operational fields of various bureaucratic structures overlap and the same clients suffer the same subordinate position in each structure. (Pahl, 1975f, p. 207) [original emphasis]

In the specific field of housing, it is crucial for research to focus on 'the main agents of [residential] expansion' (Pahl, 1975b, p. 121), as 'it is obvious that the complete process of residential expansion must involve a number of groups: there are the landowners, the private developers, the building contractors, individual households and government authorities at a national and local level' (Pahl, 1975b, p. 112).

Hence, in 'socio-ecological systems', as Pahl (1975c) calls them, formed by the interactions between social and spatial structures (see also sec. 2.1), the role of social gatekeepers is determinant in understanding how resources, such as land and housing, are managed and allocated. For the understanding of how land for residential functions is allocated, it is thus relevant to focus on how a variety of actors, 'located' at different levels (e.g. national or local), are involved in the building of residential areas, in particular for dispersed ones, having the power to influence this process.

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<sup>23</sup>Pahl continues by stating that: 'I am arguing that a truly *urban* sociology should be concerned with the social and spatial constraints on access to scarce urban resources and facilities as dependent variables and the managers or controllers of the urban system, who I take as the independent variable' (Pahl, 1975f, p. 210, original emphasis).

In this research project, private and public actors will be particularly focussed on. Graphically, the focus can be identified by considering the two arrows on De Decker's model (see fig. 3.2) directly linking the 'private for profit sector' and the 'public sector'. The accent put on the dynamics between public and private for profit actors does not deny the presence of other actors, such as private non-profit actors or households, nor it pretends to be exhaustive and consider *all* private for profit and public actors involved in the emergence of housing models and urban sprawl in particular (for a discussion, see sec. 8.2). The emphasis on *some* of the public and private for profit actors is related to the metropolitan perspective adopted in this dissertation (see introduction to Chapter 1), and the identified territorial, multi-scalar and multi-actor theoretical framework (see sec. 4.8) to be empirically applied to two case studies (see sec. 5.3). The focus on some of the public and private for profit actors at the meso level hinges on the need to make practicable a comparative, in-depth study of governance dynamics about land management and land use allocation between two case studies (see introduction to Chapter 5, and sec. 5.3.2).

Hence, how should the role and interactions among such gatekeepers (broadly understood as 'land managers'), referred to by the two direct arrows in De Decker's model, be analytically framed and empirically analyzed? In other words, how can the meso level be theoretically approached and examined in specific contexts?

Chapters 4 and 5 will specifically deal with these questions. As an anticipation of the following Chapter, in this dissertation the concept of governance is used as 'theoretical container concept' to analyze the dynamics occurring at the meso level among the different types of gatekeepers whose decisions over land are determinant for the occurrence of urban sprawl as a type of spatial outcome in housing models.

Furthermore, the particular role of governance processes in the occurrence of urban sprawl is underpinned by the awareness that, as previously mentioned in section 3.1.8, in the international literature political and planning factors are not jointly considered within a comprehensive theoretical framework. *Generally*, not only has limited attention been paid to the actual political decisions, routine planning practices, and to which kinds of actors actually 'produce' urban sprawl at this meso level, but also political factors and dynamics, and planning systems and actors have been generally analyzed independently. This research attempts to address this *lacuna* and to define which actors, planning practices and policies *interactively* lead to the occurrence of urban sprawl.

The following chapters of the dissertation will deal with how such *lacuna* has been addressed (Chapter 4), and how it has been applied to two specific case studies, Barcelona and Milan (Chapters 5–7).

### 3.3 Summary

In the international literature, different factors are singled out and considered significant driving forces for the occurrence of urban sprawl. A conventional classification of driving forces is proposed in order to facilitate their examination. Macro- and micro-economic factors, mobility factors, socio-demographic and cultural factors, geographical factors, and political and planning factors are discussed throughout the Chapter.

Among them, this research focusses on the political and planning factors as main driving forces towards urban sprawl. This choice is due to the need to theoretically frame and empirically examine the role that ‘land managers’ exert on the allocation of land for dispersed residential areas, with reference to the analytical model proposed by De Decker (2011a) to explain the historical emergence and persistence of housing models through the consideration of how structures, agency and processes are interconnected at macro, meso and micro levels.

The main assumption which this dissertation arises from is the acknowledgment that suburbanism implies land transformation (i.e. land use change), and thus decisions on land management. Hence, the processes at the meso level included in De Decker’s model are considered to refer to the land management decisions taken by certain actors over land allocation for housing (i.e. ‘spatial management’), who constitute the *gatekeepers* (or managers) as key actors in the occurrence of suburbanism.

The following Chapters of the dissertation will deal with how the interaction among private and public gate keeps at the meso level can be theoretically framed and empirically examined.





## Chapter 4

# Urban sprawl as an outcome of territorial governance processes

*[Q]ualitatively new institutions and regulatory forms are currently being produced on both sub- and supranational scales; and, the role of the national scale as a level of governance is itself being radically redefined. (Brenner, 1999, p.439)*

In this chapter, the concepts of governance, specifically territorial and multi-scalar governance, and urban political economy are introduced in order to articulate a reasoned theoretical framework to explain land management and the occurrence of urban sprawl. As we have seen in the previous chapter (see sec. 3.2), political processes, and in particular the roles of private and public actors as ‘gatekeepers’ (i.e. land managers), are considered to be a powerful driving force towards land consumption and urban sprawl. However, by referring to the meso level of De Decker’s model (see sec. 3.2), how can the ‘political (and planning) processes’ in terms of ‘execution’ dynamics be analytically framed and empirically analyzed to explain the occurrence of urban sprawl as a housing model?

In this chapter, an *ad hoc* theoretical framework, combining territorial governance and the bargaining context model, will be elaborated upon to explain urban sprawl as a spatial phenomenon, and a specific theoretical model will be presented (see sec. 4.8).

The bargaining context model proposed by Kantor and Savitch (2002, 2005) provides a theoretical structure to explain urban political choices within a territorial, multi-scalar governance framework. Cities, understood as local governments (see Le Galès, 2002, p.77), make political decisions over their assets to negotiate with private actors the type and future trajectory of urban development. Concomitantly, governance is a well-suited concept that allows the consideration of the inter-locking institutional framework where government and non-government actors are involved in the decision-making processes over land use and housing policies.

In this dissertation, the bargaining context model will be attuned to deal with land management and allocation, and urban sprawl occurrence, through a territorial, multi-scalar governance perspective, which allows the contextualization of the particular behavior of ‘cities’, where public and private actors are involved on different governing scales shaping land management and, as a result, the occurrence of urban sprawl. A diversity of decisional arenas over land use bargaining exists, at different institutional scales, having an impact on land management and on the occurrence of suburban housing supply.

In this research, the relevance of adopting a governance perspective relies on the acknowledgement that a variety of both public and non-public institutional actors (the ‘gatekeepers’) are involved in negotiations, political struggles, conflicting interests, and coalitions for the

management of land as a key resource. Moreover, public actors are diverse and differently involved in land management and allocation, hence a sufficiently ‘flexible’ governance perspective is needed in order to account for a changing (although resilient) institutional hierarchical structure.

For this dissertation, no exhaustive overview of the vast literature on governance will be carried out. Rather, specific meanings and interpretations of this complex, yet rather indeterminate, concept will be selected from the literature, and highlighted according to the usefulness they bear to elucidate land management processes. The strategic use of a governance framework in this dissertation is also related to the fact that governance is a concept that originated and developed within European political science (Peters and Pierre, 1998), therefore it is assumed to be particularly appropriate when explaining urban sprawl as a ‘local’ spatial outcome of governance processes contextually bound to the European environment.

As will become apparent through the reading of this Chapter, several perspectives on governance exist, such as local or urban governance, state-centered governance, or multi-level governance. The logic underpinning this chapter is similar to Chapters 2 and 3 to present and discuss different theoretical perspectives that can be useful and functional, in this case, to propose a theoretical framework where political and planning factors (see sec. 3.1.7) and the role of the ‘gatekeepers’ on land management for housing provision (see sec. 3.2) can be applied to analytically explain the occurrence of urban sprawl as a spatial result of governance processes.

#### 4.1 What is governance?

Governance is a rather indefinite concept, as there are many possible interpretations. Governance is an ‘essentially contested term in the social science literature’, which can be defined as ‘any form of continuing coordination of social relations characterized by complex, reciprocal interdependence’ (Swyngedouw and Jessop, 2005, p. 9), or ‘the pursuit of collective goals through an inclusive strategy of resource mobilization’ (Pierre, 2005, p. 449). In addition, governance is by no means new, as modes of political coordination have been extensively and commonly practiced.

Understanding the current uses of governance as an analytical concept implies the consideration of the context in which the term has (re)emerged; as a term, governance arose in the 1980s in the European context, as the emerging and prevailing mode of coordination and regulation between the ‘market’ and the ‘state’ (see Coimbra Swiatek, 2011)<sup>1</sup>. More than denoting a different or path-breaking mode of governing, governance relates to the *contextual* changes in which public institutions are acting, and how regulatory mechanisms have changed.

First of all, from the mid 1970s, Western countries have displayed a generalized crisis of Fordism, where the Keynesian orientation of the national welfare state started to crumble

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<sup>1</sup>Prior to the mid 1960s, political science theories on governance concentrated on the steering capacity of the state to orient development and change (i.e. state planning). In contrast, since the mid 1970s, political science shifted the focus to policies and policy implementation. This implied a shift in policy conception: policies definitions (‘*what* to do’) were no longer sufficient to correct ‘market failures’, but rather the way in which policies were conceived and implemented mattered for their success and assessment (‘*how* to do it’). Contextual factors, policy recipients, private actors, and supranational organizations have been gradually included as crucial elements for policy effectiveness, and have also been successively comprised in conceptualizations of governance (Mayntz, 1999).

(Jessop, 2005a, 2006). Western nation states responded to this challenge in differing ways, according to the different degrees of pervasiveness and implementation of the Keynesian model, where, next to the welfare state, the global demand management by the public sector was a very important component. This model aimed at full employment within relatively closed national boundaries, where mass consumption (the ‘demand side’) was promoted and sustained to provide the necessary counterbalance to Fordist mass production.

Since the 1970s, the ‘regulation approach’ (cf. Boyer, 1986)<sup>2</sup> precisely theorizes ‘the social and economic forms that channel the contradictions resulting from previous phases of sustained accumulation up to the moment that a major crisis arises’ (Moulaert and Swyngedouw, 1989, p.329), and analyzes the subsequent post-crisis re-adjustment of socio-economic forms (ib.). In a nutshell, the core of regulation theory is ‘that the state responds to economic change by developing new forms and techniques of economic management’ (Herrscher and Newman, 2002, p. 20). The regulation approach emphasizes the historical specificities of capitalism and, unlike orthodox economic theories based on rational economic behavior perspectives, it considers ever-lasting capital accumulation improbable, given that capitalism is historically and contextually dependent on the problematic and ‘changing combinations of economic and *extra-economic* institutions and practices that help to secure, if only temporarily and always in specific economic spaces, a certain stability and predictability in [capital] accumulation’ (Jessop, 2005b, p. 4, original emphasis).

A key concept in regulation theory is ‘regimes of accumulation’, that is how contradictions in the capitalist accumulation process are temporarily solved through certain ‘regularities’ or socio-economic ‘fixes’. Nation states were the key institutions ensuring that ‘the circle’ between mass production and consumption would be ‘closed in’, hence subnational and local governments were considered hierarchically dependent bodies of the nation state (Jessop, 2006). Suitable economic and social policies were adopted in order to maintain the link between mass production and consumption, and to correct ‘market failures’. The Fordist–Keynesian model has therefore come to be known as ‘mixed economy’. As a mode of production, capitalism requires successful reproduction strategies in order to keep functioning and expanding (‘accumulation process’), a prerequisite that is ensured through regulation (Swyngedouw and Jessop, 2005).

Regulation theory mainly focusses on nation states (non-regional theory), and conceives development as the product of the interaction between the modes of regulation (legislation, norms, values) and the accumulation regime, exploring the balance and unbalance between production and consumption, production and redistribution. Although regulation does not solely coincide with state regulations (Moulaert and Swyngedouw, 1989, p. 340), policies are key tools through which regulation is carried out: as there is an unstable balance between capitalist production and reproduction, regulation is needed to organize production and reproduction (i.e. socio-economic development) and to secure the provision of reproductive goods such as housing, education or health services.

Although Regulation Theory focusses on the economic trajectory of national states, there have been attempts to adapt it to the analysis of different territorial and urban contexts. For instance, Moulaert and Swyngedouw (1989) adopt a regulation theory approach to an-

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<sup>2</sup>There are seven different ‘regulationist schools’, the most prominent of which is the French or Parisian school. However, there are two key issues shared by the different regulationist schools: ‘first, the inherent improbability, if not impossibility, of continuing capitalist expansion based purely on profit-oriented, market-mediated production and exchange; and, second, the resulting importance of extra-economic as well as economic mechanisms in securing the always partial, provisional, and unstable reproduction of capital as a complex social relation’ (Jessop, 2005b, p. 3). For a discussion on the different regulationist schools, see Jessop (2005b).

alyze and explain changes in socio-economic spatial organization and development, as the production of space, in declining or boosting cities and regions, is ‘an integral part of the accumulation regime’ (Moulaert and Swyngedouw, 1989, p.330; cf. also Harvey, 1982’s notion of spatio-temporal fix)<sup>3</sup>. A regulatory mechanism stabilizes capitalist production by complementing ‘market failures’ with service provision and management, thus mitigating social conflicts and crises (Swyngedouw and Jessop, 2005, p. 16).

Together with regulation, governance is key to sustaining reproduction. A clear example is the ‘making of’ mobility infrastructures, which are publicly funded and privately built, hence implying governance negotiations and arrangements between public and private actors, and which are constructed to ensure capital circulation and accumulation, and to maintain and enhance local and regional economic development whose wealth is partially redistributed (cf. Harvey 1982’s notion of spatio-temporal fix). In addition, the reproduction of regulation and governance are also needed to perform reproduction through regulation.

The crisis of this model involved a trend towards an uneven movement from the Keynesian Welfare National State (KWNS) to the Schumpeterian Workfare Post-national Regime (SWPR)’ (Jessop, 2006, p.144; see also Jessop, 2005a), where the state has to:

promote permanent innovation, enterprise and flexibility in relatively open economies by intervening on the supply-side and strengthening as far as possible their structural and/or systemic competitiveness. (Jessop, 2006, p.145)

In this context, increasing competition compelled nations, regions and cities to assess their performance level in a variably open, globalized market. Former, top-down, demand-side interventions have been increasingly substituted by supply-side policies, characterized by the inclusion of and cooperation with stakeholders and other actors in delivering policy. The Keynesian and Schumpeterian models should not be considered opposed, but are general orientations characterizing Fordism and post-Fordism, the Schumpeterian workfare post-national regime *re-organizing* (more than substituting) the Keynesian welfare state model. Compared to the Keynesian model, in the Schumpeterian *workfare* post-national regime there is more emphasis on labour force flexibility and employability following market demands, and social policies become more oriented to competitiveness. In addition, another key characteristics of the Schumpeterian workfare *post-national* regime is its tendency to de-nationalize the state, that is giving rise to the emergence of other scales as ‘places’ for economic regulation (Jessop, 2005a, p. 34):

the Keynesian welfare national state intervention is being reorganized along the lines of a Schumpeterian workfare post-national regime. This promotes innovation and enterprise and subordinates social policy to the demands of full employability, flexibility, and downward pressure on the social wage. In contrast to the primacy of the national scale characteristic of Fordism, the post-Fordist state is more post-national insofar as it engages in more complex forms of multi-level governance and has a more variable economic and political geometry. Finally, whereas Fordism was characterized by a mixed economy in which state intervention was the main means of compensating for market failure, the post-Fordist state relies more on indirect steering and public-private partnerships to achieve this. (Jessop, 2005a, p. 20)

Second of all, the crisis of the Fordist-Keynesian model is associated with the increasing fiscal crisis that spread out during the 1980s and 1990s in Western European countries. The fiscal crisis originated from the growing incapability of nation states to keep up with

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<sup>3</sup>However, some scholars argue that the application of Regulation Theory to cities requires a more specific theoretical framework in order to explain urban political choices that steer economic development (cf. Gómez García, 2007, p.24, and see also sec. 4.7).

welfare state expenditures given falling or stalling revenues, ensuing from the decline of the traditional manufacturing sector, the challenges posed by globalization and the difficulties in shifting to service economies (Pierre and Peters, 2000, ch. 3). In addition to the fiscal crisis, the rationality crisis and legitimacy crisis of the welfare state cumulatively triggered the reduction in welfare provisions (Swyngedouw and Jessop, 2005).

Third, globalization and delocalization, facilitated by technological advances, potentially endangered an already shaky industrial sector in Western countries, as industries started to delocalize. Companies could potentially locate ‘anywhere’, taking advantage of less protected and cheaper labour markets. Even if empirical evidence later collected in subsequent studies suggested that place-specific characteristics still ‘make a difference’, as regions and cities can distinctively perform well as economic, political and cultural hubs in a globalized economy. At the onset of globalization there was a diffused fear in the academic world for a ‘homogenizing convergence’ that would have blurred spatial differences and specificities.

Fourthly, in response to the crisis of the Fordist–Keynesian model and the increasing pressure coming from globalized markets (Peters and Pierre, 1998), from the late 1970s on and especially during the 1980s, neoliberal directives unleashed a strengthening of market discipline, competition and commodification throughout Western countries (Brenner and Theodore, 2002). Deregulation of state powers, privatization of publicly owned sectors, retrenchment of welfare subsidies and services were some of the main policies adopted as a consequence of this neoliberal response to the crisis of the Fordist–Keynesian model. The increasing outsourcing of former public services, through tender notices, rights concessions, public–private partnerships, and privatization (e.g. the selling of formerly public services, or publicly owned buildings or land properties), are some of the predominant tools clearly hinting to a spreading out of neoliberal dictates.

However, scholars emphasize how neoliberalism did not imply a homogenization of economic, political and social outcomes. On the contrary, the diversity of institutional structures, policy traditions and regulatory practices provided an embedded (or path-dependent) context to neoliberalism, diversifying the reactions to these directives in different countries, and transforming cities as the emblematic geographical spaces in which these different responses have become manifest (Brenner and Theodore, 2002).

These four changes deeply altered the context in which the ‘state’ acted, changing the modes that governing states were using to cope with and regulate the ‘market’. For instance, during Fordism, governments, unions and corporate interests cooperated together in order to negotiate policies. Since the 1970s, because of a modified context, whose main factors have been briefly outlined above, this mode of governing faced greater difficulties regarding its implementation.

Hence, there has been a recomposition of the state role, generally referred to as ‘from government to governance’. The term governance refers to the new role that government plays within this modified context (i.e. governance as a unit of analysis), and the new perspectives that are needed to capture the functioning and the consequences of this new role (i.e. governance as an analytical framework).

As a consequence of these contextual shifts, governance is characterized by three main features. First, there has been a pressure on state and subnational governments to be more flexible and ‘less’ bureaucratic, leading administrators to embark on a public sector reform to make government more efficient. Government began to be conceived, in a dichotomous fashion, as opposed to governance. While government is structured in hierarchical, administrative layers, whose competences are defined and constrained by regulations, governance is

more varied, as public and non-public actors can compose it, and it is more flexible, as it is 'project oriented'. Government 'is vertical and firmly institutional (...) formal and directed from above', while 'governance is flat and flexible (...) informal and self-regulating' (Kantor and Savitch, 2002, p. 329).

Second, territorial scales other than the nation state became important political arenas in reconfiguring policy actions 'upwards, downwards and sideways' (Jessop, 2006, p.146; see also sec. 4.3). Not only did supranational bodies gain more relevance (such as the IMF or the OECD), but also the regional, urban and local bodies increased their power on the grounds that local and regional competitiveness, and the related social policies, are best addressed by the respective territorial and local authorities (Jessop, 2006). The increasing relevance of supra-national and sub-national institutions, (partially) comprising a variety of states, regions and cities, re-configure state power for regulatory intervention at the supra- and sub-national levels. In particular, since the 1970s, cities and states have been 're-configured, re-territorialized and re-scaled in conjunction with the most recent round of capitalist globalisation, but both remain essential forms of territorial organisation upon which the world-scale circulation of capital is premised' (Brenner, 1999, p.433). States and cities continue to maintain their enabling role for capital circulation and accumulation, and they are essential tiles in the mosaic of territories that are diversely emerging in the process of globalization.

Third, and more importantly for our purposes, a plurality of actors are involved at different institutional levels for policy making, such as private companies, voluntary associations, NGOs and civil society groups. Governance refers to the arrangements through which governing is made possible by the involvement of a plurality of public and private actors. Interest groups, associations, and stakeholders bring in new interests and demands, requesting and consolidating inclusion and participation in decision-making processes. Public actors are *some* of the actors involved, and they become *enablers* more than *providers* of services through regulations and shared rules with private actors and representatives of civil society (Vicari Haddock, 2004, p. 96).

In synthesis, governance can be broadly defined as a variety of coordination modes (e.g. rules and regulations, contracts, cooperation agreements, partnerships) among a plurality of actors (public actors, private actors and civil society) for service provision.

These three main characteristics of governance do not signify, as already mentioned, a reinvention of approaches and practices. Instead, the contextual changes outlined above compelled public administrations to adapt and change. The role of the state has changed because, for policy delivery, it has to cooperate with and activate joint actions with non-public actors. Among this plurality of actors (e.g. investors, private companies, quangos, civil society associations, chambers of commerce), the government, considered as a public institutional-administrative arrangement, is one (and, as it will be shown later, still an essential one) of the different actors that take part in governing processes.

The interdependence among different actors is possible because the government employs new governing tools, such as public and private partnerships, specific agreements (or contracts) on service provision, or the constitution of public-private entities, which imply the mutual blending of resources in the form of economic subsidies or access to key information between governmental and non-governmental actors (Peters and Pierre 1998). As such, governance can be defined as 'the reflexive self-organization of independent actors involved in complex relations of reciprocal interdependence; this self-organization is based on continuing dialogue and resource sharing to develop mutually beneficial joint projects and to manage the contradictions and dilemmas inevitably involved in such situations' (Swyngedouw and Jessop, 2005, p. 9).

As the ‘new’ (or more explicit) role of the government resides in its ability to cooperate and interact with different actors, some note that it could potentially be eclipsed. On the one hand, New Public Management (NPM) urges the government to increase efficiency by transforming it in a ‘private company-like’ entity, where public resources would be competitively managed to deliver public services to satisfy ‘customers’. With an emphasis on economic competitiveness and efficiency, supporters of the New Public Management pledge for an organizational reform of public administration (cf. (Peters and Pierre, 1998)). On the other hand, ‘communitarism’ endorses that collective needs should be managed and satisfied by a joint effort of the local community, which is seen more suitable and less distant than the national government to resolve specific local issues. In addition, communitarism presents the involvement of locals as a positive consequence of area-bound governance (Peters and Pierre, 1998, p.21). New Public Management and communitarism are two extreme positions that nevertheless equally support the need to organize ‘governance without government’, or with as little government as possible.

However, other bottom-up approaches to governance emphasize the room opened up for civil society to influence decision making processes over policies and urban development plans. Nevertheless, the socially innovative character of these initiatives should be critically analyzed, as there is a risk of co-optation of grassroots movements into path-dependent institutional dynamics (Moulaert et al., 2007). Furthermore, stakeholders participation is generally presented as a democratic forum, but it is often not quite so (Moulaert et al., 1988; see also sec. 4.4), bringing to the fore the democratic deficit intrinsic to governance (cf. Mayntz, 1999).

## 4.2 State-centered governance

As a challenge to government, governance is a concept that inherently stems from a state-centered (or state-centric) perspective (Pierre, 2011; Pierre and Peters, 2000), as the state ‘remains the key political actor in society and the predominant expression of collective interests’ (Pierre and Peters, 2000, p.25). This view underlines the fact that the state as an institution is not disappearing within this new economic, political and social context (see sec. 4.1), but rather its coordination role is transforming and consolidating. The state is a ‘special’ actor, in the sense that ‘the basic rationale or the *raison d’être* of the state is to promote and pursue the collective interest’ (Pierre and Peters, 2000, p.68).

In a state-centered perspective of governance, public institutions give the context in which interactions take place, ‘define who is authorized to act and make collectively binding decisions’ (Coimbra Swiatek, 2011, p. 50), shaping power relationships in specific policy areas. State-centered perspectives on governance underline the need to first recognize but then transcend the institutional hierarchical structure in policy making, since:

[e]merging forms of governance tend not to operate along traditional institutional linkages or along formal points of contact between public and private actors but rather to enhance resource mobilization and coordination through other and less formal channels. Indeed, one could well make the argument that it is the ability to identify and exploit such novel forms of institutional cooperation or exchange with key actors in the surrounding society that characterized successful governance. (Pierre and Peters, 2000, p.78)

State-centered perspectives on governance focus on public institutions to then identify the ‘other and less formal channels’ through which governance is actually enacted by public and private actors.



In an extreme synthesis, the concept of institution refers to those consolidated and long-term entities that mediate between agency (individual level) and structure (society level), and that frame, enable and regulate social interactions. Institutions are characterized by stability, as they offer stable contexts where recurrent actions and practices consolidate social structures, but they also offer a context for change (Kazepov, 2005). The family, the market and the state – and civil society – are normally considered the main institutions characterizing society. Nevertheless, in state-centred approaches to governance, it is the state, from its emergence, which owns the institutional prominence among the three, since it chiefly regulates, forbids, allows, modifies and defines the relationships among other institutions by the use of policies (Kazepov, 2005; see also Kantor and Savitch, 2002, ch.2), as political institutions, such as the nation state, the regions or governmental agencies, are entitled to ‘control over the distribution, allocation, and ownership of scarce resources (including land, money, and power)’ having ‘the ability to make authoritative decisions’ (Soja, 1975, p.30).

In a state-centered perspective on governance, public institutions are nested within certain organizational administrative arrangements at the national and subnational level. The institutional hierarchy influences the type of role that public institutions can have in their relationships with private actors, and the extent to which they can exert their power (Pierre, 1999). If the inclusion of a variety of actors implies ‘a variety of interests to be accommodated as well as a variety of views on the ‘societal problems’” (Coimbra Swiatek, 2011, p.52), the state acts as *primus inter pares*, whose main functions in governance are agenda- and goal setting, implementing, coordinating and steering. This means that the state reduced its ‘rowing’ capacity, but not its ‘steering’ capacity, that is the capacity to make decisions and to orient the decisional process among different actors over certain goals (i.e. the ‘collective interest’).

According to this perspective, the hierarchical structure of public institutions can be both a dependent and an independent variable: it is an outcome when the factors responsible for its change are studied, and it is an independent variable when the governance architecture enabling different modes of governing influences the decision making process and the policy outcomes. Under this perspective, it is useful to conceptualize the role of government in governance as a continuum, from a ‘state-centric’ to a ‘society-centric’ approach (Pierre and Peters, 2000, p.25).

However, as Le Galès points out:

[s]tates have retained influence and considerable resources as well as capacities for control, but their effective room for manoeuvre has been reduced under the burden of pressures from Europe, from local and regional authorities, from financial markets, and from the interests of the most privileged social groups. (Le Galès, 2002, p. 111)

The following sections will deal with other perspectives on governance that have challenged state-centric approaches; multi-level governance is one of those, where the role of supra- and sub-national institutions is particularly focussed on.

### **4.3 The emergence of the multi-level governance approach**

Introduced by Gary Marks in the 1990s (1992; 1993), multi-level governance is a term that originated in political scientists’ debates on how to theorize the emergence of the European Union polity (Bache and Flinders, 2005). Multi-level governance signaled the existence of vertical and horizontal coordination among different public institutional levels – supranational, national and subnational –, in cooperation with non-public actors, for the shaping of

the European policy making.

In a lucid analysis of European Community Structural Funds, Marks (1992) notes how:

[a]longside this [the structural Funds'] impressive budgeting expansion [1975–1992] there have been fundamental innovations in the administration of the structural Funds. (...) For the first time the administrations are creating policy networks that encompass sub-national governments and private interests in individual regions. (...) Thus instead of assuming that member states have political control of the decision making process, one must examine whether such control exists, and to the extent it does, one must ask how that is changing. (Marks, 1992, p. 192, 193)

Multi-level governance was a reaction against state-centric approaches, which still considered the national state as the privileged political arena for policy making (cf. also Marks, 1992, p. 192, and Marks, 1993, p. 407), nation states being considered unitary, discrete and autonomous public actors (i.e. central state executives) bargaining for authority and competences through international relations (Marks and Hooghe, 1996). Furthermore, state-centric perspectives assumed that European integration did not challenge the power and autonomy of member nation states; on the contrary, it is argued that state authority is strengthened through European polity making (Marks and Hooghe, 1996).

The key concept in order to understand multi-level governance is 'state power diffusion'. In particular, in the European context, the European Union provided a new policy arena for governance, 'displacing' state power control (Marks and Hooghe, 2005) and reconfiguring inter-institutional relationships, allowing to abandon – but not guaranteeing that they are abandoned – hierarchical models. Multi-level governance facilitates a focus of attention on supra- and subnational governing levels, recognizing that non-public institutional actors (e.g. business and voluntary associations) are involved in the decision-making process over policies at *different* institutional levels (Herschel and Newman, 2002, p. 24–25). In coining the term, Marks argues that:

*multilevel governance* [is] a system of continuous negotiation among nested governments at several territorial tiers – supranational, national, regional and local – as the result of a broad process of institutional creation and decision reallocation that has pulled some previously centralized functions of the state up to the supranational level and some down to the local/regional level. (Marks, 1993, p. 392) [original emphasis]

When dealing with multi-level governance, it is thus essential to remember that it has been tailored to the emergence of the European polity and the institutional consequences it bore for political and economic resource re-distribution within European member states.

In addition, in multi-level governance, the 'vertical' dynamics between public institutions do not necessarily follow a strict hierarchical order, but rather a plurality of decisional centers. Sub-national governments, and non-governmental actors, can directly negotiate with the supra-national level of the European Union for resources and political support. Multi-level governance recognizes a trajectory of state authority diffusion upward, downward and sideways (Jessop, 2003)<sup>4</sup>.

First, 'upward' multi-level governance refers to those international and transnational cooperation bodies that have been created to manage and supervise certain issues, having such a 'global scope' to require a joint effort among single nation states (e.g. environmental policies on climate change, international security matters, poverty struggle). The Organization of Economic and Cooperation Development (OECD), the United Nations (UN) or the European

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<sup>4</sup>Pierre and Peters (2000, p. 77) re-phrase such terms in upward, downward and outward.

Union (EU) are just some of the examples of upward governance where states ‘cede’ part of their authority to supra-national organizations (cf. Marks and Hooghe, 1996, p. 346).

Second, ‘downward’ multi-level governance indicates the rearrangement of state power and control over sub-national institutions, such as regions or local (urban) governments, through decentralization and devolution. In contrast with state-centric approaches, sub-national actors are not exclusively nested within nation states, but the former are interconnected (or ‘bounded’) with the supra-national arena, directly bargaining with international organizations, such as the European Union (Marks and Hooghe, 1996). Decentralization implies that the central government formally recognizes the political, economic and cultural ‘strength’ of sub-national institutions. Regions, cities, sub-regions, territories and metropolitan areas gain institutional acknowledgment as official interlocutors. The belief underlying decentralization processes is the ‘subsidiarity principle’, which came very much to the fore in the European Union discourse of multi-level governance (Piattoni, 2010, ch. 1, 6) after its formal establishment in the 1992 European Union’s Treaty of Maastricht, legitimizing the downward shift in competences. The subsidiarity principle ideally indicates that ‘decisions should be made at the level closest to the citizens’, which directly implies an emphasis on the role of regions and cities (Piattoni, 2010, p. 107).

Decentralization can also be achieved through devolution, which is a rearrangement of competences on a variety of issues (e.g. economic development, education, transport policies, territorial planning, or environmental policies; see sec. 2.4.1) among central state, regions, provinces and counties and municipalities<sup>5</sup>, involving also a variety of non-public or semi-public actors. For example, the nation state can decentralize competences over environmental policies to regional governments; these can then decentralize competences to municipalities, which can devolute the management of, for instance, air pollution monitoring stations to private companies, which were assigned such role through a public tender, or to ad hoc constituted semi-public agencies.

Third, ‘outward’ multi-level governance points out how the provision of public services has been gradually ‘outsourced’ by the state (or local governments) to NGOs, quangos, associations (including voluntary), cooperatives, public-private entities (e.g. the Italian *aziende municipalizzate*), and private companies. Probably, ‘outward’ multi-level governance more clearly shows the horizontal, multi-actor character of governance.

There are several comments that can be put forward on the multi-level governance approach. In the first instance, such reorganization of competences ‘upward, downward and sideways’ (Jessop) is never taken for granted, and is interlaced with (harsh) political struggles and competition among institutional layers with regard to the new roles that will have to be assumed (see sec. 4.5 and sec. 4.8). Marks and Hooghe (1996, p. 373f) state that ‘[m]ultilevel governance is unlikely to be a stale equilibrium (...) the allocation of competencies between national and supranational actors is ambiguous and contested’.

Second of all, the danger of the multi-level governance approach is that it is suggestive of an effective democracy, which in reality is often not the case; idiomatically, it is not that we have invented paradise rather than we have created something better than hell. For instance, on the one hand, the involvement of private actors can be seen to enhance the efficiency of public service provision. On the other hand, the involvement of non-governmental actors calls for more urgent questions on accountability and democratic legitimacy. To deliver public services, not-for-profit and for profit actors are recipient of public money, therefore accountability on

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<sup>5</sup>International relations, military defense, welfare provision, and monetary policies remain prerogatives of central governments.

resource allocation, democratic redistribution of services, service management and public bidding for these resources calls for serious concerns on transparency.

Furthermore, some authors underline how, in certain contexts, the states' fiscal crisis (see sec. 4.1) has also served as an expedient to 'pass the buck' to local governments (Pierre and Peters, 2000, p. 88): the need to face the welfare state crisis, caused by deindustrialization and globalization, has induced nation states to strategically transfer competences to subnational entities, such as regions, provinces and municipalities, for example in the areas of public health or education. European subnational public institutions, once sheltered by generous public transfers, have found themselves in need to perform an active role to boost local economic development in order to continue to ensure public service provision.

Indeed, although the rationale underpinning the decentralization of competences according to the subsidiarity principle has been the provision of public services through more proximate levels to citizens (Piattoni, 2010, ch. 1), national welfare state provision becoming 'local' and, at least on paper, more efficient, the increase in competences did not coincide with a consequent increase in grants for local authorities. On the contrary, in general sub-national public institutions have generally experienced consistent cuts in state allowances, undermining their ability to provide services, and leading to the privatization of former public services and the bargaining on other local resources to ensure policy delivery (see also sec. 4.4). Hence, the devolution process implied by downward multi-level governance raised substantial concerns on welfare rights and citizenship. In addition, devolution of competences is particularly in line with neoliberal directives on economic competitiveness and attractiveness (see sec. 4.1), as it facilitates the weakening of state control over regional and local development choices and policy provision.

Furthermore, enhanced citizen participation by virtue of the subsidiarity principle – because of proximity to policy delivering channels – is counterbalanced with concerns on social justice and on the redistribution capacity of local governments (García, 2006).

Thirdly, 'downward' multi-level governance through decentralization encompasses both a weakening (de-regulation) and a strengthening (re-regulation) of local authorities, and the consequences for both the institutional recomposition of power and the modes of governing among institutions are still highly debated among scholars (Brenner, 1999; Gualini, 2006a).

On the one hand, a general tendency is recognized where cities are seen to gain 'greater political importance, particularly in terms of their strategic and political capabilities, as well as a certain kind of political approach towards negotiating with other cities, regions, governments, firms and Europe' (Bagnasco and Le Galès, 2000b, p. 29). Through devolution of competences, European cities became strong political and social actors that could coherently re-define territorial policies. Cities and regions have wider opportunities to bypass nation states and to connect directly to influential arenas 'located' at the supranational (e.g. European Union) level:

European cities are not organized solely by the state but, increasingly, in relation to cities and regions in other countries the horizontal dimension of European institutionalization and in relation to Brussels the vertical, multi-level dimension. (Le Galès, 2002, p.75)

In such accounts, decentralization is assumed to strengthen urban coalitions, attracting corporate actors to work with local authorities (Pierre and Peters, 2000, p. 89).

Similarly, Sebastiani (2007) highlights how the city should now be conceived as more than a

recipient of public policies; the city is an institutional actor that promotes its own policies, as state functions have been increasingly attributed to cities (Sebastiani, 2007, p.195). Such evidence would support claims of downward multi-level governance in the sense that the city as a governmental and governance actor is capable of implementing its own policies into its own territory (see also sec. 4.4, sec. 4.7.2 and sec. 4.7.4).

However, on the other hand, as Le Galès (2002, p.110) alerts, ‘there is no such thing as a Europe of regions or cities in the making; instead, we have a ‘variable geometry’ Europe within which cities and regions *sometimes* becomes actors or systems of action’ (my emphasis). While it is acknowledged that the role of cities (and regions) have been re-arranged, as multi-level governance highlight, ‘successful’ or ‘competitive’ cities are not necessarily emerging, as just *some* cities, as social and political actors, in *certain* circumstances are converting a changed institutional context into an opportunity.

In synthesis, multi-level governance highlights the multiplication of decision-making arenas, where a variety of actors, such as public authorities, private actors or civil society, mobilize resources at different levels for policy delivery. Multi-level governance encompasses both the ‘vertical’ dynamics that can be established between institutions and other agents (e.g. agencies, interest groups), and the ‘horizontal’ extension of policy arenas, which are also reconfigured by the involvement of a variety of actors, over a diversity of issues (Gualini, 2006a, p. 35). The result is a multiplication of political arenas<sup>6</sup>, where ‘[i]nstead of offering a new institutional equilibrium to replace the system of state domination, 1992 and the reforms of the structural Funds are creating a dynamic and indeterminate situation characterized by conflicting concepts of the scope and especially the locus of decision making’ (Marks, 1992, p. 214)<sup>7</sup>.

Dynamics of power diffusion gave rise to two main complementary types of multi-level governance (Marks and Hooghe, 2005). The first type of multi-level governance (i.e. multi-level governance type I) considers the existence of a limited number of mutually exclusive institutional levels that constitute general purpose settings, entitled with a variety of responsibilities and where different policies are determined. The unit of analysis is the individual (tier of) government, which is hierarchically defined and stable over time. The second type of multi-level governance (i.e. multi-level governance type II) contends the emergence of a diversity of specialized, non-mutually exclusive political jurisdictions around specific policy issues (‘variable geometry’). The unit of analysis is the individual policy, therefore there is a multiplication and overlapping of agencies that, interdependently, ensure the provision of public services, and that can be constituted *ad hoc* for specific policies, and variably lasting over time.

Multi-level governance adopts an explicit actor-centered approach, clearly distinguishing between institutions (structure) and actors, that is ‘between the state (and the EU) as sets of rules and the particular individuals, groups, and organizations which act within those institutions. (...) leading one away from reified accounts, common in state-centric literature, of the goals, preferences, desires, and plans of states’ (Marks and Hooghe, 1996, p. 348). Multi-level governance is structured on institutional hierarchy, however it is recognized that

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<sup>6</sup>However, Pierre and Peters (Pierre and Peters, 1998; Pierre and Peters, 2000), as advocates of state-centered governance (see sec. 4.2), suggest that the state continues to play a relevant role in multi-level governance; therefore, institutional hierarchies should not be easily dismissed (Pierre and Peters, 2000, ch.1; see also Pierre, 2011).

<sup>7</sup>In such an extract, it becomes clear, as previously mentioned, how the concept of multi-level governance has emerged tailored to European polity, where the role of nation states, the European Community and subnational governments, in particular regions, has strengthen and changed, multiplying decision-making arenas.

formal and less formal policy settings proliferate for decision making processes and policy delivery.

It is precisely the possibility to overcome the state institutional hierarchical structure that led political scientists to problematize the formation of political arenas, and to present multi-level governance as a critical perspective towards state-centric approaches to governance. However, the territorial attribute of governance does not necessarily coincide with administratively defined territories, such as provinces or regions, since governance arenas respond to a proper spatial logic that is constantly (re)negotiated and (re)defined. Indeed, Gualini (2006a) emphasizes how governance is characterized by the territorial reconfiguration of political-institutional structures (see sec. 4.5), where governance tools, such as public-private cooperations and agreements, are emplaced in different territorial (public and private) arenas ('variably geometrical' modes of governance). The use of the term 'level' instead of 'scale' (see sec. 4.5) highlights the 'institutional lock' with which multi-level governance holds itself captive: despite the emergence of multi-level governance as a reaction against state-centric approaches, 'levels' still refers to public institutional tiers, whose spatial production and change are not sufficiently problematized. For instance, the non-mutual exclusivity of institutional levels that characterizes multi-level governance type II signals the effort made by multi-level governance proponents to 'stretch' the concept of *level* to encompass both traditional and new territorial *scales*, however without abandoning the term 'level' (Gualini, 2006b, p. 889-890; see sec. 4.5).

#### 4.4 Local and urban governance

Along with the trend towards a transformation process from the Keynesian into the Schumpeterian orientation of the state model (see sec. 4.1), and the 'downward' multi-level governance dynamics (see sec. 4.3), since the mid 1980s the local state has acquired a number of functions that it did not have under the European Fordist state regulation, or at least not to such a considerable extent (Moulaert et al., 1988). In these circumstances, within the European Union framework, local authorities such as regions or cities could benefit from more autonomy, but also received less national states support (Jensen-Butler, 1997).

Because of decentralization and the devolution of competences (see sec. 4.1 and sec. 4.3), sub-national institutions experienced a revived, yet often contradictory or even fragile, decisional capacity. The state owning the steering capacity to orient the allocation and exploitation of critical resources for the collective interest, sub-national institutions, such as regions and cities, 'inherited' the capacity to set a certain political agenda to steer the management of local resources (Pierre, 2011). Within the governance debate (see sec. 4.1), local governance focusses on the new role that sub-national actors, such as regions and cities, (can) play in a changed economic, institutional, political, cultural and social context, different than during the 'Keynesian era'.

As a type of local governance, urban governance stands out as particularly useful for our purposes, namely to find a suitable theoretical framework which enables us to conceive and analyze within governance dynamics the political and planning factors as driving forces towards sprawl.

Critical urban economic theorists have recognized an increasing interurban competition among European cities since 1975 (Jensen-Butler, 1997). The shift from an industrial to a service based economy, and the new global economy, supported by global technological infrastructures, forced European cities to compete globally by using local resources. This is especially apparent in the European Union single market, where cities have to attract investment by

reinforcing and promoting their locational characteristics and choices as comparative advantages over other European cities and regions. In this context, if, on the one hand, European cities had to struggle to maintain economic attractiveness and competitiveness, on the other hand, they also had to safeguard welfare and social equity. Hence, urban policies have been the key instruments for European cities to react differently to this dilemma, adopting a mix of strategies in order to balance their budgets, spanning from urban marketing and expense cuts, to redistributive policies and environmental protection tools. However, in the short and the long run, the clear goal has been to maintain economic growth.

In particular, the crisis of state planning, as *the* traditional policy instrument in the Fordist–Keynesian state model, has been reflected in cities through the emphasis on project–led development, and especially in the increasing diffusion of large–scale urban development projects (UDPs) (Moulaert et al., 1988; Swyngedouw et al., 2002). These projects, supported by consistent public funds, such as landmark projects, waterfronts, congress centers or stadiums, have tried to re–enforce or change the city position at the regional, national or international level. They are the clearest examples of neoliberal urban policies oriented at improving local business attractiveness and economic competitiveness.

Often, these projects have been carried out by deviating from conventional planning tools, and by implementing ‘exceptionality measures’ (Swyngedouw et al., 2002, p. 548). This ‘planning suspension’ has been possible through a decreasing democratic accountability of urban development initiatives, and the emphasis on political and economic elite decision–making power. The implementation of such (large–scale) urban development projects (UDPs) and urban renewal strategies has generally led to an increase in social polarization, as the local population has often been affected (and even displaced) by the rising property prices in ‘renewed’ areas (Swyngedouw et al., 2002).

Despite neoliberal dogmas supporting market–led initiatives, (large–scale) urban development projects (UDPs) are, to a substantial extent, state funded. This implies a redefinition of public authorities’ roles, re–arranging tasks and responsibilities into ‘power geometries that differ from those of the traditional arenas of government’ (Swyngedouw et al., 2002, p. 567). Overall, local authorities adopt a ‘more proactive and entrepreneurial approach aimed at identifying market opportunities and assisting private investors to take advantage of them’ (Swyngedouw et al., 2002, p. 553).

In an attempt to classify and ‘map’ the different strategies and responses adopted by cities in the new context briefly discussed above (see sec. 4.1), Pierre (1999, 2011) proposes four different models, or ‘governance styles’, of urban governance, which reflect how norms, values, ideas and practices characterize and shape the objectives of public institutions in urban governance, embedded in the broader national context. This typology stems from a state–centric perspective on governance (see sec. 4.2), and is explicitly based on institutional theory, which considers public institutions as those organizations that convey *norms, values and routines* influencing and regulating how political choices over policies will be taken (Pierre, 2011). For example, urban public elites can choose to employ their resources to attract investors or to enhance service provision, ‘steering’ urban development conditional to the types of non–public actors involved in the process. Hence, ‘governance styles’ can be conceived as some of the ways in which resources are managed in a city, in relation to the underlining values that orient urban political choices.

‘Governance styles’ are ideal types that categorize the role that local governments play and the type of objectives that characterize urban political choices. Schematically, they can be briefly presented as follows:

- managerial governance;
- corporatist governance;
- pro-growth governance;
- welfare governance.

Managerial governance is characteristic of UK. In this governance model, professionals work directly with local governments that are managed in a similar way as in a private company; service provision is ‘customized’ in such a way that citizens, as customers, decide the type of services they need, implying more flexibility from local governments. For example, citizens can decide which school they want to bring their children to, requiring the local government to adapt the amount of resources in a very short time instead of allocating education resources based on demographic data. New Public Management (NPM) (see sec. 4.1; see also Le Galès, 2002, p.254) systematizes how public administrations should carry out the necessary organizational reforms to attain this model.

Corporatist governance is characteristic of Scandinavian and Western European countries. In such governance style, a strong, redistributive national welfare context allows for the participation of local actors and associations, who base their involvement in the defence and maintenance of their interests (‘selective public spending’). However, in times of fiscal crisis, the local government is less able to respond to requests of individual groups, who are then turned to the higher level of government.

In pro-growth governance, public and private actors closely interact with the aim to boost local economic development. Being the least participatory type of governance, local government elites make political choices on which actors, belonging to the economic elite, should be involved in governance and to what extent. Ideally, the political elite shares the same interests for economic growth as the economic elite in order to orientate urban development. This urban governance ideal-type mostly characterizes the US context (Logan and Molotch, 1987; Molotch, 1976).

Finally, welfare governance applies to declining cities, which are heavily dependent on central state welfare subsidies, and which mostly cooperate with the state rather than with private actors. The aim of this governance model is to secure central state funds rather than unsteady cash inflow from cooperation with private actors, which is generally disdained.

Urban ‘governance styles’ try to explain why certain steering capacities are found in specific economic and political settings. Public institutions shape the objectives and the priorities that a city will more likely (and not deterministically) follow in constructing and orienting its urban political agenda, and governance styles underline how cities have choices with regard to how to orient and manage their policies (Pierre and Peters, 2000, p. 201; see also sec. 4.7.4).

Although these ideal-types allow us to theoretically frame urban governance arrangements, in the real world cities present a mixture of them, and there can be different modes of governance in different sectors of the same public institutions. In addition, although ideal-typical, it is however surprising that in this classification ‘welfare governance’ is limited to declining cities, conceiving ‘welfare’ only in terms of ‘welfare-dependent’. This is probably a rather static view and more clearly connected with shrinking cities, such as Detroit.

This taxonomy of urban governance styles can be nevertheless useful as analytical tool to perform comparative analysis, where the administrative structure is just the point of departure to understand the phenomena at hand:

A [state-centric] governance perspective on urban politics directs the observer to look



*beyond* the institutions of the local state and to search for processes and mechanisms through which significant and resource–full actors coordinate their actions and resources in the pursuit of collectively defined objectives. (Pierre, 2005, p.452) [my emphasis]

An urban governance perspective allows the conceptualization of (local) public institutions as actors involved with other non–public actors in the provision of local services, such as transport infrastructures, health services, education facilities and housing areas. A plurality of non–governmental actors having acquired a position in the governing of cities, such as national, local and foreign private actors, urban governance offers a flexible and encompassing framework to disclose the processes and mechanisms through which these objectives are attained. Governance is a theoretical lens that enables the analysis of local actors, their diversity and interactions, together with ‘research into the mechanisms for integration and the modes of cooperation that help to construct an urban social and political order, fragile and ephemeral though this may be’ (Le Galès, 2002, p.185).

However, as already discussed in section 4.3 on multi–level governance, the inclusion of non–public actors can reduce the degree of decision– making power owned by cities: there is no clear cut assessment of the advantages and disadvantages for cities to exert their new role as local political actors (Sebastiani, 2007). As governance is connoted by the interdependence of public and private actors through specific tools, such as contracts and negotiations, which belong to private law, the role of public authorities is modified: from administrative bodies, they become promoters of public policies to be arranged and managed together with a variety of private actors and interest groups (stakeholders) (Sebastiani, 2007, p.193). In Weberian terms, urban governance hints for a *Zweckrationalität*, where shared visions of the city and its developments are (variably) agreed upon between (some) public and private actors in order to muster and coordinate resources. Practical examples are strategic planning or city marketing, generally achieved through public–private partnerships, which are clearly oriented to enhance the cities *economic* competitiveness.

Current studies on urban governance urge the identification of the multiple ways in which different economic and political actors come together, cooperate and come into conflict for service provision at the local level. Different trajectories of cooperation, association, conflict and mediation can lead to convergence or divergence between actors’ ambitions and strategies, in ways that can bring the involved actors to decide on how to (re)regulate modes of cooperation and control. Le Galès (2002) devoted an entire book on the connections between urban governance and competition, analyzing how European cities’ strategies have changed in order to achieve economic competitiveness within the European single market.

Local and urban governance perspectives have been however considered to be too narrow to encompass the phenomenon of urban sprawl. Suburbanization is a process ideally opposed to the sustainable and compact city (see sec. 2.4); with land being consumed and not efficiently allocated (i.e. land consumption), urban sprawl is a spatially dispersed pattern and process of land use transformation into residential areas occurring along the urban fringe (see sec. 2.5), and thus urban governance perspectives necessarily need to be ‘stretched’ beyond city boundaries – conceding that an agreement is found on where to set city limits; see sec. 5.4 – to consider urban sprawl as a territorial phenomenon. Territorial, multi–scalar governance frameworks will then be discussed in the following section to check how they can adapt to the study of urban sprawl.

## 4.5 Territorial, multi-scalar governance

As mentioned in section 4.3, once hierarchical structures are transcended, the term ‘level’ does not necessarily coincide with mutually (non-)exclusive, administratively defined territories (i.e. the ‘territorial trap’, see Gualini, 2006b, p. 890). To be useful, ‘level’ should be able to indicate a variety of supra- or sub-national institutions, inter-national, -regional and -urban agencies, spatio-temporally changing public-private partnership, or transnational bodies that can form the decision-making arenas over certain policy issues. For instance, in the European context, emerging forms of regionalism or localism (Gualini, 2006a), transnational regions (Coimbra Swiatek, 2011) or metropolitanization processes (Salet et al., 2003, part 1), are clear examples of how governance arenas are formed regardless of administrative boundaries. Other examples include sustainability and urban sustainability policies (see sec. 2.4.1), where ‘best’ and ‘good’ practices, public and private cooperation and co-optation activities, or knowledge advocacy initiatives foster the appearance of governance arenas where cities, metropolitan areas and regions arrange *ad hoc* partnerships between other public and private institutions to directly access European funds.

These governance processes imply the constant re-definition of regional and local boundaries, which are not ‘given’, but socially constructed. In contrast with multi-level governance, *territorial, multi-scalar* governance points out the constructive character of geographical ‘levels’ that become the political arenas for actors. Following the use of the term ‘scale’ instead of ‘level’ by Brenner (2001), Gualini (2006a, p. 42) refers to ‘scale’ as ‘the emerging and contextual spatial result stemming from practices and structuring forms of human activity’ (my translation). Governance implies the social construction of changing geographical scales: on the one hand, governance scales are a negotiation issue on their own among actors, and, on the other hand, these (re)negotiated governance scales provide the governance setting for actors.

Territorial, multi-scalar governance focusses on the re-scaling processes at work, where defining the appropriate, although changing, scale for governance and regulation is at stake among actors. Under this perspective, the state-centered and multi-level approaches reveal their rigidities; territorial governance problematizes the definition processes of territorial identities, ‘collective interests’, geographical boundaries as settings and stakes for governance interactions. In other words, before being able to perform governance, actors should define where their governance practices should extend over (see also sec. 4.6).

In this sense, scales originate from contextual relations and practices, involving power struggles among actors over their identification and redefinition. Hence, re-scaling processes are crucial in understanding the transformation of the state territorial attributes (Gualini, 2006a,b). For instance, in the case of localism or regionalism, geographical scales of governance are the result of (re)definition processes of the proper settings for actions where agents are embedded (ib.).

The notion of politics of scale has been introduced by Smith (1995), indicating the process of how politics are spatialized. It refers to the process of production of governance settings, ‘whether conceived as regulatory order(s) or networks, as well as their discursive and theoretical representation’ (Swyngedouw and Jessop, 2005, p. 21). Smith takes the making of the European Union as an example. He states that, following the unforeseeable events of the economic crisis that hit Western countries in the 1970s, and the fall of Communist rule in 1989, ‘the reorganization of the geographical scale of various kinds of societal activity’ (Smith, 1995, p. 60) that the establishment of the European Economic Community would have brought about was somehow imaginable. The European Union ‘scalarly’ restructured

on the scale of the nation–state within the new Europe (ib.). Smith asserts that:

geographical scale is socially produced as simultaneously a platform and container of certain kinds of social activity. Far from neutral and fixed, therefore, geographical scales are the product of economic, political and social activities and relationships; as such they are as changeable as those relationships themselves. (Smith, 1995, p. 60)

Scale delimitation and demarcation imply power struggles, being changeable ‘products’ of economy and political relationships, however they are also expressions of cultural identities (see also Herrschel and Newman, 2002, p. 21–22). For instance, in some contexts the ‘state–centric configuration of world capitalism’ (Brenner, 1999, p. 432) has been eroded into a diversity of territorial scales that no longer correspond to state territorial boundaries, although other territorial delimitations (e.g. Catalonia or Flanders) are still very important.

Spatial scales are therefore the outcome of socio–spatial dynamics, and are continually transformed and contested. Scales are partially hierarchal and defined by networks, since scale configurations change as power shifts (Swyngedouw and Jessop, 2005). The local, regional, national or global ‘levels’ are just some of the possible scales:

Spatial scales are often taken for granted as naturalised units for social existence (much of which is perpetuated in some of the geographical and international relations literature, which often unproblematically singles out particular scalar forms – *such as* the local, the regional, the national or the global – as the pivotal terrain for analysis), while they are socially produced temporary stand–offs in a perpetual transformative, and on occasion transgressive, socio–spatial power struggle. (Swyngedouw and Jessop, 2005, p.23) [my emphasis]

The notion of scale and ‘rescaling’ have become key reference points in critical studies on spatial governance practices, where ‘[u]nderstanding scale as a political outcome requires focussing on power relations as the result of material processes and of concrete forms of agency’ (Gualini, 2006b, p. 885). Governance encompasses the spatio–temporal political dynamics through which scales re–definition (re–scaling) occurs, implying (i) a redefinition of patterns of legitimacy and effectiveness of public action, (ii) a redefinition of scales of public action, and (iii) a co–evolution of the institutional context for public action (Gualini, 2006b, p. 887).

There are ‘in–between dynamics’ that recompose and rearrange governance scales (production of governance arenas), such as the national state, the regions, the cities or inter–regional agencies, and there are also ‘within scale dynamics’ that reconfigure the authority and scope of such re–arranged governance arenas. This distinction is similar to one proposed by Brenner (2001) regarding the ‘singular’ and ‘plural’ dimension of the ‘politics of scale’ (cf. Gualini, 2006b, p. 895). For instance, the emergence of a new metropolitan scale among the nation state’s institutional–administrative layers must be first defined as a *territorial* institution (i.e. ‘singular’ or ‘in–between’ scale dynamics), and then its scope of authority and competences with regard to other scales has to be identified as well (i.e. ‘plural’ or ‘within’ scale dynamics).

Territorial, multi–scalar governance represents a particularly useful theoretical framework because it emphasizes the socially constructed character of governance arenas, including the territorial definition of the governance settings. There are different forms of re–scaling. First, there is a tension between the re–scaling process performed by the state and the re–scaling processes that different territories, scales and places are generating (see also sec. 4.8): the state can decentralize competences towards other scales (i.e. ‘state re–scaling’), and there

can also be emergent re-scaling demands and eventual institutionalization of supra- and sub-national scales (re-scaling ‘from above’ and ‘from below’), such as regions or supra-national policy arenas. For instance, Bulkeley (2005, p.880) refers to ‘global civil society’ where a wide range of different actors, being or not territorially based, try to act and form different spheres of (counter)authority.

However, re-scaling can occur also ‘beyond ‘bounded’ policy spaces’ (Gualini, 2006b, p. 888): in contrast to multi-level governance (see sec. 4.3), multi-scalar governance looks beyond state institutional layers and embraces and opens up to multiple forms of scales that are not necessarily connected with nation states’ institutional and administrative territorial arrangements. Such a multi-scalar governance perspective focusses on:

*ad hoc*, problem-driven forms of coordination through partnerships and policy exchange, and based on loose forms of institutionalization that are mediated by some form of regional brokerage, ‘arbitration’ or ‘facilitation’ and often overlap established jurisdictions: at a cross-border (national/international, involving bordering contiguous localities, regions or states) and at a transnational level (involving networks of non-contiguous localities, regions and states), and often even encompassing non-contiguous territories. (Gualini, 2006b, p. 889)

Territorial, multi-scalar and re-scaling ‘from below’ (‘bottom-up’ governance) are relevant because they move away from nation states as exclusive sovereign authority and as a unique location for governance, paying attention to other modes of governance shifting away from state-centered and multi-level views, and focussing on the social construction of governance scales for action.

Territorial governance highlights the intrinsic antagonism between (possibly) the more hierarchical, administrative territorial scales re-defined by the state, and the ‘bottom-up’, specific scales that are re-negotiated at the regional or local levels. For instance, regulation theory (see sec. 4.1) has been enriched by considering the cultural-political economy dimension, where it is ‘the social forces forming discursive chains that co-construct, select and privilege certain objects of governance’ (Moulaert et al., 2007, p. 198). Actors struggle to impose their ‘hegemonic discursive strategies’ (Moulaert et al., 2007, p. 199) to orient urban development processes, hence also actors lacking institutional authority, public recognition or power (e.g. counter-movements, self-organization in networks; see also Swyngedouw and Jessop, 2005) take part in the governance process of scale and agenda setting through participatory and reclaiming grassroots-based actions<sup>8</sup>.

The territorial, multi-scalar governance approach is also related to the effort attempted in social sciences to account for the polymorphy and multidimensionality of spatial relationships (Jessop et al., 2008). Social sciences experienced the ‘spatial turn’ occasioning the re-framing of social theories by considering spatial relationships. Since then, territory, place, scale and networks have been the most salient concepts for elaborating and substantiating the socio-spatial relationships approach. In a nutshell, this approach contributed to:

- the problematization of territories, as (sub)national boundaries should not be taken for granted; territories are not static and unhistorically defined;
- critical views on places, underlining the social construction processes originating places;
- overcome the theorization of the supranational, national, subnational and local levels as mere governmental tiers, preferring the term scale instead, being the forms on which capitalism is (re)organized;

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<sup>8</sup>Challenging established modes of governance is a form of *social innovation*; see Moulaert (2009); Moulaert et al. (2007, 2010); Moulaert and Sekia (2003).

- point out the horizontal character of a multiplicity of social, political and economic relations, or ‘flows’, through the term ‘networks’.

However, despite the critical conceptualization of territory, place, scale and network, analyses have often been one-dimensional accounts, where, for instance, place or networks were ‘stretched’ to provide the ultimate description and explanation of socio-spatial processes. In contrast, Jessop et al. (2008) argue that it is more useful and desirable for social theory to account for the multi-dimensionality of space in social theory, hence considering sociospatial relations as ‘strategically selective TPSN [territories, places, scales and networks] ensembles’ (Jessop et al., 2008, p.395)<sup>9</sup>.

In synthesis, including space into social theory does not imply the consideration of just one concept that becomes the exclusive lens through which social phenomena in space are analyzed, but it should tend to account for the multi-dimensionality of space, whether in terms of territory, place, scale or network. Territory, place, scale or network have an heuristic role for enabling ‘polymorphic modes of analysis’ in social sciences (Jessop et al., 2008, p.397).

According to this view, a territorial, multi-scalar governance would comprise concerns about territories, scales, places and networks: territories are not only considered as defined by their administrative boundaries, but embedded in social, cultural, political and economic place (contextual) characteristics. The concept of scale allows us to re-elaborate territories and places by the constant re-definition of the setting or the ‘action area’ of agents, that are embedded in networks (e.g. public-private partnerships, international organizations).

As an illustration of this approach, Bulkeley (2005) tries to overcome the static conception of territory by the deployment of the concepts of scales and networks in the attempt to understand environmental policy. In considering one trans-municipal network which creates a grid of intertwined cities for climate protection under the European Commission’s campaign on Sustainable Cities and Towns, Bulkeley shows how a ‘new grammar of environmental governance’ (Bulkeley, 2005, p. 877) opens up, overcoming nation states as the sole *scale* for governance, with cities and regions playing a key role in environmental policies through politics of scale, taking advantage of competences transfer over environmental regulation to subnational authorities. Environmental governance can not be understood independently from state restructuring (see sec. 4.1) and politics of scales: ‘the ‘politics of scale’ is a key element in understanding shifts in the nature of the state and its authority, and hence for the nature of environmental governance’ (Bulkeley, 2005, p.883). Therefore, the notions of scales and networks are combined into one conceptual framework, as ‘the very process of enrolling particular actors and networks into scalar constructions is part of the politics of scaling’ (Bulkeley, 2005, p. 884)<sup>10</sup>.

#### 4.6 The strategic relational approach and meta-governance

Alerting to the risk of ‘state fetishization’ (or reification) implied by state-centered approaches to governance, by referring to Poulantzas (1979), Jessop (2005a) defines the state as:

a relatively unified ensemble of socially embedded, socially regularized, and strategically selective institutions, organizations, social forces, and activities organized around (or at

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<sup>9</sup>In the same article, Jessop, Brenner and Jones connect this proposal on how to theorize socio-spatial relations in terms of territory, place, scale and networks with Jessop’s strategic relational approach (SRA); see sec. 4.6.

<sup>10</sup>The sustainability fix concept introduced in sec. 2.4 can also be considered as an illustration of politics of scale, as it does not imply a pre-given governance scale (see Bulkeley, 2005, p. 890).

least involved in) making collectively binding decisions for an imagined political community. (Jessop, 2005a, p. 50)

The state is an ensemble composed of a certain variety of relatively stable organizations, institutions, and actors that interact within specific settings, with the aim to ‘make sense’ of their activities and practices, power struggles and interdependences. Hence, it is necessary to look beyond the institutional organization of the state, and examine the interactions among actors that shape the institutions’ capacity for manoeuvre. Jessop names this analytical view as ‘strategic relational approach’ (SRA):

The SRA’s main methodological conclusion is that state power must be studied not only in terms of the state’s basic structure, institutional architecture, and specific organizational forms but also from the viewpoint of its strategic capacities both within the political system more generally and vis-à-vis the wider nexus of functional systems and the lifeworld. In this sense, the SRA is incompatible with a purely state-centered approach insofar as the latter assumes that the state can be examined in isolation and treated as an independent variable. In contrast, the SRA examines the state in terms of its structural coupling and co-evolution with a wider set of institutions and social practices. Putting the state in its place in this way does not exclude (and, indeed, presupposes) specifically state-engendered and state-mediated processes; but it does require that these be considered in their broader social context and that their effects are related to the strategic choices and conduct of particular actors within and beyond the state. (Jessop, 2005a, p. 50–51)

In synthesis, by considering state as a set of social relations, Jessop urges that the state should not be reified as a unitary, isolated institution, but rather as an apparatus of contextual dynamics, negotiations, decisional processes, ordinary practices and actors, where the circulation of power is the focus of attention (see also Gualini, 2006a). In Jessop’s approach on governance, the state does not act as *primus inter pares* given its dominant regulatory role, but functions as a setting for action by a variety of public and non-public actors, whose interactions mediate over functional and territorial issues<sup>11</sup>. A key point to understand in the strategic relational approach is that it is not scale specific or scale dependent:

[a]s a relatively abstract account of relational state power, it can be applied towards an understanding of any level of state activity, from the local to the supranational, and to the ways in which these territorially bounded actions interact and support each other. The content of such actions will only be uncovered through concrete research. (Macleod and Goodwin, 1999, p. 523)

Connected to the strategic relational approach (SRA), Jessop (2005a) considers governance as the result of the ‘institutionalization of reflexive self-organization among multiple stakeholders across several scales of state territorial organization’ (Jessop, 2005a, p.57)<sup>12</sup>. Because of the reflexive character of governance, and because of the emerging character of negotiations, cooperations and struggles among different actors over certain issues, certain actors, and especially the public actors and the state, perform a predominant role in modulating the ‘rules of the game’ in different governance arenas, characterized by a diversity of actors, variable territorial scopes and a wide range of issues.

Jessop (2005a) proposes the concept of ‘meta-governance’ as a more appropriated term to describe the attempt performed by (governmental) actors to give a coherent form of power diffusion processes (i.e. circulation of power). Hence, there is not only a shift ‘from government to governance’, but also a transition ‘from government to *meta-governance*’, as governmental

<sup>11</sup>For a discussion on Jessop’s strategic-relational approach, see Macleod and Goodwin (1999).

<sup>12</sup>This is a type of governance called ‘heterarchy of self-organization in network’ as discussed in Swyngedouw and Jessop (Swyngedouw and Jessop, 2005, p. 5).

actors have first to ‘think’ how to arrange governance and governance arenas before interacting and negotiating with other (public and private) institutional actors. Meta-governance is thus the reflexive process through which actors construct the suitable arenas (settings) for governance<sup>13</sup>. Being embedded in social relations, in meta-governance public and private institutional actors reflexively engage in interactions for decision and policy making.

According to this perspective, what is at stake in governance processes is the constitution of settings for action (Gualini, 2006a, p. 43). Similarly, Swyngedouw and Jessop (2005, p. 9) emphasize the need to focus on governance mechanisms and practices, since the way that modes of governance are *practically* carried out by actors in a particular situation, define what governance is and also which type of governance the involved actors tend towards through their behaviors.

An empirical application of the strategic-relational approach has been carried out by Macleod and Goodwin (1999) on London governance. Specifically, the abolition in 1986 of the Greater London Council (GLC) can be viewed as a strategy of the Conservative Party at the state level to grant access to London urban development and renewal of some social forces more than others, an attempt which then was again re-configured by the establishment of the Greater London Authority (GLA) by the Labour Party. This multi-scalar governance (see sec. 4.5) between the state, and metropolitan and urban London then interlocked with the networks and strategies of the actors explicitly or implicitly co-opted in London urban governance. Macleod and Goodwin (1999) illustrate Jessop’s approach in ‘analysing the state as a social relation through which particular strategies can be pursued [leading] us to appreciate that a particular state system will be more suited to the pursuit of some types of economic or political strategy than others because of the modes of intervention and resources which characterize that system’ (p. 520).

The strategic relational perspective (SRA), and the related meta-governance framework, emphasizes the need to consider governance as a territorial, multi-scalar, multi-actor reflexive social practice. In this dissertation, Jessop’s approach is used as an analytical ‘lens’, in part already integrated within a territorial, multi-scalar governance perspective (Jessop et al., 2008), enriching the distinction between ‘in-between’ and ‘within’ dynamics of scale definition.

#### **4.7 A ‘governance story’ for land management with a focus on urban political choices**

From the literature review on governance, it becomes apparent that governance is a complex concept, covering a kaleidoscope of perspectives and interpretations. Theories overlap and intertwine, clashing especially when the explanations of empirically different contexts show their limits. However, despite their differences, they all underline (i) the new context in which national and sub-national institutions are interacting with (ii) a multiplicity of actors, where (iii) cooperation and (iv) conflicts dynamics emerge.

Figure 4.1 summarizes the ‘relative location’ of the governance approaches that have been discussed in the previous sections of Chapter 4. The figure was designed to serve as a heuristic scheme of reference in order to ‘map’ the theoretical approaches on governance. As a concept, governance can be approached from different points of view, whose characteristics can

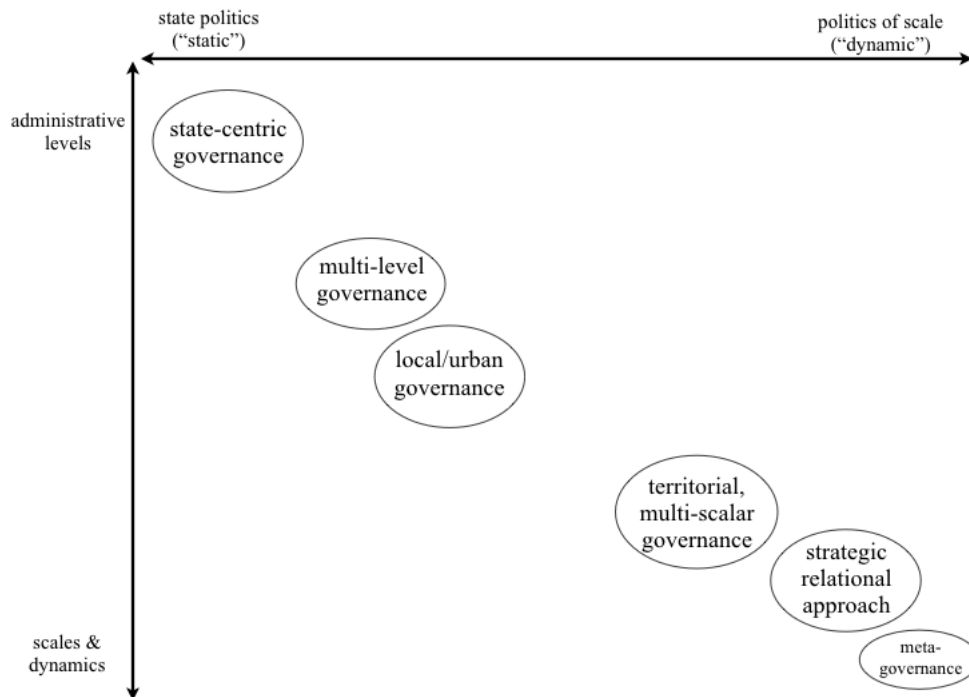
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<sup>13</sup>Such dynamics especially adapt to the institutionalization of the European polity (Jessop, 2005a). In other words, the European polity is a ‘work in progress’, where different actors struggle for the definition of decision-making settings (i.e. they reflexively arrange governance arenas to perform governance).

diagrammatically be represented by two dimensions, displayed along the x–y axes. The first continuum corresponds to the theoretical and empirical focus on administrative levels (e.g. nation states, super– and sub–national bodies such as regions, provinces and local authorities) as opposed to scales and actors’ dynamics (e.g. partnerships and project–related agreements among actors, metropolitan bodies or inter–regional agencies). The second dimension opposes the static character of ‘state politics’ with the dynamic character of ‘politics of scale’, acknowledging the ‘non–natural’ existence, for example, of nation states, regions or public and private agencies, which are in contrast the result of *ad hoc* and changing negotiations and a variably stable institutionalization.

State–centric governance perspectives (see sec. 4.2) occupy the upper–left corner of the figure, singling out the focus on administrative state layers and the emphasis of the state as *primus inter pares* actor. Multi–level governance (see sec. 4.3) and local and urban governance (see sec. 4.4) detach themselves from state–centred approaches, their focus still being connected to administrative levels but challenging ‘static’ representations of state politics with a concern on supra– and sub–national scales. Territorial, multi–scalar governance (see sec. 4.5) and the strategic relational approach (see sec. 4.6) lie at the opposite side of the chart to state–centric perspectives, and highlight the emphasis on scale rather than on administrative levels (y–axis), while simultaneously concentrating at the same time on re-scaling dynamics (x–axis).

**Figure 4.1:** A synthetic figure on the ‘relative location’ of different governance approaches according to two axes, ‘administrative levels vs. scales and dynamics’ and ‘state politics vs. politics of scale’. Author’s elaboration



Hence, the question that should be asked is: which governance perspective should better serve as reference for conceiving and analyzing political and planning factors in the occurrence of urban sprawl (see sec. 3.2)?

This question has multiple and open (and criticizable) answers. However, in this dissertation, the territorial, multi–scalar governance perspective is considered as the most appropriate theoretical framework to place urban political choices in context. The analysis of a spatial



phenomenon, such as urban sprawl, requires a definition of the boundaries of inquiry, and the potential overlap between scales of analysis, such as local, provincial, metropolitan and regional scales, as actors having competences over land allocation.

In this dissertation, a ‘territorial, multi–scalar’ governance perspective is adopted as it problematizes the definition of territories, scales and places where urban sprawl occurs, and the networks of land management that emerge among public institutions and non–governmental actors for suburban housing provision. Adopting a territorial, multi–scalar governance framework highlights the multiplicity of non–taken for granted *scales*, corresponding to different *territories* and encompassing different *places*, and involving certain kinds of *networks* (cf. Jessop et al., 2008; see sec. 4.5).

Local, regional, provincial and metropolitan governments are not solid actors that act coherently and unanimously. The territorial, multi–scalar governance approach allows the problematization of the notions of ‘city’ and of ‘local government’ as territorial, multi–actor and multi–scalar institutions. Similarly, regional and provincial governments, metropolitan bodies, and specific administrative departments, co–exist and act on their own (although not unanimously) regarding urban development and land management. As Le Galès states, ‘focusing on European cities nowadays goes hand in hand with analysing forms of interdependence between scales and between levels of government, multilevel strategies of social actors, and linkages between forms of mobility and local societies’ (Le Galès, 2002, p. 22). Levels are scales, however scales are not necessarily levels; hence, their use is not mutually exclusive, nevertheless it should be qualified. In this research, I will use the term ‘local government’ when referring to the city administrative level, while regional, provincial or metropolitan bodies will be clearly defined as such; ‘scale’ is a term that will be preferred to ‘level’ even when it refers to governmental institutional tiers.

In a territorial, multi–scalar governance approach, actors act at different scales, which are constantly re–arranged, and interact with each other (relative vertical and horizontal coordination) and with different private actors, who are also diverse and act at a diversity of territorial scales. The territorial, multi–scalar governance perspective allows us to realistically account for the multi–scalar, multi–actor, multi–issue and ‘territory–adjusted’ governance context where decisions are taken, in particular decisions over land use allocation and management, linked with housing policies (see sec. 2.2 and sec. 4.8).

Consequently, territorial governance allows us to account for the institutional structure in which local governments are embedded, where path–dependency trajectories influencing urban development choices permeate the decision–making process and agency of city councils (cf. Moulaert et al., 2007). Furthermore, the territorial governance perspective seems to be well equipped to account for the European institutional setting that is involved in the definition and proposal of environmental policies (cf. Bulkeley, 2005), which are generally linked with the European urban sustainability discourse, such as with the ‘compact city’ model (see sec. 2.4.1).

However, as Gualini (2006b, p. 896) puts forward, territorial, multi–scalar governance lacks of foundations in terms of a theory of agency that would explain how actors at different territorial scales interact. A territorial, multi–scalar governance perspective accounts for the institutional setting in which actors are embedded, yet the analytical framework that would explain the dynamics of decision–making processes relative to concrete issues remain untheorized. How then to account for the way a multiplicity of actors belonging to different scales, and specifically local governments, take action with regard to land (use) management and allocation within a territorial, multi–scalar, multi–actor and multi–issue governance context? In particular, how do we account for territorial, multi–scalar and multi–actor political choices

*over urban land allocation and use?*

There are different theoretical perspectives that try to account for the urban political choices made by ‘cities’ (variably considered as local authorities, metropolitan organizations or public–private cooperations, depending on the type of analysis) in negotiating, managing and redistributing resources for urban development. Overall, the role of private actors and the interdependence established with public agents are key issues in the different theoretical frameworks seeking to explain them. Exemplary frameworks are Harvey’s entrepreneurialism (1989), the ‘growth machine’ perspective (Logan and Molotch, 1987; Molotch, 1976), urban regime theory (Stone, 1989) and the bargaining context model (Kantor and Savitch, 2002), which will be discussed in the following sections.

#### **4.7.1 Entrepreneurialism**

Entrepreneurialism is a deepening, from a Marxist perspective, of governance perspectives on the linkages between urbanization and capitalism. Cities have had a relevant role in history for shaping the social, economic, political and cultural infrastructure necessary to the spread of capitalism:

When the physical and social landscape of urbanisation is shaped according to distinctively capitalist criteria, constraints are put on the future paths of capitalist development. This implies that though urban processes under capitalism are shaped by the logic of capital circulation and accumulation, they in turn shape the conditions and circumstances of capital accumulation at later points in time and space. (Harvey, 1989, p.3)

Harvey (1989) introduced the term ‘entrepreneurialism’ to refer to a process in which the competition among cities and the lack of public resources stimulate public authorities to ally with the private sector in order to ensure service provision and to enhance cities’ territorial competitiveness. Harvey proposed that, since the 1970s, there has been a shift from a managerial urban governance to an entrepreneurial city–governance: abandoning their role as service provider, urban governments and local administrations function like a private actor through proactive forms of spatial planning (urban renewals), city marketing, and economic strategies in order to attract (inter)national investors (see sec. 4.1).

Entrepreneurialism is fostered by international competition among cities, and it is characterized by three main features. First, the main tool through which cities develop an entrepreneurial agenda is public–private partnerships (PPPs), where coalitions are formed between different (local) governmental actors and local, national and international investors. In addition, other non–public agents, such as quangos, associations and private actors, are crucial in the shift from the managerial towards the entrepreneurial city (cf. Salet et al., 2003, ch.2). Second, public–private partnerships are generally speculative in nature, with the local (rather than national) public sector assuming the risks. It is also often the case that, with the fate of urban development projects being uncertain, anticipated gains are privatized, while potential losses are socialized (see also sec. 4.4). Third, entrepreneurial trajectories in urban governance lead to an emphasis on place–specific economic development rather than territorial growth.

Entrepreneurialism is a form of urban governance (see sec. 4.4) that emphasizes the strategies cities put into practice to sustain international interurban competition. It critically analyzes the increasing neo–liberal directives ensuing from the contextual shift in which nation states, regions and cities have happened to act (see sec. 4.1). The entrepreneurial approach has become so wide–spread that its innovative contribution is currently a theoretical basis for further analysis; the focus of subsequent research has been to clarify how public–private

coalitions form and which resources can become an effective leverage in urban governance processes to trigger and propagate different types of entrepreneurial strategies.

Furthermore, besides Harvey's analysis, the 'entrepreneurial city' has become a 'metaphor' characterized by:

- (1) the discourse of competition and of the market, including that of image and identity;
- (2) the political priority given to the stakes of economic development and attracting favoured investments, flows, and social groups; and
- (3) changes in local government towards organizational forms of a public-private partnership type, which give private-sector actors a major role in defining the common good of the city, its priorities, and modes of management, as well as in designing and implementing projects. (Le Galès, 2002, p. 205)

Entrepreneurial cities should adopt managerial strategies with an aim to locate the 'city-commodity' within the international market (cf. also New Public Management in sec. 4.1).

Hence, entrepreneurialism bears the risk of portraying the city as a unitary 'social actor' or 'actor city', with a unified strategic vision for urban development. Furthermore, although it can be acknowledged that neo-liberal discourse fosters competitiveness and economically efficient strategies for cities' spatial developments, cities are far more complex, multi-actor and multi-scale institutional ensembles, whose policies and urban development measures cannot be solely reduced to economic competition strategies (cf. Le Galès, 2002, p. 208).

#### 4.7.2 Urban regime theory

Since the end of the 1980s, urban regime theory has tried to explain public and private interdependencies in American cities, and stems from the seminal work by Stone (1989). In a nutshell, urban regime theory considers power as fragmented and represented by certain interest groups, which arrange collaborative regimes 'through which local governments and private actors assemble the capacity to govern' and to control resources (Mossberger and Stoker, 2001, p. 812). Urban regimes are informal but stable coalition groups that can access institutional resources, yet cooperation among public and private groups have to be distinctively achieved.

The main characteristic of urban regime theory is 'the assumption that the effectiveness of local government depends greatly on the cooperation of nongovernmental actors and on the combination of state capacity with nongovernmental resources' (Stoker and Mossberger, 1994, p. 197). The focus is thus on the effectiveness of the policy initiative (i.e. 'to get things done'), which requires governmental and nongovernmental actors to form coalitions. The uneven capacity to participate in urban regimes leads business interests to gain a privileged position in the policy process. Although coalitions generally span over policy sectors, it is more likely that different policies (e.g. education, health, economic growth and built-up areas expansion) will call for different types of urban regimes.

Empirical research (especially focussing on European and American cities) has proven fruitful in developing a diversity of urban regime models. Stoker and Mossberger (1994, p. 196) state that '[d]espite its North American orientation, regime theory holds substantial promise for understanding the *variety* of responses to urban change' (original emphasis). By focussing on the coordination and cooperation between governmental and non-governmental actors, and on the types of actors involved – their purposes, composition, position and resources – , urban regime theory can explain the variation of responses that such coalitions put into place to face urban change. For cross-national comparative analysis, Stoker and Mossberger (1994) propose a typology of urban regimes, namely 'organic', 'instrumental' and 'symbolic'.

Instrumental regimes are typical of US and are more project-oriented (e.g. Atlanta), where the category of ‘development regimes’ identified by Stone (1989) can be found (see also the ‘growth machine’ framework in sec. 4.7.3). Organic regimes are characterized by a tight and/or homogeneous social fabric, where often a high degree of consensus is present. Organic regimes are characteristic of medium and small size towns, communities and suburbs, dominated by small capital, where power coalitions are formed mainly to maintain the status quo. Organic regimes include the ‘maintenance or caretaker regimes’ identified by Stone (1993). Symbolic regimes are identified in those cities that strive for changing the direction of urban development (e.g. ‘revitalization’ of the economy or resource redistribution). Such regimes are hence ideological and imbue development choices in terms of values, for instance resource redistribution, environmentalism, or historic preservation. Stone (1989) identified two subtypes of symbolic regimes, namely the middle-class progressive regime, and the lower-class opportunity expansion regime.

However, beyond such typologies, the great contribution of urban regime theory has been to analyze and clarify (i) the quality of the coalitions established, namely the types of actors involved, (ii) the mechanism of mobilization and participation of these actors, (iii) their purposes and (iv) the strategies put into place in dealing with the ‘governed’ (Stoker and Mossberger, 1994).

While urban regime models are effective in explaining the process of coalition formation, Mossberger and Stoker (2001) explain that they are less able to account for changes in urban regimes, and are to be adapted to contexts other than US cities (cf. Pierre, 2005). The problematic transferability of the concept of urban regimes from American cities to European ones depends on several factors. First, European cities are more consistently supported by public grants from the central government, hence local governments are less in need to develop cooperation with the private sector. In addition, the public ownership of land, or its long-term leasing to private companies, differently characterizes the role of public institutions in Europe than in the US (Vicari Haddock, 2004, p. 101–102). Second, the public sector still dominates the coalition, and the private sector owns less room for action, with the local government having a greater steering capacity. Third, the central government, traditionally through party politics, can have a consistent impact on the formation of local coalitions. Furthermore, European and US urban regimes may not only vary in terms of the starting contextual conditions (the ‘baseline’), but also on the types of actors that may build the coalition. Distinct from the US context, European cities’ neighborhood groups, Chambers of Commerce, environmental groups, civil society associations (the ‘tertiary sector’), and public sector officials may be the predominant types of participants in governing coalitions (Mossberger and Stoker, 2001). Hence, the difficulty in transferring of urban regime theory into the European context is due to the contrasting roles that local governments play in Europe as compared to US: in the latter, local governments and the federal state are weak, in contrast to the stronger role performed by private actors; in the former, local governments and the national state play a stronger role, while private actors are less able to steer development (Vicari Haddock, 2004, p.101–102; cf. Bagnasco and Le Galès, 2000b; Kazepov, 2005).

For some authors urban regime theory can be considered *one* specific type of urban governance which is typical to US ‘political, institutional and economic urban context’ (Pierre, 2005, p. 451; cf. Pierre and Peters, 2000, ch. 4).

Consequently, compared to the US context, the main characteristic features of urban regimes in Europe remain unclear, moreover, how they should be identified in the European context. Overall, an initial and greatly characterizing feature of urban regimes is business or non-governmental participation, so that some scholars define urban regimes solely as ‘coali-

tions of political and economic actors and interests centered around policy objectives of economic growth and development' (Pierre, 2011, p.23; cf. (Moulaert et al., 2007)). A second feature is the existence of relatively stable public sector–business/non–governmental actors partnerships. A third feature is the presence of an identifiable and long–term policy agenda, which the urban regime is built around. A 'negotiated agenda' supports the cooperation of different groups 'to achieve a set of policies' (Ward, 1996, p. 428). Groups have different interests and goals, yet their participation in the governing coalition is perceived as a convenient trade–off (Ward, 1996). Hence, these key characteristics of urban regimes should then be qualified by cross–national and cross–city comparisons according to the different types of participants that can be potential players in the governing coalition. Urban regimes are thus agency–focussed, and are attempts to overcome both pluralist and elitist accounts of local power, where, respectively, power depends on who is elected or on who can take over resources (Mossberger and Stoker, 2001; Ward, 1996).

However, critical views on urban regime theory keep stressing the problematic transferability of the concept out of US–contexts (see Le Galès, 2002, p. 269), and the negligence to incorporate higher–level authorities, as urban regime theory tends to focus more on individual policies in comparison to the institutional structure considered in state–centered or multi–level governance. Furthermore, the empiricist approach which characterizes much of urban regime research can be both an advantage (Moulaert et al., 2007) and a shortcoming for the advancement of urban regime theory (Ward, 1996).

Other authors underline how urban regime theory has produced insightful analysis on how coalitions form and behave for managing urban politics, however such studies have remained anchored to their local contexts and the general economic and political environments where such coalitions function has not been sufficiently considered. Furthermore, urban regime analyses have offered great insights on the dynamics of coalition building and functioning at the urban level, however they have prioritized description over explanation, and less attention has been paid to how and why such coalitions form (Gómez García, 2007, p. 25).

### 4.7.3 The growth machine

Urban regime theory and the 'growth machine' (Molotch, 1976) approach 'are basically heuristic devices for the analysis of how growth and development coalitions are built and function as socio–economic architectures within urban arenas' (Moulaert et al., 2007, p. 202).

The US–rooted 'growth machine' perspective (Logan and Molotch, 1987; Molotch, 1976) has been an influential theory on urban development. The growth machine view assumes that any city or locality is the expression of the interests and negotiations of powerful local land–based elites. Localities (e.g. municipalities) compete to garner resources by bargaining both with private actors and local and national governments. Hence, urban development is the result of these struggles and negotiations; 'this organized effort to affect the outcome of growth distribution is the essence of local government as a dynamic political force' (Molotch, 1976, p. 313).

Molotch continues by arguing that 'land, the basic stuff of place, is a market commodity providing wealth and power, and that some very important people consequently take a keen interest in it' (Molotch, 1976, p. 309). Therefore, from the growth machine perspective, land is central to theory building, as elites' interaction with local government influence building permits concessions, tax reduction policies, zoning plans and infrastructure development.

However, the growth machine perspective bears similar drawbacks to the urban regime theory: it is US-based and difficulties are encountered when growth coalitions are searched for in the European context. The growth machine can therefore be considered an ‘extreme type’ (or ideal-type) of urban regime, in particular of the ‘instrumental’ or ‘development regime’ identified by urban regime theorists (see sec. 4.7.2).

#### 4.7.4 The ‘marketplace’ and the bargaining context model

Political scientists and urban sociologists argue that since the 1970s, economic, demographic, technological and political transformations happening at the global scale have been influencing local urban politics (Kantor and Savitch, 2002; Kazepov, 2005; Magnier and Russo, 2002; Salet et al., 2003; Vicari Haddock, 2004). In particular, Kantor and Savitch (2002) refer to this new context as the ‘international marketplace’, where they identify three main processes – deindustrialization, globalization and delocalization, and deconcentration – that, cumulatively, have substantially modified the context in which cities act (see sec. 4.1). Cities are the emblematic centers where these changes occur, and where they are manifest. In this sense, cities and metropolitan regions emerge as heuristic key sites to critically understand the transformations and dynamics that shape societies (Kazepov, 2005).

In the ‘bargaining context model’, cities are conceptualized ‘as a political entity that pursues, absorbs, manages and directs development’ (Kantor and Savitch, 2005, p. 143). In particular, Kantor and Savitch point out the role that cities perform as local political agents, as they *actively* involve public-private cooperation in order to maximize their choices for development. They do so by leveraging on their *bargaining assets*, that is by steering upon the competitive advantages that they have to offer to business.

Moreover, cities bargain resources in order to garner further resources, which they again choose where to re-invest:

(...) local governments compete for private capital in the international marketplace and (...) they adopt policy strategies to influence the terms of their participation. City governments draw upon a variety of bargaining advantages or resources in support of these strategies. The more bargaining advantages held by a city, the greater its ability to shape urban development. (Kantor and Savitch, 2002, p. 46)

The authors argue that bargaining is ‘an integral component of development’ (p. 29), and that public and private sectors are interdependent. They clearly acknowledge that, ‘in the real world’, cities and business compete and negotiate for urban development. In this game, cities are not helpless actors that surrender to private interests, but – if they do – they choose to do so, conditional to the circumstances they are involved in and their bargaining power. These authors emphasize local governments’ choices in orienting development, and their bargaining context model offers an explanation for the different decisions in urban policies enacted by different cities. Kantor and Savitch support with evidence that cities attempt to maximize their choices by betting on their competitive assets offered to investors in the international marketplace. In synthesis, ‘[c]hoice is an essential part of urban development’ (Kantor and Savitch, 2002, p. 4).

In the marketplace, cities are active agents that employ the resources at their disposal in order to define their bargaining position in relation to economic actors:

Although local governments have only limited control over the marketplace, they use public power to engage it. They do so whenever land is recycled, development rights are

granted, housing is built, taxes are collected, or capital is borrowed. (Kantor and Savitch, 2002, p. 19–20)

Bargaining can be defined as ‘the ability of a city to garner resources in order to maximize its choices and ultimately realize its objectives in the capital investment process’ (Kantor and Savitch, 2002, p. 43). In this way, the two authors establish a link between market’ and ‘politics’: having access to certain resources – e.g. public funds, regulatory competences, provision of infrastructures –, cities can attract investors, creating and modifying their competitive position.

Kantor and Savitch analyze how cities, characterized by a certain bargaining power, differently respond to pressures from economic elites, and under which conditions. They support their analysis by considering 10 metropolitan cities, that is New York City, Detroit, Houston, Toronto, Glasgow, Liverpool, Paris, Marseilles, Milan and Naples. The bargaining context model accounts for the variations in how cities bargain resources by referring to four variables, which constitute the circumstances in which cities are embedded. First, *market conditions* are those economic circumstances that make a city variably attractive to private business. Being a financial hub, offering a highly educated workforce or a ‘good business climate’ are all kinds of market conditions. Second, *intergovernmental support* refers to the degree of state intervention and the regional and national support that local governments can count on. Intergovernmental support not only corresponds to economic resources that may be transferred to local governments, but also the stringency of urban plans, tax policy pressure, and the capacity to bargain for the construction of mobility infrastructures that are usually negotiated at the regional or national level. Intergovernmental support corresponds to the governmental context in which cities are embedded, which in turn is very much related to interaction between a diversity of public actors at the urban (local), provincial, metropolitan, regional and national level. Third, *popular control* systems consist of those mechanisms that civil society can employ to express their preferences and to make elites accountable for their choices. Popular control systems are a sort of litmus test to verify the legitimacy of local governments’ choices, and are connected with citizens’ participation and their ability to articulate their priorities, and furthermore to make them heard. Fourth, *local culture* describes the attitude towards development, that is the likelihood that a certain type of development (e.g. a megaproject or a public park) goes through the negotiation process between public and private actors. Local culture is defined as ‘materialistic’ or ‘post-materialistic’, to underline local governments’ inclination, for instance, for industry and jobs creation (e.g. ‘business as usual’), or for natural environment protection (e.g. ‘the commons’).

Market conditions and intergovernmental support are ‘exogenous’ or ‘external’ conditions, while popular control and local culture are ‘endogenous’ conditions. The bargaining position of cities can be social or market centered. A social centered bargaining position is more advantageous, as the local government owns a stronger position in the face of the private sector’s requirements and goals. A social centered bargaining position allows cities to more consistently orient urban development towards their own aims, to choose among a diversity of development options, and overall to harvest a greater benefit for the city. Magnier and Russo (2002, p. 84) refer to ‘social bargaining’ in the specific case when resources gained through public and private negotiations are redistributed in the form of social services and facilities. In contrast, a market centered bargaining position means that the local government enacts ‘a weaker public position, [where] the public sector tends to absorb risk and costs’ (Kantor and Savitch, 2002, p. 46). In this case, the local government acts poorly with regard to private actors, as it will be more prone to surrender to their requests, and will have a narrow range of feasible options for urban development, urban politician choices being more dependent on exogenous private resources.

Kantor and Savitch ‘do not attempt to find the motivating forces behind all the variables [they] examine’ (Kantor and Savitch, 2002, p. 50), hence there is no causal theory of development hinted by the employed variables to understand urban political choices. Rather, the bargaining context model is an analytical framework that combines agency and structure, by considering cities as active political agents and capable of steering development, in relation to the economic, cultural, political and social circumstances in which they find themselves embedded in.

However, the attractiveness of the bargaining context model also coincides with its drawback: in attempting to explain urban political choices, the model nevertheless emphasizes a functionalist (and at times simplistic) view of urban decision-making, where the crossing of the four identified ‘variables’ – market conditions, intergovernmental support, popular control and local culture – can encompass the diversity of responses held by cities in the changed economic, political, social and cultural context emerged in post-Fordism (see sec. 4.1). Furthermore, similar to urban regimes (see sec. 4.7.2), ‘cities’ are considered as unitary ‘actor cities’ or ‘political entities’ (see supra), whose main actors are unclearly differentiated yet nevertheless linked to a (governmental and non-governmental) institutional context, which however lies in the background.

#### **4.8 Land management: combining the bargaining context model with territorial governance**

In this dissertation, the bargaining context model is considered to be a convincing theoretical framework to account for the steering capacity of a city to orient its policy strategies. Despite its drawbacks, it is assumed that, over other perspectives which have been briefly surveyed in the previous sections (see sec. 4.7.1, sec. 4.7.2 and sec. 4.7.3), the bargaining context model can better account for the urban political choices of cities, and especially for decisions over *land management*.

By separating driving and steering variables, the bargaining context model is convenient as it takes into consideration cultural and political factors at work in the managing of resources and in guiding urban development. Focussing on the exogenous and endogenous circumstances that steer urban development, the bargaining context model can serve as initial framework for the analysis of the diversity of urban political choices (outcomes) among cities. Furthermore, it is also inherently comparative (see sec. 5.3.2).

In addition, the bargaining context model implies an urban regime perspective to conceive cities:

A regime is a regularized pattern of political cooperation for mobilizing city resources in support of a common, identifiable agenda. We employ the regime concept within a bargaining context. Using the concept in this way, we are able to highlight the interplay between structure and agency. (...) This enables us to focus on how regimes use steering and driving resources in navigating the international marketplace. (...) we see regimes as mobilizing city assets and pursuing opportunities in support of chosen bargaining objectives. (Kantor and Savitch, 2002, p. 53, 171)

Hence, the consequences related to the difficult and problematic task of selecting a suitable theoretical framework to account for urban political choices within a territorial, multi-scalar governance perspective, are mitigated by the recognition that, as per governance perspectives discussed above, urban regimes and the bargaining context model are, although different, nevertheless connected, thus avoiding the making of ultimate and dogmatic choices.



In sum, the bargaining context model happens to be a quite useful analytical ‘trade-off’ in its effort to explain urban political choices over development, as it considers the flexible intertwining of four different variables – market conditions, intergovernmental support, popular control and local culture – to explain how cities make urban political choices, thus steering urban development, in the ‘international marketplace’ (see sec. 4.1 and sec. 4.7.4). Consequently, the bargaining context model can potentially allow for the identification of the context in which choices of actors over land management, in particular for the occurrence of urban sprawl as a specific ‘outcome’ of urban development strategies, are taken.

However, the bargaining context model bears some limitations. First, the notion of ‘local government’ employed by Kantor and Savitch needs to be qualified. Comparative urban politics (Kantor and Savitch, 2002) and comparative urban governance (Pierre, 1999, 2005) require the use of comparative functional equivalents, that is institutions which, beyond similar denominations, are *functionally* comparable (see sec. 5.3.2). In Kantor and Savitch’ analysis, local governments generally refer to metropolitan urban centers, as cities such as New York, Detroit, Paris or Milan are analyzed. Nevertheless, cities are loosely considered as city governments, administrative entities, or metropolitan bodies, without precisely identifying their boundaries (data are also presented without explicitly clarifying this point; see discussion in sec. 5.4).

Second, although Kantor and Savitch (2002) consider the role of provincial, metropolitan, regional and national government tiers, they do so with regard the opportunities and constraints that these levels bring about for cities. The authors do not further elaborate on the role that those governmental tiers perform as proper governance scales. The result is a ‘reification’ of such administrative levels as ‘static’ and ‘external’ governance settings to urban development strategies.

Third, the bargaining context model tries to account for both the general circumstances and local characteristics (assets) that can explain how cities *in general* decide on how to steer urban development, conditional to the cooperation, dependence and negotiation with private actors. As a consequence,

[t]he interest of cities in promoting their bargaining capacity is where the politics of development begins, not where it ends. *Bargaining simply reflects the reality of a governmental interface with a larger political economy. In and of itself, this says little about how cities employ resources, chart new possibilities, or realize their core interests. From our perspective, urban theory should take this into account.* (Kantor and Savitch, 2002, p. 353) [my emphasis]

In other words, being an analytical theoretical framework to account for variations in urban political economy ‘outcomes’ (i.e. the urban political choices actually taken by city governments), the bargaining context model has to be empirically adapted to the bargaining of specific resources, or the unraveling of specific interests.

Hence, first of all, the bargaining context model needs to be improved by explicitly identifying the governance scales where choices are made over land. The combination of the bargaining context model and the territorial governance perspective allows the improvement of the former by problematizing what is meant by ‘city’, and by considering the different possible bargaining scales over land allocation, accounting for the scalar structure of public and private institutions. This is key to this dissertation, as (territorial, multi-scalar) governance is assumed to be crucial to theoretically identifying the link between land management and urban sprawl, thus offering a suitable theoretical framework where political and planning factors are encompassed (see sec. 3.1.7 and sec. 3.2), and also detailing, with reference to

De Decker's model as presented in sec. 3.2 (see fig. 3.2 on page 72), the relative 'location' of gatekeepers and their 'execution practices' within specific scales.

Second of all, as mentioned above, despite the fact that Kantor and Savitch (2002) obviously recognize multi-actor interdependencies and complexities as they adopt an urban regime perspective, they tend to portray the city as a 'solid' political actor. They acknowledge that 'policy is influenced by political elites who collaborate across different levels of government' (Kantor and Savitch, 2002, p. 167), and continue by stating that:

[n]ational and regional governments often regulate local activities and shape development with money, supervision, and political authority. These governments also set expectations about relations with the private sector and create organizational frameworks through which those relations are carried out. (Kantor and Savitch, 2002, p. 271)

However, because of their scope of their analysis, they diverted the attention to the typification of vertical and horizontal integration, being more interested in convergence–divergence trends between European and US cities regarding the role of national and regional public institutions for local political choices. In the Kantor and Savitch' framework, the 10 considered metropolitan cities are the primary actors of urban development, other institutional levels being, despite their essential roles (cf. intergovernmental support in sec. 4.7.4), 'side dishes' of urban development choices.

Hence, with less attention being paid to coalition building for a certain project, this dissertation focusses on the overall tendency and mechanisms through which certain territorial actors perform on a certain territorial governance scale to develop a more or less sprawled housing policy, and hence a land management policy, on the basis of their proper steering capacity.

The improvement of the bargaining context model with the territorial, multi-scalar governance perspective implies also the consideration, in the European territory and besides larger metropolitan centers, of a multitude of municipalities as a specific territorial governance scale. Especially in the European context, the analysis of urban sprawl demands the consideration of those medium and small size municipalities that compose the metropolitan and regional areas of a considered city, and that bargain land too for the development of sprawled residential areas within their administrative boundaries. A territorial, multi-scalar governance perspective is appropriate when accounting for this particular geographical scale. Over this 'basic' European governance scale, the provincial, metropolitan, and regional scales are also (some of the) arenas where the setting for governance over land allotment is bargained.

Last but not least, although the bargaining context model effectively identifies the room for action that cities can bargain with the private sector and other institutions over their assets, Kantor and Savitch, as previously mentioned, consider 'urban political choices over development' in general, without tying them to a specific resource. On the contrary, in this dissertation, land is focussed on as a scarce resource (see sec. 2.4), land being considered as a crucial, competitive asset that local governments and other governance scales – and not loosely, 'cities' – bargain with for development. This dissertation is different in scope and content from the analyses proposed by Kantor and Savitch (Kantor and Savitch, 2005; Kantor et al., 1997), in that their model has to be adapted to the political agency involved in allocating land as a key resource for residential development. The emphasis on land is related to the key assumption underlining this dissertation, namely that urban sprawl implies land transformation (i.e. land use change), and consequently actors' decisions over land management, which require a suitable governance framework in order to be analytically (and realistically) accounted for (see sec. 3.2).

Resources are contextual; therefore, subnational institutions – municipalities, provinces, regions and metropolitan bodies – are considered particularly relevant when it comes to handling local (or territorial) and urban resources, such as land. The Kantor and Savitch’ model, adjusted to a specific asset, namely land, appears to be functional to preliminarily representing the ‘bargaining style’ or ‘bargaining tendency’ that certain urban actors will most probably show over land – which may be at their disposal as a publicly owned asset - for the development of sprawled housing areas (see *infra*, fig. 4.3). Kantor and Savitch’ model, conveniently ‘adjusted’ with the combination of territorial, multi–scalar governance, can be adapted to its application to a specific resource, that is land.

However, and more importantly, not only land as an asset is bargained for, but also land use competences are bargained for among governance scales. The bargaining of competences over land management among governance scales has also to be taken into account; moreover, land and scale bargaining dynamics cannot be separated from each other. Territorial, multi–scalar governance specifically allows the analysis of how competences over land management and land use regulations have been ‘handed over’ to sub–national governmental tiers, and how governance decisional scales over land allocation have multiplied.

As previously mentioned (see sec. 4.5), with regard to land management there is a tension between the re–scaling process performed by the state and the re–scaling processes that different territories, scales and places are generating, which is assumed to have a significant impact on the occurrence of urban sprawl. Concerning land management, there are ‘in–between scale bargaining dynamics’ that recompose and rearrange governance scales, such as the national state, the regions or the cities, and there are also ‘within scale bargaining’ dynamics that reconfigure the competences over land entitled to each governance arenas.

As a concept, ‘bargaining’ is central to this dissertation as it captures:

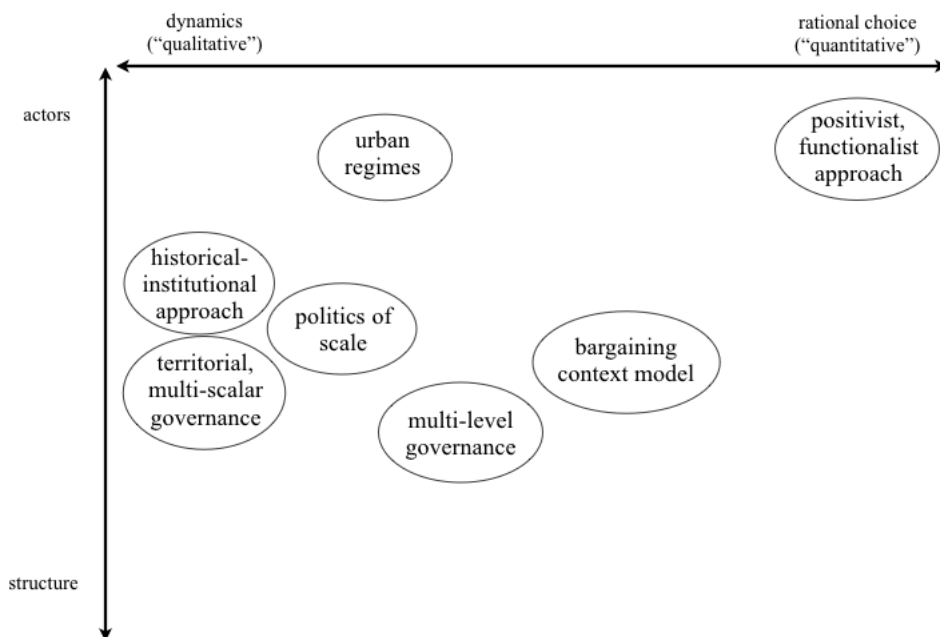
- the dynamics of scale bargaining in terms of scale definition (‘in–between’ scale bargaining dynamics);
- the dynamics of competences bargaining (‘within’ scale bargaining dynamics);
- the bargaining of land, as urban sprawl is considered the spatial result (*pattern*) of decisions on land management (*process*), i.e. a spatial arrangement.

There are different perspectives that can be recognized in the literature that deal with the concept of bargaining; political sciences make extensive use of the term in describing the agreements, exchanges, pacts and relationships among nation states (and especially national governments) or governmental agencies (cf. Marks, 1993; Marks and Hooghe, 1996). For heuristic purposes, figure 4.2 displays some of the possible approaches to bargaining, whose ‘relative location’ is graphically presented with regard to two different dimensions. The first dimension refers to the type of focus of bargaining analysis, considering actors or structure (i.e. micro or macro level). The second dimension represents the qualitative or quantitative theoretical approach to bargaining, the first being more related to the analysis of dynamics and the second having its roots in rational choice (economic) theories. Figure 4.2 is hereby used as a simplified schema on different perspectives of ‘bargaining’ as a concept, a task that, to be exhaustive, would need a more thorough analysis.

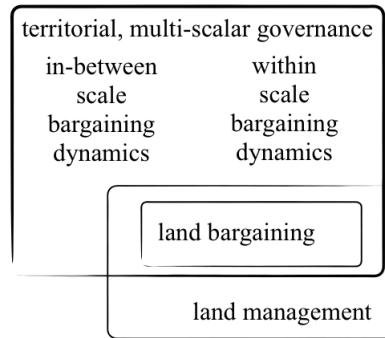
Urban regimes theory mainly focusses on actors, and considers bargaining dynamics between private and public actors for resource management and (re)distribution; there is less emphasis on the structure in which actors interact, or on the power dynamics characterizing their interaction. Territorial multi–scalar governance and politics of scale concentrate more on ‘structure’ and thus on the processes of scale re–definition, and how competences of scales

are re-defined re-distributed. For example, during the ‘emergence’ (or, better, the ‘setting-up’) of an inter-regional agency, its boundaries must first be defined as they are not taken for granted (i.e. ‘in-between’ scale bargaining), and then the attribution of specific competences to the newly constituted agency must be carried out (i.e. competences bargaining, or ‘within’ scale bargaining). Close to territorial, multi-scalar governance and politics of scale perspectives on bargaining, historical institutional approaches (cf. Moulaert and Jessop, 2013) are located, where institutional and structural factors are considered in a historical perspective, shaping the setting where actors interact and engage in strategic action (e.g. bargaining, but not only) facilitating and allowing social transformation (Moulaert and Jessop, 2013, p. 18). In multi-level governance studies, bargaining is extensively referred to (Marks, 1992, 1993; Marks and Hooghe, 1996), with the aim to describe how and why different governmental layers – supra-national, national, sub-national (regional and local) levels – negotiate and contract agreements to define and limit the transferring of authority from a cost-benefit perspective (i.e. trade-off) with regard to certain issues, especially in structuring supra-national institutions (cf. Marks and Hooghe, 1996, p. 347ff). The Kantor and Savitch’ bargaining context model (Kantor and Savitch, 2005; Kantor et al., 1997; see sec. 4.7.4) displays a more ‘structural’ and functionalist position, as it considers four structural variables - market conditions, intergovernmental support, popular control and local culture – in order to functionally explain the urban political choices of ‘cities’. The bargaining context model tries to account for the relative ‘performance’ of cities through the qualitative calibration of the four variables (e.g. favorable or unfavorable market conditions, integrated or diffuse intergovernmental support), whose inter-crossing creates the structural setting where cities’ political choices are embedded in, and thus are more likely to (on the whole) present a certain ‘outcome’ (i.e. a certain political choice over urban development). Positivist, functionalist approaches on bargaining focus on how actors take (economic) decisions, assuming a rational choice theory mechanism: actors maximize their individual interest and act in a sort of structural void.

**Figure 4.2:** Different approaches to the concept of ‘bargaining’ and their ‘relative location’ according to two axes, ‘actors vs. structure’ and ‘dynamics vs. rational choice’. Author’s elaboration



**Figure 4.3:** The key concepts employed to forge the conceptual framework used in this dissertation: land, bargaining, governance and land management. Author’s elaboration



In this dissertation, bargaining as a key concept spans from territorial scale bargaining dynamics to a more structural perspective on actor’s behaviors (see also fig. 4.4). As it is assumed that decisions on land transformation are crucial to the occurrence of urban sprawl (see sec. 3.2), the combination between the territorial, multi-scalar governance framework and the bargaining context model is considered to substantially improve some of the shortcomings of the Kantor and Savitch’ model, in order to convert it into a more realistic model to account for (i) the contextual circumstances that can reasonably influence and account for the urban political choices over land allocation and suburban provision, and (ii) the multi-scalar, multi-level and multi-actor structure of land management as ‘land (use) governance’.

The bargaining context model accounts for urban agency by qualifying the setting where urban political choices are taken: a certain institutional setting, characterized by the four identified variables – market conditions, intergovernmental support, popular control and local culture –, ideally influences political choices over urban development, more specifically over land (use) management and transformation, thus accounting for the occurrence of urban sprawl.

The concept of bargaining is functional in this dissertation as it allows us to consider three different types of bargaining, namely land bargaining, ‘in-between’ scale bargaining dynamics and ‘within’ scale bargaining dynamics (see supra). The proposed theoretical framework, which is a result of the combination between the bargaining context model and the territorial, multi-scalar governance perspective, employs four main key concepts, that are represented in figure 4.3, where the use of the concept of bargaining is central. Among different types of ‘bargaining’, the functionalist conceptualization of bargaining by Kantor and Savitch allows the framing of the circumstances that tend to influence urban political choices over land, land being an asset to ‘rationally’ bargain with among actors. In such a way, urban agency is theorized, land bargaining nevertheless being a subset of land management dynamics (see footnote 1 on page 2). However, such bargaining occurs within a territorial, multi-scalar governance framework – which has been chosen among different understandings of governance –, characterized by ‘in-between’ and ‘within’ scale bargaining dynamics.

The combination between the bargaining context model and the territorial, multi-scalar governance perspective allows the forging of a theoretical framework that problematizes the role that different governmental scales perform when interdependent with private actors over the land to allot. Settings for land bargaining have to be negotiated (‘in-between’ bargaining dynamics), as well as the competences that each of these scales will perform over land (‘within bargaining dynamics’). In this way, the bargaining context model is contextualized within a territorial governance perspective, avoiding city reification, and realistically accounting for

the contrast and overlap of scales and entitlements with regard to land allocation and the occurrence of urban sprawl.

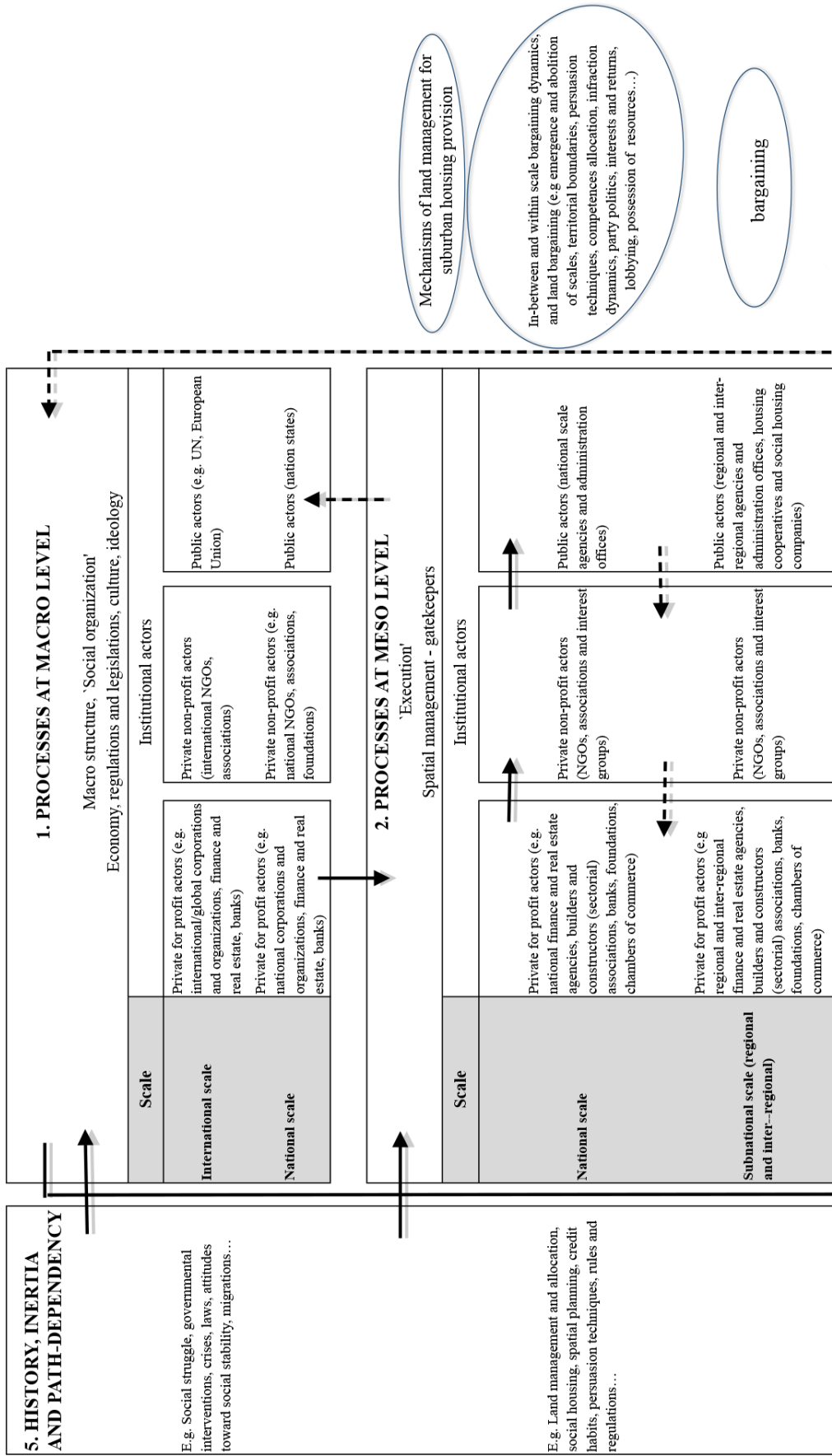
The combination of the territorial, multi-scalar governance framework with the bargaining context model is a novel contribution to the literature on urban sprawl, clarifying how political and planning factors should be analyzed, and how they practically interact. Given that urban sprawl is conceived as an outcome of governance dynamics (see sec. 2.5), ‘in-between’ and ‘within’ scale bargaining dynamics try to account for the multi-scalar governance processes relating to the allocation and the management of land.

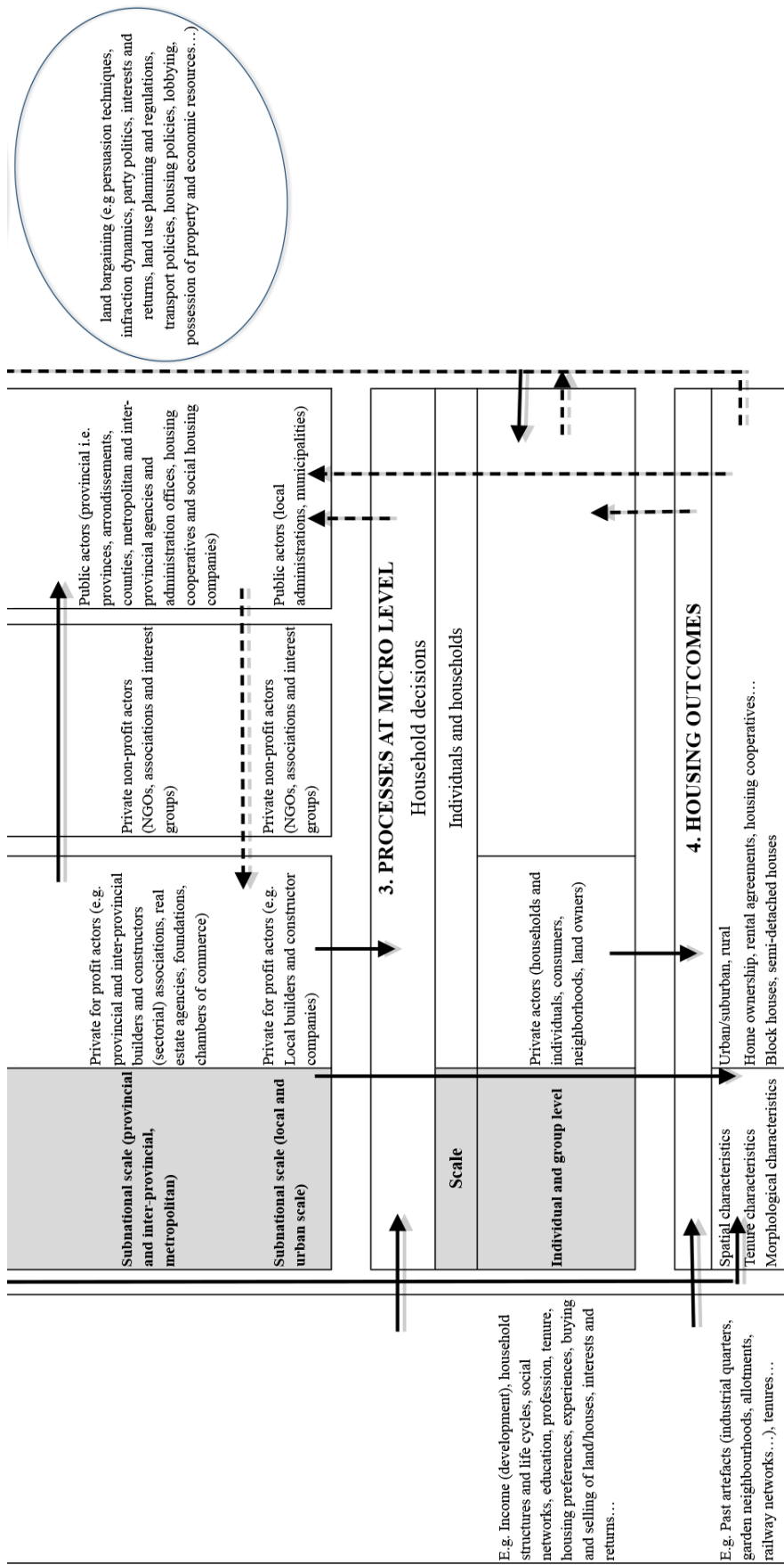
In the light of the combination between territorial, multi-scalar governance with the bargaining context model, figure 4.4 displays an enhanced specification of De Decker’s model as presented in sec. 3.2 in Chapter 3 (see fig. 3.2 on page 72). The model has been qualified with the introduction of territorial scales at the macro, meso and micro level, although the latter is not a proper ‘territorial’ scale. The gatekeepers at the meso level – private for profit and not-for-profit actors, and public actors – are identified at different territorial scales, namely national, subnational and local scale. Territorial scales do not only coincide with administrative levels, but can be organized at inter-regional or inter-provincial, metropolitan or local scales whose boundaries span over different administrative limits; however, for convenience purposes, in figure 4.4 only the main governmental layers are represented. In such a way, the graphic double arrow linking private for profit and public actors in De Decker’s model (see sec. 3.2 and fig. 3.2) can be more realistically specified and examined.

As mentioned in section 3.2, this dissertation focusses on the ‘execution’ of housing models, and suburban housing provision, as a type of housing model, is assumed to be materially constructed by actors’ decisions on land allocation. The model presented in figure 4.4 does not only represent the main, different territorial scales where the actors at the meso level can interact over land management, but also the main mechanisms through which the ‘gatekeepers’ are deciding on land management for the occurrence of urban sprawl, namely (i) in-between and (ii) within scale bargaining dynamics, and (iii) land bargaining (see also fig. 4.3). In figure 4.4, some illustrations of the gatekeepers are indicated, such as those involved in building and construction, regional and city councils. In addition, land bargaining includes also the main policy sectors involved in land management, particularly related to suburban housing provision, e.g. land use planning, transport and housing policies. Examples of mechanisms of land management for suburban housing provision transversally refer to the identified, different meso scales.

Such ‘enhanced housing model’ presented in figure 4.4 can offer a suitable theoretical reference to explain the suburban character of housing areas provided in a certain territory. The residential areas that consist of the outcome of the housing model (at the bottom of the scheme, cf. ‘4. Housing Model’) can have different characteristics, some of which are listed: their spatial character can be urban or suburban, whether such residential areas are emplaced in an urban or suburban environment and thus are compact or sprawled; their morphological characteristics can be diverse (e.g. block houses or track houses, different architectural styles); and their home tenure can be differently distributed among, broadly speaking, home-ownership, rental agreements, or mediated by housing cooperatives.

Having specified the governance processes that can encompass political and planning factors (see sec. 3.1.7 and sec. 3.2) through the proposed model, a theoretical framework has been identified in order to analyze land management dynamics for suburban housing provision, where three different ‘types’ or ‘levels’ of bargaining occur, involving re-scaling (‘in-between’ and ‘within’ scale bargaining dynamics) and land bargaining. The sprawled or compact character of housing models is thus explain as an outcome of ‘in-between’ and ‘within’ scale





**Figure 4.4:** A territorial, multi-scalar housing model to account for scale, competences and land bargaining and management as causal mechanism for the occurrence of urban sprawl. Author's elaboration.



bargaining processes, and land bargaining.

The next chapter clarifies how this theoretical framework, represented by the model in figure 4.4, can be operationalized and empirically adapted to concrete case studies in the attempt to explain the occurrence of urban sprawl.

## 4.9 Summary

Governance is a term that has emerged to identify the different role governments have come to play within a specific economic and political context that has been emerging since the 1970s. Downsizing their roles as service providers, governments have started to become enablers of service provision, where public–private partnership is one of the tools.

There are different perspectives on governance, and for this dissertation the territorial, multi–scalar governance perspective seems particularly useful. Scales are socially constructed settings for action, which occur at different institutional tiers and which involve different types of actors. These scales, being constantly (re)defined, have regulatory power which is also influenced by the power struggles which they host and stage. The territorial, multi–scalar governance perspective effectively accounts for both the varying decisional (negotiated) arenas and the institutional hierarchy that constrain and enable actors regarding policy decision.

The territorial, multi–scalar framework is combined with the bargaining context model, in order to contextualize the agency (i.e. urban political choices) of ‘cities’ and, more in general, of institutional actors within the decisional scales.

The combination of the bargaining context model with that of the territorial, multi–scalar governance one is deemed to be an effective framework for understanding and analyzing how land, as a local asset, is bargained for on different scales with private actors. For land management and bargaining, first, different governance scales over land use change have to be defined and negotiated among actors (‘in–between scale bargaining dynamics’), and second, competences over land allocation have to be bargained among the different scales (‘within scale bargaining dynamics’).

A housing model where territorial scales and land bargaining are included is presented, where land management is considered as the main causal mechanism for the occurrence of urban sprawl. Such a model is deemed to improve the housing model presented in sec. 3.2 in Chapter 3.

## Chapter 5

# Methods for empirical research

*Underlining this effort is the desire to understand  
the processes behind the conversion  
of the countryside into city. (De Jong, 2013)*

The methods employed in this dissertation take inspiration from the critical realism perspective within the philosophy of science debate (Sayer, 1992). In brief, critical realism assumes that the material or ‘real’ world exists independently of our knowledge of it, and hence it emphasizes the cruciality of how social phenomena are *conceptualized* by the researcher. Observation (broadly including not only sight, but all of our senses) of empirical phenomena is theory-laden (that is different from theory-determined), and conversely presupposes a practical knowledge of the ‘object’ of study. Consequently, knowledge is neither objective or infallible, and observation cannot be theory-neutral (i.e. there are no (social) ‘facts’ ‘out there’).

According to realist philosophy, knowledge must be practically-adequate, meaning that, being aware of what we abstract from, the abstraction of empirical phenomena must be based on concrete objects. For instance, ‘land’ and, in particular, ‘developable’ or ‘transformable’ land, as a concept is *abstracted* from the *concrete* objects that form ‘land’, such as soil, vegetation, water streams, rocks and geological strata, and such abstraction is independent from my *theoretical* conceptualization of land as, for example, support for capitalist accumulation. Moreover, the concrete object we call ‘land’ is by no means the same as the *material* or *empirical* whole of elements I perceive with my senses when I lie down on a field of grass.

Critical realism emphasizes the social process through which not only meanings are assigned to material objects (e.g. land), but also that meanings need the physicality of material symbols to function and circulate:

Sometimes material objects which do not depend at all for their existence upon our conception of them may nevertheless be ascribed a concept-dependent (symbolic) function in society. Obvious examples are gold and diamonds. ( ) The point to be made here is that although, in one sense, material objects are intrinsically meaningless, their use and functioning in society is concept-dependent. Conversely, although systems of meanings and beliefs are not themselves material, they usually require some material mode of objectification if they are to communicate and function socially in a stable manner. In other words, practices, material constructions and systems of meanings are *reciprocally confirming*. (Sayer, 1992, p. 33) [original emphasis]

This dissertation has taken inspiration from an interest in the symbolic practices involved in assigning a meaning to land and land transformation. What does land management *signify* as a social practice, with land being a meaningless ‘object’? Which material practices are implied in land management? What are the functional meanings of land transformation and suburbanism in particular in society? ‘Land management’ involves types of social

practices, embodied and developed by types of actors, both of which are dependent on the contexts in which land management takes place, acknowledging that ‘land’ and ‘suburban housing’ have a concept-dependent function in society. Making sense of land management and land transformation for suburban housing implies the contextualization and clarification of what we mean by (i.e. how we conceptualize) ‘land management’, ‘land transformation’ and ‘suburban housing’. Chapter 2 has been directed to achieving such goals.

Critical realism distinguishes between necessary and contingent *conditions* or *attributes* of the object. For instance, (a certain morphological type of) suburbanism is necessarily defined by (semi-)detached houses (attributes of the object), however the presence of (semi-)detached houses can be contingent and thus irrelevant to the identification of suburbanism. Likewise, as we have seen in Chapter 3, the presence of roads and houses may be a contingent condition, however it is generally considered as a necessary condition for suburbanism. In this example, critical realism attempts to find out *how* (i.e. under which circumstances) transport infrastructures are necessary causes for suburbanism; it is not sufficient to state that the presence of transport infrastructures is necessary for suburbanism; in contrast, it is crucial to clarify how this happens. To evaluate a theory, critical realism focusses on the practical adequacy of the interpretations we give to a phenomenon (i.e. under which necessary conditions it happens, or which necessary attributes define it), given a certain theory-laden conceptualization of our object of study.

In this dissertation, governance is considered to be a necessary causal mechanism (non-deterministically or univocally) producing suburbanism, an assumption which has been discussed and clarified in Chapter 4. In the attempt to elucidate the interdependence between suburbanism and land transformation, an effort is made to illuminate *what it is about* governance that can be considered the causal mechanism explaining suburbanism. As Sayer puts it,

[w]herever possible, we try to get beyond the recognition that something produces some change to an understanding of what it is about the object that enables it to do this. (...) This mode of inference in which events are explained by postulating (and identifying) mechanisms which are capable of producing them is called *retroduction*. (Sayer, 1992, p. 106–107) [original emphasis]

(Social) science is therefore a social activity primarily concerned not (or not only) with finding regularities or formal (statistical) relationships, but particularly with finding out the substantial relations of necessity as explanatory mechanisms of empirical phenomena.

Furthermore, under the critical realism perspective (Sayer, 1992, cf. ch. 9), as science is acknowledged to be a social activity, it is emplaced in a practical context where both the ‘subject’ and the ‘object’ of knowledge inter-act and are interactively defined<sup>1</sup>. I may thus state, for example, that this Italian-Belgian co-tutored dissertation written in American English, whose writing process has unequally progressed in different locations (mainly in Milan, Leuven, Barcelona and Vicenza) for almost three years, is the material result of the efforts of a white, European, working-class<sup>2</sup>, female PhD candidate whose childhood was spent in the Northern-Italian countryside, and who tries to understand and explain how open and agricultural land is transformed into artificial, urban soil for suburban housing (i.e. urban sprawl), by considering urban sprawl as an outcome of governance processes (see sec.

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<sup>1</sup>Sayer (1992, p. 32–33) argues that ‘[i]ntersubjectivity is therefore an essential category for understanding not only how scientists and others gain knowledge of the social world (the epistemological relation) but also how societies themselves cohere and function’.

<sup>2</sup>Provided that ‘social class’ has been defined as the working occupation of the father when he was 14 years old (Pisati, 2001).

2.5 and sec. 4.8).

In this chapter, the research questions, hypotheses, research design and main methodological steps followed to carry out the research are presented. The chapter revolves around the attempt to make explicit the theoretical and methodological connections between urban sprawl as both a measurable outcome and a result of governance political processes. Methodologically, this assumption implies the consideration of both quantitative and qualitative data, linking a quantifiable phenomenon such as urban sprawl, i.e. its operationalization, with a qualitative fieldwork needed to account for its occurrence. This dissertation can thus be said to have the characteristics of multi-method research, engaging in ‘a broad spectrum of urbanist methods (...) to [hopefully] open up to new forms of knowledge’ (Keil, 2011, p. 8).

## 5.1 Research questions

The research questions deal with how urban sprawl, as a spatial phenomenon occurring in territories and places, can be considered as a governance outcome produced by the interplay between different public actors with private actors (networks) at different governance scales. With land being a bargaining asset for cities, questions on how land is managed for suburban residential provision among the different actors are crucial to account for different patterns of urban sprawl occurrence.

The research questions underpinning this work can be formulated as follows:

1. *RQ1* What could be the necessary conditions leading towards urban sprawl?
2. *RQ2* How different are the conditions causing urban sprawl in different contexts?
3. *RQ3* How can urban sprawl be explained by a territorial, multi-scalar governance perspective? (i.e. what is it about territorial, multi-scalar governance that can explain urban sprawl?)
  - (a) *RQ3.1* How are decisions over land use change made, and how is land bargained with, in particular, regarding suburban residential areas?
  - (b) *RQ3.2* How does urban sprawl occur as a result of bargaining dynamics on land management between public and private actors in different contexts?
  - (c) *RQ3.3* Which role do different governance scales play in the occurrence of urban sprawl in different contexts, and how?

## 5.2 Hypotheses

The hypotheses are derived from the theoretical frame adopted on city bargaining power and territorial, multi-scalar governance (see sec. 4.8), and are formulated within a realist approach framework for social science methodology as discussed by Sayer (1992, p. 204) (see also introduction to this chapter). Hypotheses can be listed as follows:

1. *Functional decentralization, (H1)*: Because of its urban hierarchical role, a metropolitan center ‘cedes’ housing functions to the surrounding municipalities located within its metropolitan boundaries. Mobility infrastructures support urban sprawl processes and specifically the spatial dispersion of residential areas;

2. *Governance scales and bargaining 1, (H2)*: Fragmented, small size municipalities, with local urban planning competences, compete among each other for investment. The local governance scale pulverizes planning outcomes into a fine dust of developable lots, which overall produce a scattered and incoherent territory;
3. *Governance scales and bargaining 2, (H3)*: The dispersed character of housing development is related to local governments' development choices, since the land transformed into sprawled residential areas allows small and medium size urban centers within the metropolitan radius to maximize their bargaining power to attract investment, compared to the metropolitan center. As a governance scale, small and medium size municipalities within the metropolitan area hold the greater competencies of land use change (e.g. choices of what and where to build, concession of building permits, collection of local taxes), hence they use this power to steer urban development to attract investment.
4. *Governance scales and bargaining 3, (H4)*: The metropolitan body, as interstitial administrative layer between municipalities and regional and provincial governments, plays a considerable role in land allocation for housing provision. The metropolitan body is a key governance scale that, once defined through 'in-between' scale bargaining dynamics, can have great influence in steering urban and territorial development.

Ensuing from the global changes briefly outlined in the previous Chapter in section 4.1, the first hypothesis (H1) hints to the post-industrial character of Western (and in particular, European) metropolitan centers (cf. sec. 2.3.1). Distinct from the 30 year period from the 1950s–1970s, since the mid 1970s urban functions have no longer been concentrated in the mono-centric city, but are delocalized to the surrounding territory, or globally. To make a long story short, boldly speaking, decentralization of industries and/or services can be referred to as 'de-localization' (i.e. the re-location of industries and services) and as de-industrialization (i.e. the shrinking of the manufacturing sector and the rise of the service sector), both being two distinct yet overlapping processes, while de-densification or de-concentration refers to demographic redistribution of the population from an urban center to the surrounding territory (for the latter, see for instance Kantor and Savitch, 2002, p. 8ff).

As has been discussed in section 2.3, territorial dispersion patterns, such as suburbanism or urban sprawl, can be composed of a diversity of uses, as housing functions, industries, and commercial areas can equally sprawl. Industrial production, services and housing (the 'urban functions') are decentralized from the city core to areas within the metropolitan boundaries, hence the term 'functional decentralization' (which is also employed in the debate on peri-urbanization discussed in sec. 2.3.1.1). The blurring of the city-countryside divide is induced by a spreading out of urban functions into peri-urban and rural areas, problematizing the clear identification of what it is meant by 'the city' and 'the countryside'.

In particular, producer services are defined as 'those services necessary to carry out the global cycle of production' (Martinelli and Moulaert, 1993, p. 1), such as R&D, design, finance and insurance, quality control, logistics and advertising. Although ICT (information and communication technologies) have fostered decentralization, Martinelli and Moulaert (1993) argue that, as a general trend, only the more routine and less knowledge-intensive services (e.g. administrative operations) show a tendency towards diffusion, while the more advanced and strategic services (e.g. consultancy) continue to be concentrated in large metropolitan areas of national or international position. As a consequence,

the relative spatial concentration of advanced producer services replicates the more or less

concentrated hierarchical structure of cities in different European countries. (Martinelli and Moulaert, 1993, p. 16)

Housing, as a less knowledge–intensive and material production service, follows a decentralization pattern of territorial dispersion (i.e. suburbanization).

Without embarking on the vast literature covering mainstream urban economic models (cf. Camagni, 1992), this hypothesis sets the stage to account for how a metropolitan center ‘outsources’ to the surrounding municipalities a vast range of urban functions, in particular housing areas (Magnier and Russo, 2002, ch. 2), which then ‘weld’ into an incoherent territory (see hypothesis H2). Furthermore, this hypothesis allows us to focus attention on those urban expansion processes characterized by the presence of an important metropolitan center (such as Paris, Madrid, Rome or Milan), rather than a more ‘horizontal’ urban hierarchy formed by different urban poles (as in the case of the Ruhr of the Veneto region; cf. sec. 2.3.1.2), implicitly acknowledging the presence of a metropolitan core, i.e. a ‘center’. Such an urban structure is not in contradiction with the existence of a poly–centric metropolitan agglomeration. The theoretical and methodological consequence of such an assumption is the consideration of one (poly–centric) metropolitan center rather than a network of medium size centers linked in a single metropolitan system.

Functional decentralization is linked with the extensive evidence found in the literature review (see sec. 3.1.2) on how transport infrastructures are key for urban and territorial development, both in terms of path–dependency (De Decker, 2011a; Urry, 2004), and as the necessary enabling factor to cause the ‘spreading out’ of the city. In contrast to public transport, which requires a certain degree of demographic concentration to be implemented, and which presupposes a rather rigid development structure, road networks, characterized by a more adaptable territorial penetration, and by the unbeatable travel flexibility that private motorization offers, heavily determine the morphological scattering of urban development<sup>3</sup>.

Furthermore, the increase in transport infrastructures can also hint at the presence of an integrated vertical coordination (cf. intergovernmental support in the Kantor and Savitch model, see sec. 4.7.4), that is cooperation between public administrative levels, i.e. regions, provinces, and municipalities, to boost territorial development through transport facilities (and also industrial and commercial areas) in the attempt to adopt market oriented strategies for urban growth (see Kantor and Savitch, 2002, p. 38).

The second hypothesis (H2) draws from the improvement of the Kantor and Savitch (2002) model by combining it with territorial, multi–scalar governance (see sec. 4.8). The second hypothesis more clearly refers to the ‘within scale bargaining dynamics’, which focus on how the different territorial scales bargain their competences over land use competences, including territorial and urban planning. It is assumed that, at the base of the governance struggles over land use allocation competences among nation states, regions, metropolitan bodies and provinces, *independent municipalities* autonomously decide on land allotments regardless of surrounding local governments, with sprawled residential areas being one of the incoherent results. Planning that exclusively focusses on local aspects disintegrates urban development and provokes territorial incoherence (Settis, 2010). Hence, the more fragmented local governments, the more likelihood to observe urban sprawl.

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<sup>3</sup>See the authors cited in sec. 3.1.2, (Amendola, 1997; Boffi and Palvarini, 2011; Camagni, 1999; Camagni et al., 2002a,b; Castrignanò, 2008; Catalán et al., 2008; Centro Studi PIM, 2011; Colleoni, 2011; Couch et al., 2007b; EEA European Environment Agency, 2010a; EEA European Environmental Agency, 2006; Ewing, 1997; Glaeser and Kahn, 2004; Newman and Kenworthy, 1999; Rudel, 2009; Salata, 2010; Urry, 2004; Vicari Haddock, 2004).

In addition, the second hypothesis (H2) qualifies the first hypothesis (H1): urban sprawl occurs not only because housing functions of the metropolitan city are ‘handed over’ to the surrounding municipalities, but also because the dispersed residential areas, independently developed by different small and medium size urban centers, morphologically merge with each other or with the metropolitan center through the concomitant decisions on land management by such a multitude of municipalities (Centro Studi PIM, 2009, p. 15; Gibelli, 2006). The landscape is thus recomposed through these two different but complementary dynamics, where both (i) a suburban expansion from the center, and (ii) an ‘infilling’ of (rural) spaces are present, because of the primacy of the local scales in land use competences.

This is one of the most prominent characteristics of urban sprawl in the European context: urban sprawl is primarily a phenomenon related to the urban political choices over land management carried out by small and medium size municipalities, which correspond to a particular governance scale (see sec. 4.8). As the European urban system is characterized by small and medium size municipalities (cf. Bagnasco and Le Galès, 2000a, p. 12), urban sprawl can occur not only in a ‘wild fire’ fashion as seamless, although low-density pattern of spatial expansion of residential areas (e.g. the morphologically continuous but low-density enlargement of a small size historical center), but also in a discontinuous, scattered way (e.g. the morphologically disconnected expansion of small size municipalities).

It is relevant to note that, in this dissertation, the focus is on ‘governance downwards’ (see sec. 4.1 and sec. 4.3), since, in the process of competences devolution, the role of the local scale has been particularly prioritized and strengthened as governance setting for land use management. Generally, local governments have been entitled with greater authority with regard to land use allocation. In contrast, ‘governance upwards’ is accounted in terms of urban sustainability, however international bodies do not generally have competences over land use planning (although they can heavily influence urban development, such as European structural funds, see sec. 3.1.1). The European Union has been an influential international governance scale that has elaborated and reframed the international debate on sustainable development and urban sustainability, promoting discourses and policies for the compact and sustainable city at the European level (see sec. 2.4.1 on how the notion of urban sustainability has been framed and put into practice in European policies).

The second hypothesis also puts forward how ‘cities’ are considered as ‘municipal governments’ conceived in terms of territorial governance scales. As urban sprawl is a territorial phenomenon, municipal governments (the ‘local scale’) can correspond to big, medium or small size cities, metropolitan centers and/or those local authorities located around metropolitan poles.

The third hypothesis (H3) is deeply connected to hypothesis H2, and stresses the predominant role that local governments play in terms of the allotment of land at their disposal. This hypothesis directly hints to the relevance of focussing on urban political choices in explaining the different trajectories of urban development in different cities, as discussed in section 4.8. The bargaining perspective (Kantor and Savitch, 2002, 2005) allows the inclusion of both political and economic actors, and the assessment of the behaviors of local governments with regard to their assets and the interests that they may share with private actors<sup>4</sup>.

Since how and what to build is bargained between local public institutions and a variety of private actors, local governments tend to bargain by the use of the (municipal) land to attract business and to garner resources. Publicly or privately owned land is negotiated for

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<sup>4</sup>It is relevant to stress how, different from USA or other contexts, in Europe municipalities generally own a consistent share of municipal land within their administrative boundaries, hence land is one of the main assets that is used to bargain with private investors.

development. Given the suburbanization processes at work (see hypothesis H1), local governments will try to orient their housing provision towards a competitive offer that can rival that of the metropolitan center and of other (surrounding) municipalities. According to the type of bargaining game that the municipalities are able to engage with private actors, who may be located on differing territorial scales (see fig. 4.4 on page 115), local governments will favor a low, medium or a high standard housing offer to ‘filter out’ new residents. As this dissertation deals with residential urban sprawl (see sec. 2.2), investment is mainly understood as increasing the housing provision within the municipal boundaries. Urban political choices on investments are connected with residential areas, and hence with expectations of demographic increase.

According to hypothesis H3, urban sprawl will occur because of the competitive bargaining power that each municipality deploys, in the attempt to attract more residents and harvest more resources from local taxation, generally to redistribute resources in terms of public services (cf. social centered bargaining position, see sec. 4.7.4). As a result, the tendency is to employ land for development, not achieving land containment, open and agricultural land being unprotected, as it does not offer an equally powerful bargaining power to municipalities to garner resources. In addition, this hypothesis suggests that urban sprawl is not connected with population increase, but it is rather a pro-growth strategy to attract residents. Therefore, housing demands are created by a sprawled housing provision, not the other way round.

Hypothesis H3 clearly refers to dynamics of interurban competition (see sec. 3.1.7), where land management strategies are ‘positional’ apparatuses that can be employed by local governments to ascend to a more advantageous position as compared to other municipalities. Residential urban sprawl is an outcome of such land management moves. Land management strategies are nevertheless just *some* of the tools that can be put into place by municipalities to enhance their assets with regard to private actors; other tactics can be for instance lowering taxes, offering subsidies, selling of (heritage) public properties, or bribing. However, as has been discussed in section 4.8 when the enhanced housing model was presented (see fig. 4.4), strategies for inter-urban competition and, in particular, land management tactics, have to be considered within a territorial multi-scalar, multi-actor framework (cf. hypotheses H2 and H4): inter-urban competition must be examined within a specific territorial scale, by adopting for example a metropolitan perspective, which consists of the economic, political, historical, institutional, social and cultural contexts where local authorities are embedded in.

In the attempt to analyze urban sprawl as an outcome of land management strategies, the focus on planning tools and regulations is crucial, as it can single out the scope for action over land that local governments, and other considered institutional actors (see *infra*), hold in decisions on land use allocation. As discussed in section 4.8, in this dissertation it is assumed that urban sprawl is the result of governance processes involving actors’ decisions on land use transformations; the focus on planning tools and regulations thus helps make dynamics of authority and power emerge *among* (‘in-between’) and within the considered actors, who are located at different territorial governance scales. Decisions over land use management and allocation are taken by actors with reference (or as exception to) current land use and planning regulations, which are defined and issued at the national, regional, provincial, metropolitan and local scale. Planning tools thus become key instruments in land management strategies, which have nevertheless to be understood within a territorial, multi-scalar and multi-actor scheme as introduced and discussed in figure 4.4 (p. 115), and as hypotheses H2 and H4 have re-elaborated. The focus on planning regulations is justified because ‘[t]own planning, together with other instruments of social policy, plays a crucial role



in a mixed economy in redistributing spatial resources' (Pahl, 1975c, p. 148; see also sec. 4.1 on governance).

The fourth hypothesis (H4) is linked with multi-scale governance, and in particular with 'in-between scale bargaining dynamics' (see sec. 4.8). It is crucial to understanding how governance scales for land management are bargained among the different administrative layers (see sec. 4.8). Different institutions bargain with their authority over land management, consequently leaving different scopes of action to private actors. The fourth hypothesis specifically refers to how institutional settings for land management are negotiated and constructed ('in-between scale bargaining dynamics'). The nation state, the region, the metropolitan institution, the province and the municipality are all different territorial scales that bargain their power as being crucial decisional settings for land use management.

However, the fourth hypothesis stresses how the metropolitan scale is considered to be different from provinces and regions, and given its (intra)scalar dynamics hypothetically more appropriate than regions and provinces to handle the transformations occurring in 'urban agglomerations' or 'urban systems', therefore implying the need to overcome conventional definitions based on administrative boundaries (cf. Gibelli 1999). Despite European cities of any size remaining 'robust', metropolization processes are increasing their influence over the European urban structure (see Le Galès, 2002, p. 178). Metropolitan bodies are illustrative governance scales, as that are constantly (re)negotiated and contested ('in-between' and 'within' scale bargaining dynamics), and that problematize the conventional characters of the local, the regional, the national or the global as more taken for granted governance settings (see sec. 4.5). Furthermore, as a phenomenon of city expansion, seizing urban sprawl requires the consideration of a sufficiently broad territorial perspective (Miralles-Guasch and Pujol, 2012); as Keil puts it, '[h]istorically, suburbanization is linked to the expansion of the metropolitan region' (Keil, 2011, p. 57).

Far from considering supramunicipal cooperation – in particular at the metropolitan scale – as the panacea for suburbanization – in fact bargaining with private interests occurs at any governmental level or institutional scale – I argue that the lack of political coordination and integration, either in the form of supra- and intermunicipal coordination, increases the probability of urban sprawl. In particular, the presence of a metropolitan body ideally suggests the capacity of municipalities to inter-act and to eventually define a supramunicipal scale, which jointly acts in the interest of the associated municipalities. Supramunicipal cooperation, whether institutionalized in an administrative body, or maintained as deliberative organization (Magnier and Russo, 2002, p.155–158), hypothetically indicates the ability of municipalities to identify coordinated modes of governing, generally with regard to the management and provision of certain services. Hence, the presence of a metropolitan body suggests the existence of a shared and integrated vision for territorial development, standing out against provincial and regional governments. However, despite the existence of a metropolitan body, there can also be a lack of supramunicipal coordination to integrate territorial development, as competences over land use management should be attributed to metropolitan bodies to be able to limit urban sprawl ('within scale bargaining dynamics').

In this dissertation, I assume a conflict between regional governments and metropolitan bodies and, more generally, a conflict of aims between cities and regions, given the potentially conflicting and changing extent to which authority and competences have been and are handed over to subnational governmental institutions, such as regions, metropolitan agglomerations and cities (Herschel and Newman, 2002, cf. p. 66ff). In terms of land management, conditional to the extent to which authorities and competences have been subject to decentralization to subnational governmental institutions, such as regions, metropolitan ag-

glomerations and cities, regions are considered to have a general perspective on the entire regional territory; nevertheless, they also tend to control and limit the autonomies of city networks (polycentric metropolitan regions), and the polarization of activities and functions within and around a (monocentric) metropolitan pole (ib.), which is usually the regional capital as well. Therefore, regional governments are ideally antagonists of metropolitan bodies and urban centers, as the former try to re-balance territorial disparities and limit the functional primacy of the metropolitan center over lower tier urban centers or the increased power of city networks.

However, the review carried out by Parkinson (2004) on different studies, by both US and European scholars, on the relationships between cities and regions, highlights that city-regions dynamics are a complex matter; thus, conflict is only one of its possible characterizing features. In economic terms, often at the heart of highly performing regions lies a wealthy urban center, and vice versa; Parkinson (2004) highlights how the ‘regional performance is generally based on the economic wealth of core cities, especially in monocentric metropolitan systems’ (Parkinson, 2004, p. 15). Hence, measuring the economic performance of regions often means measuring the economic performance of the core city, which is generally the regional capital as well. However, wealthy city cores, which are also metropolitan centers, are not built in a day, and the political arduousness to deal with whose the lion’s share is, between the region and the core city (the metropolitan center), of economy wealth can trigger conflicts. Parkinson (2004) underlines how it is difficult to clearly distinguish, both theoretically and methodologically, between the ‘endogenous’ and ‘exogenous’ qualities of well performing cities and regions: for instance, a medium-term central state’s strategy could have fostered centralization of infrastructures and high-standard service activities (e.g. finance, high-tech, R+D) in a certain location, however the city could also have traditionally out-performed at the regional and national level in terms of education and health services (e.g. high-standard universities; cf. also Martinelli and Moulaert, 1993). Therefore, the political management of economic performance implies harsh governance struggles over scale definition which can end, for instance, in the absolute predominance of core cities over regions, in the establishment of a metropolitan scale (often on a voluntary base) to handle service provision, in the strengthening or weakening of regional government (whose institutional characters are different among European countries), or in the top-down intervention of the central state to balance inter-urban and inter-regional competition. Thus, city-regions relationships are variegated and intricate, converting the analysis of the relationships between core cities and their economic hinterlands, and their regional and national scales, relevant for urban studies. Hence, as a sort of ‘way out’ from this vast debate, in this dissertation a conflict between regional governments and core cities, as metropolitan centers, is assumed.

In sum, this dissertation considers territorial dispersion patterns, such as urban sprawl, from a metropolitan perspective, where transport infrastructures play a significant role (hypothesis H1). In order to explain urban sprawl for residential functions as an outcome of territorial multi-scalar governance processes on land use change, it is necessary to analyze the dynamics of governance over competences on land use management, examining both which competences on land management institutional scales hold (‘within scale bargaining dynamics’), and also in which institutional setting territorial governance scales are negotiated and competences performed (‘in-between scale bargaining dynamics’). It is assumed that local governments are the most prominent scale responsible for the occurrence of urban sprawl (hypothesis H2), as they bargain over land to compete for investment with other municipalities within the metropolitan area (hypothesis H3). Hence, the metropolitan scale is key in regulating land management, on the condition that it is effectively entitled to appropriate authority to ‘govern’ land allocation (hypothesis H4)

Bargaining over land use (*land bargaining*), across different governance scales, occurs first through the definition of governance settings ('in-between' scale bargaining dynamics), and second through the redistribution of competences over land management within these governance settings or scales ('within' scale bargaining dynamics; see sec. 4.8).

A territorial multi-scalar governance perspective unveils the problematization of institutions, emphasizing their constructed character through the concepts of territory and scale (Jessop et al., 2008; see sec. 4.5). Networks (ib.) hint to public-private interdependence over land use management that territorial scales open up; different governance settings are influenced by and unlock opportunities for a variety of private actors. The notions of place and territory are taken into account, as the different local, regional, metropolitan, provincial, national or international governance scales are based and rely, among other factors, on specific territorial and place delimitations. In addition, the geographical scale giving substance to the above hypotheses has to be determined by choosing comparable geographical places, which are intrinsically connected to territories (see sec. 5.3.3).

Table 5.1 illustrates the connections between the theory, research questions and hypotheses conceived and examined in this dissertation. Employed methods and data are also presented, they will be examined in more depth in section 5.5 of this Chapter.

The first research question (RQ1) is linked with decentralization processes as introduced in section 4.1, leading to the formulation of hypothesis 1 (H1). Functional decentralization, fostering metropolitanization processes beyond administrative boundaries, is one of the factors identified by the theory that is considered central in theoretically and methodologically framing the phenomenon of urban sprawl. The crucial role of transport areas in supporting and facilitating urban sprawl, as discussed in section 3.1.2, is connected with the first hypothesis (H1) and it is reflected accordingly in table 5.1.

The first research question (RQ1) also introduces governance processes as crucial factors for the emergence of urban sprawl, as examined in section 3.2, and in connection with section 4.8, where the employed theoretical framework, combining the bargaining context model and the territorial, multi-scalar governance perspective, has been introduced. In table 5.1, hypotheses 2 (H2), 3 (H3) and 4 (H4) are put forward in the first research question, however they have been specifically treated in RQ3.1, RQ3.2 and RQ3.3 research questions.

The second research question (RQ2) relates to the relevance of conducting a comparative analysis as part of the examination of patterns of residential spatial dispersion. This research question emphasizes the crucial role that the selection of reasonably comparable cases plays in social sciences, as discussed in sections 5.3.2 and 5.3.3.

The third research question (RQ3) introduces a set of another three, more specific research questions (RQ3.1, RQ3.2 and RQ3.3) on how urban sprawl can be conceived and explained as an outcome of governance processes (see sec. 3.2 and sec. 4.8). This set of research questions particularly links and elaborates on how a measurable outcome can be explained as a result of political governance processes.

The RQ3.1 research question specifically deals with 'within' scale bargaining dynamics, as discussed in section 4.8, and it is linked with the second hypothesis (H2) ('the role of municipal governments as the most prominent scale for the occurrence of urban sprawl'). Isolated local governments are entitled to greater land use competences in comparison with policy making at other scales, hence their urban political choices produce a scattered and incoherent territory.

**Table 5.1:** The connection between theory, research questions, hypotheses, methods and data. Author's elaboration.

Theory	Research questions	Hypotheses	Methods	Data
Decentralization, sec. 4.1	RQ1 Which have been the necessary conditions leading towards urban sprawl?	Functional decentralization (H1)	Metropolitan perspective	Demographic figures, sec. 7.1
Mobility factors, sec. 3.1.2		Mobility (H1)	Quantification of transport areas, sec. 6.2	Corine Land Cover data, at different scales; local datasets
Governance, sec. 3.2 and sec. 4.8		Governance scales and bargaining 1, 2, 3 (H2-H4)	See RQ3, RQ3.1, RQ3.2 and RQ3.3	
Comparative analysis	RQ2 How different are the conditions causing urban sprawl in different contexts?	Comparative analysis between Barcelona and Milan	Case studies selection, sec. 5.3.3	Corine Land Cover data
			Quantification of urban sprawl and transport areas, sec. 6.2, in different contexts	Corine Land Cover data, at different scales; local datasets
Urban sprawl as an outcome of governance processes, sec. 3.2	RQ3 How can urban sprawl be explained by a territorial, multi-scalar governance perspective?			(see RQ3.1, RQ3.2 and RQ3.3)
Multi-scalar governance, <i>within</i> scale bargaining dynamics, sec. 4.5 and sec. 4.8	RQ3.1 How are decisions over land use change made, and how land is bargained, in particular over suburban residential areas?	Governance scales and bargaining 1 (H2) (the role of municipal governments as the most prominent scale for the occurrence of urban sprawl)	Scales definitions, sec. 6.1; Administrative boundaries, Larger Urban Zones, Urban Morphological Zones, Provinces  Land use and scale bargaining for Barcelona (sec. 7.4.1.3) and Milan (sec. 7.4.2.3)	Interviews, planning regulations

			Administrative fragmentation, sec. 7.2	Number of municipalities within Barcelona and Milan provinces
Bargaining context model, urban political choices, sec. 4.7.4 and sec. 4.8	RQ3.2 How does urban sprawl occur as a result of bargaining dynamics on land management between public and private actors in different contexts?	Governance scales and bargaining 2 (H3) (land bargaining is carried out to compete in a metropolitan area)	Positioning Barcelona and Milan in the bargaining context model framework, sec. 7.3	Market conditions (employment data), intergovernmental support, popular control and local culture.  Interviews
Multi-scalar governance, <i>in-between</i> scale bargaining dynamics, sec. 4.5 and sec.4.8	RQ3.3 Which role do different governance scales play in the occurrence of urban sprawl in different contexts, and how?	Governance scales and bargaining 3 (H4) (the metropolitan body is crucial in regulating and containing urban sprawl occurrence)	Scales definitions, sec. 6.1; Administrative boundaries, Larger Urban Zones, Urban Morphological Zones, Provinces  Land use and scale bargaining for Barcelona, sec. 7.4.1.3, and Milan, sec. 7.4.2.3	Interviews, planning regulations

In RQ3.2, the bargaining context model, as examined in section 4.7.4, is introduced and linked with the RQ3.1 research question and the formulation of the related third hypothesis (H3) ('land bargaining is carried out to compete in a metropolitan area'). The bargaining context model is referred to as a theoretical perspective to account for urban political choices, where small and medium size municipalities within the metropolitan area own their competences over land use change to steer urban development.

Finally, the RQ3.3 research question refers to the 'in-between' scale bargaining dynamics of the territorial, multi-scalar governance framework, as introduced in section 4.8. The RQ3.3 research question is linked with the fourth hypothesis (H4) ('the metropolitan body is crucial in regulating and containing urban sprawl occurrence'). Among the different governance scales, the metropolitan body is considered to be an effective institution that can foster inter- and supramunicipal coordination to prevent the occurrence of urban sprawl.

The following section reports on the research design that has been conceived and followed in order to answer to the research questions listed above.

### 5.3 Research design

The research design employed in this dissertation is *intensive* (Sayer, 1992, p. 241ff): intensive research designs aim at explaining how a process works in one particular case or a small number of cases (in this dissertation, two cases have been considered), focussing on the agents' social practices and the explanatory mechanism producing a certain phenomenon. The causal explanations produced by intensive research designs are not necessarily representative, and generally use qualitative methods of analysis (e.g. interviews).

In Chapter 2, urban sprawl as a research problem has been identified, and the relevance of selecting this research topic has been justified. First, Chapter 2 elaborated on the concepts of land uses and land use change as a way to narrow down the much broader debate on space-society interactions. Second, Chapter 2 included – although not exhaustively – the different definitions of urban sprawl discussed by international literature. In this research, urban sprawl is defined as a type of land use (see sec. 2.1.1), and specifically as predominantly characterized by residential land uses (see sec. 2.2). In particular, by the use of the Corine Land Cover (CLC) database, it becomes apparent how urban sprawl is a characterizing feature of artificial areas in Europe, as more than 70% of the built-up areas are defined as discontinuous residential areas, following the Corine Land Cover (CLC) database definition. The spatial extension of the so defined phenomenon is one of the reasons that strongly justifies urban sprawl as a relevant research topic. Furthermore, urban sprawl is a particularly relevant research topic because the European Union's urban policies are oriented towards sustainable development, singling out the compact city as the ideal European urban model. Finally, section 2.5 concludes Chapter 2, where a provisional theoretical definition of urban sprawl is presented.

Chapter 3 introduced and critically examined the wide variety of driving forces leading towards urban sprawl identified in the international literature. In particular, the literature review on the recognized factors causing urban sprawl is functionally used to emphasize how political and planning factors should be considered as relevant necessary conditions towards urban sprawl, as governmental and private actors, within a certain institutional context, *decide* over land uses, and thus also over the occurrence of dispersed residential areas (urban sprawl). The main assumption underlining this dissertation stems from the acknowledgment that suburbanism requires decisions on land use transformation, i.e. land management. Chap-

ter 3 advanced the need to explain urban sprawl by framing different political and planning factors under a unified theoretical framework of governance dynamics (see sec. 3.2).

Subsequently, Chapter 4, and especially section 4.8, clarified how political and planning factors can be conceived and analyzed within a territorial, multi-scalar governance framework, combined with the bargaining context model proposed by Kantor and Savitch (2002, 2005). Such a combination can serve as an effective theoretical framework to analyze urban sprawl as a territorial outcome of territorial, multi-scalar and multi-actor political and economic interplays.

Urban sprawl can be considered the effect of bargaining processes of land and land use competences. Land bargaining is a crucial component of land management, which occurs within a territorial, multi-scalar and multi-actor governance setting where, first, governance scales over land use have to be defined, as different institutional actors try to define themselves as governance settings over land use management ('in-between scale bargaining dynamics'), and, second, authority for land allocation (i.e. competences) has also to be bargained and redistributed among scales ('within bargaining dynamics').

While the previous Chapters mainly dealt with the theoretical framework, the present Chapter 5 reports the methodological steps that have been taken in answering the research questions. In the above section 5.2, the hypotheses have been detailed. In synthesis, by pulling together hypotheses 2, 3 and 4, it is supposed that urban sprawl occurs when there is a lack of supramunicipal coordination, specifically when the metropolitan scale (in-between scale bargaining dynamics) is not sufficiently entitled with authority over land use management (within scale bargaining dynamics). In such circumstances, as competences over land use change are almost entirely attributed to the municipal scale, higher level governmental institutions, and in particular the metropolitan scale, have ideally less scope for action to guide territorial development. Lack of inter- and supramunicipal coordination is instrumental to urban sprawl occurrence, as supervision capacity on municipal land use choices is limited (see hypothesis H4). Local governments can bargain over land and boost development by negotiating directly with private actors (hypotheses H2 and H3), while higher governmental governance scales are unable to steer urban political choices. The metropolitan body is considered to be a key governance scale in discouraging urban sprawl (in-between scale bargaining dynamics); however, in order to do this, the metropolitan scale should also be entitled to authority over land use management (within scale bargaining dynamics).

In the following sections, first, an operational definition of urban sprawl will be provided. The use of the Corine Land Cover (CLC) database (EEA European Environmental Agency, 1994a,b) provides a methodologically convenient identification of urban sprawl as 'discontinuous residential areas'. Hence, for this dissertation, a precise operational interpretation of the phenomenon is employed by drawing on an acknowledged statistical database adjusted to the European context.

Second, a more explicit account of the process of case study selection, namely Barcelona and Milan, is presented. Here again, the Corine Land Cover (CLC) statistical database has been employed. European provinces (NUTS3 level)<sup>5</sup> have been used as the more detailed territorial level available for land cover data, and they have been ranked according to certain criteria in order to identify the European provinces that, between 2000 and 2006, have shown the greatest increase in discontinuous residential areas (that is, urban sprawl as it is defined in this research). NUTS3 levels have been employed as proxies for cities, however accounting for the territorial, and in particular metropolitan, scale needed to analyze *suburban* (i.e. 'out

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<sup>5</sup>For further information see sec. 5.3.3 and Appendix B.

of the urban', 'out of the *urb*') phenomenon (see sec. 5.3.3, and also sec. 5.4, linked to the 'urbanization' processes occurring at the regional territorial scale, see sec. 3.1.5).

An original feature of this dissertation is the examination of the connection between the identified definition of urban sprawl and its operationalization. In Chapter 2, by drawing on the theory, urban sprawl has been conceived as a type of land use preponderantly characterized by housing functions (see sec. 2.5). Having theoretically – and provisionally – marked urban sprawl in such a fashion, in the current Chapter 5 I will present the operational definition of sprawl, as inspired by the substantial theoretical definition previously introduced, and how it has strategically guided the selection of the case studies.

The methodological strength underpinning the use of the Corine Land Cover (CLC) statistical database is found in the fact that it is a longitudinal dataset on land covers for the European territory. These two features convert the Corine Land Cover (CLC) into an extremely valuable tool for the analysis of territorial phenomena<sup>6</sup>. Furthermore, in a recent article, Brenner and Schmid (2014, p. 742) point out the potential and the innovative character that land use and land cover datasets, such as Corine Land Cover (CLC), can represent for social sciences.

Barcelona and Milan have been chosen as two emblematic European provinces, located in Southern Europe, whose diversity in land use patterns were considered to be particularly relevant in understanding and explaining different patterns of occurrence of urban sprawl. Both cities show almost the same increase in discontinuous residential areas (urban sprawl) between 2000 and 2006, however developments in other land uses (such as transport infrastructures, or industrial areas) or other characteristics (such as the extension of their provinces, i.e. the NUTS3 level) are different (see Chapter 6).

Quantitative data have been specifically used to describe and identify the occurrence of urban sprawl in the two case studies, and to determine the relative 'sprawled' or 'compact' characters of urban development between the two case studies. The Corine Land Cover (CLC) inventories for 1990, 2000 and 2006 have been used to examine the growth rate of artificial land uses, and local databases for each city have also been considered, in order to trace out the recent historical development of urban settlements per land use type, and to contextualize and compare the Corine Land Cover (CLC) data with other information sources on land use. The recent historical trajectory of land uses for both case studies spans approximately 50 years (1950s– 2000s).

Furthermore, the relative more compact character of Barcelona compared to that of Milan has been considered over different territorial scales, which are administrative boundaries, metropolitan areas, provincial and regional levels, and Larger Urban Zones (LUZ) and Urban Morphological Zones (UMZ) (see sec. 5.4).

Other data, namely demographic figures, employment rates and municipal fragmentation, have been occasionally employed. Data on employment are shown in section 7.3 when Barcelona and Milan are positioned within the bargaining context model framework. Demographic data (see sec. 7.1) and municipal fragmentation figures (see sec. 7.2) are presented in two different sections, in order to account for the connection between population and suburban housing in metropolitan areas as introduced in section 3.1.3, and the link between the number of local governments and the occurrence of urban sprawl given inter– urban competition (see sec. 3.1.7, and see hypotheses H2 and H3). Demographic data account for decentralization processes of housing functions as stated in hypothesis H1. Figures on administrative fragmentation refer to hypothesis H2, where the smaller the municipalities, the higher the

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<sup>6</sup>For an examination on the main flaws of the Corine Land Cover (CLC) dataset, see Appendix B.



probability of observing urban sprawl<sup>7</sup>.

Quantitative data, both from the Corine Land Cover (CLC) dataset and from local databases (see sec. 5.5), were necessary to measure the occurrence of urban sprawl, and are a crucial step for the description of urban sprawl as patterns of spatial dispersion in the expansion of residential areas. However, even if data on factors causing sprawl (see Ch. 3) and on land use change may be available, they have been considered insufficient to explain the occurrence of urban sprawl (see Sayer, 1992, p. 204ff). Hence, following the theoretical framework adopted in this dissertation (see sec. 3.2 and sec. 4.8), composed by the combination of the bargaining context model with the territorial, multi-scalar governance perspective, qualitative fieldwork has been carried out. Qualitative data, such as interviews and the analysis of plans and planning regulations, have been thus employed to best account for governance dynamics over land use leading towards urban sprawl (hypotheses H2, H3 and H4).

Interviews have been conducted in Barcelona and Milan with planners and politicians at the urban, provincial, metropolitan and regional levels, and also with stakeholders and key informants. The logic underpinning this case study approach was to clarify the role of each administrative layer for land allocation and management (competences), and how this different role opened up room (or not) for negotiations with private actors for the provision of suburban housing. Questions related to the role that each institutional scale played in land use management, and the analysis of secondary sources (such as articles, academic research, or administrative publications) helped reconstruct the bargaining over governance settings ('in-between bargaining dynamics') and over land use competences ('within bargaining dynamics'). Interviews with planners and politicians were key in unraveling governance processes over land use management and the occurrence of urban sprawl, clarifying the different roles of actors placed at different governance scales on land allocation, and the power struggles over land use authority among the municipal, provincial, metropolitan, regional and national levels, as main governance scales entitled with land use competences. In addition, interviews with planners and politicians made some of the routine planning practices, performed by actors and related land use management, crop up.

Furthermore, the analysis of the devolution process of planning competences and local planning regulations has been crucial in understanding the governance dynamics at work over land uses. The analysis has been carried out by focussing on plans and planning regulations. However, I am aware of the fact that they do not correspond to 'planning' as a whole, but are just some of its elements, together with (private) master plans, planning investments, planning permits, building regulations, strategic planning and other specific urban projects, which have not been thoroughly considered in this dissertation. Nevertheless, it is assumed that land management and decisions over land allocation are manifested by plans and land use regulations, which can furthermore more clearly reflect and reveal 'in-between' and 'within' scale bargaining dynamics.

Chapter 6 and 7 present the main findings of the research. Chapter 6 concentrates on the examination of the patterns of territorial dispersion presented in the two case studies. By drawing on the employed theoretical framework, Chapter 7 will discuss hypotheses and some conclusions will be put forward, presenting each of the considered political and planning conditions that emerged from the theoretical discussion (see also sec. 5.5). Chapters 6 and 7 explain how the evidence provided through certain indicators, drawn from theory, can account for the different occurrence of urban sprawl in the two considered case studies.

Chapter 8 summarizes the findings and highlights the main contributions and shortcomings

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<sup>7</sup>For more details, see sec. 5.5.

of this doctoral research, and includes also a discussion of the attained conclusions.

### 5.3.1 The Corine Land Cover (CLC) nomenclature for an operational definition of urban sprawl

In section 2.3, a wide range of definitions of urban sprawl have been reported and discussed with reference to the international literature. The main difficulty in defining urban sprawl lies in the fact that there are no common agreed-upon standards among scholars to precisely identify and compare the phenomenon. This hinders both a common understanding of urban sprawl and also advancements in comparative analysis (cf. Galster et al., 2001). Therefore, for this research a specific definition of urban sprawl has been chosen and used.

Theoretically, a substantial definition of urban sprawl as a type of land use predominantly characterized by residential land uses has been already put forward (see sec. 2.5). Methodologically, the operational definition of urban sprawl has been identified by employing the metadata available on the Corine Land Cover (CLC) database (EEA European Environmental Agency, 1994a,b, 2011)<sup>8</sup>.

The Corine Land Cover (CLC) dataset has been employed as a comparable source of information on land covers and land use changes on the European scale<sup>9</sup>. Within the Corine Land Cover (CLC) project, satellite images of the European land cover have been photo-interpreted and compared with other information sources (e.g. photographs, statistical data, documents), and classified into 44 land cover and land use classes through a common methodology<sup>10</sup>.

For the purposes of this research, only the 11 categories referring to the artificial urban areas, i.e. the ‘artificial surfaces’ category of the Corine Land Cover (CLC) nomenclature, have been considered, and refer to:

surfaces with dominant human influence but without agricultural land use. These areas include all artificial structures and their associated non-sealed and vegetated surfaces. Artificial structures are defined as buildings, roads, all constructions of infrastructure and other artificially sealed or paved areas. Associated non-sealed and vegetated surfaces are areas functionally related to human activities, except agriculture. (EEA European Environmental Agency, 2011, p. 12)

Among the 11 types of artificial surfaces, two classes for residential areas exist<sup>11</sup>:

- class 1.1.1: Continuous urban fabric, where the sealed (impervious) surface is at least 80%, the rest being mainly urban greenery. This class is frequent in Southern Europe, but appears also in other parts of the continent (centers of larger cities);
- class 1.1.2: Discontinuous urban fabric, where the sealed (impervious) surface is between 30% and 80%. Other land covers (e.g. greenery, water) can reach altogether maximum 70%<sup>12</sup>.

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<sup>8</sup>For details on the Corine Land Cover database and classes, see Appendix sec. A.

<sup>9</sup>For the definitions of land covers and land use changes, see sec. 2.1.1.

<sup>10</sup>For further details on the different stages involved in the production of Corine Land Cover (CLC) datasets, see Appendix sec. A.

<sup>11</sup>EEA European Environmental Agency (1994a,b) and (EEA Enquiry Service Admin, 2013c).

<sup>12</sup>If the built-up density is lower than 30%, as it happens usually in agriculture areas, the Corine Land Cover (CLC) dataset uses class 2.4.2 (Complex cultivation). Another frequent case is that of low density housing (usually with temporary residence) associate to sport and recreation areas (class 1.4.2). In all cases, Corine Land Cover polygons should have a minimum size of 25 hectares.

For the purposes of this research, it is important to note that both continuous and discontinuous urban fabrics do not include industrial or commercial land uses, as these classes *predominantly* refer to *residential* urban functions. Continuous and discontinuous areas are those classes where:

residential structures and patterns are predominant, but also downtown areas and city centres, including the central business districts (CBD) and areas with partial residential use, are included. (EC 2006:12)

In particular, the European Environmental Agency defines discontinuous urban fabric as follows:

Discontinuous urban fabric comprises *residential areas* around the edge of urban district centers, and certain urban districts in rural areas. These units consist of blocks of flats, individual houses, gardens, streets and parks, each of these elements having a surface area of less than 25 ha. This type of land cover can be distinguished from continuous urban fabric by the presence of non-impermeabilized surfaces: gardens, parks, planted areas and non-surfaced public areas. (EEA European Environmental Agency, 1994b, p.102) [my emphasis]

Hence, the difference between the ‘continuous’ and ‘discontinuous urban fabric’ classes lies in the fact that there is an 80% threshold of *intensity of land use* to distinguish between compact residential fabric (class 1.1.1) and discontinuous residential fabric (class 1.1.2). This means that the definition does not refer to urban forms, but on the morphological intensity of land use – although of course there is a connection between the two – :

(...) [an] interesting indicator characterizing urban landscape is the *intensity of land use* and in particular the land use intensity of residential areas. By intensity we refer to the *degree* to which the built structures cover the available land. Compactness is another definition used commonly when referring to the composition of built-up and unbuilt patches in urban landscape. (Kasanko et al., 2006, p.119) [my emphasis]

This differentiation is particularly significant as the Corine Land Cover (CLC) nomenclature offers a precise and comparable understanding of residential urban fabrics in terms of intensity of land uses (continuous or discontinuous), and thus a possible, operational definition of urban sprawl at the European level, that is by considering the Corine Land Cover (CLC) 1.1.2 class of ‘discontinuous urban fabric’. Furthermore, the differentiation of residential areas into two distinct land use classes allows, with great advantage, the employment of a convenient operational definition of urban sprawl for all of Europe (i.e. comparability), overcoming the diffuse problematic issue of distinguishing between types of land uses when attempting to define urban sprawl (see sec. 2.3).

Such distinction is particularly valuable as residential land uses are the only classes in the Corine Land Cover (CLC) nomenclature where a differentiation between intensity of land use is acknowledged and made available; other land use types included in Corine Land Cover (CLC) classification differ only by type of land use. For instance, the 1.2.1 class for industrial and commercial areas combines together production sites and service areas, without including any qualitative distinction between ‘continuous’ or ‘discontinuous’ industrial and commercial areas. In addition, the combination of industrial and commercial areas in one single class is theoretically quite problematic, as these types of urban functions are expressions of two different economic sectors, the secondary and the tertiary respectively, which is quite crucial for urban and regional studies<sup>13</sup>.

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<sup>13</sup>Similarly, in the Corine Land Cover (CLC) nomenclature, transport areas are differentiated in ports (class 1.2.3), airports (class 1.2.4) and road and railways (class 1.2.2). However, it would be much more useful to

Therefore, the difference in the degree of intensity of land use (30%–80% threshold), which is available uniquely for the residential urban functions surveyed in the Corine Land Cover (CLC) project, emphasizes not only the qualitative, but also the quantitative relevance of residential (housing) urban functions at the European level, as has been shown in Chapter 2 in tables 2.1 and 2.2.

Hence, with good reason and for the purposes of this research, the discontinuous urban fabric class (code 1.1.2) of the Corine Land Cover (CLC) nomenclature can be conveniently regarded as the best available and comparable proxy for urban sprawl at the European level.

The term ‘discontinuous’ tries to capture the disconnected or scattered morphology of the surveyed land plots, which is converted into a percentage of intensity of land use ranging between 30% and 80%<sup>14</sup>. Intensity of land use effectively conveys the amount (or ‘load’) of land use occupation.

Besides the advantages that it bears for spatial comparison, the Corine Land Cover (CLC) classification sets the 80% threshold as a substantial and analytical anchor in the distinction between compact (continuous) and sprawled (discontinuous) residential areas, and a 30% threshold between discontinuous areas and areas mainly devoted to agriculture<sup>15</sup>. This means that the differentiation between the two classes of residential land uses is due to the inclusion, essentially in the ‘discontinuous urban fabric’ class, of non-impermeabilized (unsealed) surfaces (see sec. 2.3.1.3) such as gardens, parks, planted areas and non-surfaced public areas (urban green areas), implying that soil below the 80% threshold (but above the 30% limit) does not have to be completely ‘filled in’ with blocks of buildings (i.e. ‘discontinuous’ residential urban fabric).

Therefore, the distinction between these two classes emphasizes the relevance of focussing on land use intensity of residential areas as an indicator that characterizes in general urban land covers, and in specific urban sprawl areas. However, some critical comments can be put forward regarding the 30%–80% range of intensity of land use. First, such maximum and minimum limits are conventional, and are not throughout justified by the European Environmental Agency (EEA). Limited to the surveyed documents and information sources on the Corine Land Cover (CLC) project and nomenclature, the process of identification of such thresholds remains unclear: how have they been decided, and why not apply other thresholds, such as 40% or 70%? Furthermore, there is a wide range of intensity of land use, and thus also a wide range of types of included built forms (see *supra*). As previously mentioned (see quote from EEA European Environmental Agency, 1994b, p.102), within such a broad range of residential urban fabric, different types of flats, block houses, gardens, detached and semi-detached houses, along the urban edge or in ‘urban districts in rural areas’ (ib.) are included.

Such ‘inclusive’ land use range (30%–80%) can also expose an intrinsic uncertainty encountered by the researchers in defining types of land use classes within the ‘artificial surfaces’ categories. Indeed, possibly the broad inclusion of different degrees of intensity of land use was also due to convenience: the Corine Land Cover (CLC) project is an ambitious Europe-wide

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distinguish road and railways as two distinct classes for the purposes of regional and urban research. For further limitations of the Corine Land Cover dataset, see sec. 5.3.3 and Appendix B.

<sup>14</sup>Similar to the work by Galster et al. (2001), described in sec. 2.3, the European Environment Agency defines urban sprawl in terms of continuity.

<sup>15</sup>The use of these thresholds is relevant, as it can constitute a potential ‘commonly agreed upon’ standard (Ragin 2008:86) for the intensity of land use in defining sprawled (discontinuous) and not sprawled (continuous) residential areas for comparative analysis. It may not be the best or the final one, but it is an attempt to set a consensual threshold for identifying urban sprawl in the European context.

program to provide longitudinal, comparable data on land cover<sup>16</sup>, hence the amount of time to reasonably dedicate to the classification of (artificial) land uses for the entire European territory was probably limited, and technical restrictions might have also constrained the task of photo-interpretation of satellite images. The limitation in number to 11 land use classes for all of the different urban built forms artificial areas can display was certainly a compromise between different factors, such as time, financial and human resources, and technical tools required to attain a reasonable (and viable) level of detail. The distinction between continuous and discontinuous residential classes might thus have been the result of a balance between such constraints; the trade-off for the subdivision in further, more precise types of residential land use classes in terms of intensity of land use might have not been practically convenient<sup>17</sup>.

Nevertheless, although not exempt from criticism, the distinction between the two types of residential land use classes can be considered a great success and a good fortune (including the primary opportunity to actually *have free access to* a European-wide, longitudinal land cover inventory). Furthermore, the identified 30%– 80% thresholds can be considered a reasonable attempt to identify a consensus on land covers and land use areas for international (European) comparative analysis, in connection with the emergence of a ‘land use change science’ (see sec. 2.1.1, and also footnote 15 on page 135).

Therefore, in this dissertation, urban sprawl is conceived as a *residential* dispersion pattern, and can be contextually specified for the European environment by using the Corine Land Cover (CLC) land use classification. In doing so, not only a methodological decision was made, but also a theoretical one. In an attempt to precisely delineate urban sprawl at the European level, differentiating it from the corpus of literature on the topic which mainly originated in the United States (Ewing, 1997; Galster et al., 2001; Peiser, 2001; see Squires, 2002, cited in Couch and Karecha, 2006), this research originally employs the discontinuous urban fabric class to methodologically (see this present section 5.3.1) and theoretically (see sec. 2.5) define urban sprawl in Europe.

Therefore, I propose an operational definition of urban sprawl for this dissertation in the following terms:

Urban sprawl in Europe can be considered as the (i) process of metropolitan expansion and welding of small and medium size urban centers characterized by (ii) land use change from open or agricultural land (land consumption) into (iii) residential land uses (residential urban function), (iv) whose total surface is occupied by less than 80% of built form, but not below 30%.

The fact that urban sprawl is considered as a process takes into account the need to focus on the dynamics of urban change than on actual, static patterns of urbanization through which the phenomenon is perceivable (Couch and Karecha, 2006, see, Couch et al., 2007b, ch. 1; see also sec. 2.5). The emphasis on the processual characteristic of sprawl relates also to the acknowledgement that urban sprawl mainly originates from open and/or agricultural land (process of land use change; see Chapter 2), and that urban sprawl occurs mainly by means of two broad processes, namely the spatial expansion of the housing functions of the core city towards its outskirts on the one hand, and the building of discontinuous residential areas in small and medium size urban centers on the other hand, which then weld to each other or to the central urban area (see hypothesis H4 in sec. 5.2 and tab. 5.1).

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<sup>16</sup>For some comments on the comparability among Corine land Cover (CLC) inventories, see tab. B.1 in Appendix sec. B.

<sup>17</sup>The same reasoning can be applied to other artificial and non-artificial land use types included in the Corine Land Cover (CLC) nomenclature.

Hence, by employing the Corine Land Cover (CLC) definition, it is possible to account for urban sprawl both as a ‘noun’ and as a ‘verb’ (Couch et al., 2007b; Galster et al., 2001; Wolman et al., 2005), as it has been also clarified in the theoretical definition proposed in this dissertation (see sec. 2.5). Urban sprawl as a noun is defined by the Corine Land Cover identification of discontinuous urban fabric, these areas being predominantly residential, and characterized by a certain intensity of use (30%–80% of occupied soil), while urban sprawl as a verb is so defined as it is considered a process, as just mentioned in the above operational definition of the phenomenon.

### 5.3.2 The logic of case studies comparison

One of the main tasks of social sciences is to explain difference (e.g. why is one social group or city different from the other?). Comparison is a crucial methodological strategy in order to deal with such a task. Comparison implies the consideration of similarities and differences, and thus encourages the search for causal mechanisms to explain dissimilarities. Furthermore, comparison also requires the ability to abstract from the concrete (Sayer, 1992, cf. ch. 3), identify sufficiently general attributes to allow the juxtaposition of different objects, and the identification of comprehensive concepts that can embrace the different objects under study.

Comparison is particularly challenging if one aims to examine urban sprawl. As discussed in section 2.3, several definitions of urban sprawl exist, which employ different methodological criteria such as urban form, morphological or demographic density, or accessibility. This dissertation attempts to advance case studies comparison in the field of suburbanism by adopting a strategy that can possibly serve as a (non-exclusive) reference for future studies as well. Such an attempt is particularly meaningful in the European context, where the selection of relevant case studies to compare is much needed, especially for ‘spatial and territorial’ comparative social research.

The methodological operationalization of urban sprawl as presented in the previous section 5.3.1, which follows the theoretical definition introduced in section 2.5, can easily adapt to a comparative logic: the Corine Land Cover (CLC) project, and related nomenclature, offers a platform for comparison as it is a European-wide attempt to provide a longitudinal inventory of European land covers and land uses. Hence, the specific use in this dissertation of the discontinuous urban fabric class (code 1.1.2) for operationalizing urban sprawl is itself responding to the need to adopt and apply a comparable understanding of the phenomenon of urban sprawl at the European level.

The aim of comparative analysis is to reduce complexity while allowing for contextual richness<sup>18</sup>, and generally (although not exclusively) involves a small number of case studies<sup>19</sup>. In this dissertation, the focus has been on two case studies (see *infra*, sec. 5.3.3). The decision to restrict the workload to two case studies was mainly due to the complexity of the task of carrying out qualitative research in a limited amount of time: the selected case studies had to be emblematic, meaningfully comparable, and also allow for in-depth analysis to be performed within the specific time and resource constraints of a PhD dissertation. Although, at first glance, the comparison of two case studies may seem quite unproblematic and even insufficient for a PhD dissertation, the following sections and Chapters will highlight the difficulties and intricacies encountered while (hopefully successfully) carrying out this task.

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<sup>18</sup>Ragin, 1987, 2008 and Schneider and Wagemann, 2012 proposed a different and interesting re-elaboration of comparative analysis through the use of qualitative comparative methods.

<sup>19</sup>See, for example, the positivist but however useful classification proposed by Gerring (2004).

First of all, comparing cases leads to the ineludible question ‘a case of what?’, as cases generally do not coincide with units of analysis (Gerring, 2004; Pierre, 2005). In this dissertation, the units of analysis are the NUTS3 areas which the Corine Land Cover (CLC) datasets for 2000 and 2006 have been crossed with (see sec. 5.3.3), while cases are those cities that shows patterns of spatial dispersion in the expansion of residential areas.

Furthermore, in comparative urban research, and in particular in comparative urban governance (Pierre, 2005) or politics (Kantor and Savitch, 2002, 2005), cases should also be ‘functional equivalents’, meaning that similar names may disclose very different concepts. ‘Functional equivalency’ refers to the need to look beyond the similarity between institutional denominations among different countries, and to check instead for their equivalence in functions Pierre (2005, p. 457). For instance, ‘regional government’ in Belgium may not be the same as ‘regional government’ in Italy.

However, the identification of cases to compare is not straightforward. In this dissertation, a specific selection process has been carried out in order to find meaningfully comparable case studies, which is detailed in the following section 5.3.3. Since urban sprawl has been theoretically defined as a quantifiable phenomenon produced by qualitative (governance) processes (see sec. 2.5), quantitative and qualitative considerations have been made for the identification of the meaningful case studies to compare.

### 5.3.3 Selection of the two case studies

For the selection of the case studies, it was assumed that clear yet different patterns of urban sprawl would have been crucial for answering the research questions. Before the selection process started, a pool of eligible cities was considered, for example European capitals like Paris, Madrid, Rome or Brussels, metropolitan regions like Veneto or the Ruhr, or other European metropolises. The range was considerably wide, so a selection process was carefully designed and carried out.

The case selection strategy adopted in this dissertation has taken inspiration from J. S. Mill’s (1967/1843, cited in Rihoux and Ragin, 2009, p. 2, 22) ‘indirect method of agreement’, aimed at singling out the differences among cases after eliminating all similarities (‘most similar procedure’), or what Charles Tilly has called a ‘universalizing’ comparative strategy (Tilly, 1984, cited in Ragin, 2008, p. 145). The process of case studies selection was thus aimed at singling out a group of cities with comparable characteristics from which the two case studies could be chosen, and to later perform an in-depth qualitative analysis to find out conditions and causal mechanisms that could account for differences.

The Corine Land Cover (CLC) dataset on European land covers and land uses (see also Appendix sec. A) has been employed as quantitative support in order to carry out the descriptive analysis at the European level to select the two emblematic case studies to compare. Among the three CLC surveys (1990, 2000 and 2006), the 2000 and 2006 datasets were preferred for different reasons. First of all, the 2000 and 2006 datasets were readily available in vectorized format, and were officially provided by the European Environmental Agency (EEA) already intersected with NUTS3 areas. Second of all, the 2000 and 2006 CLC datasets have been produced during a similar time span (1999-2001 for the 2000 CLC survey, and 2005-2007 for the 2006 CLC survey), while the 1990 CLC dataset has been produced over a 8 year timespan (1986-1998), hence land use data are less comparable. Additionally, the 1990 CLC dataset includes 26 countries, while the 2000 and 2006 CLC datasets involved 32 and 36 countries, respectively, thus extending the territorial coverage. Third, the 2000 CLC survey functions as reference inventory for the other two, and can be considered the more ‘complete’ land

cover inventory at the European level<sup>20</sup>. Furthermore, the 1990 CLC data are only available in raster format, and require the transformation to vector format as well as the intersection with NUTS3 levels; both operations demand specific knowledge and technical skill<sup>21</sup>.

It is fair to state that the 1990 CLC dataset has been an ‘exploratory’ project, that later on has been methodologically enhanced in 2000 and 2006 to get more precise data and include a larger number of countries. Hence, the 2000 and 2006 CLC surveys were deemed to be more suitable for performing the descriptive analysis to select the two case studies to later examine through a qualitative approach.

When comparing the 2000 and 2006 CLC surveys, the statistical units of analysis corresponded to the NUTS (Nomenclature of Territorial Units for Statistics) 3 level (Eurostat, 2009b), being equivalent, according to the country, to provinces, counties and *arrondissements*.

NUTS3 areas consist of the lowest level of detail at which the use of Corine Land Cover (CLC) data is meaningful. The use of NUTS3 levels were considered to be a suitable compromise between a general use of the Corine Land Cover (CLC) dataset by national areas (NUTS0) and the need to account for small-scale, local land use variations in all European territory<sup>22</sup>. Since the Corine Land Cover (CLC) surveys are a set of longitudinal inventories of land covers and land uses at the European level, the datasets have a certain level of detail (i.e. Minimum Measurement Unit MMU), corresponding to 25 hectares (0,25 km<sup>2</sup>) and 100 meters of width, which however turns out to be a rough and inefficient measure for more detailed analyses on land covers, land uses and land use transformations. In other words, the Corine Land Cover (CLC) datasets are not suitable for localized studies on land covers and uses.

In this research, NUTS3 areas were assumed and used as proxies for urban systems and metropolitan regions. Although the focus of this research is on cities, the use of NUTS3 levels allowed the bypassing of the problematic identification of boundaries when defining ‘cities’ beyond their administrative limits. As shown elsewhere in this dissertation (see Ch. 2, sec. 5.4, Appendix sec. C and sec. D.1), the term ‘city’ implies concerns over scale definition, whose boundaries identification remains a problematic task, which requires interpretative skills. At the European level, the Eurostat (2009a) proposed Larger Urban Zones (LUZ) and Urban Morphological Zones (UMZ) to identify, respectively, the functional and morphological ‘metropolitan’ boundaries of European cities, according to certain criteria (see Appendix sec. C.0.1 and sec. C.0.2). However, as NUTS3 level units refer to administrative demarcations, they are still more accepted and predominant in research, also because, albeit conventional, they are convenient statistical units of analysis for which data are more easily available (cf. Jensen-Butler et al., 1997, p. 47)<sup>23</sup>.

Moreover, NUTS3 levels denote the territorial, multi-scalar governance structure which is implied in the enhanced housing model presented in Chapter 4 (see tab. 4.4 on page 115), and connected to the hypotheses (see sec. 5.2 and tab. 5.1). The consideration of NUTS3 levels requires the problematization and accounting for the kinds of public actors involved

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<sup>20</sup>For further information, see tab. B.1 in Appendix sec. B on page 329.

<sup>21</sup>For further details, see Appendix sec. B.

<sup>22</sup>The NUTS (Nomenclature of Territorial Units for Statistics) are divided in NUTS0 (countries), NUTS1 (whole of regions, e.g. Northern Italy, Eastern Germany), NUTS2 (regions) and NUTS3 (provinces, counties, *arrondissements*). There is also a lower level of detail (LAU, Local administrative units), corresponding to municipalities, however the Corine Land Cover (CLC) data have been considered too coarse-grained to capture land use micro-transformations occurring at the local level (see Appendix sec. B and figures B.1 and B.2 on pages 336 and 336).

<sup>23</sup>Nevertheless, Larger Urban Zones (LUZ) and Urban Morphological Zones (UMZ) have also been integrated in this analysis (see sec. 5.4 and sec. 6.2).



at the provincial and other administrative and governance levels for land management and allocation.

While the use of NUTS3 levels could implicate a problem of ecological fallacy, the potentiality of the Corine Land Cover (CLC) data for comparative purposes was deemed to outweigh the risk. NUTS3 levels were considered to give a sufficiently broad perspective on urban sprawl as a territorial phenomenon beyond larger cities' administrative boundaries. Such a decision may be criticized, although it was deemed advantageous in maintaining a European perspective during the selection process for carrying out a comparative, descriptive analysis on land use growth rate at the European level by considering provinces, counties and *arrondissements* with the aim to identify two emblematic case studies.

Additionally, the underlining assumption to consider a larger area – NUTS3 level – to analyze urban sprawl stems from the acknowledgment that ‘urban areas [are] as systems directly connected to their regional backgrounds’ (EEA European Environment Agency, 2002, p.13), opening up the perspective on land use management beyond urban administrative boundaries as a way to account for urban areas as regional and metropolitan systems (see also sec. 2.3.1.2 and sec. 2.4). The imperfect consideration of European provinces as spatial scales beyond the administrative boundaries of cities can be reasonably understood as a methodologically convenient way to capture a phenomenon, i.e. urban sprawl, that by definition stretches outside cities' administrative limits.

In connection with the call of some scholars to focus on the trends and processes of global suburbanization to redefine urban theory, Lehrer (2013, p. 60) (re-)affirms the importance to paying attention to the *Zwischenstadt*, the ‘in-between city’, and on how the periphery re-organizes the (city) center (*urb*; see also sec. 2.1). The consideration of NUTS3 levels is a non-final attempt to account for the territorial (and, tautologically, *suburban*) dimension of urban sprawl, in particular in a metropolitan perspective (cf. Keil, 2013b).

The 2000 and 2006 Corine Land Cover (CLC)<sup>24</sup> datasets include in total 1.245 observations (NUTS3) each. These datasets have been descriptively compared with the aim to downsize the number of eligible cities to chose the case studies from. Such an operation, i.e. the selection process of the two case studies<sup>25</sup>, has been carried out in five main steps.

The first step included the data management of the 2000 and 2006 CLC surveys and the consideration of the 11 land use classes composing artificial surfaces: continuous urban fabric (land use class 1.1.1), discontinuous urban fabric (land use class 1.1.2), industrial and commercial areas (land use class 1.2.1), roads and railways (land use class 1.2.2), ports and airports (land use classes 1.2.3 and 1.2.4, respectively), mineral and extraction sites (land use class 1.3.1), dump sites (land use class 1.3.2), construction sites (land use class 1.3.3), urban green areas (land use class 1.4.1) and urban sport areas (land use class 1.4.2).

The first step also required the management of missing values. In the two datasets composed by the 1.245 NUTS3 levels (observations) and the 11 land use classes for artificial surfaces (‘variables’), there were many empty cells coded as missing values. However, adopting a methodological expedient endorsed by academic fellows and the European Environmental Agency (EEA), missing values were finally treated as 0s. Such recoding was possible because missing values could be due either to ‘real’ missing values, or more probably to the fact that land uses were under the Minimum Measurement Unit (25 hectares and 100 meters of width).

In the second step, land use growth rates between 2000 and 2006 were calculated for each of

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<sup>24</sup>From now on, the Corine Land Cover (CLC) surveys and datasets will be simply referred to as ‘CLC’.

<sup>25</sup>For further methodological details, see Appendix sec. B.

the 11 CLC artificial land use classes. The land use transformation has been expressed in relative change (Corbetta et al., 2001; Pacini and Raggi, 2007; for a critical assessment on the use of relative change for land use analysis, see Pileri, 2012), rather than simple index numbers with fixed basis, as it was necessary to deal with zero values generated by the CLC Minimum Measurement Unit (MMU)<sup>26</sup> (for further details, see Appendix sec. B).

In the third step, data on population (2000–2006 timespan) and the cities’ geo– political group were added to the growth rates previously calculated for each of the 11 artificial land use classes for every NUTS3 area. However, as the aim of the dataset manipulation was to narrow down the number of eligible cities to chose the case studies among, only three main indicators were considered meaningful for the stated hypotheses (see sec. 5.2) and thus retained: the growth rates of discontinuous residential areas (indicator 1), the growth rate of transport areas (indicator 2), and the average number of inhabitants (indicator a) between 2000 and 2006 (see tab. 5.2).

The first and second indicators (relative change of discontinuous residential areas and relative change of transport areas) were linked to the need to select those NUTS3 areas that presented sufficient land use change (i.e. growth rate) in CLC classes 1.1.2 (discontinuous urban fabric) and 1.2.2, 1.2.3 and 1.2.4 (the whole of transport areas; see Appendix tab. A.1 on page 324), in agreement with the hypotheses (see sec. 5.2). As urban sprawl has been operationalized by considering the 1.1.2 CLC class (see sec. 5.3.1), and as in the hypothesis H1 it is stated that transport infrastructures facilitate the occurrence of urban sprawl (operationalized in discontinuous residential areas), the pool of eligible ‘cities’ – whose proxy were the NUTS3 areas crossed with CLC data, as above mentioned – had to present a sufficient increase of both indicators during the considered time span (2000–2006).

A *sufficient* relative variation in discontinuous residential areas (indicator 1) and transport areas (indicator 2) has been defined as being above the median among the considered NUTS3 statistical units composing the dataset. Given the pronounced skewness of the data, the median was preferred as the appropriate threshold measure of reference to descriptively divide the observations into groups (0=below the median, 1=above the median), also considering the fact that the average value is more sensitive to extreme values (cf, Le Gléau et al., 1997, p. 7 and Pacini and Raggi, 2007, p. 90-92, 102).

By coding the growth rate of the discontinuous land use class and the transport areas above the median (=1) and below the median (=0), the considered NUTS3 areas were separated into *qualitatively different groups*. Those NUTS3 levels presenting a relative variation of discontinuous urban fabric *and* of transport areas above the median were retained, reducing the number of the considered NUTS3 areas to 255 units.

As a fourth step, in order to further narrow down the units of analysis, the threshold of the population average (indicator a) for the years 2000 and 2006 was set at 800.000 inhabitants. Such a choice was supported by the need to consider only those NUTS3 levels whose number of inhabitants could sufficiently approximate to a European metropolitan system, in order to account for hypothesis H4 (see sec. 5.2). It was considered that a NUTS3 area could more likely show a sufficient ‘metropolitan strength of attraction’ when its ‘demographic power’ was around 1 million inhabitants, a threshold that was approximated to 800.000 inhabitants<sup>27</sup>.

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<sup>26</sup>As already mentioned, zero values were considered not to necessarily imply an absence of a certain land cover type, but its presence under the Minimum Measurement Unit (MMU), that is under 25 hectares of extension and 100 meters of width.

<sup>27</sup>See also Appendix sec. B for further comments on this point.

**Table 5.2:** The employed indicators for the selection of the case studies, detailing the timespan and the correspondent sources. Author's elaboration.

Indicator	Type of measure	Description	Time horizon	Sources
1. Variation of discontinuous residential areas	Core dynamic measure	Variation of the discontinuous residential areas for years 2000 and 2006, relative change.	2000–2006	Corine Land Cover code: Artificial surfaces, Discontinuous urban fabric 1.1.2.
2. Variation of transport areas	Core dynamic measure.	Variation of transport areas for years 2000 and 2006, relative change.	2000–2006	Corine Land Cover code: Artificial surfaces, roads, railroads, airports and ports 1.2.2 – 1.2.4.
a. Average number of inhabitants (> 800.000)	Added static measure.	Average number of inhabitants between years 2000 and 2006.	2000–2006	Eurostat Regional Statistics, Regional Demographic Statistics, Population and area, Annual average population by sex (1.000) (code: demo r d3avg).
b. Geo-political group	Added static attribute	Attribution of NUTS3 levels to Northern, Eastern, Central and Southern Europe	Own classification by drawing from the UN regional groups.	

The combination of these four different indicators (see tab. 5.2) resulted in the further reduction of the number of NUTS3 level areas from 255 to 54. Therefore, the outcome of steps one to four is table 5.3, which lists the 54 NUTS areas showing the identified characteristics (growth rate of discontinuous and transport areas above the median, and population average above 800.000 inhabitants for years 2000 and 2006). The 54 NUTS3 areas are listed in ascending order by the growth rate of discontinuous residential areas.

**Table 5.3:** The 54 NUTS3 units of analysis remaining after the fourth step of data manipulation. The NUTS3 areas are ordered by the increase in discontinuous urban fabric for years 2000 and 2006. Source: EEA 1994a,b. Author's elaboration.

NUTS3 codes	NUTS3 names	% Variation of discontinuous urban fabric 2000–2006	% Variation of transport areas 2000–2006	Average popula- tion (inhabitants) 2000–2006	Geographic group
TR621	Adana	0,8	0,4	1913850	Southern Europe
FR102	Seine-et-Marne	1,0	15,4	1244950	Central Europe
FI181	Uusimaa	1,0	34,8	1332000	Northern Europe
SE232	Vastra Gotalands lan	1,0	15,9	1512550	Northern Europe
FR413	Moselle	1,1	1,7	1032200	Central Europe
FR824	Bouches-du-Rhone	1,2	7,6	1901050	Western Europe
BG411	Sofia (stolitsa)	1,2	8,2	1225850	Eastern Europe
FR612	Gironde	1,3	4,3	1354400	Central Europe
ES111	A Coruna	1,4	6,0	1102400	Southern Europe
TRA11	Erzurum	1,5	2,9	902600	Southern Europe
ITD35	Venezia	1,5	2,9	821600	Southern Europe
FR716	Rhone	1,6	2,8	1634400	Central Europe
ITD55	Bologna	1,7	11,2	930800	Southern Europe
CZ010	Hlavni mesto Praha	1,7	1,9	1184400	Eastern Europe
CZ020	Stredocesky kraj	1,7	1,9	1139900	Eastern Europe
ITC45	Milano	1,8	2,2	3789800	Southern Europe
ITD32	Vicenza	1,8	60,6	813450	Southern Europe
ES511	Barcelona	1,8	31,7	4980850	Southern Europe
SE224	Skane lan	1,9	10,3	1151800	Northern Europe
FR522	Finistere	2,2	0,2	871350	Central Europe
PT114	Grande Porto	2,2	50,8	1259300	Southern Europe
PL127	Miasto Warszawa	2,3	1,8	1695700	Eastern Europe
FR511	Loire-Atlantique	2,3	0,8	1196750	Central Europe
ITD36	Padova	2,9	4,8	869550	Southern Europe
ITE14	Firenze	2,9	16,2	952150	Southern Europe
TR411	Bursa	3,0	23,3	2259950	Southern Europe
FR523	Ille-et-Vilaine	3,1	1,9	916300	Central Europe
HU102	Pest	3,2	1,4	1109700	Eastern Europe
TR622	Icel	3,3	80,8	1677150	Southern Europe
TR721	Kayseri	3,5	38,6	1092650	Southern Europe

Continued on next page

**Table 5.3 – continued from previous page**

NUTS3 codes	NUTS3 names	% Variation of discontinuous urban fabric 2000–2006	% Variation of transport areas 2000–2006	Average popula- tion (inhabitants) 2000–2006	Geographic group
ITE43	Roma	4,3	3,6	3815200	Southern Europe
ES523	Valencia	4,3	17,0	2285050	Southern Europe
FR813	Herauld	4,6	7,2	960350	Central Europe
FR623	Haute-Garonne	4,6	4,6	1133450	Central Europe
NL335	Groot-Rijnmond	4,6	3,0	1346950	Central Europe
PT171	Grande Lisboa	5,1	13,8	1980000	Southern Europe
ES120	Asturias	5,2	43,5	1060700	Southern Europe
TR421	Kocaeli	5,2	2,4	1293750	Southern Europe
TR100	Istanbul	5,2	0,6	11000000	Southern Europe
NL326	Groot-Amsterdam	5,5	13,6	1188050	Central Europe
ITD31	Verona	5,6	0,7	846800	Southern Europe
ITF42	Bari	5,7	2,0	1577000	Southern Europe
NL310	Utrecht	5,7	3,9	1149100	Central Europe
ES213	Vizcaya	7,0	0,1	1126400	Southern Europe
IE021	Dublin	8,5	24,7	1145150	Northern Europe
ES300	Madrid	10,3	125,7	5612800	Southern Europe
ES521	Alicante	10,3	15,5	1575200	Southern Europe
ES243	Zaragoza	12,0	58,4	882400	Southern Europe
TRC11	Gaziantep	12,9	8,4	1381200	Southern Europe
ES617	Malaga	21,0	25,5	1362600	Southern Europe
ES612	Cadiz	21,9	4,2	1142500	Southern Europe
ES620	Murcia	23,2	35,9	1255850	Southern Europe
ES618	Sevilla	23,6	1,1	1753650	Southern Europe
ES614	Granada	23,7	6,7	845300	Southern Europe

End of Table B.3

The rationale underpinning steps one to four implied the identification of meaningful characteristics to filter out *kinds* of case studies, namely those NUTS3 level areas that presented both a growth rate of discontinuous residential land use and transport areas above the CLC median (see also Appendix sec. B), and that were more likely to have a metropolitan character. Table 5.3 shows the result of a qualitative selection of cases: they all show a growth rate of discontinuous and transport areas above the median, and their 2000–2006 population average is above 800.000 inhabitants.

The fifth step consisted of the examination of table 5.3 to orient the selection of the two case studies. As ‘geo– political group’ was added as an extra indicator (indicator b) in the third step (see supra), I noticed that, among these 54 NUTS3, 32 of them (roughly 60%) pertained to Southern Europe (Spain, Italy, Portugal, Turkey), a characteristic which I considered as an intriguing finding. The examination of the list of these 54 NUTS3 areas (see tab. 5.3), resulting from the descriptive manipulation of the CLC dataset as just described, hinted to the presence of a ‘geographical grouping’ linked to specific processes of suburban diffusion in Southern Europe<sup>28</sup>.

Furthermore, such a result was also considered to particularly challenge the compact character of European cities, and especially of Southern European cities (see sec. 2.3.1 and sec. 2.3.1.2), also in the light of the urban sustainability debate and the compact city model discussed in sections 2.4 and 2.4.1.

By focussing on Southern European NUTS3 areas, I considered different cities as possible case studies for comparison. I first pondered on Verona, Vicenza, Padua and Venice, which are close to my hometown, or Turkish cities, such as Istanbul or Bursa. I was interested also in the Skåne Lan area, where the Øresund bridge has been built between Sweden (the city of Malmö) and Denmark (the city of Copenhagen). I then considered Spanish cities, mostly located in the Southern region of Andalucía, such as Málaga, Cádiz, Seville or Granada, and also Murcia, Valencia and Alicante, located along the Mediterranean coast.

However, Barcelona and Milan were finally chosen as comparable emblematic case studies, because of quantitative and especially substantial motivations.

In the first instance, Barcelona and Milan were chosen because they belong to Southern Europe. The emergence of such geo– political grouping from the list of the 54 NUTS3 areas, the latter as a result of the combination of the three selected indicators, namely discontinuous residential urban areas and transport areas above the median, and with populations over 800.000 inhabitants, was considered an engaging feature of the successful identification of the *kind* of case studies that the CLC data manipulation process was aimed at.

Barcelona and Milan have been considered examples of the Southern compact city by previous studies (Busquets and Corominas, 2010; Catalán et al., 2008; EEA European Environment Agency, 2002; EEA European Environmental Agency, 2006; Kasanko et al., 2006), identifying the former as one of the most successful models of city compactness<sup>29</sup>. Both being Southern European cities, their comparative analysis helps clarify the changes that the ‘Southern European urban compact model’ has been experiencing. Catalán et al. (2008) underline the need to analyze the political, cultural and historical patterns characterizing urban development

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<sup>28</sup>I considered France as geographically and politically ‘borderline’, however I finally followed the UN Geoscheme (Wikipedia, 2014) and coded France as belonging to Central Europe, and not to Southern Europe. it is interesting to note that, if France had been coded as Southern European country, the proportion of Southern European NUTS3 areas within the obtained list of 54 NUTS3 would have amounted to 77,7% (32 + 10 French NUTS3 areas over 54 NUTS). For the complete list of countries classified in each group and other comments on such classification, see Appendix sec. B.

<sup>29</sup>For a critical review on the ‘Barcelona model’, see Capel (2005).

towards urban sprawl or densification in Mediterranean cities.

In the second place, Barcelona and Milan were selected because of their similar, yet differently materialized sprawl process<sup>30</sup>. Barcelona and Milan show a similar relative change in discontinuous residential areas, i.e. urban sprawl (+1,8%), while they substantially differ with regard to the growth rate in transport areas (+2,2% for Milan, and +31,7% for Barcelona). Such difference was considered relevant for the stated hypotheses (see sec. 5.2), where (the growth of) transport infrastructures are assumed to facilitate the expansion of urban sprawl. Instead, a similar increase in discontinuous residential areas was combined with a very different increase in transport areas, hinting at two different types of spatial expansion processes concerning dispersed residential areas.

In the third place, Barcelona and Milan are both the largest non-capital cities in their countries, whose institutional structure is rather similar, stemming from the Napoleonic state organization which is hierarchically arranged into municipalities, provinces and the central state. Such a characteristic is very important for a comparative analysis as it ensures the presence of functional equivalents (see sec. 5.3.2) when comparing institutional public actors. Hence, Barcelona and Milan were considered as good ‘functional equivalents’ (see sec. 5.3.2, and Kantor and Savitch, 2002, ch. 2 and 3; Pierre, 2005) to compare, and were consequently preferred to other ‘couples’ among the 32 Southern European NUTS3 units of analysis.

In the fourth place, Barcelona and Milan have a pronounced metropolitan character, as both cities are included in the list of the 30 ‘European metropolitan agglomerations’ (Serra, 2003, p. 15)<sup>31</sup>. This feature is particularly key as, according to hypothesis H4 (see sec. 5.2), the metropolitan scale is considered to be crucial for urban sprawl occurrence or containment.

The terms ‘metropolis’ or ‘metropolitan area’ refer to the existence of a predominant urban center over the surrounding municipalities, which is tied together with the adjacent territories by virtue of the influence that the urban center exerts over them (Magnier and Russo, 2002, ch. 1). Metropolitan areas can also be defined as that multitude of municipalities surrounding an urban center, which exerts a regional influence on its territory (i.e. the ‘hinterland’), characterized by a low demographic density and a high percentage of employees in the secondary and tertiary sectors (Vicari Haddock, 2004, p. 43–52). Metropolitan areas can be poly or monocentric, depending on the type of urban system that the main urban center creates with the larger, middle or small size urban poles lying within its sphere of influence (see also sec. 2.3.1.2). A ‘conurbation’ can be considered a synonym for ‘metropolitan area’ (Magnier and Russo, 2002, ch. 1), being multi-center agglomerations (Le Gléau et al., 1997). The distinction between poly-centric and mono-centric metropolitan regions is relevant as urban agglomerations organized around a single core city face different economic, governance and social challenges than polycentric ‘city regions’ formed by groups (networks) of cities (Herschel and Newman, 2002, ch. 5 and 6).

Barcelona and Milan can be both considered poly-centered metropolises or metropolitan areas. However, Barcelona metropolitan area presents a more pronounced poly-centrism than the Milan case. In Barcelona, the metropolitan area includes Sabadell and Terrassa as two influencing urban poles with more than 250.000 inhabitants, while the metropolitan area of Milan is characterized by smaller urban poles, where Monza (constituting a province in and of itself, the Monza and della Brianza province) is the only city with more than 100.000 inhabitants. However, depending also on the considered geographical scale, such a definition

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<sup>30</sup>For further details, see Appendix sec. B.1.

<sup>31</sup>Together with Amsterdam, Porto, Marseilles (Bouches du Rhône), Rome, Valencia, Lisbon, Madrid and Seville included also in the table 5.3.



should not univocally identify the spatial structure of both cities: Barcelona and Milan also have some characteristics of monocentric city regions, where ‘one dominant metropolitan core may be reducing the region to effectively little more than its own hinterland’ (Herrschel and Newman, 2002, p. 66), Barcelona and Milan being powerful economic, political, and cultural centers in their regions, and concentrating a large amount of the regional population within their metropolitan area.

The fifth point is that both cities have experienced a similar historical process of urban expansion in the nineteenth century, ensuing from their almost simultaneous demolition of the old city walls (see sec. 5.3.4). Furthermore, both Milan and Barcelona are post-industrial cities, hence ex-industrial sites have been ‘released’ for the tertiary sector, transforming the social uses of space in the urban environment.

The sixth and final point is that both Barcelona and Milan were considered to be two good examples of the Southern European housing model examined by Allen et al. (2004). These authors point out the specificities of the housing market in the Southern European countries, defining it as a housing model on its own. In contrast to Northern and Central Europe,

[in] the southern countries, housing policies, in any strictly defined sense, have not been at the core of political debate. Housing investment has been viewed through the lens of its effect on building activity rather than as a social problem. (...) Overall, it would be fair to say that the important goal of public action in housing in southern Europe was not to develop an important social rented sector, but to give strong support through promoting the vertical social mobility of the population and supporting its geographical mobility. The possession of a dwelling was considered an important indicator of households’ general welfare and the strong emphasis on home ownership can be seen as a device to render households more independent from fluctuations in the economy and employment. (Allen et al., 2004, p.163)

In Southern European countries, home ownership was promoted as a public action strategy, the initiative however being left to individual families (Allen et al., 2004, p.63), to consolidate a type of welfare system. The implementation of such welfare system implied certain policy and planning practices for housing provision connected to land management and allocation, such as the offer of sprawled residential areas, which in Southern Europe took shape in a variety of ways, such as ‘small self-promoted single-family houses in low-density, non-urban areas or at the periphery of the urban area; secondary home developments on state-owned land along the coastlines; and large housing developments at the periphery of the urban areas’ (Allen et al., 2004, p. 176). In other words, social stability was fostered through the construction of suburban housing. From a historical perspective, it is pointed out how (Allen et al., 2004), in Southern Europe, the housing supply (as other building activities), was ‘trapped’ during the post World War II decades in a virtuous circle between (internal) immigration and industrial boom, and was used to sustain the increasing economic weight of the construction sector.

As De Decker’s model clearly displays (see fig. 3.2 on page 72) in Chapter 3, and as section 4.8 in Chapter 4 specifies with the theoretical model employed in this dissertation (see fig. 4.4 on page 115), the connection between the private for profit and the public sectors is key to the link between land management and housing provision, in particular for suburban housing provision. The selection of Barcelona and Milan was thus relevant in understanding (some of) the functioning of such Southern European housing model (Allen et al., 2004, cf.), and of the related process of housing supply occurring in Mediterranean Europe (see sec. 2.2 and sec. 3.2).

Finally, the selection of Barcelona and Milan was also due, as it usually happens in many

comparative analyses, to the knowledge of the researcher about the selected case studies (Couch et al., 2007b; Kantor and Savitch, 2002; for a critical point of view of such strategies, see Ragin, 1987, 2008). This dissertation is no exception, as Barcelona and Milan have been finally selected from the pool of 32 NUTS3 units of potential analysis also because I had previous knowledge on the two cities (especially Barcelona). This does not flaw the conducted research; as explained in this section (for further details, see Appendix sec. B), the Corine Land Cover (CLC) dataset has been employed throughout for the selection of cases in combination with substantial personal field knowledge on the considered cases (see tab. 5.3)<sup>32</sup>. In other words, a qualitative case study research method implies and is facilitated by prior familiarity with the cases under inquiry.

### 5.3.4 Urban development in Barcelona and Milan

Once Barcelona and Milan were identified as the two emblematic case studies to compare by descriptively using the Corine Land Cover (CLC) dataset<sup>33</sup>, the main development patterns of both cities have been examined and are briefly summarized below.

#### Barcelona

Barcelona, located in Catalonia (Spain), is particularly renowned among planners and architects for Ildefons Cerdà's plan, approved in 1859, which defined the expansion of the city through a regular grid composed by innovative pattern units (the *xamflàns*), after the demolition of its medieval walls. Barcelona's urban development took place over the plain surrounding the city, connecting Barcelona to the other surrounding municipalities, some of which were finally appropriated by the city: Sants, Les Corts, Gràcia, Sant Gervasi, Sant Martí de Provençals and Sant Andreu del Palomar were annexed in 1896, while Horta in 1904 and Sarrià in 1921.

After the demolition of its walls, Barcelona adopted Ildefons Cerdà's grid plan, prioritizing functionality and density. Cerdà's farsightedness has created, during the 150 years that have been taken to complete his plan to the present day, a modern structure to the city (the regular chamfered grid system, the *Eixample* in Catalan or *Ensanche* in Spanish), known to be highly functional for mobility (especially in terms of road and street width and structure<sup>34</sup>) and allow for the coexistence of a complex diversity of uses (residential, industrial and commercial, transport uses, green areas)<sup>35</sup> (Busquets and Corominas, 2010). Because of this, Barcelona is usually considered to be a model for city compactness. Furthermore, sections of the central city district (*Ciutat Vella*) were demolished to connect the new 'outer' development of Barcelona *Eixample* with the port by constructing the well-known *Ramblas* (Martínez Hoyos, 2012, p. 129), ideally continuing north of the city along the *Passeig de Gràcia* ax.

The tearing down of the medieval walls of the historical center of Barcelona in 1854 corresponded to the onset of the industrial stage and the urbanization phase that brought Bar-

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<sup>32</sup>In contrast, in other published (qualitative and quantitative) comparative studies, the selection process of case studies for comparison is generally less clear and not fully discussed (if mentioned at all). In this dissertation, an effort has been made to chose two emblematic case studies for comparison by designing and following a certain selection process aimed at highlighting kinds of case studies, as previously mentioned in this section.

<sup>33</sup>For further details, see Annex B.

<sup>34</sup>The main mobility axes included in Cerdà's plan were the *Passeig de Gràcia*, connecting the old city with the ex-autonomous municipality of Gràcia, the Diagonal Avenue, the Gran Via de les Corts Catalanes Avenue, and the Meridiana Avenue.

<sup>35</sup>However, industrial activities have been delocalized outside the city since 1992; see Capel (2005).

celona from a pre-industrial city to a metropolis (Corporación Metropolitana de Barcelona, 1983). Internal migration was massively stimulated by incipient industrialization, by the two international exhibitions in 1898 and 1929, and by the opportunity to find work in the manufacturing sector.

Since the 1850s, with the exception of the Spanish Civil War (1936–1939), Barcelona experienced a great demographic increase, mostly due to internal migration from rural areas in Catalonia. The Civil War (1936–1939) slowed down the demographic growth, which reinvigorated from the 1950s during the dictatorship. Since the end of the 1940s and especially since the 1950s, Barcelona was overwhelmed by massive flows of South–North internal migration coming from other Spanish regions; migrants were attracted by the industrial development taking place in the city (see also sec. 7.1 on demographic change)<sup>36</sup>

Between 1916 and 1946, the demographic weight of Barcelona and its adjacent municipalities, such as l’Hospitalet de Llobregat, Santa Coloma de Gramenet, Montcada i Reixac, Esplugues de Llobregat and Sant Adrià de Besòs, grew considerably forming a seamless urban fabric; while it is between 1946 and 1976 that other consolidated urban centers, such as Sabadell, Terrassa, Matarò or Granollers, consistently grew in demographic terms (and, in absolute terms, more than Barcelona itself), which will later form the metropolitan area of influence of Barcelona (i.e. *cinturó de ciutats perifèriques*, Carrera Alpuente, 2002; cf. also Rueda Palenzuela, 2002).

Demographic growth experienced a halt in the 1970s, and only since the second half of the 1990s did birth rates rapidly grow again for Barcelona, mainly due to the new wave of immigration, especially from Latin America. Indeed, it is between 1976 and 1996 that a demographic dispersion over the regional territory can be recognized, concerning especially small size municipalities (Carrera Alpuente, 2002; see also sec. 7.1 where some demographic data are analyzed).

The transport infrastructures supporting the urban expansion of Barcelona historically followed the Llobregat and Besòs river, however the *Rondes* (bypasses) around the city center built for the 1992 Olympic Games (although construction plans pre-dated the event) are the only transport axes that break the radial structure of mobility infrastructures in the Barcelona area. Such radial arrangement of transport axes influenced also the location of industries and service plants (Serra, 2003, p. 25). While railways lines remained substantially the same since 1950s, roads infrastructures have multiplied, and facilitated the territorial dispersion patterns of industries, service and housing areas over the metropolitan arches around Barcelona (Carreras Quilis, 2002).

## Milan

Milan is the capital of the Lombardy region, located in Northern Italy. From 1859s, Milan began to experience an intense demographic growth. In the recently constituted Italian nation state (1861), Milan was expected to play a prominent role, therefore urban renewal processes started (such as the one in *Piazza del Duomo*) and the implementation of urban plans was needed to modulate urban expansion. In 1889, the expansion plan proposed by Cesare Beruto was approved. It organized Milan’s enlargement by extending the historical main roads that

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<sup>36</sup>Such massive migration flow dramatically changed the morphology of the city. Slum areas appeared in the city, a phenomenon called *barraquisme* (from *barraques*, shanty houses), such as in the case of the Somorrostro neighborhood, a slum area emerged on the beach where currently the ‘Port Olímpic’ is located. Moreover, and also in the attempt to solve such high housing demand, a consistent housing offer constituted by high, standardized block houses was placed in the surrounding municipalities of Barcelona, namely in L’Hospitalet, Cornellà, Badalona and Sant Adrià de Besòs (Martínez Hoyos, 2012, p. 206).

radially departed from Milan city center, and that were marked off by gates named after the cities they were headed to (e.g. *Porta Venezia*, *Porta Genova*). Simultaneously, the Spanish walls (called *Bastioni*) were demolished and the canals traversing the city (*Navigli*) covered. Beruto planned Milan expansion along the radial roads from the city center, which would have crossed with concentric rings around the city to improve the mobility network.

The surrounding municipalities located around the Spanish walls of the city, called *Corpi Santi*, were annexed in 1873 (Gratosoglio, Barona, Lorenteggio, San Siro, Bovisa, Monluè) and in 1923 (Affori, Niguarda, Greco, Crescenzago, Lambrate, Rogoredo, Chiaravalle, Baggio). The incorporation of the *Corpi Santi* put the foundations of the structure of the future expansion of Milan outside its administrative boundaries.

Historically and geographically, drylands characterize the north of Milan, where the cities of Monza, Bergamo, Como, Lecco and Varese are located, while wetlands are found in the southern part of Milan, where Pavia, Cremona and Lodi provinces are placed, the *fascia dei fontanili* separating the two areas (Centro Studi PIM, 2011, p. 130). Such difference not only determined the development of a diversity of cultivations (e.g. rice in South of Milan, and winery and the breeding of silkworms to the North of Milan), but also a different social organization of labour linked to agriculture (e.g. tenants contracts in South of Milan vs. property of land in North of Milan; *ib.*).

In 1934, the Albertini plan was approved with the aim to reform and re-organize the mobility infrastructures of the city. This plan defined that Milan city center would have functioned as an administrative, political and commercial center, where mostly upper-class inhabitants resided, while it directed the future demographic expansion towards the peripheral areas of the city, which would be connected with the center and to each other through the enhanced mobility system that the plan envisaged.

Since the beginning of the twentieth century, the territorial assets of the entire Lombardy region started to change, but it has been since the 1950s that ‘epochal transformations’ occurred (Lanzani, 2012, p.77). Mountainous areas and forests were abandoned, while countryside zones were deeply transformed by an incessant, wild fire diffusion of industries, transportation areas and housing. Urbanization was mainly caused by a massive internal South–North migration, with migrants attracted by the industrial development boom, dramatically increasing the population of Milan and its adjacent municipalities. This urbanization (or better, *suburbanization*, see Centro Studi PIM, 2009, p. 51; Keil, 2013b) process first involved Milan and its surrounding municipalities, and later extended to the rest of the Lombardy region (see also sec. 7.1 on demographic change and sec. 7.4.2.2). It has been estimated that, between 1955 and 1970, 17 millions Italians migrated from the South of the country to the North, predominantly to the Milan–Turin–Genoa ‘industrial triangle’ (De Lucia, 2006, p. 73).

Since the 1970s, the city has experienced a demographic decrease, while the first and especially the second metropolitan arch increased in population, extending further the metropolitan boundaries of Milan and the influence it exerts on the surrounding territory. Simultaneously, land consumption for further (sub)urbanization continued during the 1970s in the municipalities located around the eastern and southern part of Milan along the main transport axes, consolidating the Milan urban agglomeration, which became much more interconnected in the following decades (Centro Studi PIM, 2009, p. 51).

Nowadays, Milan is an important tertiary sector metropolitan pole, from which industries have relocated, and their former location remediated to make room for service and commercial areas.

## 5.4 The problem of urban scale definition

As mentioned in sec. 2.3.1, despite contextual differences, some general, common characteristics can be singled out in an effort to define the specificity of the ‘European city’, such as urban compaction, density and the importance of the city center (Kaelbe and David, 2000). However,

[t]hroughout Europe’s history – in ancient Greece, in ancient Rome, and in the Middle Ages – a city represented as much a political entity as a collection of buildings. And this collection of buildings was usually surrounded by fortified walls. As the city grew, the walls were expanded. In the modern era, the significance of the city walls as part of the defense system declined and most of them were demolished. The boundary of the city as a political entity and the boundary of the built-up area were no longer linked and the location of these boundaries is no longer clearly evident on the ground. Nowadays, a city could be designated as an urban settlement or as a legal, administrative entity. (Eurostat, 2009a)

In addition, international comparison, even within Europe, hampers the finding of a more precise definition, as methodological operationalization is difficult when common thresholds and standards are searched for.

The difficult definition and operationalization of the European city, or of types of European cities, imply the accepted need to overcome administrative boundaries, as ‘the city’ or ‘the urban’ extend well beyond these conventional limits, incorporating suburbs, *banlieues*, peripheral urban poles and less structured built forms. This is connected with the problematic task, when studying urban sprawl, of identifying the most appropriated area of study and to cover city–periphery interactions, together with the challenge to find available data (Chin, 2002). For instance, Magnier and Russo (2002, ch. 1) propose to employ the terms ‘urban agglomerations’ or ‘urban systems’ instead of urban areas or cities, as the former are more general terms to refer to those complex territorial entities composed by (different) urban centers and their peripheries<sup>37</sup>; or as in the case of the phenomenon of *città diffusa* (Indovina, 1990; Indovina, 2012, ch. 1), which is differentiated from metropolitan areas because, among other factors, the lack of a clear ‘center’ or of a territorial hierarchy among towns and cities of different sizes.

Hence, the analysis of a spatial phenomenon, such as urban sprawl, can not elude a methodological discussion on how boundaries have been set, and if and how they can be considered to demarcate two comparable phenomena. The present methodological section attempts to elaborate on the concept of spatial scale, in particular in the European context, by examining some of the main different definitions of the spatial extent of European cities, and how they have been methodologically treated in this dissertation<sup>38</sup>.

The most consolidated procedures for ‘city identification’ refer to demographic size or density, showing however the difficulties in finding shared thresholds to be able to define under a common continuum, for example, Swedish towns or Italian villages:

Each country has its own definition of a ‘town’ based on geographical, historical and administrative considerations. The statistical approach to the urban phenomenon is necessarily based on *representations of what constitutes a town* – regardless of whether

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<sup>37</sup>For a review on the meanings of the terms such as conurbation, metropolis, metropolitan region and area, or city–region see Hall and Hay (1980), Esteban Noguera (1991, p. 18–21) or Magnier and Russo (2002, ch. 1).

<sup>38</sup>Such a topic has been also dealt with in the following section 5.5 and in table 5.5, and the different types of scales employed in this dissertation have already been introduced in section 5.2 and in table 5.1.

this notion is defined using popular, legal or academic knowledge – and on *measurements of the urban object* thus defined. However, towns are too vast and diverse an object for a single definition or notion to be adequate. (Le Gléau et al., 1997, p.2) [original emphasis]

Another method for identifying (Italian) metropolitan areas has been proposed by Boffi et al. (2012) by considering functional areas and by innovatively employing census sections.

However, in a recent article, Brenner and Schmid (2014) already draw attention to the controversial definition of demographic thresholds for the demarcation of boundaries between urban and rural areas. They argue that demographic thresholds are nevertheless conventional, theoretically unsupported and highly problematic in comparative analysis<sup>39</sup>.

Neil Smith illustrated the problematic issue of scale definition (see sec. 4.5) by comparing the ‘classic European walled city of the medieval period with the contemporary conurbation of Los Angeles or Sao Paulo’ (Smith, 1995, p.60). In discussing how scales are defined (see also sec. 4.5), he further argues that:

the geographical scales of human activity are not neutral ‘givens’, not fixed universals of social experience, nor are they an arbitrary methodological or conceptual choice (...). Rather, scale should be seen as materially real frames of social action. As such, geographical scales are historically mutable and are the products of social activity, broadly speaking. (Smith, 1995, p.60)

Scales depend upon and imply the definition of boundaries, which is an absolutely crucial methodological task as different spatial definitions may lead to a diversity of outcomes, and hence interpretations. For instance, Thomas et al. (2012) and Tannier and Thomas (2013) examine the methodological problems related to the definition of the spatial boundaries of Bruxelles metropolitan area, and stress that *the way* in which a phenomenon has been spatially demarcated is often arbitrary or not sufficiently justified by researchers, since for:

‘[d]efining the spatial extent of urban agglomerations, urban metropolitan areas or that of local labour markets (...) [f]unctional as well as morphological criteria are commonly used separately or simultaneously (...) methods and criteria often vary from one case study to another, and so do also thresholds and parameters values, rendering comparisons in time and/or space quite hazardous (Thomas et al., 2012, paragraph 1)

While proposing a methodologically rigorous method, the analyses made by Thomas et al. (2012) and Tannier and Thomas (2013) stress the arduousness connected with the univocal delimitation of a metropolitan area<sup>40</sup>, as ‘[t]he rural– urban border is fuzzy, far from being

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<sup>39</sup>The authors clearly state that ‘[a]cross national contexts, including in the UN’s data sets, there is no standardized definition of the urban unit on the basis of which population size, density or other proposed indicators of urbanization levels are to be measured’ (Brenner and Schmid, 2014, p. 740).

<sup>40</sup>The method proposed by Thomas et al. (2012) and Tannier and Thomas (2013) is called *Méthode de Louvain* and is based on fractals. The method is absolutely meticulous and promising, however it aims to define urban agglomerations, and not to model urban sprawl. Indeed, such method is based on land registry data that, although available at a very fine– grained level of detail (the size of the smallest built polygons being 4 square meters, see Tannier and Thomas, 2013, p. 235), considers only buildings, other urban elements, such as streets, green areas, undeveloped sites, parking lots being omitted from the calculations. Such exclusion may be problematic for definitions of urban sprawl such as the one employed in the present dissertation, which includes a 30%– 80% range of intensity of land use in the discontinuous residential urban fabric following the European Corine Land Cover (CLC) nomenclature (see sec. 5.3.1), thus accounting not only for buildings, but also adjacent urban areas to buildings, in particular to houses, such as gardens (cf. Gulinck et al., 2011). Furthermore, Thomas et al. (2012) and Tannier and Thomas (2013) consider all types of buildings in their analysis, without differentiating *types* of buildings, i.e. houses, shopping malls or industries. In contrast, accounting for different types of buildings could allow the *Méthode de Louvain* to the identification of different agglomeration (or sprawling) patterns between, for instance, houses or industries.

clear-cut' (Thomas et al., 2012, paragraph 17).

Radical spatial theorists problematize the spatial visualization of phenomena, as maps can be a hazardous vehicle for distortion and misrepresentation. The 'underlying conceptual assumptions and cartographic frameworks around which [maps] are organized' should be interrogated instead, superseding 'inherited urban epistemologies (...) to a new conceptualization of urbanization processes both within and beyond those settlement spaces that are demarcated as 'cities' ' (Brenner and Schmid, 2014, p. 749).

The acknowledged European literature stresses how it is (i) the tendency to grow concentrically and (ii) the emergence of dispersed outlying extensions (*extensions périphériques plus lâches*, see Le Gléau et al., 1996, p.12) that specifically define the European towns model, given the general, common features among European urban areas mentioned above in this section. Boundaries can thus be defined independently (or at least not solely) from demographic data, which are generally related to administrative borders.

Le Gléau et al. (1997)<sup>41</sup> report on two main strategies employed to define European cities or, better, urban areas (or systems): one relies on the identification of a functional area of influence exerted by the city center over the surrounding municipalities; the other tries to trace out the urban areas' boundaries by considering the morphological continuity of the built form.

These two strategies clearly refer to the approaches later adopted in the Eurostat classification, leading to the definition of Larger Urban Zones (LUZ), identified as functional areas of influence (see Appendix sec. C.0.1), and of Urban Morphological Zones (UMZ), defined through the 200 meters threshold of built-up area continuity (see Appendix sec. C.0.2).

Larger Urban Zones (LUZ) are estimates of the *Functional Urban Regions* (FURs) introduced by Hall and Hay (1980), as the European Union adopted *Functional Urban Regions* (FURs) to identify regional agglomerations at the European level (Eurostat, 2007). Urban regions are defined by considering the employment density of adjacent administrative territories, and by taking into consideration commuting flows (see (Boffi et al., 2012)). However, as mentioned in Appendix section C.0.1, their identification is methodologically unclear, despite the reputation of the source (i.e. Eurostat).

The main drawback of Urban Morphological Zones (UMZ) is that insufficient justification is given regarding the '200 meters' threshold as a valid methodological tool to discriminate the morphological 'inside' and 'outside' of urban built forms. Other thresholds may have been possible, hence possibly yielding to different results (cf. Tannier and Thomas, 2013).

In this dissertation, together with NUTS3 areas (see sec. 5.3.3), Larger Urban Zones (LUZ) and Urban Morphological Zones (UMZ) scales are nevertheless considered as re-elaborations of a certain territorial (metropolitan) scale of Barcelona and Milan. Spatial dispersion is also accounted for at such scales (see sec. 6.1 and sec. 6.2). Furthermore, patterns of territorial dispersion and governance scales are considered at the administrative level for Barcelona and Milan, as well as at their metropolitan scales: the Barcelona metropolitan area (AMB) and region (RMB), and Milan 'metropolitan' area (see sec. 6.1). In addition, some of the considered private actors' 'scales of action' have been integrated in the analysis, in order to show the formal extent of such networks at the territorial level (see sec. 6.1) and the overlap with administrative (and governance) levels. Finally, the regional and national scales (*comarques* existing just in the Barcelona case) have only been considered in terms of governance, in particular when land use plans and regulations have been surveyed for both

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<sup>41</sup>See also Tannier and Thomas (2013).

case studies (see sec. 7.4.1.1 and sec. 7.4.2.1).

The following table 5.4 shows the variety of scales considered in this research with regard to territorial dispersion, specifically to dispersed residential areas, and governance scales:

**Table 5.4:** The territorial scales of Barcelona and Milan considered in this dissertation. Author’s elaboration.

Patterns of territorial dispersion (see Chapter 6)	Governance scales (see Chapter 7)
Administrative scale <i>Comarques</i>	Administrative scale
Provincial scale (NUTS3)	Provincial scale (NUTS3)
Metropolitan scale (AMB, RMB, PIM)	Metropolitan scale (AMB, RMB, PIM)
Larger Urban Zones (LUZ)	
Urban Morphological Zones (UMZ)	
Stakeholders’ scales (Construction sector)	Stakeholders’ scales (Construction sector)
	Regional scale
	National scale
	International scale (urban sustainability)

Such variety of scales has the aim, as previously discussed in this section, to overcome the limitations of the use of one single scale when approaching the analysis of a spatial phenomenon, in this case urban sprawl. Specifically, different scales allow us to compare spatial dispersion patterns between the two considered case studies at different territorial levels, such as between Larger Urban Zones (LUZ) and NUTS3 (provinces). Additionally, and more importantly, accounting for different territorial scales ensues from the theoretical framework adopted in this dissertation (see sec. 4.8 and fig. 4.4 on page 115), where a territorial, multi-scalar perspective requires the examination of a diversity of governance scales (and administrative levels) in order to analyze the dynamics and conditions as causal mechanisms for the occurrence of urban sprawl (see also introduction to Chapter 5).

## 5.5 Summarizing possible links between multi-scalar governance features and residential sprawl practice

The following steps consist of an attempt to connect the theoretical discussions on urban sprawl (see Chapter 2 and 3), the theoretical framework adopted (see sec. 4.8) and the presented hypotheses (see sec. 5.2) with the phenomenon of urban sprawl in Europe (see Chapter 2 and sec. 5.3.1), that is the patterns of spatial dispersion in the expansion of residential areas.

The links between theory, research questions and hypotheses have already been dealt with in section 5.2, and have been diagrammatically presented in table 5.1. In this section, more details on the employed methods and indicators are introduced. As political and planning factors, conceived within a combined theoretical framework on governance (see sec. 4.8), are considered as the main driving forces leading to urban sprawl, clear dimensions (or ‘conditions’, see tab. 5.5) had to be identified and operationalized in order to establish links with the occurrence of urban sprawl. The current section deals with how this interconnection has been carried out (for findings, see Chapter 6 and 7).

An emphasis on comparability has guided the selection of the employed dimensions. The degree of rigour in the analytical framework will preferably facilitate the replicability of the analysis in a variety of other settings, by applying the combined theoretical framework based on the territorial, multi-scalar governance and the bargaining context models (see sec. 4.8).



The dimensions listed in table 5.5 are deemed to allow for the comparative analysis of policy decisions on land use change in Barcelona and Milan, and could serve as a useful reference for other studies that analyze patterns of spatial dispersion, such as residential urban sprawl, as an outcome of governance processes.

First, the ‘multi– scalar improvement’ of the bargaining context model was readily introduced. By selecting a diversity of scales, the bargaining context model (see sec. 4.7.4) has been improved by the problematization of the concept ‘city’. How a city is conceived, and which boundaries define it, are key issues for truly spatial and social sciences. A clear ‘city’ (boundary) conceptualization and delimitation are crucial questions for comparative analysis. Not only is it necessary to account for the variety of scales that a ‘city’ can represent, but it is also essential to employ variables and geographical spans with comparable definitions in order to facilitate cross–national and ‘cross–urban’ comparison (see sec. 5.4). Hence, besides local administrative boundaries and provinces (NUTS3 level), Larger urban Zones (LUZ) and Urban Morphological Zones (UMZ), so defined by the Eurostat and the Environmental Agency, are examined as territorial scales (see sec. 5.4, and also Appendix sec. C.0.1 and sec. C.0.2). Furthermore, the local delimitations of Barcelona by the Barcelona Metropolitan Area institution (AMB), and the Milan Metropolitan organization (PIM) (see Appendix sec. B.2) could also account for the changing and different metropolitan scale definitions for Barcelona and Milan.

Scales are also examined in a qualitative way, as the performed interviews (see sec. 5.6) had the aim to understand how land use planning competences were distributed among institutions (‘in–between’ bargaining dynamics), and also how decisions over land use were performed by a variety of institutional governmental and non–governmental actors (‘within’ bargaining dynamics).

Second, ensuing from scale delimitations identified in the previous step, urban sprawl is measured and mapped, and hence reasonably well compared between the two considered ‘cities’. Similarly, transport areas are also accounted for. The measurement of urban sprawl and transport areas is presented at different scales, whose boundaries have been intersected with Corine Land Cover (CLC) data for period 1990–2006 (see sec. 6.1 and Appendix A)<sup>42</sup>. Furthermore, local databases made available by the Barcelona Metropolitan Area institution (AMB), the DUSAF project (ERSAF Ente Regionale per i Servizi all’A-gricoltura e alle Foreste, 2013) and the Milan Metropolitan organization (PIM) (see Appendix sec. B.2), for the period 1956–2006, in the Barcelona case, and the 1956–2009, in the Milan case, could account for the variation of urban sprawl and transport areas in Barcelona and Milan, respectively.

Third, demographic data have the aim to examine deconcentration processes (Kantor and Savitch, 2002, p. 8-13; see also sec. 4.7.4), and also to account for the possible connection between territorial variations in populations and the occurrence of urban sprawl (see sec. 3.1.3). As mentioned in section 5.2 with reference to hypothesis H1, and discussed in section 3.1.3, urban sprawl is an outcome of land management strategies for attracting investment in terms of housing provision. Demographic data are provided as an attempt to account for this mechanism.

Fourth, administrative fragmentation has been considered particularly relevant with regard to hypothesis 2 (H2), where fragmented, small size municipalities compete among each other for investment and thus multiply planning decisions, producing an incoherent territory (see sec.

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<sup>42</sup>Through ArcGis<sup>®</sup>, the shapefiles of scales have been intersected with Corine Land Cover (CLC) geographical data. The 11 Corine Land Cover (CLC) artificial land uses were attributed to each of the considered scales.

5.2). Administrative fragmentation is also useful because it can be an index of intermunicipal competition, as one of the most important political factors assumed to have an influence in the occurrence of urban sprawl (see sec. 3.1.7).

Fifth, the two selected cities have been positioned in the bargaining context model framework proposed by Kantor and Savitch (2002). The relative position of Barcelona and Milan has been clarified in terms of the relationship with the four variables identified by the authors, namely market conditions, intergovernmental support, popular control system and local culture, that can explain urban political choices and the tendency to encounter urban sprawl in such cases (see hypothesis H4 in sec. 5.2). Data on employment are also presented to complement the obtained picture regarding the two cities, following Kantor and Savitch' framework (2002, ch. 1).

Sixth, the analysis of plans and land use regulation laws, at a national, regional, metropolitan, provincial and administrative level, helped define the normative setting where governance dynamics over land use are played among actors. Public institutions have always played a role in structuring urban form, for example through planning regulations, master plans, incentives, subsidies and tax deductions on housing, and investments in transport facilities and demand (especially private cars). In land management and allocation, the role of governmental institutions is crucial since public authorities are the ones entitled to arrange and modify regulations and urban and master plans in cities and territories (Christiansen and Loftsgarden, 2011; cf. Gale and Moore, 1975, introduction to part 1).

Regulation on land uses and environmental protection are two domains where the state exerts its regulative power. However, the decentralization and devolution trends that have taken place since the 1970s reframed this role and a devolution of competences over land use regulation and planning to regional, provincial and local governments (see sec. 4.1 and sec. 4.3). Hence, a selective account of the national, regional and local regulatory system regarding land use planning and land policies is carried out in the attempt to analyze 'in-between' and 'within' scale bargaining dynamics among public institutions, and how this can open up room (or not) for the interplay with private actors in the provision of suburban housing areas.

The focus on a selection of plans and planning regulations is needed because supply and demand factors are mediated by government policies on planning and especially by planning laws. For instance, the existence of binding plans at the metropolitan scale suggests certain dynamics among different territorial scales: plans issued at the supramunicipal scale imply the presence of a metropolitan body that can enforce plans against other governance scales, hinting to a regulatory framework where competences in spatial planning are decentralized and re-distributed among a variety of scales, such as the local, metropolitan and the regional bodies.

As already mentioned in section 5.2, in this dissertation, planning is mostly accounted for through the examination of plans and land use regulation laws, despite the fact that planning does not end solely with plans and norms. For instance, Hillier (2002) argues that planning is a communicative process, where structures of power have to be accounted for; planning outcomes stem from the connections between political decisions and planning practices, which are by no means a linear process. She continues by arguing that:

Local planning and policy decision-making processes involve the complex interplay of a range of actors (planning officers, elected members, members of local communities, technical and other experts and professionals, etc.). Each actor brings their own (or their group's) representations of issues, places and nature to the process. The question of which representation/s will prevail is the result of the negotiations and conflicts of formal public participation processes, informal lobbying manoeuvres and so on. No representations are

neutral. No decision is neutral. (Hillier, 2002, p. 88–89)

Real estate developers, land speculators or private urbanism advisors, are some of the actors pertaining to the composite private sector agency that deeply influence political decisions and planning outcomes (see fig. 4.4 on page 115). The interviews carried out for this research had the aim to make land bargaining between private and public actors crop up, shedding light on urban political choices over land by considering the multi– scalar institutional structure where decisions on land allocation are made (see sec. 5.6).

Furthermore, in this dissertation the focus on land use and planning regulations is crucial to understand the conflicts and negotiations among actors in the re– scaling processes of territorial scales involved in land allocation. Land use laws and plans are tools that can be employed to modify and redistribute power and competences in land management among a diversity of territorial governance scales, thus revealing re–scaling processes (see sec. 4.5).

Ray E. Pahl already acknowledged that ‘planning is a political exercise in determining the allocation of who gets the ‘urban goodies’ ’ Pahl (1975a, p. 2). His work has been a lucid critique of the assumption that planning could be used as an efficient instrument to adjust the ‘machine’ of resources and facilities redistribution (i.e. interventionism) to get more social equality. Although his analyses carried out fifty years ago still bear valuable insight for present– day post– Fordist societies, in this dissertation his insights on planning are more used as a ‘litmus test’ to examine shift in authority and scope of actors within and between governance scales.

Last but not least, the emphasis on plans and planning regulations is connected with the theoretical definition of urban sprawl as a process of land use transformation, and also with its methodological operationalization in terms of land uses.

Table 5.5 summarizes the key dimensions used to operationalize the link between urban sprawl and multi– scalar governance, where data sources are also detailed. The ‘bargaining context model’, the ‘scale definition’ and the ‘planning regulations’ are qualitative dimensions, the rest being quantitative. As mentioned at the beginning of this Chapter, both quantitative and qualitative data have been employed in order to ‘bridge the gap’ between urban sprawl as a measurable phenomenon and as an outcome of governance political processes. Qualitative and quantitative information have been combined to analyze governance processes leading towards urban sprawl.

I am aware of the fact that other research approaches may have been possible; however, I hope to have shown the theoretical validity of the proposed model on suburbanism (see fig. 4.4 in sec. 4.8), combining territorial, multi–scalar governance and the bargaining context model (see sec. 4.8), to analyze urban sprawl as an outcome of governance processes (see sec. 3.2), and its operationalization into ‘dimensions’ that can explain a measurable phenomenon such as urban sprawl, as theoretically (see sec. 2.5) and methodologically (see sec. 5.3.1) defined in this dissertation.

**Table 5.5:** Key dimensions used to operationalize the link between urban sprawl and multi-scalar governance. Author's elaboration.

ID	Dimension	Aim	Unit	Source and timespan
1	Scale definition	Comparison among different scales	NUTS3 levels (Provinces); Larges Urban Zones (LUZ); Urban Morphological Zones (UMZ); Comarcas; Provinces	EEA 1994a,b for 1990–2006 (Corine Land Cover data); Eurostat 2014 for years 2000, 2006 and 2009; <i>Àmbit metropolità de Barcelona</i> (AMB) data for 1956–2006; <i>Destinazione d'Uso Agricoli e Forestali</i> (DUSAF) data for 1954–2009; Interviews
2	Urban sprawl	Measure and map the variation in territorial dispersion in Barcelona and Milan	NUTS3 levels (Provinces); Larges Urban Zones (LUZ); Urban Morphological Zones (UMZ); Comarcas; Provinces	EEA 1994a,b for 1990–2006 (Corine Land Cover data, discontinuous urban fabric, class 1.1.2; Eurostat 2014 for years 2000, 2006 and 2009; <i>Àmbit metropolità de Barcelona</i> (AMB) data for 1956–2006; <i>Destinazione d'Uso Agricoli e Forestali</i> (DUSAF) data for 1954–2009
3	Transport	Measure and map the variation in transport areas in Barcelona and Milan	NUTS3 levels (Provinces); Larges Urban Zones (LUZ); Urban Morphological Zones (UMZ); Comarcas; Provinces	EEA 1994a,b for 1990–2006 (Corine Land Cover data, discontinuous urban fabric, class 1.1.2; Eurostat 2014 for years 2000, 2006 and 2009; <i>Àmbit metropolità de Barcelona</i> (AMB) data for 1956–2006; <i>Destinazione d'Uso Agricoli e Forestali</i> (DUSAF) data for 1954–2009
4	Demography	Check demographic variation	Barcelona and Milan municipalities; Comarcas; Provinces; Metropolitan areas	Catalan Statistical Institute (IDESCAT); Italian Statistical Institute (ISTAT) 1981–2011
5	Administrative fragmentation	Examine the number of municipalities	Local Administrative Units (LAUs)	Catalan Statistical Institute (IDESCAT); Italian Statistical Institute (ISTAT); Eurostat 2010b; Interviews
6	Bargaining context model	Position Barcelona and Milan in the bargaining context model framework	'Cities'	Kantor and Savitch 2002
7	Employment	Examine employment variation	Barcelona and Milan municipalities; Regions	Employment main sectors, Catalan Statistical Institute (IDESCAT); Italian Statistical Institute (ISTAT) 1991–2011
8	Planning regulations	Examine the normative structure of land use planning	Plans and laws	Provincial, metropolitan, regional plans and laws; National land use laws; Interviews

## 5.6 Interviews as a qualitative research method

Interviews have been carried out as a qualitative method in order to analyze how and why urban sprawl has occurred in the two selected case studies, and if and how it could be considered as an outcome of governance processes. Interviews were aimed at corroborating hypotheses H2, H3 and H4 (see sec. 5.2 and tab. 5.1), which specifically deal with how decisions are made, at different levels ('in-between' and 'within' scale bargaining dynamics) and through the interactions of a variety of actors (bargaining context model), on land use allocation, in particular for the provision of dispersed residential areas<sup>43</sup>.

Interviews at different administrative levels had the aim of making inter- and intra- governmental dynamics crop up, with regard to private actors, for the allocation of land. Not only governance scales over land allocation have to be bargained between institutional hierarchical scales - national, regional, provincial, metropolitan and municipal - ('in-between bargaining dynamics'), but also the competences over land use change have to be defined intra- scales ('within bargaining dynamics').

As the scope of the analysis was to understand the 'within' and 'in-between' bargaining dynamics over land management at different governance scales (see sec. 4.8), interviews have been carried out with those actors that were considered related to land use policies at the urban, provincial, metropolitan and regional level (for further details on the interviewees, see Appendix D).

The interviews have been carried out with planners, politicians, key informants and stakeholders in order to identify the actors, the settings, the rationale and interlinkages of policy decisions related to land use change for housing purposes. It is interesting to note that the interviews (with the exception of one) took place in the city center of both cities, revealing how decisions over the expansion of built-up areas, affecting the urban but also the territorial level, are taken *in* the city.

The goal of the interviews was to understand which, and how, public and private actors pursued their own strategies for the provision of (dispersed) residential areas, which different roles different governance scales performed ('in-between' scale bargaining dynamics) in relationship to their different entitlements on land use competences ('within' scale bargaining dynamics), and which role and relationships institutions and stakeholders had at the different administrative levels in land management. In particular, interviews tried to shed light on how Barcelona and Milan as *metropolitan centers* (see Appendix sec. B.1) handle land use and housing provision policies in the face of the surrounding municipalities.

In total, 30 in-depth interviews were performed and fully transcribed<sup>44</sup>. The interviews lasted on average for 1 hour, and interviewees were selected through a snowball technique. The information retrieved through the interviews has also been complemented with informal conversations with key informants, on a personal basis or during public debates on planning regulations, urban land consumption and urban sprawl, and document analysis

The employed interviewing method has been an adaptation of La Mendola's dialogical interviewing method (La Mendola, 2009), which consists of asking the interviewee to make examples, tell anecdotes, contextualize planning practices, decisions and procedures 'in this situation' or 'in that particular context' (see also Appendix sec. D). Such perspective is coherent with the critical realist approach for intensive research designs, which emphasizes the usefulness of a 'less formal, less standardized and more interactive kind of interview' (Sayer,

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<sup>43</sup>More information on how interviews have been carried out can be found in Appendix sec. D.

<sup>44</sup>The complete list of the interviewees can be examined in Appendix D.

1992, p. 244) to dig into the study of processes to find causal mechanisms, acknowledging ‘the need to develop research procedures which do not inhibit learning-by-doing’ (Sayer, 1992, p. 244).

By drawing from other studies (Campbell, 1996; Mazza and Rydin, 1997; Molotch, 1993; Still, 1996), planners have been considered as the preferable brokers for the retrieval of valuable information on the occurrence of (dispersed) residential areas. As practitioners, planners could effectively convey useful information with regard to the routine land use planning practices and procedures, being land use change being one of the very characteristic areas of planning as a discipline (Campbell, 1996). Indeed,

Planners have important roles to play in land-use decision-making because every decision negotiation is really two negotiations in one: a negotiation with colleagues and elected representatives about content – the issues at hand and a recommended path of action; and also a negotiation about relationships – the shadow negotiation. (Hillier, 2002, p. 193)

Not only do actors have to make concrete decisions according to land use competences, thus referring to a broader institutional structure (‘within’ bargaining dynamics), but they also have to negotiate their role and the scope of their power as legitimate actors in land management issues (‘in-between’ bargaining dynamics).

The interviews had the aim of shedding light on how decision-making processes over land allocation for (suburban) residential areas, in the two metropolitan case studies, took place at different governance scales. Such a goal is also connected with Kasanko et al. (2006, p.128)’s pledge to carry out more in-depth analyses on the implementation of urban policies towards land consumption or land containment *as social practices*.

## 5.7 Summary

In this dissertation, urban sprawl is operationally defined as a predominantly residential phenomenon of urban expansion, defined in terms of a 30%– 80% range of intensity of land use, as determined by the Corine Land Cover (CLC) dataset. This database has also been used to select the case studies from an initial pool of 1.245 NUTS3 areas (provinces, county or *arrondissements*) at the European level.

The occurrence of urban sprawl is explained by a territorial, multi-scalar governance perspective that allows us to conceive decision-making processes over land use allocation for residential purposes as a system of actors. This system of actors bargains land and competences on land allocation in terms of scale. This research attempts to reveal the processes of space production by identifying the actors, the ordinary planning practices and the bargaining mechanisms that cause land use change to build dispersed residential areas, following the theoretical model for suburban expansion as presented in section 4.8 in Chapter 4.

Hypotheses clearly reflect such theoretical framework. Within metropolitan urban systems, housing functions are ‘outsourced’ to surrounding municipalities, through a trajectory facilitated by road mobility infrastructures (hypothesis H2). The role of local governments is the most prominent scale in land use management (hypothesis H2), as municipal authorities compete within a metropolitan area through land bargaining (hypothesis H3). The metropolitan body is assumed to be determinant in the occurrence or containment of urban sprawl (hypothesis H4).

By referring to the adopted theoretical framework and stated hypotheses, some key dimensions have been identified. They bound and intertwine to explain the occurrence of urban sprawl as a governance outcome in the two considered cities, Barcelona and Milan. In particular, 'in-between' and 'within' scale bargaining dynamics over land use competences and management are considered to be essential for explaining the occurrence of urban sprawl.

Quantitative (land use data, demographic and employment figures, number of administrative units) and qualitative data (analysis of planning regulations and plans, interviews) try to 'bridge the gap' between urban sprawl as a measurable phenomenon, and as an outcome of governance processes.

By the systematic use of 'conditions' as they have been operationalized for the two selected case studies, Barcelona and Milan, this dissertation deeply explores and attempts to uncover the process of land management for the provision of dispersed residential urban areas, identifying which actors, political decisions, regulations and ordinary planning practices can influence, at different scales, the occurrence of urban sprawl.

## Chapter 6

# Territorial dispersion patterns in Barcelona and Milan

In this chapter, the issue of scale definition will be dealt with, and subsequently the measurement of urban sprawl and transport areas at different scales will be shown for both Barcelona and Milan. How ‘city’ is defined through boundary delimitations is key in this dissertation, not only to measure and map urban sprawl as a spatial phenomenon, but also as a means of combining the bargaining context model with a multi-scalar territorial governance perspective (see sec. 4.8). The bargaining context model will be problematized and enhanced because the possible scalar, territorial and place definitions of Barcelona and Milan as ‘cities’ will be critically presented and analyzed.

Special attention is given to the metropolitan scale, and different types of metropolitan scale boundaries are introduced. According to this research’s hypotheses (see sec. 5.2), the metropolitan scale has a key role in the emergence or the prevention of urban sprawl, as urban sprawl is a phenomenon that spans over administrative boundaries and thus requires a supra-municipal perspective. Furthermore, the metropolitan body being less naturalized and hence more contested as a governance scale (see sec. 4.5, and also Swyngedouw and Jessop, 2005, p. 23), struggles of actors acting at the metropolitan level for within and in-between scale bargaining appear more clearly (see Chapter 7).

As treated in the previous chapter (see sec. 5.5), urban sprawl being a spatial and quantifiable phenomenon, the quantification of land occupancy is a necessary step to describe dispersed residential patterns (Font Arellano et al., 2005, p. 8), however it is not sufficient to provide explanations on the occurrence of urban sprawl, assuming it to be an outcome of governance processes among a variety of actors (see Chapter 7).

### 6.1 Barcelona and Milan: cities, metropolitan areas or urban systems?

This section deals with the first ‘improvement’ of the Kantor and Savitch model. Instead of unproblematically considering Barcelona and Milan, these ‘cities’ are critically defined by employing a diversity of scales. As urban sprawl is a phenomenon extending beyond the administrative boundaries of a city, especially if it is a metropolitan center, the consideration of a variety of scales is essential in understanding and analyzing a territorial phenomenon. For instance, metropolitan Milan is composed of medium and small size municipalities, whose political agencies should also be accounted for in land management bargaining (see sec. 5.2). In addition, scale definition should be comparable.

As indicated in table 5.4 in section 5.4, a diversity of scales is taken into account. The following figures (6.1, 6.2, 6.3 and 6.4) show the different boundaries that can define Barcelona and Milan as governance scales: administrative boundaries, and Larger Urban Zones (LUZ)



and the Urban Morphological Zones (UMZ) are employed to provide possible representations of different territorial scales for the cities of Barcelona and Milan (see sec. 5.5 and Appendix C). The metropolitan boundaries are also represented: two for Barcelona and one for Milan<sup>1</sup> (see infra and sec. 7.4.1.2 and sec. 7.4.2.2). Further, province boundaries and the territorial scales of the interviewed stakeholders have also been outlined on the maps 6.1, 6.2, 6.3 and 6.4.

For Barcelona, figure 6.1 shows its administrative boundaries (in blue), the Larger Urban Zone (LUZ) boundaries (in pink), and the changes in urban built forms of the Urban Morphological Zone (UMZ) of Barcelona for years 2000 (in light blue) and 2006 (in red). This figure shows how, between 2000 and 2006, Eurostat acknowledged the importance of including Granollers (North of Barcelona) together with the airport enlargement South of Barcelona within the morphologically continuity of Barcelona built-up forms. The Barcelona Metropolitan Area (*Àrea Metropolitana de Barcelona*, AMB) is indicated in yellow and covers 633 squared kilometers comprising 36 municipalities (including Barcelona) surrounding the Catalan capital city<sup>2</sup>. The Barcelona Metropolitan Area (AMB, in yellow) corresponds also to the ‘first zone’ or *primera corona* of the more extended Barcelona Metropolitan Region (*Regió Metropolitana de Barcelona*, RMB, in green), which is equivalent to the ‘Àmbit Metropolità de Barcelona’ according to the 1995 Catalan territorial plan (see sec. 7.4.1.2 and sec. 7.4.1.3)<sup>3</sup>. The RMB is defined this way as it encompasses a ‘second zone’ or *segona corona* (in relationship to the centrality of Barcelona and the AMB), expanding for approximately 3.240 squared kilometers, and it is composed of 7 *comarques*: Alt Penedès, Baix Llobregat, Barcelonès, Garraf, Maresme, Vallès Oriental and Vallès Occidental (see also sec. 7.4.1.2), highlighted in gray.

Figure 6.2 shows the scalar complexity of Barcelona: administrative and metropolitan (AMB and RMB) boundaries overlap with Barcelona Larger Urban Zone (LUZ); in addition, the *comarques* are indicated (in grey). They are local territorial delimitations (see sec. 7.4.1.2), and the province of Barcelona as defined by Eurostat’s NUTS3 (in purple). Furthermore, the administrative boundaries of Barcelona province coincide with the scale, highlighted in green, of the considered stakeholders: in this dissertation, the Developers’ Association and the Constructors’ Association of Barcelona (APCE and Gremi, respectively) have been considered (see sec. 5.4 and Chapter 7).

These figures show how the first metropolitan zone of the AMB (in yellow) is included within the Barcelona Larger Urban Zone (LUZ) boundaries (in pink), while the RMB (in green) extends much further, covering an important amount of surface of the Barcelona province, encompassing 7 *comarques* so defined by the 2010 Metropolitan Territorial Plan of Barcelona (PTMB, see sec. 7.4.1.2).

For Milan, figure 6.3 shows the administrative boundaries of the city (in blue), the municipalities included in the Milan Metropolitan area (PIM) in 2013 (as the membership to this

<sup>1</sup>I thank Josep Batiste Serra, Annalisa Giocoli, Ernest Ruiz and Daniela Gomis Perez of the Barcelona Metropolitan Area institution (AMB), and Pietro Lembi and Francesca Cella of the Milan Metropolitan Research Center (PIM) for having provided the data.

<sup>2</sup>The 35 other municipalities included in the AMB data are: Badalona, Badia del Vallès, Barberà del Vallès, Begues, Castellbisbal, Castelldefels, Cerdanyola del Vallès, Cervellò, Corbera de Llobregat, Cornellà de Llobregat, El Papiol, el Prat de Llobregat, Esplugues de Llobregat, Gavà, La Palma de Cervellò, L’Hospitalet de Llobregat, Molins de Rei, Montcada i Reixac, Montgat, Palleja, Ripollet, Sant Adrià de Besòs, Sant Andreu de la Barca, Sant Boi de Llobregat, Sant Climent de Llobregat, Sant Cugat del Vallès, Sant Feliu de Llobregat, Sant Joan Despì, Sant Just Desvern, Sant Vicenc dels Horts, Santa Coloma de Cervellò, Santa Coloma de Gramenet, Tiana, Torrelles de Llobregat and Viladecans.

<sup>3</sup>For convenience, I decided to refer to the Àmbit Metropolità de Barcelona as the Barcelona Metropolitan Region (RMB), in order to be clearly distinguishable from the smaller Àrea Metropolitana de Barcelona, AMB

organization is changing; see sec. 7.4.2.2), the Larger Urban Zone (LUZ) identified by the Eurostat for Milan (in pink), and the Milan province (NUTS3) in purple. One can notice, despite some differences, how the Larger Urban Zone (LUZ) identified by Eurostat quite accurately captures the extension of Milan metropolitan area as defined by the PIM. Furthermore, this map shows how, geographically and administratively, the Milan municipality and the Monza municipality tend to form a single urban system. The constitution, in 2004, of the Monza e della Brianza province by ‘transferring’ municipalities to this new province mostly from the Milan province is hence even more striking, as it opposes this emerging single urban system; the Monza and della Brianza *province* (and not only municipality) is indeed included in the Milan Larger Urban Zone as defined by the Eurostat, and thus acknowledged as part of the Milan metropolitan area.

In figure 6.4, the Milan Urban Morphological Zones (UMZ) for 2000 (in light blue) and 2006 (in red) are contrasted with the LUZ boundaries (in pink), and the limits of the Milan Metropolitan area (PIM) (in yellow). As in the case of Barcelona, we can see how the morphological continuity of built-up forms (UMZ) extends much beyond Milan Larger Urban Zone area (LUZ, in pink) and the metropolitan PIM’s boundaries (in yellow), reaching Varese, Como and Lecco, which are the capitals of the provinces of the same name. On the contrary, both the Milan Larger Urban Zones (LUZ) and the PIM area extend South on the more agriculture-based zone of the Milan province, where the *Parco Sud* park lies (see sec. 5.3.4, sec. 7.4.2.2 and sec. 7.4.2.3). Figure 6.4 also shows the boundaries of the Milan province (in purple), which overlap with the boundaries of the stakeholders’ scale (in green) who have been considered in this dissertation, namely the Constructor’s Association (ANCE) extending over the Milan, Monza and Lodi provinces.

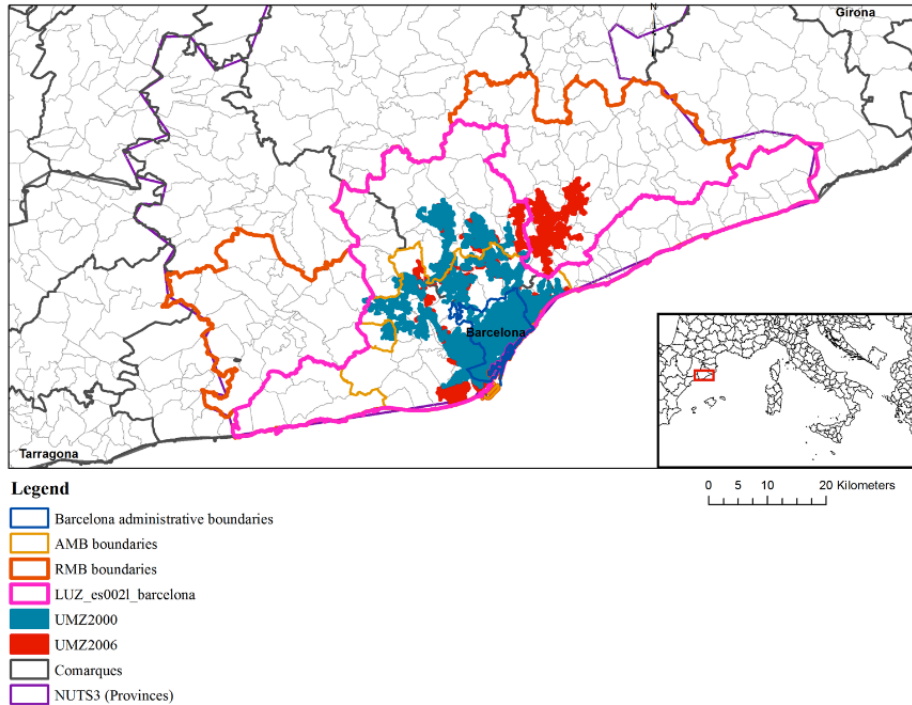
The maps (re)presented in this section on scale definition aim to emphasize the complexities of scale identification by showing a diversity of territory, place and scale definitions according to the adopted theoretical perspective on multi-scalar governance (see sec. 4.5 and sec. 4.8). The historical and geographical development of a spatial phenomenon is qualified as a sociospatial relation (Jessop et al., 2008), emphasizing the polymorphous, multi-dimensional character of spatial relations of land management (see also sec. 7.4.1 and sec. 7.4.2).

In the two cities, the urban scale definition is clearly problematic, as it may be for other European cities as well. The different criteria employed in defining the Larger Urban Zones (LUZ) and the Urban Morphological Zones (UMZ) (see Appendix sec. C.0.1 and sec. C.0.2) as ‘metropolitan areas’ emphasize the difficulty in clearly identifying what should be understood by the term ‘city’.

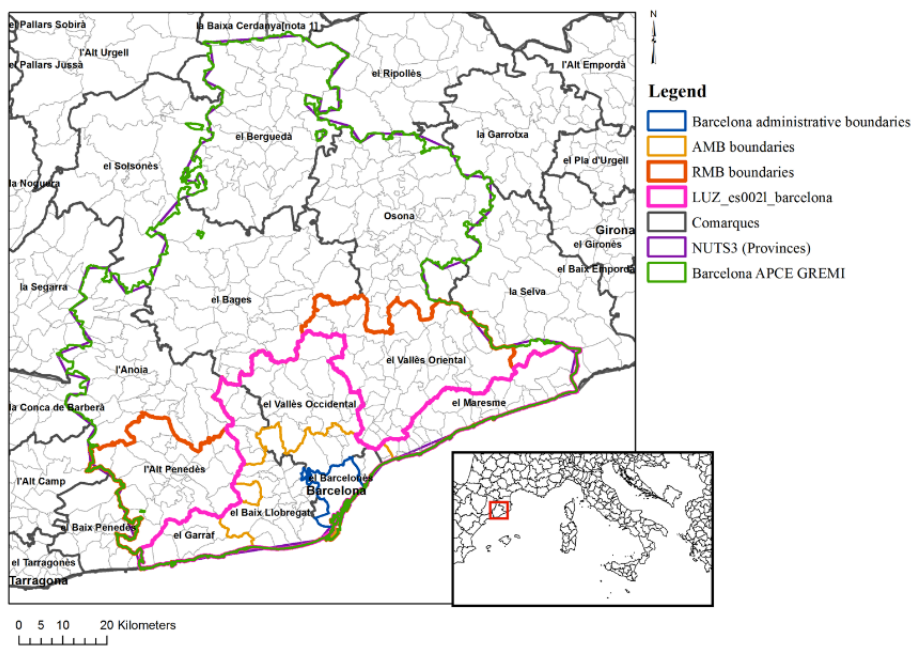
The expressions ‘the cities of Barcelona and Milan’ should therefore be carefully used, and reference to which meaning is implied should be made clear instead, as ‘city’, if loosely used, can refer to administrative boundaries and to certain types of metropolitan definitions, such as the Larger Urban Zones (LUZ) or the Urban Morphological Zones (UMZ), or the metropolitan delimitations so defined by the local metropolitan bodies.

Hence, in this dissertation the notion of ‘city’ is problematized and more realistically included within a multi-scalar governance framework. Consequently, political choices should not only be accounted for at the urban level, but other governance scales can be embraced as well.

**Figure 6.1:** Administrative and metropolitan territorial scales of Barcelona: administrative boundaries (in blue), Larger Urban Zone (LUZ) of Barcelona (in pink), the Urban Morphological Zone of Barcelona for years 2000 (in light blue) and 2006 (in red), the metropolitan boundaries defined by the Barcelona Metropolitan Area institution (AMB) for the Barcelona area (AMB, in yellow) and region (RMB, in green). Source: EEA; AMB. Author's elaboration.



**Figure 6.2:** Administrative and metropolitan territorial scales of Barcelona: administrative boundaries (in blue), Larger Urban Zone (LUZ) of Barcelona (in pink), the metropolitan boundaries defined by the Barcelona Metropolitan Area institution (AMB) for the Barcelona area (AMB, in yellow) and region (RMB, in green), the Comarques (in grey), the Barcelona province boundaries (NUTS3) in purple, and the stakeholders' scale (in green). Source: EEA; AMB. Author's elaboration.



## 6.2 Territorial dispersion patterns of urban sprawl in Barcelona and Milan metropolitan regions

As discussed in sections 4.8 and 6.1, and in agreement with the hypotheses (see sec. 5.2, and also sec. 5.5 and tab. 5.5), the improvement of the bargaining context model through a multi-scalar territorial governance framework has consequences on how urban sprawl and transport areas can be measured and mapped in the two selected contexts, Barcelona and Milan.

In this section, first, land use data<sup>4</sup>, referring to local datasets (see Appendix sec. B.2) for both Barcelona and Milan, will be presented and commented upon. The focus will be on dispersed residential areas and on transport areas, according to the stated hypotheses (see sec. 5.2), however the data are shown to clarify the recent historical trajectory of land use transformations in the two considered case studies. Land use data for Barcelona refer to the 1956–2006 timespan, while for Milan they span over the 1954–2009 period. Although they are different datasets, thus referring to different classifications of land uses and having been produced with different technical specificities whose comparability should be further analyzed in future studies, these data serve as a background and as complementary, orientative information for the 1990–2006 Corine Land Cover (CLC) data that will be later presented, by considering a variety of scales (see sec. 6.2.2). For both the local and the Corine Land Cover (CLC) data, urban sprawl will be operationalized as ‘discontinuous’ or ‘dispersed’ residential areas.

Hence, second, by employing the Corine Land Cover (CLC) dataset, section 6.2.2 discusses the increase in built-up areas (in hectares) for different scales in Barcelona and Milan. The Corine Land Cover (CLC) data for years 1990, 2000 and 2006 have been intersected and calculated for Barcelona and Milan administrative boundaries, LUZ and UMZ areas, and provincial level (NUTS3)<sup>5</sup>.

### 6.2.1 Recent historical patterns of territorial dispersion in Barcelona and Milan metropolitan areas

The following tables (tab. 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8) refer to the local datasets available for the Barcelona and Milan municipalities and metropolitan areas, approximately accounting for the 1955–2009 period (see Appendix sec. B.2). Along with absolute values, the growth rates for each land use type shown in the tables have been calculated as relative variation.

#### Barcelona

For Barcelona, the data provided by the *Àmbit Metropolità de Barcelona* (AMB) institution for the period 1956–2006 (see Appendix sec. B.2) refer both to the Barcelona Metropolitan Area (AMB) and the Barcelona Metropolitan Region (RMB) (see sec. 6.1)<sup>6</sup>. These data

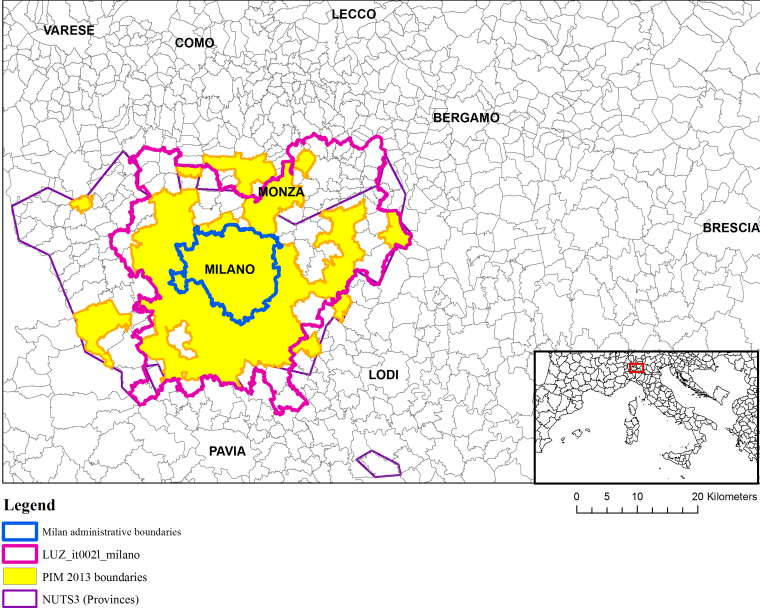
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<sup>4</sup>Despite this dissertation is written in American English, data are conventionally presented with commas separating decimals, and points separating thousands. The international metric system is also employed, hence territorial data are expressed in hectares, kilometers or squared kilometers, rather than miles or acres.

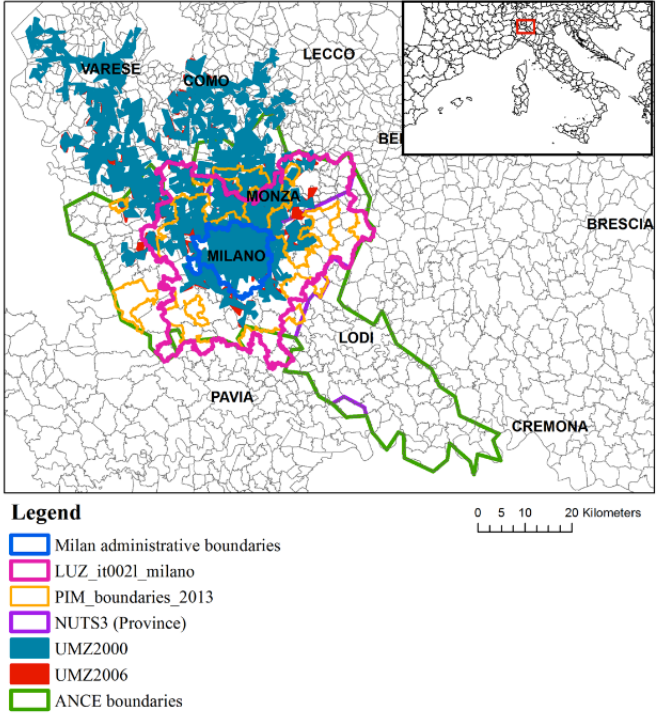
<sup>5</sup>By intersecting the Corine Land Cover (CLC) data with administrative, LUZ and UMZ boundaries through ArcGis<sup>®</sup>, discrepancies may be found if compared with published official data given the ‘layer intersection’ strategy adopted. For further information on the Corine Land Cover (CLC) data and on the main shortcomings of the database given the Minimum Measurement Unit (MMU), see Appendix B.

<sup>6</sup>Data for the 1956–2000 timespan have been previously published by Carreras Quilis (2002). I thank Josep Serra, Annalisa Giocoli and Ernest Ruiz for having provided me with the data and with useful information.

**Figure 6.3:** Administrative and metropolitan territorial scales of Milan: administrative boundaries (in blue), Larger Urban Zone (LUZ) of Milan (in pink), the metropolitan boundaries defined by the Milan Metropolitan Research Center (PIM) in yellow, and the Milan Province (NUTS3) in purple. Source: EEA; PIM; Istat. Author's elaboration.



**Figure 6.4:** Administrative and metropolitan territorial scales of Milan: administrative boundaries (in blue), Larger Urban Zone (LUZ) of Milan (in pink), the Urban Morphological Zone (UMZ) of Milan for years 2000 (in light blue) and 2006 (in red), the Milan province boundaries (NUTS3) in purple, and the stakeholders' scale (in green). Source: EEA; PIM; Istat. Author's elaboration.



record only the artificial land uses, which are classified into 9 main categories; values on open and agricultural land jointly considered have been calculated simply by subtracting the amount of total artificial areas from the total hectares of land<sup>7</sup>. These data have been re-codified into 8 classes<sup>8</sup> in order to improve comparability with the data that will be shown later for Milan and in section 6.2.2. However, exact equivalency of land use classes between Barcelona (AMB data) and the data on Milan presented below through the use of the DUSAF data (see Appendix sec. B.2) cannot be attained, and therefore the tables in this section should be considered as a useful yet indicative reference.

Within the 1956–2006 timespan, data for year 1977 were also available. Land use data for 1977 were included in this analysis as they are connected with two key moments in Spanish history and land use legislation: as will be shown in section 7.4.1, first, the period 1976–1982 corresponds to the ‘democratic transition’ period, when Spain entered a democratic regime leaving the Francoist dictatorship behind, and second, in 1975 a new land use law was approved, replacing the former 1956 law. Given these two events, I considered it useful to present the 1977 data as they can reveal different territorial patterns of urban development for the Barcelona case.

In the AMB data, ‘dispersed soil’ is defined as those urban fabrics that are isolated or discontinuous with regard to the urban centers they belong to (Font Arellano et al., 2005, p. 16). Discontinuous residential areas are the combination of ‘isolated residential areas’ (*residencial aïllat*) and ‘track houses’ (*residencial en filera*), while continuous residential areas are formed by ‘(historical) city centers’ (*casc antic*), compact neighborhood (*residencial en illa tancada*) and block houses (*residencial blocs*)<sup>9</sup>.

Table 6.1 shows how, in Barcelona municipality, continuous (compact) residential areas amount to roughly 40% of the total artificial surfaces compared to other land uses, a value that remains stable over the 1956–2006 period. Continuous residential areas increased by +31,7% in Barcelona city, a value that emphasizes that most of the consolidated *and* newly built residential areas have a morphologically compact character. In contrast, between 1956 and 2006, in the Barcelona municipality discontinuous residential areas only increased by +3,5%, their proportion to the total urbanized areas remaining stable at and limited to around 10,0%. Transport infrastructures have substantially increased over this period (+141,4%) as well as green urban areas and sport and leisure facilities (e.g. cultural centers, libraries; +111,7%), while construction sites have decreased (–73,3%). However, it is the comparison between industrial and commercial areas that is striking: in the Barcelona municipality, AMB data show how industrial sites greatly increased between 1956 and 1977, to later decrease from 1977 to 2006, while commercial areas present a continuous high increase over the considered period (+2.061,6%). Nevertheless, absolute values in hectares for industrial and commercial areas still show a great amount of space been taken up by industrial sites (940,6ha in 2006) in comparison to service areas (178,3ha in 2006). However, such trend clearly shows the de-industrialization process going on in Barcelona city center (see sec. 4.1), and the replacement of manufacturing activities with the service sector as economic basis for the city (cf. also Martinelli and Moulaert, 1993). Finally, in Barcelona municipality, between 1956

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<sup>7</sup>The total hectares of land for Barcelona municipality, Barcelona Metropolitan Area (AMB) and Region (RMB) have been transcribed by referring to the AMB data.

<sup>8</sup>Despite the AMB data on transport areas do not differentiate between roads and railways infrastructures, industrial and commercial areas are recorded separately; therefore, I considered it useful to maintain these 2 classes separated. I also recodified residential areas into two categories (continuous and discontinuous). However, transport infrastructures (roads, railways, ports and airports) are considered all together in the AMB data.

<sup>9</sup>Block houses are considered to be high-density concentrations of population, therefore are considered as continuous residential areas; cf. also Camagni et al., 2002a.

and 2006, built-up areas grew by +45,8%, while open and agricultural land, and other uses, decreased by -61,0% (land consumption; see sec. 2.4 and sec. 2.5); however, the proportion of urbanized areas compared to the total municipal surface is considerable (approximately 80%).

By now turning to table 6.2, in 50 years (1956-2006), in the AMB continuous residential areas decreased their proportion compared to the total urbanized areas (from 36,0% to 22,5%, -13,5 percent points), having however increased by +67,4%. Discontinuous residential areas slightly decreased their proportion compared to the total built-up areas (from 20,2% to 19,4%, -0,8 percent points), however they substantially grew (+157,8%), especially during the 1956 and 1977 period (+102,3%). Nevertheless, despite the increase in discontinuous residential areas, the built-up forms of the Barcelona AMB are characterized by more continuous residential areas (22,5% in 2006) than discontinuous (19,4% in 2006), although their proportions are converging. Transport infrastructures considerably grew by +201,8%, as well as green urban areas and sport and leisure facilities (+396,4%). The AMB data for the 1956-2006 timespan show that, for the Barcelona Metropolitan Area (AMB, 36 municipalities around Barcelona), industrial areas increased (+244,7%), and service areas by a striking +5.329,0%. Although absolute values show that, in 2006, commercial areas are roughly 10% of the extension of all industrial areas, the considered increases can hint to a de-localization process of industries from Barcelona city center to its surrounding municipalities, included in the AMB, as well as a tertiarization process of this area. Finally, artificial areas increased by +168,0%, land consumption registering -36,7%; the share of artificial surfaces to the total area of the Barcelona Metropolitan Area (AMB) increased from 17,9% to 48,1%, more than half of this increase having occurred between 1956 and 1977. Overall, it is possible to conclude that, between 1956 and 2006, the Barcelona Metropolitan Area (AMB) presented a substantial increase of built-up areas, the character of its residential areas being more dispersed than Barcelona municipality, and showing a high increase of industrial and commercial areas.

Table 6.3 shows how, between 1956 and 2006, the proportion of continuous residential areas to the total of urbanized areas substantially decreased (-20,4 percent points), having nevertheless increased by +78,9%. In contrast, the share of discontinuous residential areas compared to the total artificial surfaces increased by +5,5 percent points (from 25,1% to 30,6%), showing a substantial growth rate of +407,8%. This means that, over the considered 50 years, the proportional weight of continuous residential areas is roughly half of that of discontinuous residential areas (in 2006, 15,4% and 30,6%, respectively). Similar to the AMB, industrial and commercial areas have also substantially increased (+540,9% and +6.161,4%, respectively), with absolute values however showing a predominance of industrial areas in the RMB. Transport infrastructures have also consistently increased (+55,0%), their share compared to other artificial surfaces (approximately 8%) being less than Barcelona municipality and Metropolitan Area (approximately 11%). Green urban areas and sport and leisure facilities have also substantially increased (+756,8%). Finally, the share of total urbanized areas increased by +19,0 percent points (from 6,0% to 25,0%), the total increase of built-up areas being consistent (+316,5%). In general, it is possible to conclude that the Barcelona Metropolitan Region (RMB) presents a fairly high share of discontinuous residential areas (approximately 30%), and where industrial and commercial areas show a great increase, together with roads and railways.

By now focussing on table 6.4, which compares the amount of discontinuous residential areas in the three considered scales (Barcelona municipality, Barcelona Metropolitan Area and Region), in the three considered moments (1956, 1977, 2006), it is possible to appreciate the difference between Barcelona city and its outer metropolitan arches, the AMB and the RMB. While in the municipality of Barcelona discontinuous residential areas slightly increased

(+3,5%) their proportion to the total amount of residential areas remains contained (17,4% in 2006), the highest increase being presented by the AMB (+157,8%) and especially the RMB (+407,8%), their proportion of discontinuous residential areas being, in 2006, 19,4% and 30,6%, respectively. In 2006, the proportion of discontinuous residential areas to the total housing stock reaches 46,4% in the AMB, and 66,6% in the RMB. Absolute numbers confirm that, for the Barcelona case, dispersed residential areas locate in the Barcelona Metropolitan Area (AMB) and especially in the Barcelona Metropolitan Region (RMB).

The figures presented in tables 6.1, 6.2 and 6.3 allow us to put forward some preliminary conclusions. Regarding the Barcelona municipality, its built-up area is substantially characterized by compact housing functions, discontinuous residential areas being almost residual (8,5% in 2006). The data show a de-industrialization and a de-localization process of industrial activities, with the relative variation of service areas having consistently increased, with a consistent amount of industries and services however remaining located in the Barcelona municipality (13,4% of the total artificial surface in Barcelona city, in 2006). The growth rate between 1956 and 2006 of transport infrastructures in Barcelona municipality is the least (+141,4%) when compared with the Barcelona Metropolitan Area (AMB, +201,8%) and Region (RMB, +172,1%). The Barcelona Metropolitan Area (AMB) and Region (RMB) show a more dispersed character, the proportion of discontinuous residential areas to the total of artificial surfaces being roughly 20% and 30%, respectively. Moreover, a broader look at the data presented in tables 6.1, 6.2 and 6.3 suggests that, for Barcelona municipality, the AMB and RMB, between 1956 and 2006, the growth of industrial and commercial areas seems to be combined more with the increase of transport infrastructures, than with the growth of discontinuous residential areas. However, the RMB has shown a considerable increase in discontinuous residential areas, whose proportion amounts to almost a third of all artificial surfaces in that area.

Hence, from the evidence presented by the AMB data, it is possible to suggest that the relative compact character of Barcelona municipality is counterbalanced by a more dispersed character of the Barcelona Metropolitan Area (AMB) and Region (RMB), where the 1956–2006 growth rate of transport infrastructures appears to be linked, in the first place, with the increase in industrial and commercial areas, besides discontinuous residential areas. Between 1956 and 2006, both in the AMB and in the RMB, transport areas have substantially increased with a pace that may show some connections with the development of industrial and especially commercial areas, also considering the fact that such activities (and especially industries) are being de-localized from Barcelona municipality (cf. Carreras Quilis, 2002).

The increase in industrial and commercial areas has also been examined by other studies (Miralles-Guasch and Pujol, 2012), confirming the de-localizing trend of economic activities in the first (AMB) and especially second (RMB) metropolitan arch of Barcelona. However, tables 6.1, 6.2 and 6.3 also display other land use categories, hence other land uses' growth rate can also be appraised. For example, urban green areas or sport facilities, as well as continuous residential areas, have substantially increased, hinting to a possible re-concentration process of some urban functions more related to a compact urban center, such as a compact residential urban trim and urban parks. Such re-concentration of urban functions may also suggest the reinforcement of small and medium size towns and villages located within the Barcelona Metropolitan Area (AMB) and Region (RMB).

During the 1956–2006 period, both in the AMB and in the RMB, the relationship between the growth rate of discontinuous areas and transport infrastructures seems to be mediated by, and possibly more linked with, the development of industrial and commercial areas. However, because of the consistent proportional share of discontinuous residential areas in the AMB and



RMB as compared to Barcelona city, it can be put forward that both areas, and especially the RMB, or the ‘second’ metropolitan zone (*segona corona*; see sec. 6.1), serve as a ‘residential basin’ for the population of Barcelona metropolitan area, who can find a substantial housing offer both in a compact (continuous) and especially in a sprawled (discontinuous) pattern. Such conclusion is also corroborated by other analyses, which confirm the role of the Barcelona Metropolitan Region as ‘residential basin’ for the population revolving around Barcelona (see also sec. 7.1), the morphologically characteristic residential patterns of the RMB being mostly low density (Serra, 2003, p. 32ff).

Such decentralization processes is defined as meta-city, *metaciudad*, by Degen and García (2008), and in particular by García (2008, p. 105) (cf. also Muñoz, 2008a,b), where, on the one hand, ‘centrifugal’ demographic de-densification processes and the increase of discontinuous residential areas in the metropolitan scale (see sec. 7.1), together with the de-localization of industrial and commercial sites, are counterbalanced, on the other hand, by an enduring, ‘centripetal’ bond of the population to Barcelona city center for work and study reasons (i.e. work flows).

## Milan

For Milan, the DUSAF database (*Destinazione d’Uso dei Suoli Agricoli e Forestali*) is provided by the Lombardy region (ERSAF Ente Regionale per i Servizi all’A-gricoltura e alle Foreste, 2013), and is intended to monitor the transformations of open and agricultural land, as a support for public administrations and decision-making (see Appendix sec. B.2). The DUSAF surveys for 1954 and 2009 are considered here<sup>10</sup>. The DUSAF geo-referenced data on land uses have been intersected in ArcGis® environment, through the ‘intersect tool’, with a geo-referenced base of municipal boundaries, hence values have to be considered as approximations.

The following tables (tab. 6.5, 6.6, 6.7 and 6.8) show the land use changes which have occurred in the Milan municipality, in the Milan metropolitan area and in the the Milan and Monza e della Brianza provinces between 1954 and 2009. The 1954– 2009 DUSAF data are intended to offer an account of the recent historical land use transformations in the Milan municipality and in the Milan metropolitan area (PIM) similar to what has been presented in the previous section for Barcelona. As discussed below, despite including almost the double number of municipalities than in the Barcelona case (61 compared to 35), the Milan metropolitan area (PIM) can be considered an equivalent functional scale to the Barcelona Metropolitan Area (AMB); likewise, the Milan and Monza provinces can be roughly comparable to the Barcelona Metropolitan Region (RMB). As previously discussed (see sec. 6.1), and as shown in figures 6.3 and 6.4, despite being two different provinces since 2004, the Milan and Monza provinces are geographically neighboring and maintain close ties, and have been considered a good equivalent for the Milan case to the Barcelona RMB.

The 72 land use classes of the DUSAF dataset (83 for the 1954 dataset) have been re-categorized into 16 different classes. Differently than the other land use databases employed in this dis-

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<sup>10</sup>It was not possible to employ the 1980 dataset, as the 1977 data for the Barcelona case, since the 1980 DUSAF database is characterized by different, and qualitatively inferior, technical features in comparison to other datasets, such as the 1954 and 2009 datasets. This methodological prudence hampering the direct comparison between 1954, 1980 and 2009 data, as it has been done in the case of Barcelona for years 1977 and 2006, is indeed a pity, especially if one recalls Lanzani (2012, p.82), who states that during the 20 years between 1980 and 2000, the highest land consumption in the Lombardy region occurred compared to the previous 1950–1980 period, and to the following years. However, methodological accuracy has been given priority to, and hence comparison with 1980 data has not been carried out, following Fasolini (2014)’s suggestion.

**Table 6.1:** AMB Land uses (1956–2006) for Barcelona municipality. Source: AMB. Author's elaboration.

Land use classes	Barcelona municipality						
	1956 (ha)	%	1977 (ha)	%	2006 (ha)	%	% 1956-2006 Variation
Continuous residential areas	2539,4	44,3	3279,3	42,1	3345,0	40,1	31,7
Discontinuous residential areas	682,9	11,9	666,9	8,6	706,5	8,5	3,5
Industrial areas	724,7	12,6	1178,2	15,1	940,6	11,3	29,8
Commercial areas	8,3	0,1	53,4	0,7	178,3	2,1	2061,6
Transport infrastructures	440,1	7,7	846,6	10,9	1062,3	12,7	141,4
Dump and mineral areas	54,2	0,9	95,6	1,2	37,9	0,5	-30,0
Construction sites	340,4	5,9	220,6	2,8	90,8	1,1	-73,3
Green urban areas and sport and leisure facilities	939,8	16,4	1444,9	18,6	1989,5	23,8	111,7
Total urbanized areas	5729,6	100,0	7785,5	100,0	8350,9	100,0	
Total urbanized areas	5729,6	57,1	7785,5	77,7	8350,9	83,3	45,8
Total open and agricultural land	4296,4	42,9	2240,6	22,3	1675,1	16,7	-61,0
Total area	10 026,0	100,0	10 026,0	100,0	10 026,0	100,0	

**Table 6.2:** Land uses (1956–2006) for the Barcelona Metropolitan Area (AMB). Source: AMB. Author's elaboration.

Land use classes	Barcelona Metropolitan Area (AMB)							
	1956 (ha)	%	1977 (ha)	%	2006 (ha)	%	% 1956–2006	Variation
Continuous residential areas	4098,0	36,0	6176,5	27,5	6862,0	22,5		67,4
Discontinuous residential areas	2300,9	20,2	4654,3	20,7	5932,8	19,4		157,8
Industrial areas	1286,8	11,3	3155,8	14,0	4436,1	14,5		244,7
Commercial areas	8,3	0,1	82,3	0,4	447,9	1,5		5329,0
Transport infrastructures	1273,2	11,2	2386,9	10,6	3842,8	12,6		201,8
Dump and mineral areas	302,8	2,7	577,0	2,6	897,8	2,9		196,5
Construction sites	966,1	8,5	2189,6	9,7	2379,3	7,8		146,3
Green urban areas and sport and leisure facilities	1152,8	10,1	3275,0	14,6	5721,8	18,7		396,4
Total urbanized areas	11 388,7	100,0	22 497,2	100,0	30 520,5	100,0		
Total urbanized areas	11 388,7	17,9	22 497,2	35,4	30 520,5	48,1		168,0
Total open and agricultural land	52 076,3	82,1	40 967,8	64,6	32 944,6	51,9		-36,7
Total area	63 465,0	100,0	63 465,0	100,0	63 465,0	100,0		

**Table 6.3:** Land uses (1956–2006) for the Barcelona Metropolitan Region (RMB). Source: AMB. Author's elaboration.

Land use classes	Barcelona Metropolitan Region (RMB)							
	1956 (ha)	%	1977 (ha)	%	2006 (ha)	%	1956–2006 Variation	%
Continuous residential areas	6976,7	35,8	10918,9	18,1	12481,8	15,4	78,9	
Discontinuous residential areas	4897,8	25,1	16643,1	27,5	24869,3	30,6	407,8	
Industrial areas	1720,3	8,8	6519,2	10,8	11024,9	13,6	540,9	
Commercial areas	8,5	0,0	115,3	0,2	532,2	0,7	6161,4	
Transport infrastructures	2659,8	13,6	4821,9	8,0	7236,2	8,9	172,1	
Dump and mineral areas	725,7	3,7	2798,7	4,6	3967,9	4,9	446,8	
Construction sites	1109,1	5,7	11691,5	19,4	9148,0	11,3	724,8	
Green urban areas and sport and leisure facilities	1391,0	7,1	6907,5	11,4	11910,4	14,7	756,2	
Total urbanized areas	19489,1	100,0	60416,1	100,0	81170,8	100,0		
Total urbanized areas	19489,1	6,0	60416,1	18,6	81170,8	25,0	316,5	
Total open and agricultural land	304580,9	94,0	263653,9	81,4	242899,2	75,0	-20,3	
Total area	324070,0	100,0	324070,0	100,0	324070,0	100,0		

**Table 6.4:** Proportion of discontinuous residential areas (1956–2006) for the Barcelona municipality, Barcelona Metropolitan Area (AMB) and Region (RMB). Source: AMB. Author's elaboration.

Area	Barcelona									
	Dispersed residential areas 1956 (ha)	Total residential areas 1956 (ha)	%	Dispersed residential areas 1977 (ha)	Total residential areas 1977 (ha)	%	Dispersed residential areas 2006 (ha)	Total residential areas 2006 (ha)	%	1956–2006 Variation
Barcelona	682,9	3 222,3	21,2	666,9	3 946,2	16,9	706,5	4 051,5	17,4	3,5
AMB	2 300,9	6 398,9	36,0	4 654,3	10 830,7	43,0	5 932,8	12 794,7	46,4	157,8
RMB	4 897,8	11 874,5	41,2	16 643,1	27 562,1	60,4	24 869,3	37 351,1	66,6	407,8

sertation, the DUSAF land use categories allow to make the important distinction between roads and other transport infrastructures, which is particularly relevant in this dissertation (see sec. 3.1.2 and hypotheses, sec. 5.2), and hence transport infrastructures have been kept separate. However, re-classification of land uses has been carried out to offer a suitable level of comparability between the AMB data previously presented.

For both the 1954 and 2009 DUSAF dataset, the ‘discontinuous residential areas’ class has been re-codified by including ‘discontinuous residential areas’ (*tessuto residenziale discontinuo*), ‘scattered residential areas’ (*tessuto residenziale rado e nucleiforme*), ‘sparse residential areas’ (*tessuto residenziale sparso*) and ‘farmsteads’ (*cascine*).

Table 6.5<sup>11</sup> shows how, in 1954, the built-up areas of Milan municipality was characterized by continuous residential areas and industrial and commercial areas (34,7% and 27,1%, respectively), with discontinuous residential areas being rather contained (11,4%). Fifty-five years later, continuous residential areas have increased with about +10,0%, however have decreased in proportional terms (23,9%, -10,8 percent points). In the same period, discontinuous residential areas have increased by +86,9%, amounting to 13,3% of the total urbanized surface (+1,9 percent points compared to 1954), their absolute value (1.909,4 hectares, in 2009) being over half of the continuous residential areas (3.429,3 hectares, in 2009). As continuous residential areas, industrial and commercial areas substantially characterize the built-up form of Milan municipality, attaining 26,2% in proportion of the built-up areas in 2009. The relative growth of industrial and commercial areas between 1954 and 2009 (+54,1%) can reasonably be linked with de-industrialization processes occurring in Milan municipality (cf. Vicari Haddock, 2004, ch. 2), where the tertiary sector replaced a substantial part of the former industries located within Milan municipal boundaries. Surfaces for roads have experienced a considerable growth (+87,4%), those for railways have increased as well (+26,9%), however the proportional weights and absolute values of railways being considerably less than those of roads. The areas classified for airports have decreased (-39,5%), probably due to urban renewals processes related to the Linate airport. Construction sites have substantially increased in Milan municipality in the considered period (+243,9%), and it is possible to note how green urban areas and sport and leisure facilities have been considerably enlarged as well (+180,4%). Finally, between 1954 and 2009, built-up areas increased by +59,5%, the proportion of built-up areas compared to the total municipal surface increasing by +29,4 percent points (from 49,4% to 78,8%). Open and agricultural land have decreased by -58,1%, with a loss of their proportional weight in the total municipal surface by more than half (from 50,6% to 21,2%). In 2009, the proportion of built-up areas to the total surface of Milan municipality reaches almost 80% in 2009, similar to the value presented by Barcelona city.

Compared to the Barcelona municipality, Milan municipality presents a smaller proportion of continuous residential areas to the total built-up areas, with a higher amount of industrial and commercial areas, and a similar proportion of transport areas as well. Overall, as Barcelona municipality shows a higher proportion of continuous residential areas (40,1% in 2006) compared to Milan (23,9% in 2009), the former can be considered relatively more compact.

Table 6.6 shows the absolute and percentage values of surface areas per land use type<sup>12</sup> in the 61 municipalities currently (2013) associated<sup>13</sup> with the Research Center for the Milanese me-

<sup>11</sup>The total surface of Milan municipality (18180ha) is an approximated value.

<sup>12</sup>The total surface of the Milan metropolitan area (90.900ha) is an approximated value.

<sup>13</sup>The 61 municipalities that currently compose the Milan metropolitan area are, in December 2013, the following: Abbiategrasso, Arcore, Arese, Assago, Baranzate, Bareggio, Basiglio, Binasco, Buccinasco, Carpiano, Casarile, Cassano d’Adda, Cassina de’ Pecchi, Cesano Boscone, Cesano Maderno, Cinisello Balsamo, Cornaredo, Corsico, Cusago, Dairago, Desio, Gaggiano, Garbagnate Milanese, Gessate, Gorgonzola,

tropolitan area (*Centro Studi per la Programmazione Intercomunale dell'area Metropolitana di Milano*), which originated from the experience of the PIM (*Piano intercomunale milanese*, supra-municipal plan for Milan) (see sec. 7.4.2.2).

In table 6.6, it is possible to see how continuous residential areas in the Milan metropolitan area (PIM) increased by +20,1%, with their proportion to the total about of built-up areas having decreased by -15,2 percent points (from 27,1% to 11,9%). In contrast, in the same period discontinuous residential areas considerably increased (+216,7%), their proportion to the total artificial surfaces increasing only by 3,7 percent point (from 23,8% in 1954 to 27,5% in 2009). A similar trend can be noticed for industrial and commercial areas, and roads: they increased by +265,1% and 226,0%, respectively, with their proportional weight to the whole built-up areas, in 2009, being 30% for industrial and commercial areas, and 6,2% for roads. Railways and airports have also increased (+47,3% and +31,8%, respectively), however their share to the total amount of built-up areas remains quite contained. Furthermore, in 2006, almost two third (6,2%) of the proportion of all transport infrastructures (9,4%) to the total artificial surfaces is taken up by roads. Mineral extraction sites and dump sites have also increased (+149,4% and +455,8%, respectively), however only the increase of construction sites (+600,6%) attained a noticeable proportion of built-up areas (4,5%). Green urban areas, and sport and leisure facilities, present an appreciable increase (+240,6%), and attain a substantial 16,2% in 2009 of the entire built-up surfaces, increasing by 3,2 percent points from 1954 (13,0%). Overall, built-up areas increased by +173,7%, shifting their proportion to the entire metropolitan surface from 18,4% to 50,4%. Simultaneously, open and agricultural land decreased by -39,2%.

In comparison to Milan municipalities, the Milan metropolitan area (PIM) appears to be more dispersed than in the Barcelona Metropolitan Area (AMB), as it is characterized, both in proportional and absolute terms, by industrial and commercial areas and discontinuous residential areas. However, the proportion of built-up areas to the total surface is similar to the Barcelona AMB, reaching roughly a 50-50 share.

In table 6.7, land use data for the 1954-2009 period are shown for the Milan and Monza e della Brianza provinces, as a possible, comparable territorial scale for the Barcelona Metropolitan Region<sup>14</sup>. Table 6.7 shows how, between 1954 and 2009, despite their increase in surface (+14,6%), continuous residential areas have lost a considerable amount of their proportional weight compared to other land uses (-16,8 percent points, from 26,5% to 9,7%). Conversely, discontinuous residential areas have substantially increased (+260,2%), their proportional weight however not changing much (33,2% in 1954 and 38,0% in 2009); nevertheless, it is the absolute value of discontinuous residential areas in 2009 that is striking, making dispersed residential areas a typical land use of the Milan and Monza provinces (almost 40% of their built-up areas). Industrial and commercial areas also considerably increased (+389,6%), their proportional weight to the total artificial surfaces having almost doubled (from 19,6% to 30,5%). Roads also show a noticeable growth rate (+344,4%), attaining 4,9% in 2009 of the total built-up areas. Railways and airport areas also increase (+59,4% and +26,0%, respectively), but their proportional weight is limited. Mineral extraction sites have also increased (+227,0%), as well as construction sites (+178,7%), and green urban areas and sport and leisure facilities (+364,8%), thanks to the establishment of the Nord Park, Groane

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Lacchiarella, Lainate, Liscate, Lissone, Locate di Triulzi, Melegnano, Melzo, Milano, Monza, Nova Milanese, Novate Milanese, Opera, Pantigliate, Paullo, Pero, Peschiera Borromeo, Pessano con Bornago, Pieve Emanuele, Pregnana Milanese, Rho, Rosate, Rozzano, San Donato Milanese, San Giuliano Milanese, Sedriano, Segrate, Sesto San Giovanni, Settala, Settimo Milanese, Solaro, Trezzano sul Naviglio, Vanzago, Vernate, Vizzolo Predabissi, Zibido San Giacomo.

<sup>14</sup>For reference, see sec. 6.1; for a more in-depth discussion, see sec. 7.4.2.3 in the next chapter.

Park and the Sud Park between 1970 and 1990 (see sec. 7.4.2.2). Overall, between 1954 and 2009 the artificial surfaces grew by +214,4%, shifting from 13,4% to 42,2% of the total surface of the two provinces.

These values are quite different from the Barcelona Metropolitan Region (RMB), whose total amount of built-up areas reached 25% of the total surface, industrial and commercial areas being less characterizing than the Milan and Monza provinces. However, it is also important to say that Milan and Monza provinces can show values not directly comparable with the RMB, as they are high industrialized and urbanized areas, and hence more homogeneous, than a more economically diversified Barcelona RMB. Nevertheless, discontinuous residential areas characterize the built-up surfaces of both scales, attaining, 30,6% in 2006 for the RMB, and 38,0% in 2009 for the Milan and Monza provinces. The total proportion of transport infrastructures is also similar (7,1% in the Milan and Monza provinces, 8,5% in the RMB).

Above a similar 'position' of the two considered scales in terms of discontinuous residential areas and transport infrastructures, the distinctive character between the Milan and Monza provinces and the RMB seems that first, industrial and commercial areas characterize more the Milan case, and second, continuous residential areas still take up a noticeable amount of the RMB area.

Table 6.8 shows that, over a 55 years period, the proportion of discontinuous residential areas, in all four considered scales, increased. Relative change is more contained for Milan municipality (+86,9%), reaching discontinuous residential areas 35,8% of all residential areas in the city. Growth rates (higher than 200%) of these areas are considerable for the Milan metropolitan area, and the Milan and Monza provinces. It is possible to see how discontinuous residential areas are characterizing almost entirely the housing stock of the Monza (88,2%, in 2009) and the Milan provinces (76,0%, in 2009), the Milan metropolitan area following closely (69,9%). In 1954, these shares were smaller, yet substantial. Similar to the Barcelona case, the consistent amount of discontinuous residential areas in the Milan metropolitan area, comprising the 61 municipalities currently affiliated to the PIM organization, indicates that such area functions as a 'residential basin' for the population depending on Milan as metropolitan center.

A comparison between tables 6.4 and 6.8 shows that the Barcelona municipality is much more compact, in terms of the share of discontinuous residential areas, than Milan municipality; yet in both cases discontinuous residential areas become a more evident characterizing pattern of the housing stock the farther from the city center they are located. However, if the proportion of discontinuous residential areas to the total amount of residential areas can be summed up, in the Barcelona case, by a '20-50-70' proportion, corresponding to Barcelona city, the Barcelona Metropolitan Area and Region (AMB and RMB), in the Milan case, such relation is synthesized by the '35-70-80' thresholds, corresponding to Milan municipality, the Milan metropolitan area (PIM) and the Milan province. It can be thus concluded that, comparatively and in relative terms, the built-up areas in the Barcelona case present a more territorially dispersed patterns of residential areas than the Milan case.

### **Territorial decentralization patterns in Barcelona and Milan**

In broad terms, from the examination of the presented tables 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7 and 6.8, it is possible to draw some general comments on the historical pattern of the Barcelona and Milan urbanization processes, bearing in mind the discrepancies in land use classifications and time horizons of the two considered local datasets. First, both Barcelona and Milan municipalities appear to be relatively more compact than their surrounding me-



**Table 6.5:** DUSAF Land uses (1954–2009) for Milan municipality. Source: ERSAF, PIM. Author's elaboration.

Land use classes	Milan municipality					Variation
	1954 (ha)	%	2009 (ha)	%	% 1954–2009	
Continuous residential areas	3117,8	34,7	3429,3	23,9	10,0	
Discontinuous residential areas	1021,4	11,4	1909,4	13,3	86,9	
Industrial and commercial areas	2437,2	27,1	3756,6	26,2	54,1	
Roads	723,9	8,1	1356,5	9,5	87,4	
Railways	435,8	4,9	553,2	3,9	26,9	
Airports	79,9	0,9	48,4	0,3	-39,5	
Mineral extraction sites	47,3	0,5	23,2	0,2	-51,0	
Dump sites	4,8	0,1	0,0	0,0	-100,0	
Construction sites	209,8	2,3	721,6	5,0	243,9	
Green urban areas	901,3	10,0	2527,3	17,6	180,4	
and sport and leisure facilities						
Total urbanized areas	8979,1	100,0	14 325,5	100,0		
Total urbanized areas	8979,1	49,4	14 325,5	78,8	59,5	
Total open and agricultural land	9201,3	50,6	3852,9	21,2	-58,1	
Total area	18 180,0	100,0	18 180,0	100,0		

**Table 6.6:** DUSAF Land uses (1954–2009) for the Milan Metropolitan Area so defined by the Piano Intercomunale Milanese (PIM) in December 2013. Source: ERSAF, PIM. Author's elaboration.

Land use classes	Milan metropolitan area (PIM)					
	1954 (ha)	%	2009 (ha)	%	% 1954–2009	Variation
Continuous residential areas	4526,1	27,1	5433,8	11,9		20,1
Discontinuous residential areas	3977,3	23,8	12 597,6	27,5		216,7
Industrial and commercial areas	3758,9	22,5	13 725,6	30,0		265,1
Roads	870,5	5,2	2837,6	6,2		226,0
Railways	727,3	4,3	1071,0	2,3		47,3
Airports	301,5	1,8	397,4	0,9		31,8
Mineral extraction sites	94,8	0,6	236,4	0,5		149,4
Dump sites	4,8	0,0	26,6	0,1		45,8
Construction sites	292,0	1,7	2046,6	4,5		600,8
Green urban areas and sport and leisure facilities	2173,5	13,0	7402,5	16,2		240,6
Total urbanized areas	16726,7	100,0	45 775,1	100,0		
Total urbanized areas	16726,7	18,4	45 775,1	50,4		173,7
Total open and agricultural lands	74180,0	81,6	45 123,9	49,6		-39,2
Total area	90900,0	100,0	90 900,0	100,0		

**Table 6.7:** DUSAF Land uses (1954–2009) for the Milan and Monza e della Brianza provinces. Source: ERSAF. Author's elaboration.

Land use classes	Milan and Monza e della Brianza provinces					
	1954 (ha)	%	2009 (ha)	%	% 1954–2009	Variation
Continuous residential areas	6967,5	26,5	7985,2	9,7		14,6
Discontinuous residential areas	8714,4	33,2	31 388,3	38,0		260,2
Industrial and commercial areas	5153,7	19,6	25 233,2	30,5		389,6
Roads	916,2	3,5	4071,5	4,9		344,4
Railways	826,7	3,1	1317,7	1,6		59,4
Airports	371,7	1,4	468,4	0,6		26,0
Mineral extraction sites	229,0	0,9	748,7	0,9		227,0
Dump sites	120,3	0,5	43,8	0,1		-63,6
Construction sites	1333,4	5,1	3716,6	4,5		178,7
Green urban areas	1649,8	6,3	7667,8	9,3		364,8
and sport and leisure facilities						
Total urbanized areas	26282,8	100,0	82 641,3	100,0		
Total urbanized areas	26282,8	13,4	82 641,3	42,2		214,4
Total open and agricultural land	171378,3	87,5	111 641,9	57,0		-34,9
Total area	195972,2	100,0	195 972,2	100,0		

**Table 6.8:** Proportion of discontinuous residential areas in 1954 and 2009 for Milan municipality, the PIM Milan metropolitan area (2013) and the Milan and Monza e della Brianza provinces. Sources: ERSAP, PIM. Author's elaboration.

Area	Milan						
	Discontinuous residential areas 1954 (ha)	Total residential areas 1954 (ha)	%	Discontinuous residential areas 2009 (ha)	Total residential areas 2009 (ha)	%	1954 – 2009 % Variation
Milan municipality	1021,4	4139,1	24,7	1909,4	5338,8	35,8	86,9
Milan metropolitan area (PIM)	3977,3	8503,4	46,8	12 597,6	18 031,4	69,9	216,7
Milan province	6012,9	11 702,5	51,4	20 770,6	27 330,8	76,0	245,4
Monza province	2701,5	3979,3	67,9	10 617,8	12 042,8	88,2	293,0

tropolitan areas. In both cases, discontinuous residential areas are more consistently found in their metropolitan areas, and especially in the Barcelona Metropolitan Region (RMB) in the case of Barcelona, and in the Milan and Monza provinces in the case of Milan. However, by considering a variety of scales (municipal, metropolitan and provincial), a comparison between tables 6.4 and 6.8 shows how the Milan case presents, both in absolute and percent values, more discontinuous areas than the Barcelona case. It can thus be suggested that, comparatively, the built-up forms of Milan present more dispersed residential areas than the Barcelona's, despite the evidence that in both cases discontinuous residential areas have substantially increased over the considered timespans and have similarly embraced their metropolitan areas.

Regarding the Barcelona case, the growth of transport infrastructures seems to be connected with the increase of discontinuous residential areas, *but* mitigated by the considerable share of continuous residential areas *and* the increase of industrial and commercial sites. Regarding the Milan case, the relative increase of surfaces for roads is more clearly related with the increase of discontinuous residential areas *and* industrial and commercial areas, suggesting that urban development has occurred in a territorially dispersed pattern, given also that the share of continuous residential areas is more contained than in the Barcelona case. Furthermore, concerning the growth of transport infrastructures in the Barcelona case, it can be assumed that roads have considerably increased, however the sizable enlargement of port and airport areas is suggestive of a different urban development trajectory for the considered territorial scales in Barcelona than in the case of Milan.

In sum, the examination of the considered local datasets for Barcelona and Milan indicates similar de-concentration patterns, from Barcelona and Milan city centers towards their surrounding metropolitan areas, both for discontinuous residential areas and for industrial and commercial sites, these processes being facilitated by the relative growth of transport infrastructures. However, the Milan case appears to be more dispersed than the Barcelona one, since, in the Barcelona case, the increase of discontinuous residential areas and industrial and commercial sites is combined with the relative growth of continuous residential areas, while, in the Milan case, the growth of transport infrastructures is more related with the increase of discontinuous residential areas and industrial and commercial sites only.

### **6.2.2 The Corine Land Cover (CLC) dataset (1990-2006) intersected with Barcelona and Milan administrative boundaries, LUZ, UMZ and NUTS3**

As introduced in section 6.2, the data referring to the recent historical trajectory of land uses in Barcelona and Milan have functioned as a background to present the Corine Land Cover (CLC) data for the 1990–2006 period. Having concluded the previous section 6.2.1 by emphasizing the comparative and relatively less dispersed character of the Barcelona area, we will now examine the results of the Corine Land Cover (CLC) data for the occurrence of urban sprawl, operationalized in discontinuous residential areas, to check if urban sprawl is still relatively more contained in Barcelona than in Milan during the 1990–2006 timespan. This proposed aim is facilitated because of the comparability among the presented tables.

The following tables (tab. 6.9, 6.10, 6.11, 6.12, 6.13, 6.14, 6.15, 6.16 and 6.17) account for the relative variation in the patterns of spatial dispersion in the expansion of residential areas in some of the relevant territorial scales available for Barcelona and Milan<sup>15</sup>. By referring to the

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<sup>15</sup>In the following tables, values must be understood as *approximated*, as result of the ArcGis® ‘intersect tool’ strategy between Corine Land Cover (CLC) geo-referenced land use data for 1990, 2000 and 2006, and

territorial scales examined in section 6.1, the areas considered will be Barcelona and Milan (i) administrative boundaries (tab. 6.9 and tab. 6.10.), (ii) Larger Urban Zones (LUZ) (tab. 6.11 and tab. 6.12), (iii) Urban Morphological Zones (UMZ) (tab. 6.13 and tab. 6.14), and (iv) provinces (NUTS3 levels) (6.15, tab. 6.16 and tab. 6.17).

Similar to the previous section (sec. 6.2.1), in agreement with the hypotheses (see sec. 5.2), not only discontinuous (or dispersed) residential areas (urban sprawl) will be looked upon, but also transport areas.

### **Barcelona and Milan municipalities**

Between 1990 and 2006, within their respective administrative boundaries<sup>16</sup>, continuous and discontinuous residential areas have not changed substantially in Barcelona and Milan municipalities. However, the proportion of discontinuous residential areas is substantially different between the two cities, as it pertains to around 11% of built-up areas in the case of Barcelona, and around 54% in the case of Milan, with both values remaining stable over the 1990–2006 timespan. Such evidence highlights the more dispersed character of residential areas in the case of Milan municipality.

Roads and railways have substantially increased in Barcelona between 1990 and 2006 (+6,4%), compared to Milan (+0,5%). However, their proportional weight to the total of built-up areas is far less in Barcelona if compared to Milan (0,6% than 3,2%), a figure which is also confirmed by looking to absolute values. Nevertheless, it is the port areas in Barcelona that show a meaningful consistent increase (besides sport and leisure facilities); between 2000 and 2006, Barcelona renewed and annexed an extended port area to its municipality, both serving as a commercial and cargo facility for the tourist and logistic industries.

Although industrial and commercial areas have similarly increased between 1990 and 2006 in both cities (+14,4% for Barcelona and +15,0% for Milan), the increase of industrial and commercial areas in Barcelona seems to be connected with the higher growth rate of transport infrastructures in Barcelona municipality, port areas included. This evidence confirms a clearer connection, in the Barcelona case, of the growth of industrial and commercial areas and with transport infrastructures, more than with discontinuous residential areas (see sec. 6.2.1).

Between 1990 and 2006, construction sites in Barcelona slightly decreased (−13,6%), while they increased in Milan municipality (+105,4%), absolute values being nevertheless very reduced. Sport facilities increased in Barcelona municipality (+100%), green urban areas remaining stable, while they both decreased in Milan (−2,7% and −13,6%), although they extend much more in absolute values in Milan than in Barcelona. Comparatively, they are roughly similar, as the proportion of green and sport areas to the total artificial surfaces is 5,0% in Barcelona municipality and around 8% in Milan.

The total built up areas in Barcelona municipality increased by +4,0%, mostly due to the enlargement of the port area, while in Milan municipality the total built-up areas grew by +1,4%. The proportion of artificial surfaces to the total municipal surface is similar, however something greater in Barcelona (82,2% in 2006) than Milan (74,5% in 2006).

Overall, from tables 6.9 and 6.10 it is possible to conclude that, comparatively and within administrative boundaries, residential areas in Barcelona are less dispersed than in Milan, as

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administrative, LUZ, UMZ and NUTS3 boundaries.

<sup>16</sup>The total surface in square hectares for both municipalities has been retrieved in the Catalan Statistical Institute (Idescat)'s municipal base for Barcelona municipality (10.100 hectares), and in the Italian Statistical Institute (Istat) for Milan (18.210 hectares).

in the latter they take up more than 50% of the built-up areas. Although this conclusion is less clear-cut in tables 6.1 and 6.5, the higher proportion of discontinuous residential areas characterizing the built-up form of Milan municipality is nevertheless identifiable.

### **Barcelona and Milan Larger Urban Zones (LUZ)**

Tables 6.11 and 6.12 show that, when Larger Urban Zones (LUZ) are considered<sup>17</sup>, Barcelona still presents a lower percentage of discontinuous residential areas than Milan compared to the total urbanized areas (approximately 38% and 59%, respectively). Furthermore, in the Barcelona LUZ, the proportion of continuous residential areas to the total artificial areas is more than three times more if compared to that of Milan (approximately 30% in Barcelona compared to around 7% in Milan). However, in the Barcelona LUZ area, between 1990 and 2006, the relative variation of discontinuous residential areas is roughly double that of the Milan LUZ (+11,8% and +5,7%, respectively).

Roads and railways, having a similar proportional weight in both LUZes (1,1% for Barcelona and 1,5% for Milan, in 2006), have nevertheless greatly increased in the Barcelona LUZ (+624,7%). In the latter, transport areas for airport traffic also grew substantially (as the *El Prat* airport has been enlarged), although their proportion to the total artificial areas is quite contained (2,4% in 2006). Airport areas in Barcelona and Milan LUZes being almost comparable in 2000 (518ha<sup>18</sup> and 601ha, respectively), the enlargement of airport areas in Barcelona LUZ outpaced that of Milan quite substantially, attaining 1.359 hectares of extension.

In both LUZ areas, industrial and commercial sites have a similar proportional weight compared to the total artificial surfaces (18,5% in Barcelona and 24,1% in Milan, in 2006), however showing a different relative variation (+54,4% in the Barcelona LUZ and +12,8% in the Milan LUZ).

Mineral extraction and dump sites have substantially increased in percentage in the Barcelona LUZ (+38,1% and +101,2%, respectively), having on the contrary decreased in Milan's (-5,8% and -79,8%, respectively); however, their relative proportion to total artificial areas is similar. Construction sites have also increased, in percentage, with almost double in Barcelona LUZ (+297,4%) than Milan LUZ (+178,6%), although absolute figures consistently differ, being almost 8 times more in Barcelona (1.200 hectares) than in Milan (156 hectares) in 2006.

Between 1990 and 2006, within the Barcelona LUZ the artificial surfaces grew by +20,9%, compared to +6,7% in the Milan LUZ, and the proportion of built-up areas to the total surface is around 30% for the Barcelona LUZ and almost 40% for the Milan LUZ. However, as the extension of total artificial surfaces of both LUZ areas is quite similar (56.650 in the Barcelona LUZ and 53.248 in the Milan LUZ, in 2006), and if one looks to the absolute numbers by land use, it seems that the Barcelona LUZ is 'catching up' with the Milan LUZ to reach similar absolute figures in terms of discontinuous residential areas, industrial and commercial areas, roads and railways, and sport and leisure facilities.

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<sup>17</sup>As per all the tables presented in this section, only the artificial uses of the Corine Land Cover (CLC) datasets have been considered in the intersection procedure through Esri ArcGis<sup>®</sup>. However, the total surface for both LUZes has been retrieved from the shapefiles available from EEA (European Environment Agency) (2011), which refer to 2009 and which consider all land uses, despite using a different nomenclature – although inspired and comparable with the Corine Land Cover (CLC) classification.

<sup>18</sup>The intersection of the Larger Urban Zone (LUZ) boundaries (2009) for Barcelona with Corine Land Cover (CLC) data for 2000 did not return any value for CLC class 1.2.4 (Airports). Visual examination and comparison of the obtained maps through Esri ArcGis<sup>®</sup> highlighted the omission of the polygon representing El Prat Airport compared to CLC 1990 and 2006 inventories. Hence, the extension of 518ha of the airport in 1990 has been maintained also for 2000, after the visual examination of the maps.

**Table 6.9:** Corine Land Cover classes (1990–2006) intersected with Barcelona administrative boundaries. Source: EEA, Idescat, MMZ. Author's elaboration.

Land use classes	Barcelona administrative area							
	1990 (ha)	%	2000 (ha)	%	2006 (ha)	%	% 1990–2006	Variation
Continuous residential areas	5096,0	63,3	5082,0	61,6	5077,0	61,1		-0,4
Discontinuous residential areas	914,0	11,4	921,0	11,2	921,0	11,1		0,8
Industrial and commercial areas	1045,0	13,1	1198,0	14,5	1195,0	14,4		0,0
Roads and railways	47,0	0,6	47,0	0,6	50,0	0,6		6,4
Ports	477,0	6,0	595,0	7,2	594,0	7,2		24,5
Airports	0,0	0,0	0,0	0,0	0,0	0,0		0,0
Mineral extraction sites	1,0	0,0	2,0	0,0	2,0	0,0		100,0
Dump sites	0,0	0,0	0,0	0,0	0,0	0,0		0,0
Construction sites	59,0	0,7	0,0	0,0	51,0	0,6		-13,6
Green urban areas	277,0	3,5	278,0	3,4	278,0	3,3		0,4
Sport and leisure facilities	69,0	0,9	132,0	1,6	138,0	1,7		100,0
Total urbanized areas	7985,0	100,0	8255,0	100,0	8306,0	100,0		4,0
Total area	10 100,0		10 100,0		10 100,0			
Total urbanized area to total area		79,1		81,7		82,2		



**Table 6.10:** Corine Land Cover classes (1990–2006) intersected with Milan administrative boundaries. Source: EEA, Istat. Author's elaboration.

Land use classes	Milan administrative area							
	1990 (ha)	%	2000 (ha)	%	2006 (ha)	%	% 1990–2006	Variation
Continuous residential areas	3122,0	23,3	3122,0	23,2	3122,0	23,0		0,0
Discontinuous residential areas	7223,0	54,0	7273,0	54,0	7279,0	53,6		0,8
Industrial and commercial areas	1259,0	9,4	1313,0	9,7	1448,0	10,7		15,0
Roads and railways	437,0	3,3	439,0	3,3	439,0	3,2		0,5
Ports	0,0	0,0	0,0	0,0	0,0	0,0		0,0
Airports	54,0	0,4	58,0	0,4	58,0	0,4		7,4
Mineral extraction sites	31,0	0,2	29,0	0,2	29,0	0,2		-6,5
Dump sites	38,0	0,3	38,0	0,3	38,0	0,3		0,0
Construction sites	56,0	0,4	29,0	0,4	29,0	0,8		105,4
Green urban areas	832,0	6,2	826,0	6,1	719,0	5,3		-13,6
Sport and leisure facilities	332,0	2,5	323,0	2,4	323,0	2,4		-2,7
Total urbanized areas	13 384,0	100,0	13 478,0	100,0	13 570,0	100,0		
Total area	18 210,0		18 210,0		18 210,0			
Total urbanized area to total area		73,5		74,0		74,5		

Some concluding comments can be put forward with regard to tables 6.11 and 6.12. In terms of discontinuous residential areas, the Barcelona Larger Urban Zone confirms the less dispersed character of the Barcelona case when compared to the Milan case. However, in comparison to the data on administrative boundaries, the Barcelona LUZ area is more dispersed.

Furthermore, transport infrastructures substantially increased in the Barcelona LUZ, and so did construction sites. In this respect, the Milan LUZ seems more ‘stable’, as transport facilities remained roughly the same. The higher increase in built-up areas between 1990 and 2006 shown by Barcelona (+20,9%, 9.790ha) is due to transport infrastructures (roads and railways, and especially the airport), to industrial and commercial areas and to construction sites. In Milan, the more contained increase of new built-up areas between 1990 and 2006 (+6,7%, 3.342ha) has been mostly due to discontinuous residential areas (1.687ha) and industrial and commercial sites (1.456ha).

In the Barcelona case, the high increase of transport (and especially airport) facilities, and the huge increase and amount of hectares of land allocated to construction sites, may suggest that the Corine Land Cover (CLC) data ‘captured’ Barcelona in a sort of ‘a work in progress’ development, whose zoning and effects only more recent data could better account for<sup>19</sup>. In addition, compared to the previous tables on administrative boundaries (see tab. 6.9 and tab. 6.10), the consistent growth of transport infrastructures, dumps and mineral extraction sites, and open building yards in the Barcelona LUZ, suggests an ‘outsourcing’ of these functions to the areas outside its administrative boundaries.

In synthesis, in the Barcelona LUZ, the growth of transport infrastructures seems to be more connected with the growth of industrial and commercial areas and the enlargement of economic activities, while in Milan LUZ land use transformations remained more stable, nevertheless showing an increase in discontinuous residential areas and industrial and commercial sites. By considering Barcelona and Milan LUZes, the Barcelona case still presents less discontinuous residential areas than the Milan case, with the Barcelona case however showing a consistent growth in artificial surfaces and a clearer connection between the increase of transport infrastructures and industrial and commercial areas.

### **Barcelona and Milan Urban Morphological Zones (UMZ)**

In tables 6.13 and 6.14, discontinuous residential areas in Barcelona Urban Morphological Zone (UMZ) increased by +49,5%, while in Milan UMZ only +3%. However, considering that Milan UMZ is roughly three times larger than Barcelona UMZ, absolute values of discontinuous residential areas in Milan LUZ (66.696ha in 2006) greatly outpace the absolute values in Barcelona LUZ (9.334ha in 2006). Furthermore, the proportion of discontinuous residential areas in Barcelona UMZ attains around 25%, while it reaches over 70% in Milan UMZ. The proportion of continuous residential areas is much higher in Barcelona UMZ (38,5% in 2006), despite its weight having decreased over time (-13,6 percent points), while they have remained stable over the three considered periods (1990, 2000 and 2006) around 6% of all artificial areas in the Milan UMZ.

Transport infrastructures substantially increased in Barcelona UMZ, especially roads and airport areas<sup>20</sup>, while Milan UMZ roads and railways ‘only’ show +33,7% increase. The relative weight of all transport infrastructures combined (roads and railways, ports and airports)

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<sup>19</sup>The 2012 Corine Land Cover (CLC) survey has not yet been released by the European Environment Agency.

<sup>20</sup>The huge percent increase of airport areas in Barcelona UMZ is due to the fact that, in calculating the relative variation, the value for 1990 has been set to 1. Otherwise, the operation is unobtainable having 0 at the denominator.

**Table 6.11:** Corine Land Cover classes (1990–2006) intersected with Barcelona Larger Urban Zones (LUZ). Source: EEA. Author's elaboration.

Land use classes	Barcelona LUZ area							
	1990 (ha)	%	2000 (ha)	%	2006 (ha)	%	% 1990–2006	Variation
Continuous residential areas	17 579,0	37,5	18 110,0	34,9	17 618,0	31,1		0,2
Discontinuous residential areas	19 192,0	41,0	20 318,0	39,1	21 455,0	37,9		11,8
Industrial and commercial areas	6 803,0	4,5	9 458,0	18,2	10 505,0	18,5		54,4
Roads and railways	85,0	0,2	85,0	0,2	616,0	1,1		624,7
Ports	6 200,0	1,3	812,0	1,6	854,0	1,5		37,7
Airports	518,0	1,1	518,0	1,0	1 359,0	2,4		162,4
Mineral extraction sites	884,0	1,9	1 003,0	1,9	1 221,0	2,2		38,1
Dump sites	82,0	0,2	90,0	0,2	165,0	0,3		101,2
Construction sites	302,0	0,6	368,0	0,7	1 200,0	2,1		297,4
Green urban areas	277,0	0,6	278,0	0,5	338,0	0,6		22,0
Sport and leisure facilities	518,0	1,1	897,0	1,7	1 319,0	2,3		154,6
Total urbanized areas	46 860,0	100,0	51 937,0	100,0	56 650,0	100,0		20,9
Total area	179 952,0		179 952,0		179 952,0			
Total urbanized area to total area		26,0		28,9		31,5		

**Table 6.12:** Corine Land Cover classes (1990-2006) intersected with Milan Larger Urban Zones (LUZ). Source: EEA. Author's elaboration.

Land use classes	Milan LUZ area						% 1990-2006 Variation
	1990 (ha)	%	2000 (ha)	%	2006 (ha)	%	
Continuous residential areas	3812,0	7,6	3821,0	7,5	3821,0	7,2	0,2
Discontinuous residential areas	29660,0	59,4	29935,0	59,0	31347,0	58,9	5,7
Industrial and commercial areas	11368,0	22,8	11873,0	23,4	12824,0	24,1	12,8
Roads and railways	792,0	1,6	800,0	1,6	800,0	1,5	1,0
Ports	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Airports	593,0	1,2	601,0	1,2	601,0	1,1	1,3
Mineral extraction sites	739,0	1,5	826,0	1,6	696,0	1,3	-5,8
Dump sites	188,0	0,4	182,0	0,4	38,0	0,1	-79,8
Construction sites	56,0	0,1	57,0	0,1	156,0	0,3	178,6
Green urban areas	1450,0	2,9	1437,0	2,8	1455,0	2,7	0,3
Sport and leisure facilities	1249,0	2,5	1244,0	2,4	1510,0	2,8	20,9
Total urbanized areas	49907,0	100,0	50776,0	100,0	53248,0	100,0	6,7
Total area	134409,0		134409,0		134409,0		
Total urbanized area to total area		37,1		37,8		39,6	

compared to the total artificial surfaces is greater in Barcelona than in Milan UMZ (7,1% than 1,0%, respectively, in 2006).

Despite Milan UMZ shows a greater amount of industrial and commercial areas in absolute values compared to Barcelona UMZ, the relative variation of this land use type has been substantial in Barcelona UMZ (+96,3%), achieving 25,5% of the total built-up areas in 2006, while being less in Milan UMZ (+7,9%), taking less than 20% of the total built-up areas (18,4% in 2006). Construction sites have also substantially increased in Barcelona UMZ (+457,7%), and so have sport and leisure facilities (+430,6%). While in Milan UMZ green urban areas have decreased (-10,8%), their absolute values, as in the case of sport and leisure facilities, is considerably greater than in Barcelona UMZ.

Between 1990 and 2006, the built-up areas in Barcelona UMZ increased by +44,3%, while Milan UMZ showed a more contained growth (+4,1%)<sup>21</sup>. However, the proportion of built-up areas to the total surface remains stable for both UMZes (approximately 90%).

As per the previous tables on administrative boundaries and Larger Urban Zones (LUZ), the tables 6.13 and 6.14 show a more stable pattern of land use transformation for Milan than for Barcelona. In the Barcelona case, the relationship between the growth of transport infrastructures (roads and railways and airport areas) and industrial and commercial sites is clear, together with an increase of discontinuous residential areas. As in the case of Barcelona LUZ, the Corine Land Cover (CLC) data continue to display a compact character in the Barcelona UMZ in terms of residential areas (38,5% of artificial surfaces), however discontinuous residential areas reach a substantial share of the total of built-up areas (25,8%), similar to industrial and commercial areas (25,5%). Such transformation still seems to be related to the increase of transport infrastructures, however the growth of discontinuous residential areas is coupled with the increase of industrial and commercial sites. Beyond the administrative boundaries of Barcelona, de-localization and de-concentration of residential and economic functions is found, as in the case of Barcelona LUZ. In the case of Milan UMZ, discontinuous residential areas are the characterizing land use type, their proportion reaching over 70% of the artificial surfaces. Industrial and commercial areas also take up a consistent share of the built-up area of Milan UMZ (18,4%). The growth of transport areas seems also to be connected with the growth of industrial and commercial areas (+7,9%), however the great proportion of discontinuous residential areas characterizing Milan UMZ is striking.

### **Barcelona and Milan provinces (NUTS3 levels)**

Tables 6.15 and 6.16 show the comparison of land use transformations in Barcelona and Milan province, both in absolute values and relative variation, between 1990 and 2006<sup>22</sup>. In this timespan, discontinuous residential areas have increased in Barcelona province by +11,2%, while in Milan province by +21,2%. As in the previously considered scales, in Milan province as well discontinuous residential areas are the characterizing land use type of artificial areas, taking up 63,9% of all built-up areas; although continuous residential areas have also

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<sup>21</sup>The total area of Barcelona and Milan Urban Morphological Zones (UMZ) change as, by definition, Urban Morphological Zones (UMZ) are identified by the morphological area of the city, which is growing over time. For more details, see Appendix sec. C.

<sup>22</sup>It is important to consider that 1990 data are technically different than the 2000 and 2006 surveys (for further details, see tab. B.1 in Appendix sec. B). Such discrepancies are apparent in the following tables, where the sum of the total urbanized areas, agricultural areas, forests, semi-natural lands and water bodies is inferior to the total area surveyed in 2000, which is taken as reference for all Corine Land Cover (CLC) inventories (see tab. B.1 in Appendix sec. B). For this reason, the relative variation between 1990 and 2006 of agricultural areas and forests, semi-natural lands and water bodies has not been calculated, while the relative variation of artificial areas should be considered as indicative, as it seems that this discrepancy problem affect less artificial areas than other Corine Land Cover (CLC) land categories.

**Table 6.13:** Corine Land Cover classes (1990–2006) intersected with Barcelona Urban Morphological Zone (UMZ). Source: EEA. Author's elaboration.

Land use classes	Barcelona UMZ area							
	1990 (ha)	%	2000 (ha)	%	2006 (ha)	%	% 1990–2006	Variation
Continuous residential areas	13 055,0	52,1	13 185,0	48,3	13 912,0	38,5		6,6
Discontinuous residential areas	6 244,0	24,9	6 563,0	24,0	9 334,0	25,8		49,5
Industrial and commercial areas	4 696,0	18,7	6 172,0	22,6	9 217,0	25,5		96,3
Roads and railways	85,0	0,3	85,0	0,3	544,0	1,5		540,0
Ports	5 58,0	2,2	6 60,0	2,4	6 87,0	1,9		23,1
Airports	0,0	0,0	0,0	0,0	13 45,0	3,7		13 400,0
Mineral extraction sites	0,0	0,0	1,0	0,0	5,0	0,0		400,0
Dump sites	0,0	0,0	0,0	0,0	5,0	0,0		400,0
Construction sites	26,0	0,1	31,0	0,1	1 45,0	0,4		457,7
Green urban areas	2 77,0	1,1	2 78,0	1,0	3 36,0	0,9		21,3
Sport and leisure facilities	1 21,0	0,5	3 30,0	1,2	6 42,0	1,8		4 30,6
Total urbanized areas	25 062,0	100,0	27 305,0	100,0	36 172,0	100,0		44,3
Total area	26 491,0		29 295,0		39 157,0			
Total urbanized area to total area		94,6		93,2		92,4		

**Table 6.14:** Corine Land Cover classes (1990–2006) intersected with Milan Urban Morphological Zone (UMZ). Source: EEA. Author's elaboration.

Land use classes	Milan UMZ area							
	1990 (ha)	%	2000 (ha)	%	2006 (ha)	%	% 1990–2006	Variation
Continuous residential areas	5324,0	5,9	5442,0	6,0	5526,0	5,9		3,8
Discontinuous residential areas	64758,0	71,8	65388,0	71,7	66696,0	71,1		3,0
Industrial and commercial areas	15980,0	17,7	16245,0	17,8	17246,0	18,4		7,9
Roads and railways	190,0	0,2	264,0	0,3	254,0	0,3		33,7
Ports	0,0	0,0	0,0	0,0	0,0	0,0		0,0
Airports	730,0	0,8	724,0	0,8	724,0	0,8		-0,8
Mineral extraction sites	9,0	0,0	15,0	0,0	16,0	0,0		77,8
Dump sites	1,0	0,0	1,0	0,0	1,0	0,0		0,0
Construction sites	4,0	0,0	7,0	0,0	10,0	0,0		150,0
Green urban areas	1818,0	2,0	1768,0	1,9	1621,0	1,7		-10,8
Sport and leisure facilities	1362,0	1,5	1339,0	1,5	1769,0	1,9		29,9
Total urbanized areas	90176,0	100,0	91193,0	100,0	93863,0	100,0		4,1
Total area	98296,0		101827,0		104689,0			
Total urbanized area to total area		91,7		89,6		89,7		

increased in the Milan province (+17,2%), discontinuous residential areas are nevertheless the characterizing land use type of this province. The built-up areas of Barcelona province also present a substantial amount of discontinuous residential areas (40,7%), outpacing continuous residential areas, which nevertheless occupy almost 30% of the built-up areas in the Barcelona province. However, as the built-up areas of the Milan province are characterized by discontinuous residential areas (63,9%) more than in the Barcelona province (40,7%), the Milan province can be considered, in these terms, more dispersed, a conclusion that can be also confirmed by looking at absolute values. Furthermore, in proportion to the total artificial surfaces, continuous residential areas amount to roughly 30% in the Barcelona province, while reaching only around 6% in the Milan province.

Absolute values and proportions of artificial areas of industrial and commercial areas are similar, however the Barcelona province shows a higher increase in industrial and commercial areas (+58,5%) than the Milan province (+39,2%) within the considered timeframe (1990–2006).

Transport areas (roads and railways, ports and airports) have substantially increased in the Barcelona province, and absolute values (in hectares) are much higher in the Barcelona province than in the Milan province. As an illustration, in 2006 the sum of all transport areas amounts to 3.135 hectares in Barcelona, while it reaches only 1.415 hectares in Milan (roughly half). Furthermore, by considering transport areas all together (roads and railways, ports and airports), in 2006 the Barcelona province could count on a total of 3.135 hectares of transport facilities, composed of 36,8% of port areas, 43,3% of airport areas and 19,8% of roads and railways. In contrast, in the Milan province there are in total 1.415 hectares of transport infrastructures, subdivided into 41,9% of airport facilities (so roughly the same as in the case of the Barcelona province), and 58,1% of roads and railways, which, by referring to table 6.6, may mostly be constituted by roads. The great increase of roads and railways in the Barcelona province (+630,6%) should nevertheless be considered in comparison to the Milan case: in absolute terms, in 2006 the Barcelona province has 621 hectares of roads and railways compared to 822 hectares in the Milan province.

Construction sites have also greatly increased both in the Barcelona province (+407,1%) and in the Milan province (+876,8%), however absolute values are substantially different (1.714ha of construction sites in the Barcelona province, and 547ha in the Milan province), as well as proportions to the total of urbanized surfaces (in 2006, 2,0% in the Barcelona province compared to 0,7% in the Milan province).

In the Barcelona province, urban green areas and sport facilities have increased (+20,9%), as well as in Milan province (+12,3%), while sport and leisure facilities have similarly increased, attaining also similar absolute values between the two provinces.

Between 1990 and 2006, total built-up areas similarly increased in both provinces, growing by +20,8% in the Barcelona province and +26,1% in the Milan province. By comparing years 2000 and 2006 (however see footnote 22 on page 192), open and agricultural areas have similarly decreased in both provinces. However, the proportion of artificial surfaces to the total area reaches 37% in the Milan province, while it attains only 11% in the Barcelona province. Although the Barcelona province is almost four times larger than the Milan province (774.569 hectares compared to 198.700 hectares), in absolute values (in 2006) the total artificial surfaces are roughly similar, amounting to 85.090 hectares in the Barcelona province and 73.482 in the Milan province. Hence, comparatively, the Barcelona province is much less urbanized than the Milan province. The 37% value reached by the Milan province expressing the proportion between artificial and open areas is considered an alarming threshold as urbanized areas are dangerously approaching to the 45% threshold, which is deemed



to put into risk the capacity of soil environmental regeneration (Centro Studi PIM, 2009, p. 12). Such high proportion of urbanized areas to the total surface allows the coining of the term ‘Milanese urban region’ (*regione urbana milanese*) to point out the large expansion of artificial surfaces onto (and into) the territory of the Milan province.

As concluding remarks on tables 6.15 and 6.16, the built-up surfaces of the Barcelona province present less discontinuous areas than the Milan province, and as previously noted, the growth of transport areas in the Barcelona province seems to be more connected with industrial and commercial sites, given also the substantial enlargement of the airport (which is not only used for passengers but also for cargo), while in the Milan province roads and railways are less developed and seem to be more connected with the growth of discontinuous areas *and* industrial and commercial sites.

Hence, it seems that transport infrastructures in the Barcelona province are more industry- and service-oriented than urban sprawl-related, as in the case of the Milan province. In the Barcelona case, there seems to be a connection between the relevant weights that, proportionally, ports and airport areas have in proportion as compared to roads and railways. Although in the Barcelona province, discontinuous residential areas amount, in 2006, to 40,7% of the total urbanized surfaces, it is however much less than in the Milan province (63,9%), and continuous residential areas in the Barcelona province still amount to a substantial share of the total of urbanized areas (29,3%, in 2006) compared to the Milan province (6,3%).

Industrial and commercial areas in both the Barcelona and Milan province weigh in a similar way (18,7% in the Barcelona province and 21,4% in the Milan province, in 2006), however the Barcelona province seems to be better equipped in terms of transport infrastructures to boost economic development as a ‘sea’ and ‘air’ hub. In contrast, in the Milan case, where a large proportion of transport facilities are characterized by roads and railways (and arguably more by roads), the proportion of continuous residential areas is more contained (6,3% in 2006), while the proportion of discontinuous residential areas is substantially greater (63,9%) compared to the total amount of urbanized areas.

Table 6.17 shows detailed information on the new artificial surface produced between 1990 and 2006 in the Barcelona and Milan province by land use type. In absolute terms, Barcelona and Milan province expanded in a similar way (14.635 hectares and 15.227 hectares, respectively), however, it is possible to note that, in the Milan province, 53,9% of the newly built-up areas have been taken up by discontinuous residential areas, this figure attaining 23,9% in the Barcelona province. Table 6.17 also clearly displays that 40,2% of the built-up areas in the Barcelona province between 1990 and 2006 is occupied by industrial and commercial areas, and 11,5% by transport areas (roads and railways, ports and airports), while in the Milan province, such figures reach 29,1% and 0,4%, respectively. In the Barcelona province, construction sites are also a consistent proportion of the newly built-up areas (9,4%), sport and leisure facilities being almost equal in percent and absolute values in both provinces. It is also relevant to note that, in the Milan case, once the focus on land transformation is changed from Milan as metropolitan center to its province, the relative weight of transport infrastructures dramatically decreases, hinting that most of the transport infrastructures are built within and around Milan.

Between 1990 and 2006, the Barcelona and Milan provinces have similarly grown in absolute terms, however the newly built artificial surfaces in the Barcelona province are taken up by industrial and commercial areas, discontinuous residential areas and transport areas, while in the Milan province the newly built-up areas are characterized by discontinuous residential areas and industrial and commercial areas.

**Table 6.15:** Corine Land Cover classes (1990–2006) for Barcelona province (NUTS3 area). Source: EEA. Author's elaboration.

Land use classes	Barcelona province (NUTS3 area)							
	1990 (ha)	%	2000 (ha)	%	2006 (ha)	%	% 1990–2006	Variation
Continuous residential areas	24 717,0	35,1	24 720,0	30,7	24 894,0	29,3		0,7
Discontinuous residential areas	31 154,0	44,2	34 032,0	42,3	34 649,0	40,7		11,2
Industrial and commercial areas	10 048,0	14,3	14 287,0	17,8	15 930,0	18,7		58,5
Roads and railways	85,0	0,1	614,0	0,8	621,0	0,7		630,6
Ports	854,0	1,2	1140,0	1,4	1155,0	1,4		35,2
Airports	518,0	0,7	626,0	0,8	1359,0	1,6		162,4
Mineral extraction sites	1703,0	2,4	2168,0	2,7	2300,0	2,7		35,1
Dump sites	187,0	0,3	311,0	0,4	351,0	0,4		87,7
Construction sites	338,0	0,5	754,0	0,9	1714,0	2,0		407,1
Green urban areas	277,0	0,4	312,0	0,4	335,0	0,4		20,9
Sport and leisure facilities	574,0	0,8	1428,0	1,8	1782,0	2,1		210,5
Total urbanized areas	70 455,0	100,0	80 392,0	100,0	85 090,0	100,0		
Total urbanized areas	70 455,0	9,1	80 392,0	10,4	85 090,0	11,0		20,8
Agricultural areas	252 499,0	32,6	243 715,0	31,5	239 867,0	31,0		
Forests, semi-natural lands and water bodies	439 598,0	56,8	450 462,0	58,2	449 612,0	58,0		
Total area	774 569,0	98,4	774 569,0	100,0	774 569,0	100,0		
Total urbanized area to total area		9,1		10,4		11,0		

**Table 6.16:** Corine Land Cover classes (1990–2006) for Milan province (NUTS3 area). Source: EEA. Author's elaboration.

Land use classes	Milan province (NUTS3 area)									
	1990 (ha)	%	2000 (ha)	%	2006 (ha)	%	% 1990–2006	Variation		
Continuous residential areas	3966,0	6,8	4650,0	6,5	4650,0	6,3		17,2		
Discontinuous residential areas	38 719,0	66,5	46 101,0	64,5	46 929,0	63,9		21,2		
Industrial and commercial areas	11 306,0	19,4	14 824,0	20,7	15 738,0	21,4		39,2		
Roads and railways	768,0	1,3	792,0	1,1	822,0	1,1		7,0		
Ports	0,0	0,0	0,0	0,0	0,0	0,0		0,0		
Airports	593,0	1,0	593,0	0,8	593,0	0,8		0,0		
Mineral extraction sites	669,0	1,1	854,0	1,2	753,0	1,0		12,6		
Dump sites	233,0	0,4	114,0	0,2	114,0	0,2		-51,1		
Construction sites	56,0	0,1	124,0	0,2	547,0	0,7		876,8		
Green urban areas	1417,0	2,4	1671,0	2,3	1591,0	2,2		12,3		
Sport and leisure facilities	528,0	0,9	1745,0	2,4	1745,0	2,4		230,5		
Total urbanized areas	58 255,0	100,0	71 468,0	100,0	73 482,0	100,0				
Total urbanized areas	58 255,0	29,3	71 468,0	36,0	73 482,0	37,0		26,1		
Agricultural areas	99 064,0	9,9	117 051,0	58,9	115 048,0	57,9				
Forests, semi-natural lands and water bodies	6870,0	3,5	10 181,0	5,1	10 170,0	5,1				
Total area	198 700,0	82,6	198 700,0	100,0	198 700,0	100,0				
Total urbanized area to total area		29,3		36,0		37,0				

**Table 6.17:** Newly built areas relative to Corine Land Cover classes as proportions to the total 1990–2006 variation of built-up areas. Source: EEA. Author's elaboration.

Land uses	Barcelona	Milan			
Newly built residential continuous areas (CLC class 1.1.1)	177,0	1,2	684,0	4,5	
Newly built discontinuous residential areas (CLC class 1.1.2)	3495,0	23,9	8210,0	53,9	
Newly built industrial and commercial areas (CLC class 1.2.1)	5882,0	40,2	4432,0	29,1	
Newly built roads and railways (CLC class 1.2.2)	536,0	3,7	54,0	0,4	
Newly built ports (CLC class 1.2.3)	301,0	2,1	0,0	0,0	
Newly built airport areas (CLC class 1.2.4)	841,0	5,7	0,0	0,0	
Newly opened mineral extraction sites (CLC class 1.3.1)	597,0	4,1	84,0	0,6	
Newly opened dump sites (CLC class 1.3.2)	164,0	1,1	-119,0	-0,8	
New construction sites (CLC class 1.3.3)	1376,0	9,4	491,0	3,2	
Newly built green urban areas (CLC class 1.4.1)	58,0	0,4	174,0	1,1	
Newly built sport areas and facilities (CLC class 1.4.2)	1208,0	8,3	1217,0	8,0	
Total hectares of <i>newly</i> built areas	14 635,0	100,0	15 227,0	100,0	

### **Territorial dispersion in Barcelona and Milan: a synthesis**

By referring to the tables shown above (tab. 6.9, 6.10, 6.11, 6.12, 6.13, 6.14, 6.15, 6.16 and 6.17), the built-up areas of the Barcelona case, in all the considered scales, shows fewer discontinuous residential areas, that is urban sprawl, as operationally defined in this dissertation (see sec. 5.3.1). In the Barcelona case, the increase in transport infrastructures seems to be connected with the growth of industrial and commercial areas, while in the Milan case, transport (mainly roads and railways) facilities appear to be connected with the growth of discontinuous residential areas and industrial and commercial areas.

The relevance to having employed a diversity of territorial scales allowed the problematization of urban sprawl as a phenomenon of spatial dispersion, and to show the complexities of the measurement of a spatial phenomenon through case studies comparison and different quantitative sources on land use transformations.

### **6.3 Summary**

Barcelona and Milan can be represented by a diversity of territorial scales. When measuring urban sprawl and transport areas, such territorial scales have to be taken into consideration. A comparison between local data on the land use transformations of Barcelona and Milan administrative boundaries and metropolitan areas (approximately over a 50 years period, from 1950s to 2000s) show that the characteristic land use type of the built-up form in Milan corresponds to discontinuous residential areas. In contrast, the artificial surfaces of Barcelona municipality present less discontinuous areas, being more characterized by continuous residential areas. Nevertheless, the artificial surfaces of both Barcelona and Milan metropolitan areas present more discontinuous residential areas than within their municipal boundaries, indicating a functional outsourcing of residential functions from the city center to the surrounding municipalities.

The comparison between Barcelona and Milan administrative boundaries, Larger Urban Zones (LUZ), Urban Morphological Zones (UMZ) and provinces (NUTS3), corroborates the less dispersed character of the Barcelona built-up form, where, despite the increase of discontinuous residential areas over the 1990 and 2006 period, is still characterized by continuous residential areas and industrial and commercial areas, together with the growth of transport infrastructures. The artificial surfaces in the case of Milan, at these different territorial scales, is more dispersed, discontinuous residential areas amounting to over 50% of the built-up areas.

## Chapter 7

# Explaining territorial dispersion patterns of urban sprawl in Barcelona and Milan from a territorial governance perspective

Chapter 4 has explained how in order to understand how cities bargain land for development, this dissertation presents how two different theoretical perspectives have been combined (see sec. 4.8). First, the bargaining context model is employed to account for the type of urban political choices over development that can be expected in a city, adapting this analytical framework to the specific negotiation of land as a key resource. Second, the territorial, multi-scalar governance perspective is used to problematize and contextualize urban political choices within a broader spatial and institutional governance setting, pointing out the actors involved in land management for (sprawled) housing provision (i.e. the ‘execution’ dynamics of housing models, see sec. 3.2 and 4.8). Governance dynamics are not only occurring *at* different institutional levels, according to specific land use competences and bargaining scope over land among public and private actors, but are also happening *between* different governance scales (e.g. national, regional, metropolitan, provincial and urban levels), each of which is defining its proper setting for action with regard to land use and land use transformation.

In sum, first, the analysis of ‘in-between’ territorial bargaining dynamics helps explain if actors ‘located’ at different institutional scales can intervene over land use management. Second, the analysis of ‘within’ territorial bargaining dynamics allows us to account for the scope of action that actors have, at different institutional scales, over land use management and land use change. And third, the bargaining context model helps provide a framework to explain in particular the rationale through which local governments’ decisions over land allocation for dispersed residential areas are taken.

As we have seen in section 4.8 and in the proposed model presented in figure 4.2 on page 111, such combined theoretical framework can more realistically account for the ‘execution processes’ of housing models, clarifying the roles of a diversity of actors in such dynamics, in the attempt to explain the type of spatial (sprawled vs. compact) character of the constructed residential areas.

Chapter 6 showed how, by considering a diversity of territorial scales, Barcelona and Milan present different amounts of sprawled areas, operationalized as discontinuous residential areas (see sec. 5.3.1); compared to the Milan case, the built-up areas in the Barcelona case appear to be less dispersed with regard to residential functions, although both municipalities have experienced a similar de-concentration process of residential and economic activities, which have been accommodated within their respective metropolitan areas. Transport areas have particularly increased in the Barcelona case, and appear to be more connected with the fostering of industrial and commercial areas than discontinuous residential areas only, as appears to be the case in the Milan area. In the Barcelona case, the increase in trans-

port infrastructures are more connected with the growth of industrial and commercial areas, continuous and discontinuous residential areas maintaining a constant share of built-up areas, while in the Milan case, transport (mainly roads and railways) facilities appear to be connected with the growth of discontinuous residential areas and industrial and commercial areas, continuous residential areas being limitedly present, especially in Milan metropolitan area and province.

Urban sprawl being a spatial and quantifiable phenomenon, the quantification of land occupancy is a necessary step to describe dispersed residential patterns (Font Arellano et al., 2005, p. 8), yet it is not sufficient to provide explanations on its occurrence. Hence, by drawing on the evidence presented in Chapter 6, Chapter 7 proposes an explanation of the less dispersed character of residential areas in the Barcelona case by employing the theoretical framework introduced in this dissertation, which has been presented in section 3.2, re-elaborated in Chapter 4 and especially in section 4.8, and operationalized in Chapter 5. Chapter 7 deals with the governance processes that are assumed to involve the ‘gatekeepers’ in engaging in the provision of housing models being more (in the Milan case) or less (in the Barcelona case) characterized by dispersed residential areas. Findings related with the dimensions that are considered to be crucial in explaining urban sprawl (see tab. 5.1 and tab. 5.5) are put forward.

First, demographic figures are considered (sec. 7.1), in order to examine demographic de-concentration from Barcelona and Milan city centers to the surrounding territories, in the attempt to explain the functional decentralization of residential areas onto their respective metropolitan areas. Urban sprawl is considered to be defined by demographic de-concentration (see sec. 2.3 and especially 2.3.1.1) through demographic flows (see sec. 3.1.3). The number of local administrative units is also examined (sec. 7.2) as a way to check for inter-urban (inter-municipal) competition (see sec. 3.1.7) in land bargaining in order to explain the different occurrence of urban sprawl in the cases of both Barcelona and Milan.

Second, Barcelona and Milan are positioned within the Kantor and Savitch (2002, 2005) bargaining context model (sec. 7.3). Their relative locations within the model will be discussed by considering the four dimensions employed by the authors, namely market conditions, intergovernmental support, popular control systems and local culture (see sec. 4.7.4). Such a task will identify the type of context that more likely characterizes and influences urban political choices over development in both cities.

Third, by adopting a territorial, multi-scalar and multi-actor governance perspective, ‘in-between’ and ‘within’ scale bargaining dynamics over land management are analyzed (sec. 7.4) to explain the different occurrence of urban sprawl in the two considered contexts.

The analysis carried out in sections 7.3 and 7.4 pivots around the examination of qualitative data, highlighting the results obtained through the interviews (see sec. 5.6) and analysis of the policy and regulatory context (plans and planning regulations) in which ‘cities’ are acting. The role and the scope of action that public and private actors at different governance scales play with regard to land management and urban sprawl are evaluated.

Emphasis is given to national, regional, provincial, metropolitan and urban planning regulations that form the legal context in which Barcelona and Milan urban and suburban development has taken and continues to take place. The goal is neither to present an exhaustive list of all the planning regulations produced, or to analyze in detail the complex infrastructure that composes Italian and Spanish planning regulations at different administrative levels. The presentation of the national legal frame in Italy and Spain regarding land

policies is meant to clarify the context in which key moments of regional and urban planning had an influence (or not) on the urban development of both cities and their impact on urban sprawl occurrence. As discussed in sec. 5.5, planning is operationalized through a selection of plans and regulations in force at the national, regional, provincial, metropolitan and urban level. However, I am aware that planning is not solely defined in terms of plans and rules, and it is by no means merely a tool.

The analysis of the employed qualitative data is carried out under consideration of scale bargaining (in-between bargaining dynamics) and competences bargaining over land (within bargaining dynamics), among the different institutional actors that take action at these different governance scales, in accordance with the adopted theoretical framework (see sec. 4.8) and the methods employed (see sec. 5.5). Throughout the analysis, findings related to the roles of private actors, such as building constructors and real estate agents, are referred to. While investigating in-between and within governance dynamics among public actors over land management, the room for action for private agents is clarified, as they perform a different role regarding interdependence with different public actors at distinct governance scales.

## 7.1 Demography

The conclusion put forward in Chapter 6 suggested that residential areas in the Barcelona case are relatively less dispersed than the Milan case. This section investigates whether the different occurrences of territorial dispersion of residential areas in the two considered case studies are related to and explained by demographic variations.

In accordance with hypothesis H1 (see sec. 5.2), demographic data are presented in tables 7.1, 7.2, 7.3 and 7.4, in order to examine, in an intuitive and synthetic fashion, the general de-centralization patterns of the population in connection with the occurrence of urban sprawl. For both case studies, the presented demographic data refer to 1981, 1991, 2001 and 2011 censuses.

### Barcelona

Table 7.1 shows the total number of inhabitants for censuses 1981, 1991, 2001 and 2011 and the demographic relative variation registered between 1981 and 2001 (IDESCAT Catalan Institute of Statistics, 2011) for Catalonia, the Barcelona province, the Barcelona Metropolitan Area (AMB) and Region (RMB) and Barcelona municipality. The examination of this table can trace out demographic de-concentration processes: while Catalonia, the Barcelona province and the Barcelona Metropolitan Region (RMB) display a demographic increase (+26,2%, +19,5% and +12,6%, respectively), the Barcelona Metropolitan Area (AMB) attains a more contained demographic growth rate (+2,2%), while Barcelona municipality shows a decrease over the considered period (-8,1%), despite a demographic upswing between 2001 and 2011 (+7,1%). It is especially the growth rate displayed by the Barcelona province and the RMB that are particularly interesting for this dissertation: these sustained relative variations support the evidence that the RMB area, and the Barcelona province, serve as a ‘residential basin’ for the Barcelona population at the metropolitan scale, corroborating the link with land use transformation data shown in table 6.3 (see sec. 6.2.1). It seems reasonable to suggest that, with the AMB displaying a positive, yet weak demographic increase, it is the RMB that crops up as ‘accommodating area’ for the population potentially fleeing from Barcelona municipality, which in turn registered a population decrease. While it would be naive to believe that those inhabitants leaving Barcelona are exactly the same as those



**Table 7.1:** Total number of inhabitants and population change for years 1981, 1991, 2001 and 2011 for Barcelona municipality, the Barcelona Metropolitan Area (AMB), the Barcelona Metropolitan Region (RMB), the Barcelona province and Catalonia. Source: IDESCAT 2011. Author's elaboration.

Area	Barcelona				%1981– 2011 Variation
	1981	1991	2001	2011	
Barcelona municipality	1 752 627	1 643 542	1 503 884	1 611 013	-8,1
AMB	3 151 527	3 048 479	2 936 563	3 220 476	2,2
RMB	4 238 876	4 264 422	4 390 390	4 772 130	12,6
Barcelona province	4 623 204	4 654 407	4 805 927	5 522 566	19,5
Catalonia	5 956 414	6 059 494	6 343 110	7 519 842	26,2

**Table 7.2:** Proportion of inhabitants of Barcelona municipality, the Barcelona Metropolitan Area (AMB), the Barcelona Metropolitan Region (RMB) and Barcelona province to the total population in Catalonia, and variation in per cent points, 1981–2011. Source: IDESCAT 2011. Author's elaboration.

Area	Barcelona				1981–2011 Variation in percent points
	1981	1991	2001	2011	
Barcelona municipality	29,4	27,1	23,7	21,4	-8,0
AMB	52,9	50,3	46,3	42,8	-10,1
RMB	71,2	70,4	69,2	63,5	-7,7
Barcelona province	77,6	76,8	75,8	73,4	-4,2

who then locate their dwellings in the Barcelona Metropolitan Region (RMB)<sup>1</sup>, it is however arguable that part of the demographic loss of Barcelona municipality is connected with the demographic gains registered in the RMB (Serra, 2003, p. 48).

In a broader time frame, the de-concentration trend that occurred in the last 30 years (1981–2011), displayed in table 7.1, is in line with the gradual demographic de-concentration process of Barcelona municipality towards the AMB and the RMB since the 1960s, also in connection with the massive internal migration to Barcelona and its surrounding area during the post civil war period. Barcelona became saturated by the large immigration process, hence since the 1960s the population has already begun to relocate outside its administrative boundaries (Serra, 2003, p. 40ff; cf. Nel·lo i Colom, 2002). Therefore, demographic de-concentration from the ‘center’ (Barcelona municipality) to the ‘periphery’ (AMB and RMB) has been a demographic trend characterizing the area since 1960s.

Additionally, in a publication of the Barcelona Metropolitan Area (AMB) edited by Serra (2003, p. 48ff), the specific migration dynamics within the metropolitan areas of Barcelona, both in terms of relationship with the Barcelona Metropolitan Area (AMB) and Region (RMB), are examined. By using 1996–2001 demographic data, in the specific case of the Barcelona Metropolitan Area and Region, demographic de-concentration trends indicate the relocation of the population:

- from the city center to the periphery (*de dins cap a fora*);
- from larger municipalities to smaller ones (*dels municipis grans cap els petits*);
- from the municipal center to their surrounding areas (large, medium and small size municipalities; *dels centres cap als seus entorns*).

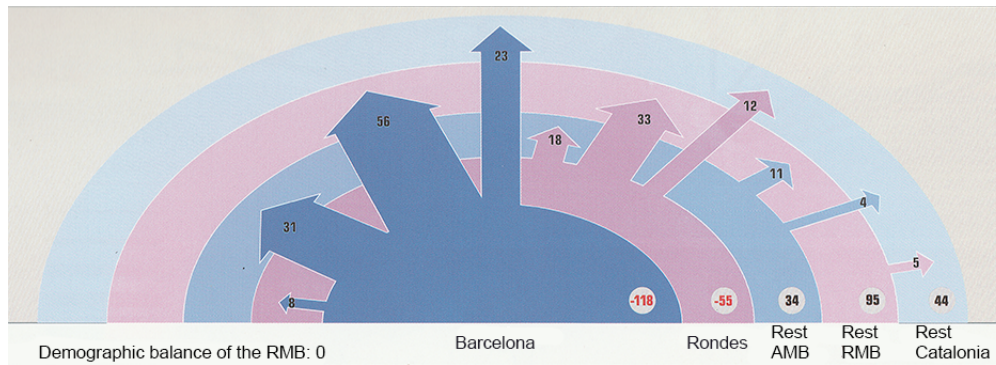
The authors of the publication edited by Serra (2003) explain such trends by claiming that, since the population re-locates following the ‘trail’ of the housing market (i.e. an affordable price connected with certain housing standards), households leave the expensive housing market of Barcelona city center for the first periphery (AMB), as well as the first periphery for the rest of the RMB (‘from the city center to the periphery’). Such a dynamic also implies that households move from larger municipalities (e.g. Barcelona, Sabadell or Terrassa, see sec. 5.3.4) to smaller centers located in the metropolitan area and region (‘from larger municipalities to smaller ones’). Similarly, each large, medium or small size municipality of the AMB and the RMB is composed by a center and a periphery, and even within the same municipality such center-periphery trend is recognizable (‘from the municipal center to the areas surrounding – large, medium and small size – municipalities’). All three demographic dynamics are shown in figure 7.1.

This analysis (Serra, 2003, p. 64) also demonstrates that new residents locating in the AMB area come mostly from the Barcelona *comarca* (*Barcelonès*; see sec. 7.4.1.2), following a more affordable housing offer and searching for certain housing standards (e.g. bigger house size, garden; see sec. 3.1.4). As will be shown in sections 7.4.1.2 and 7.4.1.3, housing preferences have historically played a significant role in Catalonia for demographic de-concentration patterns: the high population density of Barcelona city center pushed certain segments of the working class population to search for ‘nature’ in the Barcelona Metropolitan Area (AMB) and Region (RMB), materializing the phenomenon of second homes (between 1950s and 1970s, often illegally built). However, Muñoz (2007) highlights the sustained pace of building construction activities of sprawled residential areas also between 1985 and 2001, in relationship with the booming of the real estate market.

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<sup>1</sup>Testing such claim would require a self-standing research and the use of more detailed use of demographic data.

**Figure 7.1:** Residential re-localization ('migration balance') in Barcelona metropolitan area and region, and Catalonia, 1996–2001 (thousands of migrants). Source: Serra, 2003, p. 51.



Other studies confirm these demographic de-concentration trends (López Villanueva et al., 2010), and highlight the relationship between suburbanization and demographic mobility in the Barcelona Metropolitan Region (RMB) as example of the 'second demographic transition' occurring in developed countries (e.g. late and fewer marriages, higher divorce rates, decrease of fertility rate). In sum, the analysis concludes that, in the Barcelona Metropolitan Region (RMB), on the one hand, the largest and the densest municipalities lose population, while, on the other hand, the smallest, and those farther away from the metropolitan centre, gain inhabitants<sup>2</sup>. Although more recent analyses identify a reduction of this demographic trend and re-centralization dynamics towards compact centers, de-centralization processes of the population towards low density suburban areas located in the Barcelona Metropolitan Region (RMB) are still predominant (García Coll et al., 2014).

Nevertheless, the proportional demographic 'weight' of Barcelona, examined at different scales, to the total number of inhabitants in Catalonia still remains high. Table 7.2 shows the proportion of inhabitants residing in Barcelona municipality (21,4% in 2011), in Barcelona Metropolitan Area (42,8% in 2011) and Region (63,5% in 2011) and in the Barcelona province (73,4% in 2011) compared to the total Catalan population. Despite a decrease of such proportions, especially with regard to the Barcelona Metropolitan Area (-10,1%), Barcelona municipality (-8,0%) and the Barcelona Metropolitan Region (-7,7%), it is possible to conclude that the majority of Catalans continue to locate within the Barcelona area, strengthening its role and influence as a city and as a regional capital. Hence, despite such proportions have been decreasing over time, the figures shown in table 7.2 confirm the demographic trend identified in other studies (Miralles-Guasch and Pujol, 2012; Pujadas i Rúbies, 2009), where the Barcelona area still concentrates a consistent (Barcelona municipality and the Barcelona Metropolitan Area, AMB) and even the majority (the Barcelona Metropolitan Region, RMB, and the Barcelona province) of the Catalan population.

Furthermore, the evidence exposed in table 7.2 supports the assumed conflict between metropolitan centers and regional governments as discussed in hypothesis H4 (see sec. 5.2) and in section 7.4.1.2; governmental relationships between Barcelona city council and the Catalan regional government can be potentially influenced by the demographic weight that the Barcelona area holds.

<sup>2</sup>This conclusion is also combined with a polarized age structure, Barcelona hosting a more elderly population (65 years old and over), while the Barcelona Metropolitan Region (RMB) accommodating a younger population (i.e. families with children). Furthermore, in the Barcelona city center more non-Spanish immigrants reside, together with a higher proportion of 'households' composed by students sharing flats (López Villanueva et al., 2010).

## Milan

Table 7.3 presents demographic data on the Milan case. Values are shown for Milan municipality, the Milan Metropolitan Area (PIM), the Milan province, and the Lombardy region for censuses 1981, 1991, 2001 and 2011, including the relative variation of demographic data for each scale between 1981 and 2011 (ISTAT Italian National Institute for Statistics, 2011)). It is however important to remember that, if the values displayed for the Milan Metropolitan Area (PIM) refer to years 1981, 1991, 2001 and 2011, the totals are nevertheless calculated by considering those municipalities belonging to the PIM in 2013 (see sec. 6.1).

Table 7.3 shows that, between 1981 and 2011, Milan municipality, the Milan Metropolitan Area (PIM) and the Milan province have registered a substantial decrease ( $-22,6\%$ ,  $-7,8\%$  and  $-24,4\%$ , respectively). However, as in the case of employment data presented in section 7.3 (tab. 7.6, tab. 7.7 and tab. 7.8), such figures have to be examined in light of the establishment, in 2004, of the Monza e della Brianza province, whose inhabitants have been mostly 'stolen' from the Milan province. Hence, since the Monza and della Brianza province reaches a population of 840.129 inhabitants in 2011, it can reasonably be assumed that a large part of these inhabitants were previously administratively included in the Milan province, which indeed lost, in absolute values, 668.790 inhabitants between 2001 (3.707.210 inhabitants) and 2011 (3.038.420 inhabitants). The demographic loss registered by the Milan province has been then also consistently due – although not entirely – to the establishment of the Monza e della Brianza province in 2004.

This administrative redefinition of provinces does not hamper the observation that, with regard to the same census data, between 1981 and 2011 the provinces surrounding the Milan province (not shown in tab. 7.3), or 'logistically' better connected to it, show a steady demographic increase over the 1981–2011 period: Bergamo ( $+21,2\%$ ), Brescia ( $21,7\%$ ), Lecco ( $+8,0\%$ )<sup>3</sup> and Varese ( $+10,6\%$ )<sup>4</sup>. This means that there is probably a connection between the Milan municipality and the Milan province loss of population between 1981 and 2011, and the increase in population, in the same period, of the Bergamo, Brescia, Lecco and Varese provinces, nearest and/or well connected to Milan. It is reasonable to think that at least part of the demographic increase registered in the Bergamo, Brescia, Lecco and Varese provinces is related with the population fleeing from Milan municipality, metropolitan area (PIM) and province.

Demographic decentralization processes have indeed also been observed in other studies (Balducci, 2003; Kantor and Savitch, 2002, ch. 1; Vicari Haddock, 2004, p. 49–52), where, in particular, it is Milan municipality which loses population in favor of a positive demographic balance registered by the surrounding municipalities (CRESME Centro Ricerche Economiche e Sociali di Mercato per l'Edilizia ed il Territorio, 2006). Furthermore, the report by the CRESME Centro Ricerche Economiche e Sociali di Mercato per l'Edilizia ed il Territorio (2006, p. 15ff) showed how, between 1981 and 2001, the growth of households in Milan city decreased, and so did the housing offer, while it has been consistently increasing in the other municipalities belonging to the Milan province. The Cresme report also highlights the particular phenomenon of the re-conversion of dwellings into offices (*terziarizzazione dello stock abitativo*) that is occurring in Milan since 1990s. This phenomenon is triggered by the limited offer in Milan municipality of reduced office spaces (50 – 200 sq.m.): as small service companies try to find a central city location for their activity, 'tertiarization' of dwellings has become the solution. However, this stratagem causes housing shortage within Milan

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<sup>3</sup>The demographic relative variation for the Lecco province has been calculated only between 2001 and 2011, as the province has been established in 1992 after the 1991 census.

<sup>4</sup>The only negative figure refers to the Como province ( $-24,4\%$ ) because of the establishment of the Monza e della Brianza province, as in the case of Milan.

**Table 7.3:** Total number of inhabitants and population change for years 1981, 1991, 2001 and 2011 for Lombardy, the Milan province, the Milan Metropolitan Area (PIM, 2013) and Milan municipality. Source: ISTAT 2011. Author's elaboration.

Area	Milan				%1981– 2011 Variation
	1981	1991	2001	2011	
Milan municipality	1 604 773	1 369 231	1 256 211	1 242 123	-22,6
PIM	2 701 826	2 272 631	2 169 882	2 491 346	-7,8
Milan province	4 018 108	3 922 710	3 707 210	3 038 420	-24,4
Lombardy	8 891 652	8 855 216	9 032 554	9 704 151	9,1

**Table 7.4:** Proportion of inhabitants of Milan municipality, the Milan Metropolitan Area (PIM, 2013) and the Milan province to the total population in Lombardy, and variation in per cent points, 1981–2011. Source: ISTAT 2011. Author's elaboration.

Area	Milan				1981–2011 Variation in percent points
	1981	1991	2001	2011	
Milan municipality	18,0	15,5	13,9	12,8	-5,2
PIM	30,4	25,7	24,0	25,7	-4,7
Milan province	45,2	44,3	41,0	31,3	-13,9

municipality, also increasing housing prices for rental or ownership.

Table 7.4 shows the demographic proportion of Milan municipality (12,8% in 2011), the Milan metropolitan area (PIM, 25,7%) and the Milan province (31,3% in 2011) compared to the total population in Lombardy. Such figures also show how, between 1981 and 2011, such proportions decreased in the Milan municipality by –5,2 per cent points, in the Milan metropolitan area (PIM) by –4,7 per cent points, and in the case of the Milan province by –13,9 per cent points. Such figures demonstrate a reduction over time of the ‘demographic weight’ of Milan municipality, the Milan metropolitan area and the Milan province in the considered period, supporting the re–distribution trend of the Milan population to the nearby provinces (Monza, Bergamo, Brescia, Como, Lecco and Varese), as suggested above; such a claim would need however a more extensive demographic study. Hence, differently from the case of Barcelona, the demographic metropolitan re– distribution in the Milan case seems to span beyond provincial boundaries, extending over the provinces closer to Milan. This assertion is also related to the growth of roads and railways as shown in section 6.2 of Chapter 6; for instance, the light railway *Passante ferroviario*, connecting Milan city center with the provinces of Como, Lecco and Varese, and the roads and railways connecting Milan with Brescia and Bergamo can have facilitated the demographic dispersion in a wider radius than in the Barcelona case.

Additionally, recent studies highlighted the demographic de–concentration of Milan city center towards the municipalities surrounding it and within the Milan province (Centro Studi PIM, 2009, p. 44), hence it can be argued that a similar demographic de–concentration trend as the one presented in the Barcelona case (see above) is happening in the case of the Milan province as well. The difficulty of accessing the housing market in Milan municipality (but also Monza, see fig. 6.3 on page 168) compels households to search for a house in other municipalities located within the province. As in the case of Barcelona, analyses within the Milan province show a demographic trend from the center to the first periphery, and from the first periphery to the second peripheral arch, which is less dense in comparison to the center (the *trabocamento*, or spill over, effect) (Centro Studi PIM, 2009, p. 92).

However, it is also important to stress that, in contrast to the Barcelona province, the Milan province hosts ‘only’ around 30% (2011) of the entire regional population of Lombardy, suggesting that housing demands are more dispersed and ‘scattered’ over the rest of the provinces, especially the ones that are adjacent or better connected in terms of transport infrastructures with Milan, namely Monza, Bergamo, Brescia, Como, Lecco and Varese.

### **The connection between urban sprawl and demographic figures: an educated guess**

In the Barcelona case, demographic data have shown a clearer relationship between the loss of population in Barcelona municipality with a weak increase in the Barcelona Metropolitan Area (AMB), and especially with an increase in population in the Barcelona Metropolitan region (RMB) and Barcelona province. Arguably, data show how, since the 1980s, the population have started to locate in the ‘second arch’ of the metropolitan influence area of Barcelona, corresponding to the RMB (see sec. 6.1), maintaining a general demographic de– concentration trend started since 1970s. The figures related to land use transformation presented in sections 6.2.1 and 6.2.2 corroborate the demographic de–concentration processes displayed in the demographic data presented above; in particular, the RMB, and the Barcelona province as well, can be considered relevant ‘residential basins’ of the population pivoting around Barcelona.

In the Milan case, demographic data suggests a re–distribution of the population from the

city center to the surrounding areas, including the other provinces adjacent to Milan's. This may suggest that the 'residential basin' for Milan municipality extends far beyond the Milan province.

Plausibly, in the Barcelona case, the increase of discontinuous residential areas during the considered periods (see sec. 6.2.1 and sec. 6.2.2) can be related to the demographic dispersion of the population from Barcelona municipality to the surrounding areas. However, despite such an increase, in the Barcelona case the discontinuous residential areas take up a proportion of the built-up areas, at a different scale, which is considerably less than in the Milan case. In the latter, the high proportion of discontinuous areas within artificial areas is related to the 'spreading out' of the population outside Milan's administrative, metropolitan and provincial boundaries.

Absolute values of demographic figures indicate that Barcelona is, comparatively, bigger than Milan: in 2011, the Barcelona municipality counts 1611013 inhabitants compared to the 1242123 in Milan, and in the Barcelona province 5522566 inhabitants reside compared to the 3038420 of Milan's. Hence, comparatively, if urban sprawl were related to demographic figures, the built-up form of the Barcelona case should be more characterized by dispersed residential areas than in the case of Milan. In contrast, as shown in Chapter 6, it is the other way round.

In addition, and conversely, Barcelona appears to concentrate a greater population than Milan: demographic proportions to the total population of Catalonia and Lombardy show, respectively, that the 'demographic relative weight' of Barcelona municipality is 21,4% compared to 12,8% of Milan's (2011 data), and the Barcelona province concentrates 73,4% of the Catalan population, compared to only 31,3% of the Milan province in proportion to the population in Lombardy (2011 data).

In sum, at this level of analysis, in the Barcelona case, built-up forms appear to be less dispersed (-) than those of Milan in terms of residential areas, and population more concentrated (+); conversely, discontinuous residential areas within the Milan built-up form are more diffused (+), and the population is less concentrated (-). There seems to be a connection between a less territorially dispersed pattern of residential areas with demographic concentration in the Barcelona case, and between a more territorial dispersed pattern of residential areas with demographic dispersion in the Milan case<sup>5</sup>.

However, the negative demographic values shown by the Milan municipality, the Milan metropolitan area (PIM) and the Milan province for the 1981-2011 timespan, cannot justify the high proportion of discontinuous residential areas in the case of Milan, as presented in sections 6.2.1 and 6.2.2. On the contrary, given that the population possibly relocated from Milan municipality and the Milan province into nearby provinces, the growth of discontinuous residential areas should have been contained. The demographic evidence thus points out that, in the Milan case, the population leaving Milan city center and locating in the surrounding municipalities accommodate into dispersed residential areas more consistently than in the Barcelona case, despite in this latter case, as Chapter 6 as shown, demographic de-concentration patterns are also related with suburbanization (cf. García Coll et al., 2014).

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<sup>5</sup>Such conclusion is also corroborated by the calculation of the Gini index, by province, for the number and cumulative distribution of the population with regard to the number of municipalities: for 2011, the Gini index in the Barcelona province is 0,82, while it reaches 0,68 for the Milan province. Such values indicate that in the Barcelona province the population is more concentrated, as the Gini index approximates to 1, while in the Milan province the population is more dispersed, as the Gini index approaches 0,50 (cf. Corbetta et al., 2001, p. 67-68).

At this point, one could arguably ask *why* the population is more concentrated, and hence residential areas less territorially dispersed, in the Barcelona case than in Milan's. Why, despite the increase in discontinuous residential areas in Barcelona (see fig. 6.1, fig. 6.2, fig. 6.3 and 6.4 in sec. 6.2, does the population remain more concentrated, and why are residential areas less territorially dispersed in the Barcelona case than in Milan's?

We can now examine the next section on administrative fragmentation to see if we can find a solution to this riddle.

## 7.2 Administrative fragmentation

In section 3.1.7, where a discussion on political and planning factors as causes of urban sprawl was presented, it has been mentioned that municipal fragmentation can be related to the occurrence of urban sprawl, as independent, medium and small size local governments try to attract investment to the detriment of other municipalities (i.e. interurban competition). Such claim has also been recalled in hypotheses H2 and H3 (see sec. 5.2), where fragmented, small size municipalities are assumed to compete among each other for investment, making use of local urban planning to boost urban development and producing a scattered and incoherent territory. As also Kantor and Savitch (2002, p. 39) clearly put it:

[f]ragmentation reinforces the bargaining advantages of business by discouraging local political cooperation and encourages competition over jobs and money.

'Jobs and money' are goals that can be attained by land management strategies performed by local governments; the land use transformation of open and agricultural land (i.e. land consumption, see sec. 2.4) into discontinuous residential areas (i.e. urban sprawl, see sec. 5.3.1) is one of such strategies, nurtured by municipal fragmentation. In the bargaining game, where assets are constantly (re)defined and (re)negotiated among a variety of actors, the position of private actors is advantaged as local governments will try to stake their claim to 'jobs and money' as compared to other municipalities. Municipal fragmentation is one of the propitious conditions for interurban competition, where urban sprawl is one of the strategies to foster such competition by bargaining on land as an asset. Land management thus becomes instrumental to economic competitiveness.

Hence, administrative fragmentation becomes a relevant explanatory factor of the occurrence of urban sprawl from a governance perspective (see sec. 5.5 and tab. 5.5), as a higher administrative fragmentation is expected to be connected with a more probable presence of dispersed residential areas. The enlargement of dispersed residential areas becomes a type of strategy, and specifically a type of urban development strategy, put into place by local governments in an effort to climb to a comparatively advantageous position<sup>6</sup> as compared to other municipalities. Therefore, can the less dispersed patterns of residential areas in the Barcelona case be related to less administrative fragmentation as compared to the Milan case?

As discussed in section 5.3.2, in comparative urban research, and in particular in comparative urban governance (Pierre, 2005) or politics (Kantor and Savitch, 2002, 2005), the 'functional equivalency' of institutions should be checked before carrying out comparison. For Barcelona and Milan, administrative levels can be considered functionally equivalent, as they exert, in the hierarchical governmental structure, similar and comparable functions. Municipalities,

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<sup>6</sup>Such advantageous position is assessed by Kantor and Savitch especially in terms of economic gains. Here we have an example of how the Kantor and Savitch' perspective is, although useful in this dissertation, rather functionalist based on an economic rational choice view; see fig. 4.2 on page 111 in sec. 4.8.



provinces, metropolitan bodies and regions are similarly found in Barcelona and Milan, and have a similar meaning in both cases, allowing meaningful comparison.

Therefore, the comparative analysis of administrative levels between Barcelona and Milan provinces can meaningfully be performed, in order to check if the less dispersed territorial character of residential areas observed in the Barcelona case can be explained by a reduced municipal fragmentation, operationalized through the number of municipalities within each province.

In Catalonia, with its 32.114 squared kilometers, there are in total 947 municipalities, 311 of which belong to Barcelona province (the remaining municipalities are divided into 221 in the Girona/Gerona province, 184 in the Tarragona province and 231 in Lleida/Lérida province). Hence, almost 33% of Catalan municipalities lie within the Barcelona province. Such distribution is also compatible with the demographic data presented in the previous section 7.1, where over 70% of the Catalan population resides in the Barcelona province. Hence, the Barcelona province does not only concentrate the highest number of municipalities (33%) in Catalonia as compared to other provinces, but also the most populated ones.

In contrast, of the 1.544 municipalities comprising the Lombardy region, whose total area amounts to 23.844 square kilometers, 134 municipalities belong to the Milan province (8,7%), with the provinces of Bergamo and Brescia being the most fragmented (244 and 206 municipalities, 15,8% and 13,3% respectively of the total number of municipalities within the Lombardy region). Such municipal distribution is compatible with the demographic data presented in section 7.1, where the population in Lombardy seems more dispersed, with approximately 31% being concentrated in the Milan province, as compared to the Barcelona province.

Both Barcelona and Milan provinces present a rather high number of municipalities per province, if compared to data at the European level. According to Eurostat data (2011b), by considering the 1247 NUTS 3 levels (provinces) in Europe, the Local Administrative Units (LAUs), which correspond to municipalities, the European mean is 81,12 LAUs (municipalities) per NUTS3 level (province), with the median being 41.

Municipal fragmentation between Barcelona and Milan provinces is operationalized in number of municipalities subdivided by demographic size<sup>7</sup>, and are shown in table 7.5. Both provinces are composed of mostly small and medium size towns and villages: 57,6% of the municipalities within the Barcelona province have less than 5000 inhabitants, while such figure reaches 27,6% in the Milan province. Furthermore, by considering municipalities with less than 10000 inhabitants, the cumulative frequency reaches 74,0% in the Barcelona province and 56,0% in the Milan province. Hence, at first glance, table 7.5 shows that the Barcelona province is more fragmented than the Milan province in terms of number and size of municipalities.

However, the Barcelona province is almost four times larger than the Milan province (7.745 square kilometers compared to 1.987 square kilometers), and the former is subdivided into twice over the number of municipalities than that of the Milan province (311 compared to 134 municipalities). If the Milan province were to extend as much as the Barcelona province, the current number of municipalities would be more than 500. This means that, because of the surface area of the two provinces, and despite the fact the Barcelona province contains more municipalities, the Milan province can still be considered more fragmented.

This conclusion can be further examined by considering the average municipal surface in both provinces: the average municipal surface in the Barcelona province is 24,9 square kilo-

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<sup>7</sup>For information on how the municipalities have been categorized in demographic classes, see sec. 5.5.

**Table 7.5:** Municipal sizes in Barcelona and Milan provinces (2011). Source: IDESCAT 2011, ISTAT 2011. Author's elaboration.

Municipal size (no. of inhabitants)	Barcelona		Milan	
	Freq.	%	Freq.	%
less than 1.000	94	30,2	1	0,8
less than 5.000	85	27,3	36	26,9
less than 10.000	51	16,4	38	28,4
less than 25.000	43	13,8	38	28,4
less than 50.000	19	6,1	16	11,9
less than 100.000	12	3,9	4	3,0
less than 250.000	5	1,6	0	0,0
less than 500.000	1	0,3	0	0,0
more than 500.000	1	0,3	1	0,8
Total	311	100,0	134	100,0

meters, while the average municipal surface in the Milan province is 14,8 square kilometers. Hence, the Milan province is, comparatively, more fragmented as municipalities are smaller in surface.

Therefore, it can be put forward that the less territorially dispersed pattern of residential areas can be related with a more contained municipal fragmentation, regardless of the municipal size, registered in the Barcelona case as compared to the Milan case. It can thus be concluded that, upon the two considered case studies, the lesser the municipal fragmentation, the lesser the interurban competition, and hence to a lesser extent will the patterns of residential areas be dispersed.

However, in critical realist terms (see introduction to Chapter 5), what is it about a more contained municipal fragmentation that can (comparatively) hamper urban sprawl? What are the dynamics through which a lesser municipal fragmentation can inhibit land management strategies towards discontinuous residential areas? By conceiving urban sprawl as a governance process, the next sections 7.4.1 and 7.4.2 examine within and in-between scale bargaining processes (see sec. 4.8, sec. 5.2 and 5.5) by proposing an analysis of plans and planning regulations at the national, regional, metropolitan, provincial and municipal level, and by employing the qualitative data collected through the interviews, in the attempt to answer this question.

### 7.3 Positioning Barcelona and Milan in the bargaining context model framework and within territorial governance dynamics

As we have seen in section 4.7.4, the bargaining context model focuses on the room for choices over development that cities have. Kantor and Savitch (2002, 2005) explain the different urban political choices over urban development, whose non-deterministic results the authors refer to as ‘variation in outcomes’, observed among a pool of cities, by considering four different types of resources, which the authors call ‘variables’ (see also fig. 4.2 on page 111). Cities can count on these, therefore explaining why some cities build up parks and others construct new service areas, or why some cities grow or withdraw in a certain way.

The bargaining context model owes its name to the ways cities bargain over these resources – market position, intergovernmental support, popular control and local culture – influence the type of urban development a city can be characterized of. According to the authors, bargaining is the ability exerted by a city – or better, according to the perspective adopted in this dissertation, certain actors within a city – to create appropriate conditions to mobilize and accumulate resources in order to optimize its role and choices relative to the capital investment game at stake. This ability is defined by the role and the decisions made by the political elite (city officials) to attain a specific outcome; within the bargaining context model, political agency is central.

The bargaining context model also recognizes and implies an interdependence between public and private sectors, suggesting that cities, considered as local governments, lure capital investments to boost urban development by bargaining these resources. Cities thus have the power to influence their future development through certain policy strategies in order to recast their competitive position in the international marketplace. Cities put strategies in place, hence ‘governance [is] not as a replacement for government, but [is] an additional mechanism for promoting interlocal cooperation’ (Kantor and Savitch, 2002, p. 329–330). Kantor and Savitch (2002, 2005) constantly stress how cities ‘compete to have choices’ (2002, p. 352), hence they bargain their resources to broaden their options for development, oriented at redistribution (‘social centered strategies’) or capital accumulation (‘market centered strategies’). The emphasis on actors’ political agency ‘reverses the economic logic of urban development’ as ‘cities compete to have choices, not to reflexively and unthinkingly grow’ (ib.).

However, resources, or ‘variables’, which are market conditions, intergovernmental support, popular control, and local culture, bound political agency: urban political choice and strategy (agency) are influenced by the cumulative impact of city resources (structure), hence the context in which ‘cities’ make decisions affects the types of urban political choices opted for. In a few words, Kantor and Savitch (2002, 2005)’s bargaining context model modulates a framework where these four variables or resources – market conditions, intergovernmental support, popular control, and local culture – simultaneously bound and open up room for choices over urban development by ‘cities’ (i.e. city officials and private actors). It is thus relevant to identify how such resources provide opportunities in the case of Barcelona and Milan in order to explain the type of urban development that it is more likely to be found in both cities.

#### **Milan**

In positioning Barcelona and Milan in the Kantor and Savitch’ model, the task is made easier than for Barcelona because Milan is already included in the pool of 10 cities analyzed by the authors. Regarding the driving variables, Milan is considered to have a favored market

position, having consolidated its role as the economic pole in Northern Italy and indeed in Europe thanks to the economic boom after World War II (together with Turin and Genoa, forming the ‘industrial triangle’, see sec. 5.3.4), and moving successfully to a service economy since the 1980s. Regarding the intergovernmental support dimension, Milan is considered to be an integrated city: generous national grants have supported local governments, provinces and regions. Furthermore, party politics conveyed and ensured resources from the central to the local level, favoring the alignment of local governments to the major political parties. Kantor and Savitch classified Milan as a ‘dirigiste planning type 2 regime’, characterized by a favored market position and an integrated intergovernmental support. However, the authors recognize that, despite these ideal conditions, urban development projects struggle(d) to see the light and are burdened by heavy delays, given the unstable political alliances and uncertain private investments. Master plans, public–private agreements and ‘shared visions’ often remain on paper, and keep diverging from the actual precarious urban development through which the city is raised.

Regarding the steering variables, Milan is characterized by an active civic participation, composed of neighborhood groups, (voluntary) associations close to party politics, trade unions and business associations, strengthening the popular control dimension over urban political choices and making elites accountable. In terms of local culture, Milan is described as a post–materialist city: the norms and values that orient the development agenda are post–materialistic, hence addressed to ‘intangible’ benefits like acting for the ‘public good’ and upon environmental values, such as could be the provision of mass transit or the preservation of historical heritage. Milan is also characterized by a strong work ethic, rooted in a cohesive private sector and in a long civic tradition. However, political agency in Milan is consistently pervaded by client–oriented practices, trying to quantify benefits in terms of jobs or contracts, and ‘reward’ those that are well connected.

Since Kantor and Savitch’ analysis, the relative position of Milan with regard to the four considered dimensions – market conditions, intergovernmental support, popular control systems and local culture – has changed, and nowadays it could probably be classified differently. Market conditions are no longer favorable with the industrial economic base being almost extinct compared to that of the 1970s. Ex–industrial sites and built–up areas are a heavy heritage that the city needs to handle. However, Milan and the Lombardy region can still be considered the richest territories in Italy.

Tables 7.6, 7.7, and 7.8 report employment data (absolute values) for censuses 1981, 1991, 2001 and 2011 per grand sectors (ISTAT Italian National Institute for Statistics, 2011) for the Lombardy region, the Milan province and Milan municipality. Table 7.6 shows a consistent decrease of the agricultural (–29,9%) and industrial (–34,6%) sectors in the Lombardy region, while employment in the construction sectors, and especially in services, has experienced a substantial increase (+29,5% and +66,0%, respectively) in the 30 years considered. For the Milan province, in table 7.7, absolute values have also decreased with regard to the employees in the agricultural sector (–40,4%), in industry (–66,8%) and in the construction sector (–9,2%), while only in the service sector did employed people increased (+19,0%) during the 1981–2011 timespan. With regard to Milan municipality, table 7.8 shows a very high decrease of employees in the industrial sector (–68,2%), with the service sector being the one which shows a considerable growth (+7,0%). However, absolute values in 2011 for the Milan province and municipality, as well as the relative variation calculated between 1981 and 2011, have to be examined in the light of the establishment, in 2004, of the Monza and della Brianza province (see sec. 6.1), hence statistics recounts based on administrative boundaries overestimate the ‘subtracting’ of labour force and population (see sec. 7.3) from the Milan province and municipality, explaining the high negative values for total employment in the

Milan province (−20,2%) and Milan municipality (−16,1%), and part of the decrease of employees in the agriculture, industrial and construction sectors in the Milan province, and the decrease of employees in industry in Milan municipality. Conversely, under this perspective the pronounced increase of employed persons in the service sector for the Milan province (+19,0%) and Milan municipality (+7.0%) appears to be even more striking. Overall, tables 7.6, 7.7 and 7.8 for Lombardy, the Milan province and municipality show a consistent decrease of employees in the agricultural and industrial sectors, and an increase of employed people in the service sector, highlighting the post-industrial, service-oriented character of the economic base in the Milan case<sup>8</sup>; considering 2011 data, the service sector takes up 66,0% of the total of employed persons in Lombardy, 75,4% in the Milan province, and 83,2% in the Milan municipality. Furthermore, the proportion in 2011 of employed people in the Milan province compared to the whole Lombardy reaches 31,7%, while the relative ‘weight’ of Milan municipality within the Lombardy region in terms of employees attains 13,0%, indicating a relevant economic role of Milan province and municipality within the regional economy of Lombardy.

Table 7.9 displays employment data for the Milan metropolitan area (PIM) for censuses 1981, 1991 and 2001, as 2011 data are not yet available at the municipal level, hence it has not been possible to perform a territorial aggregation corresponding to the 61 municipalities belonging to the Milan metropolitan area (PIM, see sec. 6.1). As per the demographic data shown in section 7.1, employment data for this territorial scale correspond to the aggregated value of the municipalities belonging to the Milan metropolitan research center (PIM) in 2013, even if data refer to 1981, 1991 and 2001 censuses, when such metropolitan organization was composed of a different number of municipalities. The data shown in table 7.9 display how, in Milan metropolitan area (PIM), between 1981 and 2011 the industrial sector has experienced a substantial decrease in employed persons (−49,8%), and a relatively weak increase of employees in the construction sector (+6,5%) and in the service sector (+6,8%). The positive relative variation in employment within the agricultural sector (+5,8%) is the highest among the considered territorial scales in tables 7.6, 7.7, and 7.8, and it is probably related to the (new) employment opportunities offered by the *Parco Agricolo Sud*, that is the open and agriculture ‘reservation’ located South of Milan (see sec. 5.3.4). However, such claim should be tested with further inquiries and research.

Regarding intergovernmental support, the decentralization of competences decided after the 2001 Constitutional reform resulted in a decrease of available resources for local governments (see sec. 4.1), leaving municipalities less protected by grants transferred from the central state, and also from regions and provinces, to local municipalities<sup>9</sup>.

As mentioned in section 4.8, in their analysis Kantor and Savitch did not clearly define Milan in territorial terms. The ten cities they considered are at times referred to as municipal councils, metropolitan areas or to a changing territorial scale which includes different municipalities and that have undefined boundaries. Similarly, although they spotted a demographic de-densification trend (see sec. 7.1), where the municipalities around Milan are growing more than Milan city center in demographic terms, they did not reconsider the increasing role of planning and urban development in medium and small size localities, which they generally call ‘suburbs’. In their analysis, how Milan is defined, whether a local government or a terri-

<sup>8</sup>On the location of services, cf. Martinelli and Moulaert (1993).

<sup>9</sup>A good example is the *Titolo IV* item in the Italian local taxation system. The data can be examined in the local taxation website of the Italian Ministry of Internal Affairs (2011). However, a self-standing research could be carried out only regarding the changes in the complex Italian local taxation system (cash inflows and outflows). Currently, a Europe-wide process of re-classification of local finance is being carried out, in order to harmonize the different systems of local finance among the member states with the aim to provide comparable data on local finances among European countries in the future.

**Table 7.6:** Employed persons (absolute values) by grand sector between years 1981 and 2011 for Lombardy. Source: ISTAT 2011. Author's elaboration.

Lombardy region					
Employment sectors	1981	1991	2001	2011	%1991– 2011 Variation
Agriculture	140 549	96 524	96 288	98 487	-29,9
Industry	1 629 445	1 456 447	1 293 959	1 064 940	-34,6
Construction	262 304	292 437	314 257	339 720	29,5
Services	1 653 107	2 020 946	2 245 150	2 743 506	66,0
Total employees	3 685 405	3 866 354	3 949 654	4 246 653	15,2

**Table 7.7:** Employed persons (absolute values) by grand sector between years 1981 and 2011 for the Milan province. Source: ISTAT 2011. Author's elaboration.

Milan province					
Employment sectors	1981	1991	2001	2011	%1991– 2011 Variation
Agriculture	23 974	14 197	18 736	14 294	-40,4
Industry	728 547	586 726	460 999	242 047	-66,8
Construction	83 142	99 028	99 768	75 530	-9,2
Services	853 403	1 036 735	1 067 671	1 015 212	19,0
Total employees	1 689 066	1 736 686	1 647 174	1 347 083	-20,2

**Table 7.8:** Employed persons (absolute values) by grand sector between years 1981 and 2011 for Milan municipality. Source: ISTAT 2011. Author's elaboration.

Milan municipality					
Employment sectors	1981	1991	2001	2011	%1991– 2011 Variation
Agriculture	4661	1545	6110	4726	1,4
Industry	199 372	126 550	96 064	63 471	-68,2
Construction	24 237	23 538	25 826	24 434	0,8
Services	428 355	431 973	416 229	458 315	7,0
Total employees	656 625	583 606	544 229	550 946	-16,1

**Table 7.9:** Employed persons (absolute values) by grand sector between years 1981 and 2001 for Milan metropolitan area (PIM). Source: ISTAT 2001. Author's elaboration.

Milan Metropolitan area (PIM)				
Employment sectors	1981	1991	2001	% 1981 –2001 Variation
Agriculture	10 427	4558	11 032	5,8
Industry	429 150	276 830	215 223	–49,8
Construction	48 457	48 958	51 625	6,5
Services	638 191	672 163	681 279	6,8
Total employees	1 126 225	1 002 509	959 159	–14,8

torial ensemble of municipalities, is not clear. In contrast, as the built-up form of Milan is no longer limited to its administrative boundaries, a multiplicity of local governments that pivot around its influence form what we generally call ‘Milan’ today (see sec. 5.4 and sec. 6.1). Nevertheless, such *lacuna* is also due to the fact that Kantor and Savitch do not take into consideration one particular type of resource, namely land, as is done in this dissertation, but analyze urban politics over economic resources in general.

This de-densification can also weaken the popular control system as described by Kantor and Savitch, as civic groups are not only more diversified, but also more fragmented. Local culture has also changed, especially in times of crisis, where tangible benefits are required in the attempt to regain economic growth<sup>10</sup>. In particular, in terms of housing provision, and in contrast with Kantor and Savitch’ view, it may be questioned if local culture had ever been post-materialistic, considering the relative extent of sprawled areas in Milan (see sec. 6.2 and also sec. 7.4.2.3).

Balducci (1995, 2003) examined the difficulties in the Milan case to put forward effective governing tools for Milan and for its metropolitan area. The bureaucratic inefficiency, the political incapability to overcome conflicts among institutional tiers (the region, the provinces, the local governments and the never fully constituted metropolitan scale; see sec. 7.4.2) and the slowness in the implementation of new projects and plans for urban development hampered cooperation among public institutions, while at the same time opening up room for initiatives by the private sector, especially during the ‘deregulationist turn’ of the 1980s characterized by the logic of ‘planning by projects’ (Memo et al., 2011). Milan has been characterized by power fragmentation, which has hampered both the creation of political consensus over urban development, and also the promotion of participatory decision-making processes over urban transformations (e.g. public transportation lines, urban renewals areas, the creation of central business district), which have generally proceeded piecemeal and disconnected from each other (Balducci, 2003; Memo et al., 2011). This power fragmentation has particularly weakened the role of political parties, which are now detached from their traditional basis and function as ‘opinion parties’ (Balducci, 2003, p. 67). Traditional left-right party politics having declined (see sec. 7.4.2.3), urban elites have become less accountable and ‘popular control systems’ are less able to monitor political agency. The proliferation of scattered, individual urban projects characterized also the 1990s, when the authority to release building permits and to supervise building activities was decentralized from the Lombardy regional government to local authorities. Deregulation set in, with the public actors being subjected to private initiatives rather than performing a coordination role (Memo et al., 2011, p. 69). However, the vitality of the tertiary sector, the ‘entrepreneurial’ values of the civil society, the

<sup>10</sup>A clear example is the Universal Exposition 2015, which will take place in Milan, where the construction of the pavilions turned out to be a golden opportunity *all’ italiana* to growth and speculate (cf. also De Lucia, 2006), involving also criminal organizations (Rinaldi, 2014), Linkiesta newspaper.



new forms of inter-municipal cooperation and the adaptive capacity of Milan the economy to shift from an industrial to a post-industrial city, becoming a world-wide famous center for fashion and media industries, must be acknowledged as well (Balducci, 2003)

## Barcelona

In the following paragraphs, an attempt is made to place Barcelona within the bargaining context model proposed by Kantor and Savitch (2002, 2005). Concerning the driving variables, and in contrast to Kantor and Savitch (2002, p.11) who, based on their data, considered Barcelona to be a city in decline, market conditions in Barcelona are favorable, and inter-governmental support is integrated. Barcelona has experienced an economic boom since the 1950s (see sec. 5.3.4), but the 1992 Olympic Games was the real boosting point in terms of its economic base, social composition and built environment (Degen and García, 2008). Barcelona successfully transitioned from an industrial to a service based economy, having an especially developed tourist industry, displacing and maintaining its industrial base outside the dense city boundaries. Simultaneously, the city experienced international migrations (especially from Latin America and Asian countries), and vast numbers of tourists began to visit the area for leisure purposes. Concurrently, Barcelona strove to attract business and create a 'good business climate' for (international) companies, where culture became a key driver in urban competition (Degen and García, 2012, p. 1023).

Being advantaged by this favored economic condition, Barcelona has been able to bargain at the national and regional level to harvest resources. Intergovernmental support is integrated, as in the case of Milan, meaning that higher institutional levels are supporting local governments with grants. In general, Spanish regions receive around 35% of state fundings, while municipalities get approximately 15% (2001 data) (García, 2003). Barcelona municipality can count both on state grants, and also on some of the funds redistributed from the Catalan government (Generalitat). However, García (2003, p. 339-338) clarifies that '[w]hereas 67,3 per cent of the current income of the Catalan government comprises transfers from the central state, the city [Barcelona] council's income is to a large extent comprised of local taxes'.

The crisis that has recently hit Spain, and Barcelona, since 2008, modified the favored market position the city had, as well as reduced the scope of intergovernmental support and investment, similarly to what happened in Milan. However, Barcelona remains a wealthy and lively city, future-oriented, and struggling to combine public provisions with an attractive business climate<sup>11</sup>.

Tables 7.10, 7.11, 7.12, 7.13 and 7.14 show the absolute values of employed people per grand economic sectors in years 1991, 2001 and 2011, and their relative variation (IDESCAT Catalan Statistical Institute, 2011) for Catalonia, the Barcelona province, the Barcelona Metropolitan Region (RMB), the Barcelona Metropolitan Area (AMB) and Barcelona municipality. With regard to Catalonia, table 7.10 displays a decrease of employed persons in the agricultural sector (-24,1%) and industry (-35,2%), while showing an increase in the construction sector (15,4%) and a striking growth rate of the service sector (90,0%). Such a trend (a decrease of employed people in the agricultural and industrial sectors, and an increase in the construction and especially the service sector) is detectable also in the other displayed tables, namely table 7.11 for the Barcelona province, table 7.12 for the Barcelona Metropolitan Region (RMB), and table 7.14 for Barcelona municipality<sup>12</sup>.

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<sup>11</sup>For a critical analysis, see Capel (2005).

<sup>12</sup>The huge increase between 1991 and 2011 of employed people in the agriculture sector (+280,0%) in Barcelona municipality is probably due to the emergence of informal employment following a change in labour

**Table 7.10:** Employed persons (absolute values) by grand sector between years 1991 and 2011 for Catalonia. Source: IDESCAT 2011. Author's elaboration.

Catalonia region				
Employment sectors	1991	2001	2011	%1991–2011 Variation
Agriculture	82 959	69 287	62 954	–24,1
Industry	813 269	708 921	527 110	–35,2
Construction	185 681	291 482	214 264	15,4
Services	1 173 521	1 745 436	2 229 589	90,0
Total employees	2 255 430	2 815 126	3 033 916	34,5

**Table 7.11:** Employed persons (absolute values) by grand sector between years 1991 and 2011 for the Barcelona province. Source: IDESCAT 2011. Author's elaboration.

Barcelona province				
Employment sectors	1991	2001	2011	%1991–2011 Variation
Agriculture	22 406	21 403	19 711	–12,0
Industry	663 986	569 300	395 444	–40,4
Construction	125 841	198 368	140 803	11,9
Services	917 081	1 350 834	1 691 260	84,4
Total employees	1 729 314	2 139 905	2 247 218	29,9

**Table 7.12:** Employed persons (absolute values) by grand sector between years 1991 and 2011 for the Barcelona Metropolitan Region (RMB). Source: IDESCAT 2011. Author's elaboration.

Barcelona Metropolitan Region (RMB)				
Employment sectors	1991	2001	2011	%1991–2011 Variation
Agriculture	15 380	15 674	12 804	–16,7
Industry	591 962	500 970	323 249	–45,4
Construction	113 753	176 808	118 303	4,0
Services	858 710	1 258 163	1 493 111	73,9
Total employees	1 579 805	1 951 615	1 947 467	23,3

Similar to the Milan case (see above), the economic base in the Barcelona case shows the signs of a post-industrial economy, where the service sector is prominent; proportionally, the total number of employed persons in the service sectors accounts for 73,5% in Catalonia, 75,3% in the Barcelona province, 76,7% in the Barcelona Metropolitan Region (RMB), 79,8% in the Barcelona Metropolitan Area (AMB)<sup>13</sup>, and 84,1% in Barcelona municipality compared to the whole labour force employed in each scale<sup>14</sup>.

regulations; further inquiries would be needed to clarify this figure.

<sup>13</sup>The data are available to 33 municipalities for 2011, 36 municipalities for 2001 and 34 municipalities for 1991. Furthermore, the total employed persons in year 2011 does not correspond to the sum of employees in the four considered sections as data for the agricultural sector were not yet available for all municipalities; (IDESCAT Catalan Statistical Institute, 2014).

<sup>14</sup>Analyses on the job market in Barcelona municipality highlight how, between 1900 and 2000, jobs in the manufactory sector decreased, however the quantity of land used to locate industrial areas doubled (Serra, 2003, p.72). The availability of ex-industrial sites in the Barcelona center and in the AMB are key areas in the process of transformation and replacement of industrial land to emplace tertiary sector activities, such as services and dwellings, industries being de-localized to the RMB (see Chapter 6). This trend is also recognizable in other European cities.

**Table 7.13:** Employed persons (absolute values) by grand sector between years 1991 and 2011 for the Barcelona Metropolitan Area (AMB). Source: IDESCAT 2011. Author's elaboration.

Barcelona Metropolitan Area (AMB)				
Employment sectors	1991	2001	2011	%1991– 2011 Variation
Agriculture	4559	5890	5960	30,7
Industry	390 973	291 315	187 299	–52,1
Construction	74 066	106 495	73 156	–1,2
Services	659 323	882 991	1 056 961	60,3
Total employees	1 128 921	1 286 691	1 324 550	17,3

**Table 7.14:** Employed persons (absolute values) by grand sector between years 1991 and 2011 for Barcelona municipality. Source: IDESCAT 2011. Author's elaboration.

Barcelona municipality				
Employment sectors	1991	2001	2011	%1991– 2011 Variation
Agriculture	832	2356	3162	280,0
Industry	184 618	116 074	75 673	–59,0
Construction	27 254	39 523	29 327	7,6
Services	411 226	487 466	573 215	39,4
Total employees	623 930	645 419	681 377	9,2

Concerning the steering variables, historically, local culture is a key feature of Barcelona, thanks to elite cultural associations and the fostering of the urban development of Barcelona by the local elites through international events such as the Universal Exhibition in 1888 and 1929 (Rodríguez Morató, 2008, p. 46). Local culture is post-materialistic and rooted in the Catalan cultural tradition, where public goods and redistribution are highly valued, strengthening democratic channels for participation and voice with regard to urban development initiatives (e.g. strong public control systems). The dichotomy between Catalonia and the Spanish central state, dramatically escalated as a consequence of the experience of the Francoist regime, which resulted in Catalans elaborating as many beneficial strategies as possible for ‘their people’.

‘Popular control systems’, as in Kantor and Savitch’ terminology, can correspond to the long tradition of left-wing movements and associations active in Barcelona city, from the historical anarchists of the nineteenth century to the actions and initiatives of the neighborhood movements that developed during the Francoist regime. The great political repression of the population during the dictatorship triggered a wide range of social movements, deeply connected to the increasing power and reputation characterizing the newly constituted regional institutions. With regard to urban development, the 1979–1985 period has been officially labelled as ‘the reconstruction of Barcelona’ (*la reconstrucción de Barcelona*), where urban renewal was combined with a strong political participation, especially through the urban neighborhood movements, where city design of public spaces was an opportunity to elaborate on the local culture and identity finally ‘freed’ in the democratic era (Degen, 2008, p. 87; Degen and García, 2012, p. 1024). For instance, at the beginning of the democratic era, the city council of Barcelona presented itself as an active promotor of cultural initiatives involving associations, private companies, sponsors and other public institutions (Rodríguez Morató, 2008, p. 52).

Regarding local culture, García (2008) identifies two main periods characterizing the recent urban development of Barcelona, which can be distinguished for the type of governance style

(see sec. 4.4) applied to urban development choices: an initial period (1979–1994) and the current one (1995–2008), the initial period being in its turn subdivided into two stages. The first stage (1979–1985) has been marked by a redistributive and inclusionary local culture (e.g. opening of public facilities and urban public spaces, policies against social segregation connecting different neighborhoods, involvement of neighborhood associations). The second stage (1986–1994) has pivoted around the nomination of Barcelona for the 1992 Olympic Games and the restructuring of the city for this event. The Olympic Games were used to provide the city with very much needed mobility infrastructures (the *Rondas*) and public facilities. The vision supporting the management of the resources brought by the Olympic Games was to take advantage of this opportunity by radically changing the city, redistributing resources and experimenting with participatory processes, later re-converting the facilities used during the Olympic Games to increase public services (e.g. the former accommodation for referees was reconverted into the Barcelona Autònoma University campus; the renewal of the sea promenade and the beach is now a crowded public space). As one of the key informants in Barcelona stated:

During the 1990s, resources of the Olympic Games were employed to ‘make the city’ through urban renewal (...) during that process, in the 1980s and 1990s, when the ideas on the urban renewal projects were carried out, we had a model in mind (...) A process of urban renewal is impossible without performing a good deal of real public participation.

Such ‘public participation’ consisted in the involvement of different public and private actors, who engaged in complex consensus building processes. The economic resources made available by the Olympic Games were considered a unique opportunity to renovate the city in the ‘Catalan way’ (i.e. ‘having a model in mind’, as the interviewee’s quote demonstrates). The urban renewal process that took place in Barcelona since the 1980s has been:

based upon a governance coalition (...) formed by governmental institutions and civil society organizations capable of creating a coherent policy agenda for the modernization of the city, linking cultural strategies to urban regeneration and thereby ensuring a redistributive social citizenship. (Degen and García, 2012, p. 1023)

In Barcelona, urban development did and does not generally happen without consistent advantages for the population<sup>15</sup>, and many urban renewals occurring in the city aim to improve or create public facilities. A case in point of such cooperation has been the underground building of the *Ronda Litoral*, one of the *Rondas* mobility infrastructures built for the 1992 Olympic Games: the local government and the involved neighborhoods worked together, hence avoiding to split up the neighborhood of Poble Nou with such a congested high speed transport axis.

Nevertheless, the second period (1995–2008), identified by García (2008), has been characterized by a distinct governance style: private investors, especially coming from the prominent service sector and the tourist industry, increased their involvement in Barcelona redevelopment and joined their efforts in order to launch Barcelona as a site for knowledge economy (Degen and García, 2012). Furthermore, following the Olympic Games, the city council promoted and facilitated strategic planning strategies in concert with private actors, where policies pivoted around culture as a key issue to market Barcelona as a ‘creative city’ (Martí-Costa and Pradel i Miquel, 2012). The urban renewal of the city in this second period (1995–2008) proceeded under many contestations. For example, one of the key planning policies put into place during the first stage of ‘Barcelona reconstruction’ was *esponjamiento*, which

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<sup>15</sup>An illustration of a clear exception to this general trend may be the Vela Hotel, identical to the one in Dubai, opened in 2009 after amendments to coastal protection laws.

consisted of demolishing old buildings to construct parks, squares, public markets, and social housing with the aim of creating a more spacious and high-quality urban environment. However, since 1995 some of these interventions have been highly contested, as in the case of the Rambla del Raval (Capel, 2005), where a portion of the dense (and historical) Raval neighborhood has been torn down to locate an avenue and a four star hotel facility affiliated to one of the biggest Spanish hospitality chains. Another example is the Can Ricart historical factory and similar old industrial facilities in the Poble Nou neighborhood, which gave shelter to squatters and freelance artists who were finally evicted to make room for gentrification processes, implying a huge cultural loss for the neighborhood (Martí-Costa and Pradel i Miquel, 2012; Pareja-Eastaway and Pradel i Miquel, 2010). The Mercat de Santa Caterina intervention is another illustration of the new contested policy of urban renewal in Barcelona: in this case, the old nineteenth century structure of this public covered market was replaced by a newly, aesthetically attractive building hosting not only the market, but also restaurants and gourmet shops, and was partly transformed into a tourist attraction. Finally, another exemplary illustration of the change in the governance style to orient urban renewal and development has been the ‘opening to the sea’ of the *Diagonal* avenue, in order to complete, after 150 years, Cerdà’s original 1859 urban plan for Barcelona (see sec. 5.3.4), where commercial and congress centers, and high rise buildings for high income people were built on the seafront (Miles, 2008)<sup>16</sup>. Critics of such projects came both from the civic and academic sector, emphasizing the active ‘popular control system’, by using the Kantor and Savitch’ terminology, existing in Barcelona<sup>17</sup>.

Despite this, since 1990s popular control in Barcelona has become rather diversified, especially because it has become socially fragmented given the international immigration flows (cf. García, 2008; Degen and García, 2012, p.1034). In the last few decades, the role of neighborhood associations, which were particularly active during the dictatorship, has changed: first, because given the change in the social composition of the city due to international migration flows, they less homogeneously represent the local community and, second, because they began to act as interest groups (e.g. NIMBY), with the aim of avoiding disadvantaged interventions or attracting resources into their area, at times contrasting with other neighborhoods. In a few words, since the 1990s there is less pressure for resource redistribution (i.e. ‘gains for all’), which in turn would require a suitable coupling with a strong (and renewed) regulatory function performed by public institutions (cf. García, 2006). Additionally, recent cries for more economic autonomy from the Spanish central state overheated political elites and social movements, proclaiming ultimate (and, in my view, fanciful) calls for the much sought after political independence of a certain portion of Catalans, fragmenting public participation and local culture in Barcelona, which was probably much more unanimous during the ‘transition period’ when democracy was restored (1976–1982, the *transició democràtica*).

Despite such ‘governance turn’ in the management of urban development, and the weakening of local culture, Barcelona seems to have a more socially centered bargaining arena (see sec. 4.7.4) when compared to Milan, public institutions being more able to mobilize and redistribute resources and to secure greater benefits for the city. In contrast with Milan, under the bargaining context model approach, Barcelona better fits the ‘dirigiste planning type 1 regime’, such as Paris and Toronto, where actors in the city are ‘particularly adept at mobilizing an array of capacities in order to advance broader social agendas because they

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<sup>16</sup>For a critical review of these renewal projects, see Capel (2005).

<sup>17</sup>The pervasive role of local culture and popular control systems in the Barcelona case is also supported by the fact that many of the interviewees for this dissertation (see sec. D) are both university professors, practitioners, and also current or former regional or urban functionaries that took part in politics with regard to land management.

hold substantial steering resources' (Kantor and Savitch, 2002, p. 173). This may also be due to the fact that, as in the case of the center-right Chirac' government in Paris, Barcelona has been ruled for more than 30 years by a stable left-wing coalition (1979-2011), led by the mayor Pascual Maragall, consistently influencing the urban development of the city, and standing against the Catalan regional government (Generalitat) managed for almost 25 years (1980-2003) by the center-right CiU (*Convergència i Unió*) party, captained by Jordi Pujol.

### **The 'bargaining contexts' characterizing Barcelona and Milan**

In synthesis, it can be stated that Barcelona and Milan share similar, yet different characteristics in terms of the four resources (i.e. market conditions, intergovernmental support, popular control and local culture) identified by Kantor and Savitch (2002, 2005) in their bargaining context model (see sec. 4.7.4).

Barcelona and Milan seem to share a similar bargaining advantage in relationship with driving variables, namely market conditions and intergovernmental support, while it seems that they differ more in terms of steering variables, that is popular control and local culture. In Kantor and Savitch (2002, 2005)'s terminology, Barcelona appears to have stronger steering variables, as public control systems and local culture are more consolidated and effective in steering urban development, which allows Barcelona to occupy a more socially centered bargaining position (see sec. 4.7.4) than in the case of Milan, as public actors in Barcelona seem to be more able, in the interactions with the private actors for orienting urban development, to harvest greater benefits for the collectivity (e.g. public amenities).

Hence, by using the bargaining context model with regard to land as a resource, urban political agency over land management is expected to produce different outcomes: popular control and local culture are stronger in Barcelona, land management for housing provision is expected to be treated differently than in Milan. With urban development being in the cue of Barcelona the outcome of more socially centered urban political choices, actors involved in governance processes of land use change will try to achieve resource redistribution through the containment of suburban residential areas, as a way to protect open and agricultural land and produce more compact urban settlements 'in the collective interest' (see sec. 2.4). Compared to the Milan case, the less dispersed character of residential areas within the total artificial areas in the Barcelona case (see Chapter 6) can be explained by the stronger role of steering variables (popular control systems and local culture) influencing urban political choices over development. Conversely, a more sprawled character of residential areas characterizing the built-up form of the Milan case can be attributed to the weaker role that the steering resources, in the Kantor and Savitch' model, play in guiding the political decisions taken relative to urban development and urban renewal processes in the case of Milan.

It can be thus stated that, upon the conceptual framework offered by the bargaining context model (Kantor and Savitch, 2002, 2005), the observed evidence on the less dispersed character of residential areas in the Barcelona case as compared to the Milan case can be successfully elucidated, since the stronger role of steering variables (i.e. popular control systems and local culture) supports the reasonable expectation for land containment, protecting land as a collective resource and managing land to provide services, such as transport infrastructures and public facilities (e.g. libraries, parks) rather than sprawled residential areas.

However, in the following sections other possible dimensions are considered in an attempt to explain the less dispersed character of residential areas in the Barcelona case, namely by employing demographic data (see sec. 7.1), municipal fragmentation (see sec. 7.2), and by analyzing within and in-between scale bargaining dynamics, mainly through plans and

planning regulations (see sec. 7.4.1 and sec. 7.4.2), to understand which and how different governance scales play their role in land management and in the occurrence of urban sprawl in Barcelona and Milan.

#### **7.4 Explaining urban sprawl as an outcome of territorial, multi-scalar and multi-actor governance processes in Barcelona and Milan**

Explaining urban sprawl as an outcome of territorial, multi-scalar and multi-actor governance processes is a complex task. By referring to table 4.4 where an ‘enhanced housing model’ has been presented (see sec. section 4.8), tables 7.15 and 7.16 qualify and summarize the ‘execution processes’ (i.e. the meso level that consists of the focus of analysis in this dissertation) of suburban housing provision through land management strategies in the Barcelona and Milan cases. The information included in the following sections, which is summarized in tables 7.15 and 7.16, stems from the examination of a variety of documents and the analysis of interviews I performed. When considered relevant, I quoted the interviewees; however, the analysis presented below is the verbal re-elaboration of the different qualitative sources employed in this dissertation (e.g. reports, planning regulations and plans, and especially interviews), into a single and coherent analysis of in-between and within scale bargaining dynamics, and land bargaining dynamics performed by certain private and public actors at different territorial scales.

As the focus of this dissertation is the governance processes of the ‘gatekeepers’, considered as private for profit and public actors as explained in section 3.2, tables 7.15 and 7.16 consider only these types of actors, identifying their territorial scales, and their in-between and within scale bargaining dynamics in both Barcelona and Milan, as per the theoretical model presented in Chapter 4. Bargaining mechanisms are accounted for in the column ‘bargaining and land bargaining practices’, and specify how the ‘arrows’ connecting private and public actors in De Decker’s model (see fig. 3.2 on page 72) and in the enhanced housing model presented in this dissertation (see fig. 4.4 on page 115) work – limited to the theoretical framework adopted in this dissertation.

The findings discussed in sections 7.4.1.3 and 7.4.2.3, although connected as they refer to the same theoretical model and maintain a similar structure, are nevertheless different. In-between and within scale bargaining dynamics, and the key moments with regard to land management as identified by spatial planning laws and regulations (see sec. 7.4.1.1, 7.4.1.2, 7.4.2.1, 7.4.2.2), are distinct in the two contexts, Barcelona and Milan, and hence are autonomously and independently commented upon. In other words, the way the findings are presented have a similar, but not coincident, structure.

Spatial planning laws and regulations are included since, as discussed in section 3.2 and 4.8, urban sprawl is assumed to be the result of actors’ decisions on land management and allocation. Furthermore, as shown in De Decker’s housing model (see fig. 3.2 on page 72) and in the enhanced housing model presented in this dissertation (see fig. 4.4 on page 115), laws and regulations on spatial planning are some of the relevant tools provided and employed by the gatekeepers to carry out the material execution of housing models. In order to understand in-between and within territorial bargaining dynamics, and to understand how local governments bargain over land in an attempt to explain the governance mechanisms leading to urban sprawl, as a type of land consumption (see sec. 2.4), it is necessary to consider the normative context where planning regulations in Catalonia and Barcelona developed, clarifying the normative context in which room for land consumption or containment, and for the occurrence of urban sprawl, is available, and how.

In particular, in sections 7.4.1.1 and 7.4.1.2 for the Barcelona case, and in sections 7.4.2.1 and 7.4.2.2 for the Milan case, the main spatial planning laws and regulations, and territorial and urban plans, are looked upon at the national (Spain and Italy), regional (Catalonia and Lombardy), provincial, metropolitan and urban (Barcelona and Milan) scales. The reference to national contexts with regard to spatial planning is relevant because they shape the ways in which regions and regional policies can work (cf. Herrschel and Newman, 2002, p. 76). The main regulations in both cases with regard to land use and land management are examined analytically, although not exhaustively, in order to assess their impact in the creation of ‘governance gaps’ allowing for or stimulating urban sprawl at the subnational level.

Hence, a brief account of Spanish and Italian laws and policies on land use, and the main plans approved in the Barcelona and Milan area, will be presented. In section 7.4.3, a reference table (tab. 7.17) for the plans and planning regulations analyzed in this section is provided. However, as discussed in sections 5.2 and 5.5, planning does not end with plans and planning regulations. Nevertheless, they are used in this dissertation as evidence to illustrate within and in-between scale bargaining dynamics. The aim is to understand how stringent planning regulations are, hence how much control public institutions can exert over urban development in their territory.

This is also related to the positioning of Barcelona and Milan in the Kantor and Savitch’ bargaining context model, which has been discussed in section 7.3, as the following analyses will try to clarify the mechanisms of the steering variables – popular control and local culture – that can influence urban development. It is assumed that more stringent plans can hint to an ‘anti-sprawl’ culture permeating public institutions, facilitating resistance to stakeholders’ private interests and transient political convenience of public actors.

The identification of which scales are relevant in such dynamics will be assessed and explicitly put forward; specific scales enforce territorial and urban planning, and land use policies, and, as we will see, the metropolitan scale is still a particularly contested arena for land use bargaining.

#### **7.4.1 A multi-scalar governance system: Barcelona**

By referring to the theoretical model presented in figure 4.4 in section 4.8, table 7.15 relative to Barcelona summarizes the analysis commented upon in the following sections 7.4.1.1, 7.4.1.2 and 7.4.1.3, and corresponding paragraphs, in an attempt to qualitatively find out which governance conditions contain(ed) the occurrence of dispersed residential areas in the Barcelona case. The table summarizes the main institutional private and public actors which are responsible for land management as part of the execution process of (suburban) housing models. For each actor, in-between and within scale bargaining dynamics are reported, as well as the main spatial planning laws and regulations, which will be dealt with more in detail in sections 7.4.1.1 and 7.4.1.2. Finally, section 7.4.1.3 re-elaborates on the analysis carried out for the Barcelona case and puts forward some relevant findings related to the governance processes at work with regard to land management in an attempt to explain the occurrence of urban sprawl in the Barcelona case (see also sec. 8.1)<sup>18</sup>.

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<sup>18</sup>Instead of referring to the Catalan regional government as ‘autonomous’, as a more correct translation for *Comunidades Autónomas* (see García, 2006, p. 339), in this dissertation the term ‘regional’ is maintained to facilitate comparison with the Lombardy regional government.



**Table 7.15:** Mechanisms and actors at the meso (‘execution’) level of land management (the ‘gatekeepers’) for suburban housing provision in the Barcelona case. Author’s elaboration.

Scale	Institutional actors	Mechanisms of land management for suburban housing provision		Institutional actors	Mechanisms of land management for suburban housing provision	
	Private for-profit actors	In-between and within scale bargaining dynamics	Bargaining and land bargaining practices	Public actors	In-between and within scale bargaining dynamics	Spatial planning laws and regulations
National scale	National real estate agents (e.g. APCE, Asociación de Promotores de la Construcción Españoles), national associations of real estate agents, national association of builders and constructors	In-between scale bargaining dynamics: organization with the purpose to join forces among real estate agents at the national level; Within scale bargaining dynamics: consultancy and mediation for associates regarding laws and regulations (provision of services to associates), organized attempts to take part in and influence political decisions on real estate (lobby)		Spanish nation state	In-between scale bargaining dynamics: devolution of competences to regional governments on territorial and urban planning (1978); Within scale bargaining dynamics: definition of general rules on land use rights, procedures of expropriation and land value assessment, additional spatial planning competences when the sub-national level is not equipped with own regulations (i.e. Balearic Islands, Ceuta and Melilla cities)	1956 Law on land use, 1975 Law on land use and policy, 1998 Law on land use

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Table 7.15 – continued from previous page

Scale	Institutional actors	Mechanisms of land management for suburban housing provision		Institutional actors	Mechanisms of land management for suburban housing provision	
	Private for-profit actors	In-between and within scale bargaining dynamics	Bargaining and land bargaining practices	Public actors	In-between and within scale bargaining dynamics	Spatial planning laws and regulations
Subnational scale (regional and inter-regional)	Regional associations of real estate agents, and of builders and constructors	In-between scale bargaining dynamics: organization with the purpose to join forces among real estate agents at the regional level; Within scale bargaining dynamics: consultancy and mediation for associates regarding laws and regulations (provision of services to associates), organized attempts to take part in and influence political decisions on real estate (lobby)	Meetings, persuasion techniques, infraction dynamics, party politics, lobby and collective bargaining agreements, policies, possession of property and economic resources	Catalan regional government (Generalitat), Department of Spatial Planning	In-between scale bargaining dynamics: establishment of 'autonomous' regional governments in 1978; Within scale bargaining dynamics: exclusive competences on territorial and urban planning, management of spatial (territorial) planning which are binding documents, control and final approval of municipal plans	1983 Law on regional planning, 1987 Law on the Catalan territorial arrangement (re-establishment of comarques), 1990 Decree on planning, 1995 General regional plan, 2002 Law on planning, 2006–2010 Approval of territorial plans (àmbits)
Subnational scale (provincial and inter-provincial)	Provincial association of real estate agents (e.g. APCE, Associaci de Promotors de Barcelona) and provincial association of builders and constructors (e.g. Gremi de Constructors d'Obres de Barcelona i comarques)	In-between scale bargaining dynamics: organizations with the purpose to join forces among real estate agents at the provincial level; Within scale bargaining dynamics: consultancy and mediation for associates regarding laws and regulations (provision of services to associates), organized attempts to take part in and influence political decisions on real estate (lobby)	Meetings, persuasion techniques, infraction dynamics, party politics, lobby and collective bargaining agreements, policies, possession of property and economic resources	Barcelona province (Diputaci de Barcelona)	In-between scale bargaining dynamics: residual role; Within scale bargaining dynamics: provision of technical support for the management of services at the municipal and inter-municipal scale (upon local governments' request)	

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Table 7.15 – continued from previous page

Scale	Institutional actors		Mechanisms of land management for suburban housing provision			Institutional actors		Mechanisms of land management for suburban housing provision		
	Private actors	for-profit	In-between and within scale bargaining dynamics	Bargaining and land bargaining practices		Public actors	In-between and within scale bargaining dynamics		Spatial planning laws and regulations	
Subnational scale (metropolitan)				Meetings, persuasion techniques, infraction dynamics, party politics, policies		Comisi n Comarcal (1953–1960); Comisi n de Urbanismo y Servicios Comunes de Barcelona y Otros Municipios (CUSCBOM, 1960–1974); Corporaci n Metropolitana de Barcelona (1974–1987); from 1995, Metropolit de Barcelona	In-between scale bargaining dynamics: establishment (1979) and abolishment (1987) of the Barcelona metropolitan organization (Corporaci n Metropolitana de Barcelona), establishment of the ‘regional’ metropolitan institution for Barcelona composed by 7 out of 10 comarques following the 1995 General regional plan (Ambit Metropolit de Barcelona); Within scale bargaining dynamics: competences on territorial and urban planning, management of spatial (territorial) planning which are binding documents following the regional government legislation		1953 Barcelona Pla Comarcal, 1964-68 Barcelona plan director , 1974 Official draft of the Barcelona metropolitan plan, 1976 Barcelona general metropolitan plan (PGMB), 2010 Barcelona territorial metropolitan plan (PTMB)	

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**Table 7.15 – continued from previous page**

Scale	Institutional actors	Mechanisms of land management for suburban housing provision		Institutional actors	Mechanisms of land management for suburban housing provision	
	Private for-profit actors	In-between and within scale bargaining dynamics	Bargaining and land bargaining practices	Public actors	In-between and within scale bargaining dynamics	Spatial planning laws and regulations
Subnational scale (local and urban scale)	Individual real estate agencies, individual builders and constructor companies		Meetings, persuasion techniques, infraction dynamics, party politics, policies, possession of property and economic resources	Local governments (municipalities)	In-within scale bargaining dynamics: as a scale they own the greater competences on urban planning; Within scale bargaining dynamics: management of urban plans in compliance with the regional territorial plans	(Focus on Barcelona municipality:) 1986-92 urban interventions and projects for the Olympic Games

End of Table 7.15

#### 7.4.1.1 *Spanish national land laws and policies*

In Spain, land use zoning regulations and urban planning were defined by the 1956 law no. 12 (*Ley de 12 de mayo de 1956 sobre régimen del suelo y ordenación urbana*), promulgated during the Francoist regime. The hierarchical structure of territorial and urban plans taking inspiration from the Italian 1942 land use law (Matesanz Parellada, 2009; see sec. 7.4.2.1), the Spanish 1956 law distinguished different typologies of soil, namely the compact city center (*casc*), urban land (*suelo urbano*), land ‘stocked’ for development (*suelo de reserva*) and agricultural land (*suelo rústico*). However, it did not specify that *suelo rústico* was undevelopable; hence, because of this normative lacuna, it was possible to reclassify agricultural land into developable land. Thus, all land was potentially developable, and subject to arbitrary political decisions (Solans Huguet, 1997, p. 93).

Some interviewees also made manifest that the ‘golden era’ of urban sprawl was certainly during the dictatorship, when laws and regulations were not applied and when tight control over land management was lacking, fostering illegal low density settlements and speculation. An interviewee working at the Barcelona Metropolitan Area (AMB) reported that, at that time, ‘there was no control on the part of higher institutions’ with regard to land management. As a matter of fact, during the 1950s and 1970s, illegal soil occupations were relatively common, and since then (the so-called *época desarrollista*) the Spanish as well as the Catalan landscape have been plagued by scattered and isolated low density developments, resulting in a high rate of land consumption. These were mainly residential houses built on agricultural land with no public services whatsoever (e.g. roads, water or sewage systems, public lighting and electricity) that had to be provided afterwards, especially during the 1980s, and that implied a consistent drain on public expenses. Between the 1950s and 1970s, the mechanism leading to such a type of urban sprawl has been synthesized by one of the interviewee, who is also professor at the Barcelona Autònoma University:

we experienced this phenomenon, specifically Spanish, of the ‘illegal sprawled areas’ [*urbanizaciones ilegales*], built on land plots illegally subdivided during the 1960s and 1970s. This is not like the Italian phenomenon of *abusivismo*, where someone illegally builds his detached house, or *villetta*, in the countryside or in his cousin’s land plot. Rather, *urbanizaciones ilegales* emerge when there is a builder or a real estate developer that buys a land plot, or finds an agreement with the owner of the land plot, who is generally a farmer, and illegally subdivides the land, and then sells these land plots without any basic service [e.g. sewer system, public lighting]. Such sale is done upon the promise that the land subdivision will be legalized, and that services will be provided.

The same interviewee reported that initially such phenomenon was strongly related with second homes. Another interviewee, working at the Catalan Polytechnic University, explains how:

at the beginning of the 1970s, when working classes succeeded to save some money, it was the moment when such working classes bought a land plot in the periphery of Barcelona, first to be able to enjoy the countryside and organize family meetings, and then to start to self-build, brick by brick, their summer houses.

These unauthorized sprawled areas were, for the large majority, eventually legalized in democratic times; the costs to remove them many years after their emplacement, were prohibitive. A recent phenomenon connected with these formerly illegal sprawled residential areas is that they are transformed into first dwellings by their owners; generally, the parents start to live in such peripheral areas, leaving their already grown-up children the opportunity to reside in a flat closer to Barcelona city center. However, the reduced accessibility to services,

such as hospitals, brings about other issues connected with policies for the retired and the elderly.

However, these suburban developments can only partly be considered illegal, as they were put into practice under the informal authorization of municipalities, sheltered by an actual *de facto* legal void left by the 1956 land use law regarding *suelo de reserva* and *suelo rústico* (Solans Huguet, 1997). In addition, one of the interviewees, who is a reference person in spatial planning at the Catalan level, stressed how the idea of a ‘detached house with a garden’ precedes the dictatorship, as in Catalonia:

during the 1930s, (...) before the Spanish civil war, the housing program [of one of the first Catalan presidents during the Republic period] was for all *la caseta i l hortet*, the small house with a garden... then this set a model, a standard model to accommodate the population.

In 1975, a new land use law was promulgated (*Legislación del suelo*), which basically rectified the shortcomings of the 1956 law, and integrated in one single legal document the laws and relative modifications on land use issued after 1956. The 1975 law was approved after Francisco Franco had already died (Matesanz Parellada, 2009), and was ratified by the Royal Decree no. 1346 in 1976. In the 1975 land use law, the *suelo de reserva* was clearly named ‘urbanized soil’ (*suelo urbano*), and differentiated into ‘planned’ (*suelo urbano programado*) or ‘not planned’ (*suelo urbano no programado*) urbanized land, implying that the latter could be potentially considered as land for future urban development if and when there was the opportunity (and viable initiatives from private actors) to do so. Furthermore, concerning urban sprawl containment, the 1975 law indicated that urban extensions should be built in morphological continuity with the already existing settlements – low densities being however possible –, avoiding the uncontrolled spread of residential areas in isolated morphological structures. More importantly, the former *suelo rústico* was clearly defined as ‘non developable land’, and its subdivision into land plots was prohibited, unquestionably protecting open and agricultural land from urban development and putting an end to the spreading of *urbanizaciones ilegales*.

The land policy established by the 1956 and 1975 laws remained practically unaltered until the approval of law no. 6 on land use in 1998 (*Ley 6/1998, de 13 de abril, sobre régimen del suelo y valoraciones*) during the right-wing Aznár government (*Partido Popular, PP*)<sup>19</sup>. The rationale underpinning the 1998 law was to introduce a flexible ‘release’ of land by local authorities, when external circumstances would have required it. In other words, local governments could classify land as developable when they judged this decision would be ‘attuned’ to a positive economic conjuncture. In this way, land was converted into a ‘non-scarce’ economic resource, in principle allowing land prices to remain reasonably low and therefore facilitating development, as land supply would be maintained through this flexible land allocation process.

The 1998 law determined that any land category, whether developable or non developable, *whose protection was not necessarily justified*, was susceptible to transformation. In other words, if the environmental, agricultural or aesthetic values of a certain area were not demonstrated, it was considered ‘not to be unapt’ for development (Baño León 1998–1999). In addition, this flexibilization of land use change was directly connected with land property. This meant that a landowner could potentially develop a land plot without having to ‘justify’ this development under the general directives of territorial planning, or the specific regulations

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<sup>19</sup>Another law was passed in 1992 under the socialist government, later considered unconstitutional by the Court in 1997, as it took over regional competences on land use planning.

of urban planning. Land ownership was deeply associated with building rights, in contrast with the previous legislation.

The 1998 law strengthens landowners, developers, and real estate investors' rights to build, concomitantly implying that any development would be done for 'collective interest' (as more land supply would have coincided with a lower land price, cf. Alli Aranguren, 1998). The local administrations assume the residual role to regulate, but not to define, the urban development that landowners have identified for their properties. Local authorities, as well as regional governments, thus become mere 'recorders' of land use transformations (Alli Aranguren, 1998). One of the interviewees, who is a specialist in laws and regulations, highlighted that, through this law,

a certain, clear message was sent: here [in Spain] all land is potentially developable, except when the contrary is proven. And this, more than the scope that any land use law can reach, since one land use law does not certainly change the real estate market, this was a clear message, to Spain, and to foreign countries as well, that here real estate investment would be favored.

However, this law was passed when the right-wing government did not have the parliamentary majority, and a coalition with the Catalan right-wing party *Convergència i Unió* (CiU) was formed to vote the law. At that time, Juan Antoni Solans was the appointed Director of planning at the Catalan government (Generalitat), and could introduce some clauses (article 9) which would have 'de-activated' the dangers inherent to the 1998 law. Reference to the different territorial laws and plans of each *Comunidad Autónoma* was made, hence the 1998 law could not contrast the environment protection laws aimed at safeguarding open and agricultural areas, defined by the different *Comunidades* in Spain. Nevertheless, as Spanish local governments are entitled with urban planning competences, it was the city councils' decision to apply or not, and to what extent, the permissive land management allowed by the 1998 law.

In 2002, the first Catalan law on urban planning (*Ley 2/2002, de 14 de marzo, de Urbanismo*, later modified in 2004, 2008, 2010, and 2012) was approved. It was inspired and in continuity with the 1956 and 1975 national laws and defined, for the first time, a proper Catalan legislation on urban planning, replacing the Spanish national laws. In the 2002 Catalan law, there is also an explicit reference to the need to orient land management in defense of the public interest and in line with sustainable development, together with environmental protection of open and agricultural land, tackling any attempts to build new dispersed urbanized (residential) areas. Ideally, urban sprawl remains a legacy of the past (see sec. 7.4.1.1 on *urbanizaciones ilegales*); urban development has to occur in continuity with the already consolidated urbanized areas<sup>20</sup>.

In 2003, the *Partido Popular* (PP) obtained the majority in the Spanish parliament, and could rectify the 1998 law on land use by deleting article 9. However, the impact of this national law was rather limited as it could not overrule regional legislations on land management and policy, and since it could not demolish the normative *corpus* consolidated with the 1956 and 1975 laws, and, regarding Catalonia, with the 2002 law.

In 2008, under socialist rule, a new law was passed (*Real Decreto Legislativo 2/2008*), re-establishing the normative framework that was weakened by the 1998 law. Although the

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<sup>20</sup>However, another interviewee, professor at the Polytechnic University of Catalonia, critically recalled that recently the Catalan regional government was ready to modify the stringent regulations protecting the peri-urban 'agricultural park' of El Prat to attract investors to emplace the future EuroVegas, which however will probably be built in the proximity of Madrid.

1998 law was strategically approved by the government during the real estate bubble (*burbuja inmobiliaria*), it can not be considered responsible for its occurrence.

Interviews confirmed the normative continuity between the 1956 and 1975 laws, which prioritized the regulation of urban development through continuous urban expansion and tight protection of open and agricultural land. The most recent laws, inspired by different values and aims, are limited in scope and could not substantially undermine the solidity of the previous legislation on land use, besides their incapability to clash with regional laws, in particular in Catalonia.

#### **7.4.1.2 Planning in Catalonia, with a focus on Barcelona**

##### **1940s–1970s**

Since the 1940s, Barcelona has experienced dramatic urban changes, given the massive internal migration of people who were attracted by its developing industrial sector (see sec. 5.3.4). A specific entity, the *Comisión Comarcal de Barcelona* (CUB), was established, approving, in 1953, a *Plan Comarcal*; it was the first attempt, after Cerdà's 1859 plan, to manage and regulate the almost uncontrolled urban development that Barcelona and its 27 surrounding municipalities were experiencing. However, in contrast to the preceding century (see sec. 5.3.4), and in contrast to Madrid's urban and administrative expansion that was simultaneously occurring, municipalities around Barcelona were not annexed, as the Plan Comarcal gave priority to supramunicipal coordination in terms of planning regulations (*Corporación Metropolitana de Barcelona*, 1983). The 1953 plan was inspired by the English planning tradition of the self-contained neighborhood, prioritizing the idea of self-sufficient communities, rather than of a (larger) city, standing out against Le Corbusier's conceptualization of larger urban agglomerations in *ville radieuse* types (Solans Huguet, 1997).

The approval of the Barcelona Plan Comarcal during the height of the Francoist regime is relevant for two main reasons. First, there was the formal recognition by the Madrid central government that Barcelona was experiencing an exceptional development that needed new and more appropriate planning regulations. Second, the Plan Comarcal had a key influence on Spanish national urban planning regulations, since it consistently inspired the 1956 national law on land use planning (Serratosa, 1997).

However, if, on the one side, the 1953 plan played a relevant role in orienting the urban development of Barcelona besides the national planning regulations in Spain following 1956 law, on the other side it determined the onset of the prolonged and still not resolved question of Barcelona's metropolitan boundaries (see sec. 7.4.1.3).

In 1960, the *Comisión Comarcal de Barcelona* that managed the Plan was renamed as *Comisión de Urbanismo y Servicios Comunes de Barcelona y Otros Municipios* (CUSCBOM) and its competences were expanded by entitling this entity to service provision (e.g. transport, housing, water supply).

However, during the 1960s the Plan Comarcal was already insufficient to handle the considerable challenges posed by Barcelona's rapid urban development and expansion, and in 1965 the *Plan Director del Area Metropolitana de Barcelona* was approved: it comprised 135 municipalities instead of the 27 involved in the 1953 Plan Comarcal. Nevertheless, for political reasons it was only administratively validated in 1968 by the Madrid central government, thus avoiding recognition a *de facto* 'Greater Barcelona' (Serratosa, 1997).

In 1974, the *Comisión de Urbanismo y Servicios Comunes de Barcelona y Otros Municipios* (CUSCBOM) experienced a second renaming, and was called *Corporación Metropolitana de*



Barcelona.

### The approval of the Pla general metropolità (PGM) in 1976

Shortly after, in 1976, at the beginning of the democratic transition (1976–1983), the Barcelona *Pla general metropolità* (PGM, general metropolitan plan) was approved, fathered by the architects Albert Serratosa and Juan Antoni Solans<sup>21</sup>. This document, covering 27 municipalities, represented a watershed in Barcelona planning history and Spanish planning laws. The implementation of the 1976 plan was also facilitated by the fact that the mayor of Barcelona was also the president of the Corporació metropolitana (García, 2006, p. 345). The 1976 plan is still valid, and currently under revision after the approval of the *Pla territorial metropolità de Barcelona* (PTMB) (see *infra*, and cf. García, 2006).

However, the term ‘metropolitan’ attributed to the 1976 plan is technically improper, as it refers only to 27 municipalities, which are not sufficiently representing the real metropolitan (and regional) influence of Barcelona on the surrounding territories (and within the Catalan region), mirroring the difficulties in clearly and unanimously defining Barcelona metropolitan area (see *infra*)<sup>22</sup>.

The 1976 Barcelona *Pla general metropolità* (PGM) primarily acted in a threefold manner, with strong connections to the 1975 Spanish planning law, similar to what happened with the 1953 Plan Comarcal and the 1956 Spanish planning law 20 years previously (see sec. 7.4.1.1). First, the 1976 Barcelona *Pla general metropolità* (PGM) aimed at relieving pressure on the highly dense Barcelona center, which was the primary destination of migration flows and, more importantly, which had been heavily subjected to speculation activities<sup>23</sup>. Second, the 1976 Barcelona *Pla general metropolità* (PGM) regulated the industrial decentralization of those factories still occupying central areas of the city, and whose production systems (e.g. surface areas, noise and pollution levels) were incompatible with the increasing residential and tertiary character of Barcelona city center. Third, and connected with the previous two points, it identified specific areas for development along the ‘first crown’ of municipalities surrounding Barcelona. All these aims had to be attained by a reinforcement of mobility infrastructures, the transport ‘spine’ through which Barcelona city centre de-densification would have occurred. Such trends are recognizable in tables 6.1, 6.2, 6.3 and 6.4 presented in Chapter 6 on and use transformations over the 1977–2006 period.

The 1976 plan had the aim to recompose the urban development of the medium size municipalities around Barcelona towards city compactness, simultaneously maintaining their local identity in a polynuclear metropolitan area (Solans Hugué, 1997). In a very innovative way, the 1976 plan laid the basis for a polycentric territorial development, recognizing the role of the municipal centers around the Barcelona city core. In doing so, the authors of the 1976 plan were inspired, quite interestingly, by the Italian experience of *centri direzionali* proposed by the *Piano Intercomunale Milanese* (PIM) (see sec. 7.4.2.2). Furthermore, the 1976 plan introduced similar planning standards that characterized the Italian ‘planning renaissance’ fostered by the *Piano Intercomunale Milanese* (PIM, see sec. 7.4.2.2) and the Bologna experiences (Campos Venuti, 1990).

What were the effects that the 1976 plan had on urban sprawl in the Barcelona metropolitan

<sup>21</sup>For further details on the 1976 Barcelona Metropolitan Plan, see Nello (1997).

<sup>22</sup>For a discussion, cf. Esteban Noguera (1991).

<sup>23</sup>As a matter of fact, following conventional building practices and speculation operations, the Cerda’s plan was considerably distorted, mainly by occupying all the available space within the 113 x 113 meters grids (*xamfláns*), and by increasing building volumes (attics, *àtics*, and ‘over-attics’, *sobreàtics*, were added), building depths were prolonged and apartments were further divided and subdivided.

area? First, it is worth noticing that the 1976 Barcelona Pla general metropolità (PGM) itself formally stimulated suburban development for housing and industrial purposes, through mobility infrastructures, in order to alleviate Barcelona city center. Therefore, it induced urban sprawl over the municipalities surrounding Barcelona. However, this suburban dispersion was relatively controlled, and Serratosa and Solans' farsightedness in proposing a coherent model for Barcelona metropolitan development – although limited to 27 municipalities – would influence the Barcelona and Catalan urban and territorial planning for more than 40 years, considering that the 1976 Barcelona Pla general metropolità (PGM) is still valid.

Second, it stimulated suburban growth as, before its coming into force, during 1976 and 1977, exceptions were made to previously approved development plans, in order to protect private interests. The 1976 plan substantially reduced the permitted building volumes, therefore landowners alleged the validity of previous development projects (some of them illegally made up to maintain the former building volumes), which were characterized by more permissive building rights and a more opaque planning law implementation. It is also relevant to mention that, in 1979, only 260 of the 945 Catalan municipalities at that time were provided with an urban municipal plan (Ferrer and Sabaté, 1999). Analysis on land use transformations in the Barcelona metropolitan region (RMB) clearly show that the highest pace of land consumption occurred between 1956 and 1977 (Solans Huguet, 2002, p. 56).

Third, the 1976 Barcelona Pla general metropolità (PGM) can be considered as a truly innovative planning instrument: in contrast with the 1959– 1974 timeframe, where there has been unplanned urban and suburban growth (the so-called *época desarrollista*, see sec. 7.4.1.1), the 1976 plan 'put some order' to an almost self-organizing development that was commonly tolerated, if not fostered (Solans Huguet, 1997; see also Font Arellano et al., 2005, p. 36)<sup>24</sup>. In fact, the publication of the plan occasioned 21000 appeals, emphasizing how it was affecting private interests<sup>25</sup>. The 1976 Barcelona Pla general metropolità (PGM) really attempted to recompose and re-orient Barcelona development and to re-establish the priority of 'collective interests' over private ones.

Similar to what would happen in the Milan case with the 1975 proposal for a metropolitan plan by the Piano intercomunale milanese (PIM, see sec. 7.4.2.2), the 1976 general metropolitan plan (PGMB) substantially reduced the optimistic growth expectations of municipalities which, if left uncontrolled, would have boosted urban expansion to accommodate the predicted 14 million inhabitants in Catalonia by 2025 (Solans Huguet, 1997, p. 93).

Furthermore, the 1976 'metropolitan' plan is innovative, as one of its central features was (and is, since it is still in force) to consider planning as a 'process'. One of the interviewee working at the Barcelona Metropolitan Area (AMB) stated that:

differently from other planning tools that qualified land allocation in a static manner, the 1976 plan went beyond simple land use zoning: besides that, the 1976 plan introduced in Spain the idea of 'planning through processes', meaning that one area could be identified as a 'transformation area', for instance from an industrial area to an urban park, or from industry to services, or 'urban renewal area'. Hence, in the plan, land allocation did not, for example, simply identify a residential area, but some areas were singled out as 'in

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<sup>24</sup>As mentioned above, there has been an attempt previous to the approval of the 1976 Barcelona metropolitan plan to update the 1953 Comarcal plan during the 1960s through the *Pla director metropolità*. However, it was approved in 1968 only as an administrative document, without legal validity (Esteban Noguera, 2012; Serratosa, 1997).

<sup>25</sup>Despite the huge number, the appeals were less than the 1974 draft of the plan, for which 32.000 appeals were presented (Ferrer, 1997; Pié Ninot, 1997).

transformation' meaning that, soon or later, they will have had to go through a process of urban renewal.

As a fourth comment, the 1976 Barcelona Pla general metropolità (PGM) deterred illegal practices over the Catalan territory which were responsible of sprawling residential development. Moreover, thanks to the plan, 23320 hectares have been re-classified to non developable land, while 10001 hectares have been re-classified from non developable to developable land, the majority of which (6722) were already informally occupied (Font Arellano et al., 2005, p. 109). Such a task was carried out in close cooperation with the Catalan regional government (Generalitat); one interviewee taking part in this process reported that:

the Generalitat checked if the land was legally developable. But if developable land came from previous allotment decisions, then the municipal plan had to be changed, and this implied much resistance. Many things [of the municipal plans] were corrected, before there were municipalities that qualified almost their entire territory as developable. (...) I think that, over time, the social and political awareness with regard to such issues has increased, however we started [in the democratic era] from a very very lenient situation, where illegal land occupations were fine, and where there was ample room to build in a dispersed way. (...) more could have been done, however (...) much depended on the attitude of the municipal administration. If a municipality was really worried about what it could have become in the future, then the Generalitat urban planning director had political room to help the municipality to reduce development projects. In contrast, if a municipality was worried that none of the foreseen projects were affected, nor that any landowners' land rent expectations were affected, then it was more difficult to act. (...) Then the regional government neither wanted to loose consensus, and especially by the municipalities belonging to its same party. (..) However (...) all the Generalitat directors of urban planning agreed that urban sprawl had to be reduced.

While it is true that the 1976 plan regulated urban development only within 27 municipalities, Barcelona included, 'transferring' urban sprawl beyond the administrative boundaries of this 'first crown' (de Teran, 1997), it is also manifest that, as the tables 6.2, 6.3 and 6.4 show, it was between 1956 and 1977 that most of the discontinuous residential areas were built within the Barcelona Metropolitan Area (AMB) and Region (RMB). The metropolitan function performed by the Barcelona Metropolitan Region (RMB) as a 'residential basin' for the Barcelona population is thus the result of an historical trajectory beginning from the 1950s. However, it is clear that such role of the RMB has been consolidated in the last 30 years by the building of low density residential areas (cf. Muñoz, 2007): 5,2% of discontinuous residential areas in the Barcelona Metropolitan Region (RMB) have been built between 1977 and 2006 (see tab. 6.4).

Although it is problematic to clearly identify the direct effect of the 1976 plan<sup>26</sup>, the fact that discontinuous residential areas grew less, between 1977 and 2006, within the Barcelona Metropolitan Area (AMB, +27,5%) as compared to the Barcelona Metropolitan Region (RMB, +69,1%), attaining a more reduced proportion of the total built-up areas (19,4% as compared to 30,6%, in 2006; see tab. 6.2 and 6.3), can be suggested as a related effect on the plan on land use transformations. Politically, the 1976 plan set a clear development pattern for the larger area of influence exerted by Barcelona, contributing at deterring illegal and suburban expansion (de Teran, 1997).

These achievements have been possible thanks to the combination of the (presaged) end of the Francoist era, and the visionary planning models guided by Serratosa and Solans as the main contributors to the 1976 plan definition. There was a general alignment of the political

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<sup>26</sup>For a critical review see Solans Huguet (1997).

elite and the technical committee responsible for issuing the plan. Besides being key contributors to the 1976 Barcelona Pla general metropolitana (PGM), they later took on public responsibilities in other institutions: Serratosa worked as consultant for the Generalitat, and Solans has been director of the planning department in the *Corporació Metropolitana de Barcelona* (see infra), official in Barcelona urban planning department, director of the planning department at the Catalan government (Generalitat de Catalunya), and vice-president of the Catalan Land Institute (*Institut Català del Sòl*). The presence of these two key figures, and their collaborators, helped maintain a certain consensus over planning decisions and facilitate a relative political understanding among municipalities, supra local bodies and the Generalitat.

In addition, because of its emphasis on local identities and on the consideration of public spaces and services as ‘commons’, the 1976 Barcelona Pla general metropolitana (PGM) was supported by the population. There was a clear message that the plan came to defend public interests and to forbid a certain type of land management that stimulated land speculation, urban cramming and poor housing standards (Esteban Noguera, 1997; Huertas, 1997). Because of this, and coherently with the consolidated experience of neighborhood movements as sites for political resistance, localities and neighborhoods raised their voices to defend their interests and to appeal against certain transformations proposed by the plan, mainly related to the opening of new mobility infrastructures (Esteban Noguera, 1997).

In synthesis, the 1976 Barcelona Pla general metropolitana (PGM) constituted a sort of ‘planning revolution’ for Barcelona, Catalonia and Spain. As discussed in section 7.3, it can be suggested that the two steering variables identified in the bargaining context model proposed by Kantor and Savitch (2002) popular control systems and local culture (see sec. 7.3), were substantially activated for the definition of the 1976 plan, characterizing urban political choices over urban development in the Barcelona case.

However, the authors of the 1976 metropolitan plan acknowledge that it was also the end of an era (Solans Huguet, 1997). Starting in the mid 1980s, there was already a shift in the political climate, and consensus over the plan decreased. This is not considered negative per se, as it reinforces the legal validity of the 1976 plan and its capacity to change and adjust to circumstances, without being totally distorted or legally inapplicable (García, 2006; Nel·lo i Colom, 1997). Nevertheless, the frictions between the 1976 plan and the municipalities’ interests cropped up, and in 1984, there was a revision of the *Programa d’actuació urbanística* (PAU), allowing private interests to more strongly impose their will (especially by increasing building volumes) and enabling municipalities to relax building laws. One interviewee, who is an official at the service department of Barcelona municipality, reported that:

Nowadays, when we meet to decide what to do, it seems that these are meetings of the school of architecture...we should do an analysis of this or that... Before [the 1980s], there were key figures in Barcelona municipality or in the regional government, that had ideas, models, and knew what was going on, for better or for worse, they had ideas and proposals on what to do. I think that now these ideas are lacking.

### **The Catalan 1983 and 1987 laws on territorial planning**

Three years later, after the approval of the 1976 plan, in accordance with the Spanish constitution, the Catalan Statute for Autonomy was approved in 1979, entitling the Catalan government with the exclusive responsibility for the spatial planning of the Catalan territory (García, 2006, p. 348).

A crucial moment in Catalan planning was law no. 23 on territorial planning (*Lei no. 23/1983 de política urbana*) approved by the Catalan Parliament in 1983, determining the shift of

focus from urban and metropolitan to territorial (or regional) planning and development. This law envisaged the establishment of a Catalan territorial plan, which would have been operationalized through a series of partial and local plans.

The approval of the 1983 law on territorial planning also coincided with the beginning of the long center–right presidency of Jordi Pujol as president of the Catalan regional government (Generalitat). Frictions between the regional government and Barcelona as metropolitan and regional capital, traditionally governed by a left–wing government, emerged.

In 1987, the Catalan Parliament approved law no. 7 concerning territorial organization and politics. This law is relevant because it revived the *comarques* as traditional units of the Catalan territory. The *comarques* were established in 1936 during the Catalan Republic, but were formally abolished right after the Civil War by the Francoist regime<sup>27</sup>. The actual 41 *comarques* organize Catalonia in ‘counties’, each of which has its own local capital (see fig. 7.2).

They are defined as local, territorial identifiable systems, as each comarcal capital ideally represents for its citizens the local center for economic and commercial activities, education and work flows, and a point of reference for administrative matters. Their boundaries are therefore defined in functional terms, according to the role that each of the 41 comarcal capitals exerts on its surroundings<sup>28</sup>.

The 1987 law no. 7 established that, under the administrative level of the 4 provinces (Barcelona, Gerona/Girona, Lleida/Lérida and Tarragona), 41 *comarques* would become an extra administrative tier, more respondent to the local cultural identities composing the Catalan territory. In each of the comarcal capitals, a comarcal council was instituted, which yet is mainly entitled with the provision of local services.

The Barcelona province was subdivided in 10 *comarques*, namely Alt Penedès, Anoia, Bages, Baix Llobregat, Barcelonès, Garraf, Maresme, Osona, Vallès Occidental and Vallès Oriental, 7 of which – all except Anoia, Bages and Osona – compose the Àmbit Metropolità de Barcelona, that is the Barcelona Metropolitan Region (RMB) (see fig. 7.3 and sec. 6.1).

### **The 1990 Decree on planning and the 1992 Olympic Games**

Sensing the ‘reformist’ climate that, during the 1990s, involved Spanish legislation on land use (see sec. 7.4.1.1), the appointed Director of planning at the Catalan Government, Juan Antoni Solans, was instrumental to the voting of a decree on planning (*Decreto legislativo 1/1990*). This decree, later consolidated in 2002 through a law, endowed Catalonia with a proper legislation on territorial and urban planning, buffering the Catalan region from any new laws or regulation on the subject.

The far–sightedness of the 1990 Catalan decree, coupled with the national 1975 law, was particularly manifest when Barcelona had to face the Olympic Games in 1992. Although the city has been deeply transformed by investing resources triggered by the Olympic nomination, few exceptions to the laws and previous plans were made to accomplish the projects envisioned

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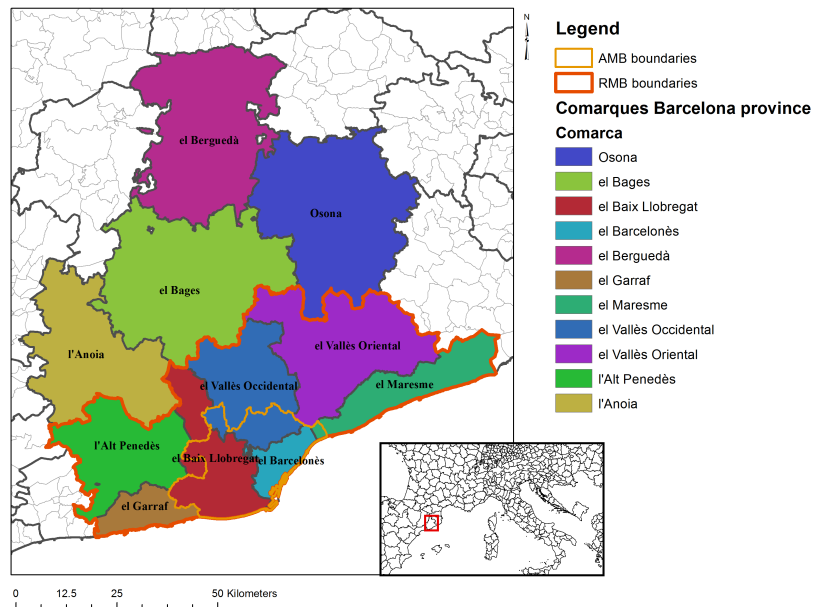
<sup>27</sup>A study on its own would be required to define and debate over the Catalan *comarques*, as there are *comarcas* also in other Comunidades Autónomas in Spain, for example in Asturias or Andalucía. Furthermore, other research would be needed to deal with *vegueries*, which are sets of *comarques*. In Catalonia, there are a total of 9 *vegueries* having their capitals at Barcelona, Girona, Tremp, Vic, Manresa, Lleida, Reus, Tarragona, and Tortosa, constituting a territorial scale on its own, despite its competences being non–existing.

<sup>28</sup>The role of the comarcal capital is based, for instance, on the generated commuting flows for work and study reasons (e.g. mandatory education such as primary or high schools), or on the relative location of the nearest public service centers (e.g. health care centers, administrative matters) that the local population most likely visit

Figure 7.2: Comarques of the Catalan Region. Source: MMZ. Author's elaboration.



Figure 7.3: Comarques of the Barcelona province. Source: MMZ. Author's elaboration.



for the Olympic Games, which mainly involved the provision of facilities (Capel, 2005; Degen, 2008; García, 2008; see also sec. 7.3).

### **The 1995 Pla General Territorial de Catalunya (PGTC)**

As late as 1995, after more than a decade since the 1983 law, the *Pla General Territorial de Catalunya* (PGTC) was approved. A commission (the *Comisió de Coordinació de Política Territorial*) (Nel·lo i Colom, 2011) was constituted in order to coordinate the delivery and the implementation of the regional plan and the derived territorial plans for each of the 7 defined *àmbits* (Alt Pirineu i Aran, Àmbit Metropolità de Barcelona, Camp de Tarragona, Comarques Centrals, Ponent – Terres de l'Ebre, and Comarques Gironines).

The 1995 regional plan, a guideline rather than a prescription, identified the specificities of every Catalan *àmbit* and proposed recommendations for development, in order to foster a balanced territorial growth in Catalonia, pursuing general equity objectives and respecting the local specificities of every territory (Generalitat de Catalunya 1995). In synthesis, the plan recognizes the differences and specific characteristics of every portion of the Catalan territory, and proposes an appropriate path for economic development in accordance with local resources, local capabilities and having in mind a general re-balance of the economic tissue in Catalonia. The 1995 Pla General Territorial de Catalunya (PGTC) aimed at economic re-balance in Catalonia through the use of three different spatial types, called 'systems', namely (i) open and green areas, (ii) residential and industrial settlements, and (iii) mobility infrastructures.

### **2006–2010: the approval of the 7 *àmbits* territorial plans**

More than 10 years after the Catalan regional plan was approved in 1995, between 2006 and 2010, all 7 *àmbits* approved their own territorial plan, in accordance with the regulations prescribed by the 1983 law on territorial policy (Nel·lo i Colom, 2011).

The approval in the late 2000s of the 7 territorial plans was fostered by a change in the Catalan government: after 23 years of center-right wing government (the *Convergència i Unió* party), with Jordi Pujol as a president, in the 2003 elections the Generalitat was taken over by a coalition (called *Tripartit*) formed by the Socialists (*Partit Socialista de Catalunya*, PSC), the Green Party (*Iniciativa per Catalunya-Verds*) and the left-wing Catalan nationalist party (*Esquerra Republicana de Catalunya*, ERC), which ruled until 2011. The new government clearly took responsibility to comply with the 1983 Catalan regional law on territorial policy, by orienting the plans towards urban compaction (against land consumption and urban sprawl), improvement of public mobility infrastructures, and prevention of social segregation and exclusion (Nel·lo i Colom, 2011). The plans had a time horizon of 15–20 years, and solicited the establishment of more specific, sectorial plans by other administrative departments (e.g. mobility infrastructures, environmental protection).

### **The 2010 Pla territorial metropolità de Barcelona (PTMB)**

In this normative context, in 2010 the *Pla territorial metropolità de Barcelona* (PTMB), including 163 municipalities (the Barcelona Metropolitan Region, RMB, see sec. 6.1), was approved. Formally, the 2010 Pla territorial metropolità de Barcelona (PTMB) elaborates at a larger scale the three 'systems' around which the 1995 regional plan pivots: open and green areas, residential and industrial settlements, and mobility infrastructures. Differently from the territorial guidelines put forward in the 1995 Pla General Territorial de Catalunya (PGTC), the 2010 metropolitan plan physically regulates the complexities and the differences of the Barcelona metropolitan zone. It defines where and how growth will be possible, which

areas should be protected and which priorities should guide the enhancement of mobility infrastructures (transit is particularly at stake). It then leaves ‘partial’ and ‘sectorial’ plans, and urban plans, proposed by each of the 7 *comarques* included in the plan, to technically address these issues.

The 2010 Pla territorial metropolitana de Barcelona (PTMB) has both its advocates and opponents (IERMB (Institut d’Estudis Regionals i Metropolitans de Barcelona), 2012). Among its supporters, there are those who underline how the plan aims at protecting natural and open areas, amounting to 75% of the territorial surface included in the PTMB. More importantly for our purposes, the development of residential and industrial settlements have to be recomposed towards city compactness and sustainability. The protection of green areas goes hand in hand with residential densification (low density or mono-functional areas are provided with services to boost land use mixes), and territorial development concentrates on improving medium size urban poles (COTMB (Commissió d’Ordenació Territorial Metropolitana de Barcelona), 2010; Serra, 2003, p. 27)<sup>29</sup>.

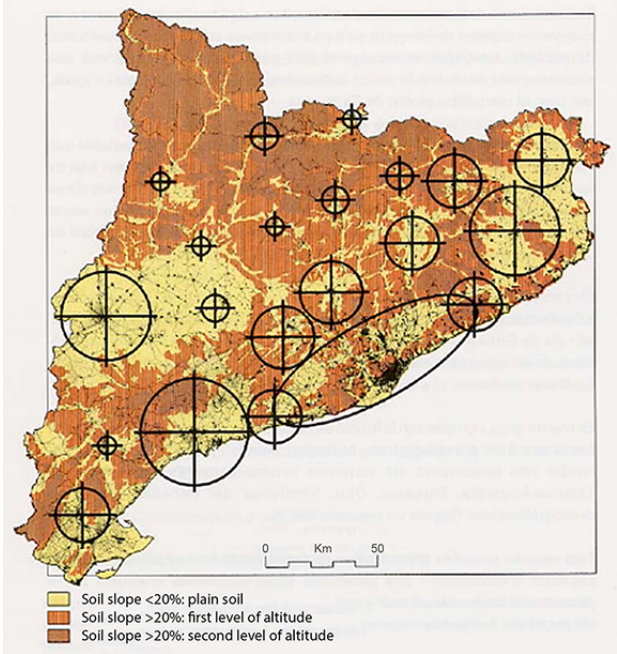
In short, the 2010 plan identifies those areas that can grow, and how they should grow. In order to strengthen the nodal character of the metropolitan zone (polycentrism), there is a clear emphasis on railway infrastructures, and on ports and airports (see fig. 7.4 and fig. 7.5). Similar to the 1976 Barcelona Pla general metropolitana (PGM), suburban growth is regulated, in order to avoid dispersed patterns of residential and industrial development. There is a strong focus on public spaces and natural areas, which are conceived as public services, in an effort to enhance citizens’ quality of life (and housing).

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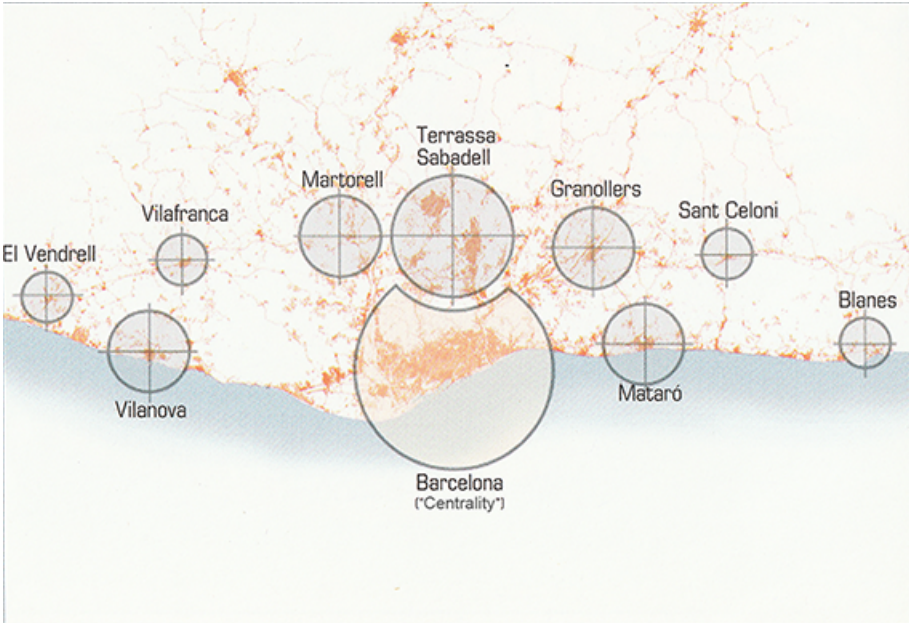
<sup>29</sup>These urban poles are called *centres vertebradors*, and are Granollers, Martorell, Vilanova i la Geltrú, Vilafranca del Penedès, Sant Celoni, and also Sabadell, Terrassa and Matarò.



**Figure 7.4:** Polycentric poles for the territorial re-balance in Catalonia according to the 1995 territorial plan for Catalonia. Source: Pla General Territorial de Catalunya, PGTC (1995, Estrategia M.28).



**Figure 7.5:** Polycentric poles for the territorial re-balance in the Barcelona Metropolitan Region (RMB) according to the 1995 territorial plan for Catalonia. Source: (Serra, 2003, p. 27).



### 7.4.1.3 *Land and scale bargaining*

From the previous section (7.4.1.2), it has been made clear that different territorial scales intertwine to guide urban development through planning regulations, having an impact on the occurrence of urban sprawl. In this section, planning regulations are re-examined from the territorial, multi-scalar governance perspective adopted in this dissertation (see sec. 4.8), highlighting in-between and within scale governance dynamics, and the consequences these have for land management and urban sprawl.

#### **Local scale: municipalities**

Regarding in-between scale governance dynamics, at the municipal level, not much changed in terms of administrative fragmentation, as the number of local governments in Catalonia (947) has remained practically unchanged for the last 80 years (see also sec. 7.2). In terms of within scale bargaining dynamics, according to the Spanish national laws in planning (see sec. 7.4.1.1), local governments are the public actors who occupy the most prominent role in land bargaining and defining housing policies within a territorial, multi-scalar governance frame.

Having competence over land management within their boundaries, municipalities can autonomously bargain over land. One of the interviewed key informants, who is also a planner, stated that:

with regard to planning, it is basically the municipalities, and then the Generalitat regional government, which eventually approves the plan, but the initial decision [over land management and allocation] comes from each single local government.

However, if municipalities are entitled with land use competences, their decisions over land management do not solely come ‘endogenously’; one of the interviewees, a university professor also involved in the issuing of Barcelona metropolitan plans, recognized that:

we call such dynamics ‘transversal processes’, meaning that they do not depend on the municipalities. A local government envisions its urban development, endogenously. But it is clear that it does not do the urban plan by thinking that one day, for example, Carrefour [a global supermarket chain] will arrive. In contrast, Carrefour arrives and goes to the city council and says: I’ll make 300 new work places, and in exchange I claim tax exemptions for the first 5 years. I mean, Carrefour or any other company, such as Deutsche Bank or Sabadell Bank. (...) the municipality is only the material support, as simple as that. Part of the local governments’ decisions on urban planning comes from these international, local or regional actors. (...) Hence the local government then changes its urban plan, but only after these actors come. <sup>30</sup>

In addition, interviewees also highlighted the role that the connection between urban development and local taxation has for municipalities. One of the interviewees, working on the Barcelona Metropolitan Area (AMB), stressed that:

in this country, planning fees are the best way for local governments to ensure revenues, together with the state grants coming to municipalities to provide services according to the number of inhabitants. Hence planning fees coming from urban development, then local taxes coming from the new inhabitants, and then the state grants allow municipalities to keep afloat.

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<sup>30</sup>The idea of land as a mere physical support is also briefly discussed by Matesanz Parellada (2009) by citing Naredo (2002)’s book on the evolution of economic theories.

However, when housing needs are directly managed by the municipalities (e.g. the development of a suburban residential area as a particular land management strategy), the expectation to get higher revenues can clash with the crude reality of the financial difficulties the city councils will later have to face. As a key informant of the Polytechnic University of Catalonia stated that:

(...) local municipalities have the authority to classify land and to make their municipality expand their built-up areas, therefore (...) the municipality facilitates in any possible means the provision of houses to the population that is arriving, concluding that the more houses we produce, the more inhabitants we will attract, and so we will have more resources (...) when in reality it was found out that, the larger the population, the more the needs, therefore the more the deficit.

Similarly, a key informant, a former official in the Catalan Parliament, clearly claimed that<sup>31</sup>:

we [in Spain and Catalonia] did not grow [i.e. urban development] according to people's needs, but depending on the real estate sector's needs to obtain profits and surplus value. (...) Spain has been sold in the European and world market as a place for real estate investment. This has provoked a real pressure on housing demands, but on a certain type of housing demands, on a certain type of housing products, which are not what people need for residing and living and working, in contrast being totally detached from that need. For instance, second homes, or single-family detached houses, have been the usual housing products built in the Barcelona metropolitan area, which implied a high land consumption for very few people who could afford it. Such a housing offer has been directed more to real estate agents, than triggered from a real reflexion on which housing types would better satisfy the housing needs of the population. (...) there is still a high share of the population, with an average income, that cannot afford a house, and this is because we have built houses for the real estate market. This is for me the main conclusion from the explosion of the real estate bubble.

Nevertheless, in bargaining land with builders and real estate agents, local municipalities can opt for a certain territorial specialization of their land, meaning that according to the type of housing promotion that they chose, they will attract one social segment or another. A key informant, active at the political level especially with regard to the issuing of the Catalan housing law (*Ley 18 del derecho a la vivienda*) approved in 2007, put forward that:

whoever lives in a municipality depends also on the type of urban planning choices that local governments have made. One municipality, such as Sant Cugat, opted for a low density development, with small, detached houses, implying more land consumption, and less building height...in contrast, another municipality can decide to reduce land consumption by building block houses, where the residents are more concentrated. One model is more expensive, while the other is cheaper, with regard to housing prices. Hence the municipalities define which residents are going to pay a certain price for housing needs, either a house with a garden and a swimming pool, or a flat in a block house with common facilities. (...) the planning orientation of local municipalities draws the social profile of the people that you then [statistically] encounter there. I mean, the relation between the urban planning model and the social composition of the inhabitants.

Hence, in terms of land bargaining, there is a political decision that local municipalities have to take in order to choose how much land to bargain, and also how to orient their future residents' socio-economic profile, as the bargaining context model tries to stress with

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<sup>31</sup>The same interviewee stressed how, in the democratic era, differently than other issues such as the justice reform or the process of competences devolution to regional governments, a very much needed restructuring of the normative framework regulating local taxation systems was not carried out, maintaining local governments dependent on urban development strategies.

its emphasis on urban political choices (see sec. 4.7.4). Ideally, if local municipalities opt for building single, semi-detached single houses, with high quality common facilities (e.g. swimming pool, garden, children's playgrounds), they will probably attract a certain kind of population segment. Municipalities not only bargain over land with private actors, but also for a certain type of housing development, market or socially oriented (see sec. 4.7.4), leading to a sort of 'territorial specialization' of their housing provision, where residents will be characterized by certain types of socio-economic attributes (cf. also Nel · lo i Colom, 2002, p. 110).

Consequently, the population chooses where to reside according to the type of housing offer located in the municipalities. One interviewee, a university professor from the Polytechnic University of Catalonia, stated that:

Transport infrastructures also have a role in the location and spatial planning of housing areas, as it is for industrial and commercial sites, (...) however it is different, because the issue of the land price, and the housing price, influences the real estate market which functions as a social filter. As a social filter, people do not live where they want to live, but rather where they can afford to live. Probably, a certain percentage of the population can decide where to live, but the rest definitely where it can afford to live.

Such a claim does not imply that citizens lack the power to decide, and that they do not have any role in housing models (see De Decker's model on page 72); however, their range of choices is reduced to the structure of the housing market and their socio-economic conditions, *and also* because of the land management strategies regarding residential areas that local governments developed.

However, taking inspiration from the French experience on 'urban solidarity', the housing law (*Ley 18 del derecho a la vivienda*), approved in 2007 by the Catalan parliament, obliges local governments to allocate 25% of any new urban residential development to social housing. One of the key proponents of this law, who has been interviewed, describes how:

there are local governments that maintain such a principle of urban solidarity very clearly when it comes to thinking about their residential development. An important share of their housing supply is social housing, together with other services... in contrast, other local governments clearly relegate such social housing offer to the minimum. Hence some municipalities are strongholds totally closed for certain socio-economic segments, to the point that municipalities where mostly high-income families reside, who employ working class personnel for domestic work, do not allow much social housing within their boundaries, with the result that that people have to come from outside the municipality to work there. One example of such dynamics is Sant Cugat, Sabadell or Terrassa, where the hired help comes from the adjacent towns of Cerdanyola or Ripollet, where in contrast the local government allotted a certain amount of the housing offer to social housing.

The interviewee explains such territorial difference by type of political party ruling the municipality, meaning that a conservative local government will resist social housing to a greater extent than a left-wing local government. The reason is that social housing is considered as coinciding with the arrival of immigrants, who are considered problematic by certain political parties.

Beyond the connection of the share of social housing and the political views of city councils, which would need an independent and more in depth analysis, the territorial dispersion of residential areas is considered to be cross-political. A key informant working for a Catalan regional institute states that:

There are urban developments contiguous to large urban poles, there are urban developments contiguous to small urban poles, and there are discontinuous urban developments.

(...) This happens independently of any affiliation to political parties. For instance, Sabadell or Terrassa whose governments have been traditionally left-wing, while Sant Cugat has traditionally been right-wing, well, they all present territorial dispersion of residential areas. So they are politically different, but they spurred similar sprawling pattern. In contrast, local governments of the same party did perform different choices over urban development.

Hence, the structural conditions where local governments act, and interact with different actors, leave nevertheless room to local governments for urban political choices of urban development, and in particular of residential areas. The bargaining context model proposed by Kantor and Savitch (2002) is thus efficient in ‘spotting’ such dynamics: market conditions (such as the coming of Carrefour or other private actors) and intergovernmental support (e.g. the amount of state grants) non-deterministically structure the choices over land management that can be performed, as local governments have choices over the type of urban and residential development they want.

In conclusion, in the Barcelona case, local municipalities are the main responsible body for the urban and housing development occurring within their boundaries. The suburban qualities of the built environment become an asset for those municipalities that chose to develop land to meet the housing needs of and thus attract (a certain type of) metropolitan areas’ inhabitants and real estate investors (cf. Carreras Quilis, 2002, p. 34). However, there is always a political choice behind land use management and planning, therefore housing provision is heavily influenced by the specific decisions made by local authorities. The availability of ‘affordable’ or ‘unaffordable’ houses in a certain municipality is related to such choices and to the certain market population segment that local authorities attempt to attract.

### **Provincial scale**

Arguably, regarding in-between scale bargaining dynamics, the role of the Barcelona provincial scale is generally auxiliary (cf. García, 2003). Indeed, the fieldwork has highlighted that the Barcelona provincial scale, the Barcelona Diputació, is an interstitial administrative tier that enters in action in a twofold manner: first, it does not have any formally defined competence, hence it residually takes on and coordinates those tasks that are not explicitly assigned to other administrative bodies, as local governments or the Generalitat, or that could require supramunicipal coordination; and second, it takes measures when local governments explicitly ask for support. Examples of the Diputació’s competences can be tax collection and advice for small municipalities, provision of local police services, and inter-municipal management of dog pounds. The analysis of within scale bargaining dynamics similarly singles out the provincial scale in Barcelona as an interstitial governmental body entitled with the provision of technical support for the management of services at the municipal and inter-municipal scale, generally upon local governments’ request, without any specific and defined competences.

Furthermore, in-between scale bargaining dynamics may be re-arranged given the re-establishment of the comarques and the institution of comarcal councils (the comarcal scale), since they may gradually substitute the provincial level, upon the consideration that comarques and àmbits are deemed to better reflect the territorial complexities of the Catalan territory (see sec. 7.4.1.2). Nevertheless, this process is still in progress, and it remains unclear if and how the replacement of provinces by comarques should take place. Comarques are ‘county councils’ without any financial support, which hinders practical effectiveness, besides the fact that they are not elective, in contrast to state governments, regions and municipalities (García, 2003).

However, receiving state grants from Madrid<sup>32</sup>, the Diputació not only acts as an extra institutional tier for political control, but it also performs an important service coordination role for local governments, as it provides informed advice and consultancy, together with economic support, for helping municipalities comply with rules and regulations, and for service maintenance.

In the logic of this research, it is important to report that the first administrative document pointing out and analyzing the problem of urban sprawl in Catalonia has been an initiative of the Diputació. The fieldwork has shown how, around the year 2000, the Diputació was struck by constant requests from different municipalities to receive financial support for the provision of roads, public lighting and water, or public transportation, to sprawled areas. A study was then carried out (cf. Barba and Mercadé, 2007) in the attempt to spot and measure the sprawled residential areas in the Barcelona province. It was indeed a real issue for the Diputació, which was faced with the need to give financial or technical support to municipalities to manage those areas. The performed study (cf. Barba and Mercadé, 2007) concluded that most of the residential sprawled areas were built during the 1950s and 1970s, as also tables 6.1, 6.2, 6.3 and 6.4 have shown in Chapter 6, that is previous to the re-establishment of a democratic government in Spain, as already discussed in section 7.4.1.1. Nevertheless, Muñoz (2007, 2008a) emphasized the pace at which, between 1980 and 2000, sprawled residential areas were built over the metropolitan territory, confirming a trend that was described and discussed in the previous chapter in sections 6.2.1 and 6.2.2. Later, other studies followed (Indovina, 2007; Muñoz, 2011), elaborating on the identification, analysis and the possible strategies to manage these areas and to improve their compactness and presence of services.

The Barcelona Diputació thus performed an almost unique role of identification and analysis of sprawled residential areas, which is even more noticeable as it did not have any competences (and hence administrative or political ‘duty’) to take land consumption and the territorial dispersion of residential areas so seriously. The work carried out by the Diputació was important because it stimulated the emergence of urban sprawl, and made obvious to local governments that, while land consumption and building activities to create new housing areas brought consensus and votes, at the end of the day such decisions turned out to be an expensive price to pay when it was time to provide, and maintain, public services to such areas. It could be said that the Barcelona Diputació ‘poured salt into the wound’, highlighting the short-sightedness of past and recent decisions over land management, and making clear that the ‘idillic dream’ of a suburban house (cf. Muñoz, 2008b, and see sec. 3.1.4) was soon converted into a nightmare for public funds.

Hence, the analysis of in-between and within scale bargaining dynamics leaves the Diputació of Barcelona as a rather weak interstitial body. However, on closer inspection, the fieldwork highlighted the capacity and political will of the Diputació to concretely handle the phenomenon of urban sprawl in an attempt to offer local governments the means and the methods to best manage the economic drain sprawled residential areas implied for local authorities.

### **Metropolitan scale, comarques and àmbits**

Historically, as to in-between scale bargaining dynamics, it has been the metropolitan scale

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<sup>32</sup>The amount of state grants received by Spanish *Diputaciones*, i.e. provinces, depends on the population residing in the province. With its over 5,5 millions inhabitants (2011 data; see tab. 7.1 on page 204), the Barcelona province receives a considerable amount of state grants as compared to other provinces of the country, such as Lugo, Granada, or Gerona.

that has had an increasingly relevant role in land management in the Barcelona case. Together with the Barcelona Plan Comarcal (1953) and the Barcelona Plan director (1964–1968)<sup>33</sup>, the 1976 plan clearly underlines the efforts made by politicians and planners to support the emerging metropolitan Barcelona scale. During the Francoist regime, Barcelona was overwhelmed by urban expansion and internal migration, and the 1953 Plan Comarcal was the first attempt to manage this growth. Later, until 1976 when the Pla general metropolità de Barcelona (PGMB) was approved, different important efforts were made to propose a metropolitan plan for the city. The fact that the mayor of Barcelona was also the head of the metropolitan body of Barcelona helped implement the metropolitan plan (Degen and García, 2008, p. 14).

As already mentioned (see sec. 7.4.1.2), as to urban sprawl occurrence, the 1976 plan had a great influence on regulating land uses and especially containing residential dispersion. With its ‘roots’ in the 1953 Plan Comarcal, the 1976 plan embodied the latter’s modern version, and also mirrored the need for renewal in Spanish and Catalan planning. On the one hand, the 1976 plan effectively reduced land consumption, fostering a clear urban densification process within the 27 municipalities (see sec. 6.2); on the other hand, it displaced urban sprawl outside the boundaries of the 27 municipalities included in the 1976 plan, but incorporated renewed values (e.g. compact development, environment protection) that influenced Catalan territorial planning. One of the interviewees, an official at the Barcelona municipality, describes the contrast between a highly compact Barcelona with its more dispersed metropolitan territory (see tables in sec. 6.2.1) by stating that:

Barcelona has remained compact, but it has generated a dramatic territorial dispersion in part of its surrounding territory. I do not mean that Barcelona did that. Furthermore, there are cities and towns in its metropolitan area of influence that remain compact as well. Instead, this was produced by the people who lived in Barcelona, who wanted to have more space, and hence profited from certain opportunities that were offered them, especially second homes, in the inland and along the coast as well.

This quote emphasizes the role that land management decisions by local governments have in the occurrence of urban sprawl at the metropolitan level. The ‘opportunities’ mentioned by the interviewee refer to the process of illegal occupation of land that has been discussed in section 7.4.1.1, but also to the urban development choices of municipalities regarding their housing offer. Hence, an explicit governance move was performed by the Catalan regional government.

Despite the importance of the 1976 plan and the relevant role performed by the Corporació Metropolitana, the re-establishment of comarques in 1987, and the definition of the 7 àmbits, challenged the Corporació Metropolitana as the institutionalized metropolitan scale. Such move was carried out by the Catalan government in a (currently failed) effort to re-organize and re-harmonize the Catalan territory; nevertheless, such re-establishment implied that the ‘local’ *Corporació Metropolitana de Barcelona* (see sec. 7.4.1.2) scale would have replaced by the comarcal councils<sup>34</sup>. As already mentioned (see sec. 7.4.1.2) 7 of the 10 comarques composing the Barcelona province constitute the Àmbit Metropolità de Barcelona, which is the new metropolitan scale territorially defined by the Catalan regional government.

Furthermore, such re-scaling process implied also the replacement of the former metropolitan scale (Corporació Metropolitana) with the *Àmbit Metropolità de Barcelona* (as is also called),

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<sup>33</sup>The Barcelona Plan director (1964–1968) can be considered as the first document issued in Barcelona with a truly metropolitan character (Esteban Noguera, 1991).

<sup>34</sup>The abolition and re-organization of the Barcelona metropolitan scale has happened almost simultaneously with the abolishment of the Greater London Council by the Thatcher government in 1986.

which refers to the Barcelona Metropolitan *Region* (RMB), and which encompasses the Barcelona Metropolitan Area (AMB) (see sec. 6.1 and Appendix C; cf. also Esteban Noguera, 1991). The Barcelona Metropolitan Area (AMB) spatially belongs to the Barcelona Metropolitan Region (RMB), as shown in figures 6.1 and 6.2 on pages 166 and 166, respectively, yet they are two different autonomous authorities, with the RMB still being ‘under construction’.

Hence, the former metropolitan scale (Corporació Metropolitana, 27 municipalities) is now re-defined by two ‘twin’ scales, a larger scale (the RMB comprising 164 municipalities) and a smaller scale (the AMB including 36 municipalities), nevertheless with the latter being spatially encompassed within the RMB. The institutionalization of this ‘regional metropolitan’ scale (see next paragraph) has been consolidated, following the 2010 law no. 10 approved by the Catalan government, through the replacement of the former metropolitan entities<sup>35</sup> by the AMB as a proper administrative tier (Serra, 2003, p. 28). The AMB is thus an administrative body with competences over territorial and urban planning, environment, service provision (e.g. water and waste), transport infrastructures and public transport, and housing (cf. website of Barcelona Metropolitan Area (AMB), 2011).

Over time, in terms of in-between bargaining dynamics, there has been a steady emergence of the ‘regional’ metropolitan scale (together with comarques and àmbits), re-scaling the former ‘local’ metropolitan body (i.e. Corporació Metropolitana) by two main metropolitan scales, the Àmbit Metropolità de Barcelona (i.e. the Barcelona Metropolitan Region, RMB) and the Barcelona Metropolitan Area (AMB). Hence, in-between scale bargaining dynamics at the metropolitan level made this level more complex, re-defining within scale bargaining competences as well.

Such in-between scale bargaining dynamics, set in motion through the 1987 and 1983 laws, highlighted the Catalan government’s aim to re-frame the role of Barcelona as metropolitan scale *within* the Catalan territory, simultaneously fragmenting its power into the Barcelona Metropolitan Region (RMB) and Area (AMB). Having regional validity and scope, the 1995 Pla General Territorial de Catalunya (PGTC) implied that the Barcelona area should not have been ‘treated differently’ as no primacy was given to Barcelona as metropolitan capital (and scale) on its own. The 2010 Barcelona metropolitan plan (PTMB) has been a tool to ‘include’ Barcelona metropolitan system within the regional territorial spatial plan of Catalonia.

However, such scale re-arrangements compelled the new ‘regional’ metropolitan scale (the 7 comarques composing the Àmbit Metropolità de Barcelona, that is the Barcelona Metropolitan Region, RMB), to propose a combined territorial plan in accordance with the 1983 law (Esteban Noguera, 2012), which, as Miralles-Guasch and Pujol (2012) argue, does not imply consensus among the actors of the 7 comarques. Indeed, as a way to formally replace (and recognize) the administrative void left by the abolishment of the Corporació Metropolitana de Barcelona, a specific Commission was established (*Commissió d’Ordenació Territorial*

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<sup>35</sup>These were:

- *Entitat Metropolitana de Transports*, EMT, for integrated transport services, which included 18 municipalities;
- *Mancomunitat de Municipis de l’Àrea Metropolitana de Barcelona* (MMAMB), which consisted of an executive body managing common services such as public spaces and facilities, infrastructures, and housing, and which included 18 municipalities;
- *Entitat Metropolitana del Medi Ambient*, EMMA, which coordinated water supply and waste management services, and which includes 33 municipalities.



*Metropolitana*), composed by 11 representatives of the Catalan government (Generalitat) and 11 representatives of local governments to make the plan see the light (Indovina, 2010).

Therefore, the 1995 regional plan, in accordance with the Catalan 1983 law and the abolishment of the Corporació Metropolitana in 1987, recognizes the ‘Barcelona phenomenon’ within the larger Catalan territory by identifying the Barcelona Metropolitan Region (RMB) and Area (AMB), i.e. in-between scale bargaining dynamics, however without assigning any special place for Barcelona in the regional development strategy. Metropolitan ‘local’ competences have also been weakened (within scale bargaining dynamics), however further research is needed to compare and precisely define the shifts in competences (and hence in the scope of action) between the former Corporació Metropolitana and the current AMB and RMB.

### **The ‘regional’ metropolitan scale**

In terms of in-between scale bargaining dynamics, the 2010 Barcelona territorial metropolitan plan (see sec. 7.4.1.2) allowed the emergence of the ‘regional’ metropolitan scale: if the abolishment of the Corporació metropolitana determined the end of a ‘local’ metropolitan entity, now a ‘regionally imposed’ metropolitan body, the much broader Àmbit metropolità de Barcelona (RMB), leads the scene of metropolitan and supra-municipal coordination regarding spatial planning and land management.

Nevertheless, dynamics within such a new body were not easy. A joint and prolonged effort carried out by a variety of actors finally resulted in the definition of the 2010 Pla territorial metropolità de Barcelona (PTMB), referring to 7 comarques. First, as a political and technical step necessary to define a common territorial strategy for the 7 *comarques* within the Barcelona metropolitan sector, a commission and a committee were formed. On the one hand, a commission for territorial planning (*Comisión de Ordenación Territorial Metropolitana de Barcelona*), composed of 22 representatives of the Generalitat and the municipalities, was constituted as political body to carry out the plan (Acierno, 2012; Indovina, 2010). On the other hand, a technical committee was appointed, composed of 4 representatives of the Catalan regional government, 1 representative of Barcelona municipality, 2 representatives from the left-wing *Federació de Municipis de Catalunya* (FMC), and 1 representative from the right-wing *Associació Catalana de Municipis* (ACM) (Esteban Noguera, 2012; Nel·lo i Colom, 2011). The committee was assigned the responsibility of proposing a preliminary analysis of the political *foci* that should have been addressed in the plan, elaborating on the potential issues harvesting consensus or triggering conflict. Second, a draft of the plan (the *avantprojecte*) was proposed for public observations and suggestions.

The ‘draft’ of the plan (*avantprojecte*), and the establishment of the commission and the committee were emblematic steps in an almost decade long process to define a common strategy of territorial development for the 7 *comarques*, and their respective municipalities, composing the ‘regionally imposed’ Barcelona metropolitan region. This fits a consolidated tradition towards public participation, and a local culture addressed to conceive the Catalan territory as a matter of public interest (see sec. 7.3), as one interviewee, a professor at Barcelona Autònoma University and former political secretary for regional development during the 2003–2001 left-wing coalition, stated:

This political will only exist when there is an important public pressure. If there is no public pressure, it is very difficult to generate such political will.

This quote is particularly relevant for the purposes of this dissertation since, as already mentioned, it shows the presence of a virtuous and shared local culture regarding the need

to find consensus to manage and orient urban development. Indovina (2010) emphasized how one of the innovative features of the 2010 metropolitan plan for Barcelona was the process of consensus building between the regional government and the involved municipalities, supported by the political work carried out by Joaquim Nadal, as the regional official for territorial planning, and by Oriol Nello, as appointed secretary for territorial planning at the Generalitat.

However, the 2010 Pla territorial metropolità de Barcelona (PTMB) is not exempt from criticism. While it is necessary to recognize the political coordination effort involved in the approval of the 2010 metropolitan plan among the 7 comarques, it does not (and possibly cannot) resolve all the complexities implied in the relationships among the territorial, metropolitan and urban planning in Catalonia, as Barcelona is its regional and metropolitan capital.

In the first place, it does not resolve the issue of the metropolitan boundaries of Barcelona. Although it comprises 164 municipalities (hence more than the 27 municipalities included in the 1976 inappropriately called Barcelona Pla general *metropolità* (PGM)), it does not extend over the ‘real’ Barcelona metropolitan region, therefore its capacity for territorial planning is limited (Font Arellano, 2012; Solans Huguet, 2012). The 2010 plan defines a central area (Barcelona city core and 36 municipalities, the AMB), the surrounding ‘metropolitan arch’ (*arc metropolità*) and the other municipalities. According to some experts, the re-definition of Barcelona metropolitan scale in such terms is not sufficient to encompass the complexities of the Catalan territory, and the influence that the primacy of Barcelona exerts over it. Other, more extended territorial re-balancing strategies would have been needed to cover and manage the real influence of Barcelona as a metropolitan and regional capital (Larrosa, 2012).

Furthermore, the territorial strategy to create a nodal development, which would reinforce and valorize the polycentric urban development of the ‘territorial’ metropolitan area, has not been sufficiently addressed in practical terms, and it is unclear how the polynuclear centers, which are the capitals of the 6 *comarques* surrounding the *Barcelonès* comarca, will exert their roles as attraction poles for industries, housing and mobility infrastructures (de Torres Capell, 2012; Nel · lo i Colom, 2012; Pié Ninot, 2012). More specifically, the 2010 plan lacks realistic tools for supramunicipal coordination, especially concerning land management and fiscal land policies (Jover and Morell, 2012). Supralocal instruments remained confined mostly within the 1976 Barcelona Pla general metropolità (PGM), although certain territories endowed themselves with more advanced supralocal planning tools<sup>36</sup> (Nel · lo i Colom, 2011).

In addition, strictly in terms of plans and planning regulations, the 2010 Pla territorial metropolità de Barcelona (PTMB) is criticized because it does not problematically elaborate on its relationship with the 1995 regional plan and the urban plans that will locally operationalize its general strategies (Font Arellano, 2012). Indeed, the prescriptive character of the 1995 territorial plan was sometimes problematic to ‘translate’ and re-elaborate into the 7 territorial plans approved between 2006 and 2010. One of the interviewees, who took part in the production of the 2006–2010 plans, argues that the 1995 Catalan territorial plan should be revised, updated and, probably, rewritten. However, it is a document that binds local authorities to comply with the territorial regional plans, as, for instance, with the 2010 PTMB (Miralles-Guasch and Pujol, 2012, p. 308). Hence, the competences over urban planning in the hands of local governments (see supra) could be limited, and territorial dispersion patterns of residential areas will also be more regulated. However, it is too premature to

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<sup>36</sup>These are the *Pla Director de Coordinació del Delta de l'Ebre* approved in 1999, and the *Pla Director de les Activitats Industrials i Turístiques del Camp de Tarragona* approved in 2003.

provide an analysis of PTMB's impacts and effects with regard to suburbanism, which will be clearer in the near future.

In conclusion, in-between scale bargaining dynamics points out the Àmbit metropolità de Barcelona (RMB) as the 'winning' metropolitan scale; however, the analysis of within scale bargaining dynamics singles out the difficult consolidation of this recent metropolitan scale within the governance dynamics in the Barcelona and Catalan contexts, which needs further research. Nevertheless, the metropolitan scale presents itself as a key governance actor to control and regulate territorial and urban development, in particular with regard to the containment of sprawled residential areas.

### Regional scale

Regarding in-between scale bargaining dynamics, the Catalan regional level, although pre-existent, consolidated during the democratic era, when more autonomy (decentralization) (see García, 2003; see also sec. 4.1) was transferred to the Spanish *Comunidades Autónomas*. For Catalonia, the statute of autonomy was approved in 1979. Regarding within scale bargaining dynamics, spatial planning and development are the exclusive responsibility of the Catalan government as higher level regional body, and at the local level.

Historically, there has been a manifest conflict between the Barcelona municipal and regional governments. Between 1979 and 1982 ('the democratic transition') the political map of Catalonia and Spain was set up, influencing further politics and political equilibrium. Since that time, in Catalonia, against any forecast, the first regional elections in 1980 were won by the conservative party CiU (*Convergència i Unió*), led by Jordi Pujol, who would have ruled the regional government for almost 25 years<sup>37</sup>. Instead, the municipal government of Barcelona has been historically left-wing, mostly led by the socialist party (the Catalan Socialist Party, PSC) (Rodríguez Morató, 2008, p. 54).

The almost 25 years long mandate of Jordi Pujol (1980–2003) facilitated the reinforcement of the regional scale that, in terms of territorial planning, found its roots in the 1987 law, which led to the approval of the 1995 territorial plan for Catalonia and the subsequent approval (2006–2010) of the 7 territorial plans for each identified àmbit (see supra). Pujol's strategy was to re-balance the Catalan territory through the strengthening of relatively large, medium and small size cities (polycentrism), despite recognizing, but not prioritizing, Barcelona as the center of the Catalan regional system (García, 2003), as discussed above. The program reinforced the contrast between Jordi Pujol, as the Catalan president, and Pasqual Maragall, as the mayor of Barcelona at that time (ib.). The abolishment of the Corporació metropolitana in 1987 was precisely directed at weakening the power of Barcelona over the Catalan territory, and at reassigning spatial planning competences of the Catalan territory under the Catalan government's authority, a tactic that was supported by the 1979 Catalan statute of autonomy (García, 2003).

In terms of within scale bargaining dynamics, the regional level was thus reinforced over time, as it could centralize, through the 1995 regional territorial plan, spatial planning strategies over the Catalan territory, including land management strategies, under a single normative framework. The relevance of such territorial re-scaling process, led by the Catalan government (Generalitat), to provide the Catalan territories with regional planning laws and territorial plans following the 1995 regional territorial plan, resides in the fact that the plans

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<sup>37</sup>An intense political debate on the consequences of this prolonged mandate has emerged, as the former Catalan president has been recently (2014) involved in a huge corruption scandal affecting his family and his party's behavior in managing economic resources during that time (Mayayo i Artal, 2014), *El País* newspaper.

bind the urban planning instruments defined by the municipalities to be in compliance, and not in conflict, with the same regional and territorial planning (Nel · lo i Colom, 2011).

However, the plans did not solely suppose a top–down approach, but the Department of territorial planning at the Generalitat sought for the direct cooperation with (and not ‘only’ the participation of) municipalities, stakeholders, and civil society. In particular, land and competences bargaining often goes through the interaction between the planning director of the Generalitat and the municipalities. One of the interviewees, who is a reference person for Catalan planners with extensive experience in plans and political responsibilities, described such interaction by stating that:

the local government proposes the urban plan, and discusses it with its inhabitants, and then it delivers it to the regional authority, which controls it in certain commissions, where there are competent people, who are anyway connected with the political basis of the regional government, which are the municipalities. Hence the urban plans are discussed in such commissions, however the last word is for the director of the Generalitat territorial planning department [*director de urbanismo*]. The commission can make some comments, it is clear that then the urban plan will be approved, however it is the director’s final choice to approve the plan. Hence, the director of the Generalitat’s territorial planning department muddles through a very complex situation, because politically a local government can have quite an influence in the party, and in the party that is ruling the Generalitat... Therefore, the decisions that the director wants to make can be short–circuited. Obviously, the director of the Generalitat territorial planning department receives certain instructions, in order to accommodate municipalities’ expectations on urban plans and projects. At the end of the day, this is quite normal. (...) That is why being the Generalitat’s planning director is the most difficult political post in Catalonia. (...) All municipalities have something to debate with him, and he has to give answers in a complex political setting.

However, the same interviewee stated that the director of the Generalitat’s territorial planning department, and especially Juan Antoni Solans as one of the most influential directors, could equally ‘advise’ the city officials of local governments that urban plans should have been ‘acceptable and conform with certain requirements’, avoiding unrealistic expectations for urban development growth, or the land use transformation of consistent amounts of open and agricultural land.

Hence, the ability to meet plan requirements depends not only on a shared local culture aiming at reversing normative inefficiencies and urban sprawl trends as it happened in the 1950s–1970s timespan (see *supra*), but also on the political ‘work’ that is constantly carried out between higher level institutions (in this case, the region) and the local governments (cf. Carreras Quilis, 2002, p. 34)<sup>38</sup>. Furthermore, between 2003 and 2011, during the elaboration and approval of the plans, the Generalitat has been the initiator of supramunicipal cooperation initiatives (Nel · lo i Colom, 2011)<sup>39</sup>. Land bargaining thus becomes a highly political practice, making ‘planning a technically assisted political practice’, as one of the interviewees, professor at the Barcelona Autònoma University, stated. Such land bargaining

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<sup>38</sup>Each territorial plan took around two years to be approved (the 2010 Pla territorial metropolitana de Barcelona (PTMB) requiring more time), during which there was a constant debate and interdependence between the Generalitat and the local municipalities. This is a particular achievement and even a ‘good practice’ for intra and inter governmental cooperation, considering also that the coalition government that stimulated the approval of the plans implied the co–existence of different political parties and perspectives (Nel · lo i Colom, 2011).

<sup>39</sup>Relating to those experiences, Nel · lo i Colom (2011) stresses that it is necessary to abandon the hierarchal idea of regional plans approved before any territorial or municipal plan, as ‘territorial and urban planning performed at different levels has to mutually influence and create feedback on each other’ (p. 162 Nel · lo i Colom, 2011, my translation).

with private actors is mediated by both the local authorities and the Generalitat.

The fact that the Catalan regional government has centralized territorial and urban planning, and as the final approval of municipal plans is a task carried out by the Generalitat, reinforces the regional scale supervising role in terms of land consumption and sprawled housing areas. One of the interviewees, a university professor active at the regional level, could hence safely conclude that:

Catalonia has maintained an overall seriousness with regard to spatial planning, compared to Madrid, or Valencia. After the decentralization of competences, for instance in Madrid or Valencia, laws were approved that facilitated private interests. (...) The pattern is similar among regional governments, however, within Spain, Catalonia has maintained a certain carefulness with regard to planning, and urban development processes have been more regulated, even if the local authorities depend on real estate investors, and so do politicians.

## Stakeholders

Typically, real estate developers are those actors that buy land plots, from public or other private actors (e.g. a municipality or a private landowner), develop a project, which can be for housing or industrial purposes, and then sell or rent it. The land plot can be equipped or not with basic services (e.g. water, waste collection), and in the case of the latter it is the developer that outsources a construction company to provide such services. Conversely, a building or construction company is responsible for erecting buildings, transport infrastructures or industrial plants, depending on the projects defined by an architect or an engineer, generally hired by a real estate developer.

Interviews with stakeholders in Barcelona dealt with the type of tasks that the association of real estate developers, and the association of building constructors, perform with respect to the expansion of cities, and the difference in the working tasks and the type of urban environment between Barcelona city center and the remaining municipalities located in its province. The association of real estate developers has been founded in 1969, and the building constructors' association, despite having a longer history<sup>40</sup>, has been re-established in 1892 and, after the Francoist regime, re-structured in 1980s.

First, an important role carried out by both types of stakeholders is lobbying with public institutions to defend their interests and have them protected or guaranteed by laws and regulations. For example, the association of real estate developers has recently been involved in debates and meetings with Catalan public institutions regarding a law that, according to the association, disadvantages real estate property. This law, still under discussion, intends to tax the owners of those houses and flats that are vacant, in the attempt to lower prices and encourage households to buy or rent a dwelling. However, the association of real estate developers maintains that such a law is unjust, as property is left vacant because, given the current real estate crisis, demand is not sufficient to absorb the available housing stock. The association of real estate developers is thus lobbying to modify this law in order to defend its members' interests. Similarly, the interviewed association of building constructors, which is mostly composed of small and medium size companies (cf. Martínez Hoyos, 2012, p. 188), tries to pressure public institutions to get tax reductions and facilities to ease the work of its associates. For instance, the builders' association achieved VAT reductions on certain building works, or an extension of parking time in loading and unloading zones. However,

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<sup>40</sup>For the complete historical evolution of the builders' guild since medieval times, cf. Martínez Hoyos (2012).

both associations underlined how their role is not only lobbying, as they offer a variety of other services (e.g. legal and fiscal advice), which would be too expensive or too difficult to obtain for single companies.

Second, both associations emphasized the difference between Barcelona and the other municipalities in terms of types of tasks that can be carried out, and the type of urban environment. For builders, Barcelona, as a compact city rich in history and architectural treasures, is considered the best example of the constructors' 'craft' to raise cities. For real estate developers, Barcelona is still a ripe market where quality upgrades can be made to (historical) buildings, and where the real estate market still offers great opportunities. However, the situation in Barcelona clashes with its surrounding areas, such as the Barcelona Metropolitan Area (AMB) or Region (RMB), where the housing stock is not so refined and where quality or urban planning is not as high as in Barcelona. Questions on how this could happen ended with the use of the 'passing the buck' strategy.

While both the real estate developers and builders association admitted that most, if not all, of what was built in Barcelona and its province was the result of the work of their associates, this 'construction of the city' process has happened in different ways. Plainly, builders build, and developers propose and invest. This makes a great difference, as builders execute the projects, while real estate developers initiate and manage the projects<sup>41</sup>. Hence, the interviews have clearly shown how the responsibility for the *type* of city that was being built (e.g. compact or sprawled) was conveniently discharged to other actors. For instance, builders argued that they build according to the detailed plan. Therefore, the responsibility for the quality of the urban environment is that of planners, architects, or engineers, who can in turn be hired by the real estate developers. In contrast, real estate developers maintain that dispersed residential areas have been built because of self-construction, that is when a private individual ('certainly' not one of their associates) buys a land plot and then builds a house. The mechanism of *urbanizaciones ilegales* discussed in section 7.4.1.1 has never been mentioned, and answers to questions on that type of 'city' have been eluded.

However, it is true that both the association of real estate developers and of builders have increased their awareness on the type of development that should be emplaced. Probably, admissions of what happened 'before' are easily dismissed in light of a new, acknowledged sensitivity to environmental or planning regulations.

Nowadays, real estate developers and builders have understood (at least this is the official discourse) that urban expansion has to be carried out under the shelter of laws and regulations. Furthermore, urban development has to happen in spatial continuity with the already consolidated urbanized areas, and has to attain certain planning standards (e.g. sidewalks, trees, water piping and sewers, accessibility to public facilities and transport infrastructures), to provide a high quality of urban living for dwellers. Furthermore, restoration of buildings, and initiatives carried out within the already built-up city (e.g. replacement of buildings, opening up of public spaces), are the activities that both stakeholders are increasingly performing and attaching more value to, than the 'ease' with which it is possible to build on an open site. However, this shift may emerge from necessity ('need makes law'): as it is not that easy as before to work on green fields, and as there are more stringent building laws and regulations, stakeholders have had to adapt. Despite the many initiatives and services on offer to associates, lobbying still remains the main activity characterizing the associations of real estate developers and builders, in order to facilitate this 'change of perspectives' related

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<sup>41</sup>Building companies also internally manage; they are not companies with all the necessary and different types of building workers (e.g. carpenter, electrician, construction workers), but workers (generally self-employed) are outsourced according to the type of work that has to be carried out.

to their work.

Finally, more demanding laws and regulations have had the result that less stable companies did not survive: the capacity needed to respect and comply with all the regulations and taxes has pushed ‘less apt’ companies out of the market. This selection, together with the crisis that hit the real estate and construction sectors<sup>42</sup>, skimmed the more consolidated and economically solvent companies<sup>43</sup>. Hence, the stakeholders assume, a better urban environment will be provided; a conclusion that it still has to be seen.

### **National scale**

Regarding in-between scale bargaining dynamics, the Spanish nation state remains a stronghold of land use and spatial planning, thanks to the tight and consolidated normative *corpus* whose key moments have been the 1956 and 1975 national laws. In terms of within scale bargaining dynamics, with regard to land use and spatial planning, the Spanish national scale defines the general rules on land use rights, the procedures of expropriation and land value assessment, and take over spatial planning competences when the sub-national level is not equipped with its own regulations, as in the cases of the Balearic Islands, and the cities of Ceuta and Melilla. The devolution of territorial and urban competences to regional governments in 1978 paradoxically strengthened the role of the Spanish state: the clear cut definition (or ‘specialization’) of its authority and competences as compared to the recently established regional governments (within scale bargaining dynamics) favored the consolidation of its reputation (in-between scale bargaining dynamics).

However, regarding land management and land bargaining, the recent Spanish debate over planning has pivoted around the cleavage between the available territorial planning tools and those urban planning instruments, which municipalities are entitled to, and meant to operationalize territorial and metropolitan plans. At a more general level, scholars point out the substantial incapacity of the advanced Spanish planning regulations to effectively confront the effects that global transformations have at the territorial and local scale (Mate sanz Parellada, 2009; Nel · lo i Colom, 2011). Current planning tools have revealed their absolute inadequacy to regulate the 1996–2007 real estate bubble (*burbuja inmobiliaria*), although different Comunidades Autónomas were variously affected by it (see sec. 7.4.1.1). Local planning performed by municipalities is considered to be the main responsible factor for the obsolescence of territorial and urban planning tools that have fostered the real estate bubble in Spain (Nel · lo i Colom, 2011), hence there is a diffuse sentiment that the state should have adopted a more ‘centralized’ or ‘top-down’ attitude with the aim to stop land use transformation into urbanized land and real estate speculation.

Others point out that supramunicipal coordination should be strengthened, as supralocal issues are still mostly managed by employing local, urban planning instruments handled by the municipalities, hampering planning effectiveness (Nel · lo i Colom, 2011).

### **International scale: sustainability issues**

The issues of sustainability and city compactness have been treated differently by the interviewees. First, Barcelona municipality and the surrounding municipalities have been considered as opposed in terms of city compactness. One of the interviews at the metropolitan level stated that:

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<sup>42</sup>For instance, the builders’ association now has around 1500 associates, while in 2007 it had more than 4000

<sup>43</sup>This conclusion is also valid for the builders’ association in the case of Milan; see sec. 7.4.2.3.

Barcelona can keep saying that it is a compact and sustainable city. (...) Barcelona is so small that can always be said to be compact, because it is completely built-up. Within its municipal boundaries there are very few developable land plots, which come from land remediation and urban renewal projects.

Hence, there is the acknowledgment that sustainability has to be pursued in the metropolitan territory, through strategies of polycentrism, which seems to be the new key word for territorial and urban planning. It is recognized that city compactness has to be achieved by concentrating development on certain cities and towns, for instance the urban poles of the 1995 Catalan territorial plan (see sec. 7.4.1.2), and that urban development has to be generally and ideally carried out through continuous morphological forms. One of the interviewees, a key figure in Catalan planning, stated that:

Part of the needs for urban development has to be displaced and concentrated in Igualada, Vic, Manresa, Lleida, Girona, Tortosa, which are urban poles. Then, small and medium size compact centers have to grow, not dispersed areas. Catalan territorial planning allows us to achieve that.

However, others are very much skeptical of the sustainability discourse and city compactness. One of the interviewees argued that:

The planning discourse has always emphasized the compact city, the just city, the dense city, as opposed to speculation that produces the dispersed city. We planners have an official discourse in order to try to oppose it to what it is happening in reality.

As competences over urban planning are in the hands of local governments, the responsibility to achieve a large, medium or small size compact city, is left to such governance scale. However, as the Generalitat shares the function to approve local plans with local governments, and given its strengthening role as a governance scale that has been observed and discussed in this section, it appears that Catalonia, broadly speaking, is more equipped to respond to European urban sustainability discourse on the compact city (see sec. 2.4).

#### **7.4.2 A multi-scalar governance system: Milan**

As explained in section 7.4.1, table 7.16, condenses the analysis that is dealt with in the following sections 7.4.2.1, 7.4.2.2 and 7.4.2.3 (and corresponding paragraphs) with regard to the Milan case in an attempt to qualitatively find out which governance conditions could foster a more extended territorial dispersion of residential areas in the Milan case as compared to the Barcelona case. The table identifies the main institutional private and public actors which corresponds to the ‘gatekeepers’ responsible for land management within the material execution of (suburban) housing models. For each type of actor, in-between and within scale bargaining dynamics are reported, as well as spatial planning laws and regulations, which are examined in sections 7.4.2.1 and 7.4.2.2. Eventually, section 7.4.2.3 discusses some relevant findings related to the in-between and within scale bargaining governance processes at work in the Milan case, especially with regard to land management issues, in an attempt to explain the occurrence of urban sprawl in the Milan metropolitan region.



**Table 7.16:** Mechanisms and actors at the meso (‘execution’) level of land management (the ‘gatekeepers’) for suburban housing provision in the Milan case. Author’s elaboration.

Scale	Institutional actors	Mechanisms of land management for suburban housing provision		Institutional actors	Mechanisms of land management for suburban housing provision	
	Private for-profit actors	In-between and within scale bargaining dynamics	Bargaining and land bargaining practices	Public actors	In-between and within scale bargaining dynamics	Spatial planning laws and regulations
National scale	National real estate agents, national associations of real estate agents, national association of builders and constructors (e.g. ANCE, Associazione Nazionale Costruttori Edili di Confindustria)	In-between scale bargaining dynamics: organization with the purpose to join forces among real estate agents at the national level; Within scale bargaining dynamics: consultancy and mediation for associates regarding laws and regulations (provision of services to associates), organized attempts to take part in and influence political decisions on real estate (lobby)		Italian nation state	In-between scale bargaining dynamics: devolution of competences to regional governments on territorial land management in 1975 and 2001; Within scale bargaining dynamics: residual yet concurrent competences on environmental protection	1942 Law on land use and urban planning, 1962 Sullo’s proposal for a new land use and urban planning law, 1968 Decrees on building standards, 1990 Law for ‘territorial plans’

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Table 7.16 – continued from previous page

Scale	Institutional actors	Mechanisms of land management for suburban housing provision		Institutional actors	Mechanisms of land management for suburban housing provision	
	Private for-profit actors	In-between and within scale bargaining dynamics	Bargaining and land bargaining practices	Public actors	In-between and within scale bargaining dynamics	Spatial planning laws and regulations
Subnational scale (regional and inter-regional)	Regional associations of real estate agents, and of builders and constructors	In-between scale bargaining dynamics: organization with the purpose to join forces among real estate agents at the regional level; Within scale bargaining dynamics: consultancy and mediation for associates regarding laws and regulations (provision of services to associates), organized attempts to take part in and influence political decisions on real estate (lobby)	Meetings, persuasion techniques, infraction dynamics, party politics, lobby and collective bargaining agreements, policies, possession of property and economic resources	Lombardy regional government (Regione Lombardia), Dept. of Territorial Planning	In-between scale bargaining dynamics: establishment of regions in 1970; Within scale bargaining dynamics: concurrent (with the national scale) competences on environmental protection, exclusive competences on territorial land management, producing indicative ('coordination') documents, control of compliance of local authorities' urban plans with regard to regional regulations on environmental protection	2005 Law on territorial planning, 2010 Regional territorial coordination plan (PTCR)

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Table 7.16 – continued from previous page

Scale	Institutional actors	Mechanisms of land management for suburban housing provision		Institutional actors	Mechanisms of land management for suburban housing provision	
	Private for-profit actors	In-between and within scale bargaining dynamics	Bargaining and land bargaining practices	Public actors	In-between and within scale bargaining dynamics	Spatial planning laws and regulations
Subnational scale (provincial and inter-provincial)	Inter-provincial association of builders and constructors (e.g. ANCE, Associazione Nazionale Costruttori Edili di Confindustria, as the Milan, Monza and Lodi provinces' association)	In-between scale bargaining dynamics: organization with the purpose to join forces among real estate agents at the provincial level; Within scale bargaining dynamics: consultancy and mediation for associates regarding laws and regulations (provision of services to associates), organized attempts to take part in and influence political decisions on real estate (lobby)	Meetings, persuasion techniques, infraction dynamics, party politics, lobby and collective bargaining agreements, policies, possession of property and economic resources	Milan province (Provincia di Milano), Dept. of Territorial Planning	In-between scale bargaining dynamics: residual role; Within scale bargaining dynamics: residual competences on territorial planning decentralized from the region, management of spatial (territorial) planning which are indicative ('coordination') documents, control of compliance of local authorities' municipal plans with regard to provincial regulations on environmental protection	1999 Provincial territorial coordination plan (PCTP), 2013 New provincial territorial coordination plan (PCTP)

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Table 7.16 – continued from previous page

Scale	Institutional actors		Mechanisms of land management for suburban housing provision			Institutional actors		Mechanisms of land management for suburban housing provision		
	Private actors	for-profit	In-between and within scale bargaining dynamics	Bargaining and land bargaining practices		Public actors	In-between and within scale bargaining dynamics		Spatial planning laws and regulations	
Subnational scale (metropolitan)				Meetings, persuasion techniques, infraction dynamics, party politics, policies		Piano Intercomunale Milanese (PIM, 1961–75); Comprensorio PIM (1975–1987); Centro Studi PIM (Programmazione Intercomunale dell’area Metropolitana milanese, 1982–today)	In-between scale bargaining dynamics: establishment (1961) of the Piano Intercomunale Milanese (PIM); re-organization in a Comprensorio (1975–1982); abolishment of the Comprensorio and re-organization into the Centro Studi PIM (Programmazione Intercomunale dell’area Metropolitana milanese, 1982–today); Within scale bargaining dynamics: residual competences, provision of technical services for supra-municipal projects and plans for housing, transport, industries and services (e.g. green areas) at the ‘metropolitan’ and supra-municipal scale		1963 Proposal for a supra-municipal plan for Milan, 1967 Approval of the supra-municipal plan for Milan (Progetto generale di piano), 1975 Proposal for a metropolitan plan for Milan; 1970s–1990s: proposal, coordination and approval of a diversity of plans regarding for instance transport infrastructures and green areas	

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Table 7.16 – continued from previous page

Scale	Institutional actors	Mechanisms of land management for suburban housing provision			Institutional actors	Mechanisms of land management for suburban housing provision		
	Private for-profit actors	In-between and within scale bargaining dynamics	Bargaining and land bargaining practices	Public actors	In-between and within scale bargaining dynamics	Spatial planning laws and regulations		
Subnational scale (local and urban scale)	Individual real estate agencies, individual builders and constructor companies		Meetings, persuasion techniques, infraction dynamics, party politics, policies, possession of property and economic resources	Local governments (municipalities)	In-within scale bargaining dynamics: exclusive competences on urban planning; Within scale bargaining dynamics: management of urban plans in compliance with the regional and provincial territorial plans	(Focus on Milan municipality:) 1953 Bottoni's urban expansion plan, 1967 Approval of the 'general' plan for Milan, 1980 Milan urban plan (PRG), 2012 Milan urban plan (PGT)		

End of Table 7.15

#### 7.4.2.1 Italian national land laws and policies

At the national level, national law no. 1150 on planning (*Legge urbanistica statale*), promulgated in 1942 during Fascist rule and the Second World War, which was later modified in the subsequent decades, is still valid.

The 1942 law, inspired by the 1931 Marcello Piacentini's plan for Rome<sup>44</sup>, anticipated the expansion and urban development that would have been necessary to fulfil the reconstruction demands of the country after the world conflict. According to the 1942 law, housing provision retains priority over mobility infrastructures and planning of industrial areas, and no general planning directives were defined to orient the planning decisions made by local municipalities (Campos Venuti, 1990, p. 59ff). In practice, the housing boom of the post-war period was left to local municipalities (cf. De Decker, 2011b).

Being functional to the reconstruction period, the 1942 law focusses solely on cities and towns as primary actors of urban growth, overlooking the regulation of open and agricultural land (Campos Venuti, 1990, p. 80). Reconstruction was fostered by the massive internal (South–North) migration, boosting the development of those cities, including Milan, enclosed in the 'industrial triangle' together with Genoa and Turin (see sec. 5.3.4).

However, the 1942 law, promulgated during Fascism, should be considered an advanced spatial planning tool. Together with 'territorial coordination plans' (*piani territoriali di coordinamento*, see infra), and supramunicipal plans (*piani regolatori intercomunali*), which were instruments for territorial spatial planning for more delimited areas than the former, the urban plan (*piano regolatore generale*, PRG) and the sectorial plan (*piano particolareggiato*) arranged spatial planning at the municipal level (De Lucia, 2006, p. 4). It also regulated expropriation by allowing municipalities to compensate land owners and avoid speculation; the law envisioned that the municipalities, and thus the national state, gradually acquired land that then would be developed for housing, infrastructures and industries.

As extensively discussed by the historian Vezio De Lucia (2006) (cf. also Francesco, 1973), the problem was that it was not applied in practice. The 'urgency' for reconstruction postponed its implementation, and in 1967, 90% of Italian municipalities still did not have an approved urban plan (*piano regolatore generale*, PRG). The need to provide the country with houses, transport infrastructures and service areas became the justification to prioritize (any type of) building activities to spatial planning<sup>45</sup>. In such conditions, spatial planning regulations were considered 'useless barriers' for a certain type of urban development and growth (the 'modernist' view of landscape examined by Dall'Olio, 2010, and discussed in sec. 3.1.7), ordinary planning practices becoming tools in the hands of speculators. The Italian soil was systematically subdivided into land plots to urbanize; under this perspective, the phenomenon of *urbanizaciones ilegales* in the specific Catalan case (see sec. 7.4.1.1) is very similar by this de-regulated urbanization occurred in Italy nation-wide during 1950s and 1970s<sup>46</sup>. An illustration is offered by Indovina (2012, p. 190–101) with regard to land subdivision for industrial purposes: the *piani di lottizzazione* allowed private landowners and real estate developers to urbanize land plots, outside any planning regulation, to locate production

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<sup>44</sup>Marcello Piacentini (1881–1960) was a planner that worked all over Italy, but whose career was particularly intense during Fascism.

<sup>45</sup>These dynamics are effectively conveyed by the 1963 movie *Le mani sulla città* ('Hands over the city') directed by Francesco Rosi.

<sup>46</sup>However, in this dissertation, precise data or documents on the phenomenon of *urbanizaciones ilegales* in other Spanish regions have not been considered; further analysis would be needed to compare the process of illegal land subdivision in post-war years in Spain, Italy and Greece, as Southern European countries, and in some of their regions in particular (however, cf. Allen et al., 2004).

plants. Generally, this land subdivision occurred in rural areas far from the city center, whether in small or large municipalities, as land was cheaper. Having land use transformation already occurred, the local administration was then obliged to provide basic services to those areas (e.g. roads, public lighting), while, at the same time, land values of the surrounding areas increased, leading to further waves of speculation. The law no. 765 approved in 1967 tried to contain this process, which was later re-regulated by the law no. 865 approved in 1971, which, through ‘industrial plans’ (*piani di insediamenti produttivi*, PIP), defined local administrations the main promoters of plans for industrial expansions, according to urban plans and to a clear sharing of planning fees between the local administration and the owners<sup>47</sup>.

Notwithstanding some cities endorsed themselves with (academic) plans to orient growth (e.g. Marconi’s 1954 and 1955 plans for Verona and Bologna, respectively, or Bottoni’s 1953 plan for Milan), however the tremendous growth of housing and industrial areas, as well as mobility infrastructures, took on a pattern of spatial dispersion. During the 1950s and 1960s, housing blocks were massively built around urban centers and metropolises, in order to provide the growing population (and internal migrants) with sufficient housing. It has been estimated that, between 1955 and 1970, 17 millions inhabitants changed their place of residence (De Lucia, 2006, p. 73). From the 1970s, housing construction invaded suburban and peri-urban areas, and a low density scattered development started to sprawl over the rural areas around larger centers, generally known as ‘hinterland’. Especially in the South, building activity was carried out in the absolute absence of plans, and often on land unapt for development, such as geologically unstable soil or river beds (the *abusivismo*, cf. De Lucia, 2006).

Land rent increase and speculation, connected with private land property, steered urban development in Italy. Public administration often facilitated speculation through corruption, bribery and negligence to apply the norms. De Lucia (2006) and Settis (2010) both identify private interest, and the institutional incapability (or will) of public bodies to neither counter or control it, as the major responsible factor for the disastrous increase in low quality, high or low density (e.g. apartment buildings or detached houses), urban and suburban development. For example, in Milan the *rito ambrosiano* was applicable especially during the 1950s and 1960s, meaning that rural or protected land was unofficially urbanized for the provision of public services (De Lucia, 2006, p. 48; Settis, 2010, p. 273).

In 1962, a proposal for a new planning law (the so called *legge Sullo*) was presented. The Sullo proposal, formulated by the left-wing Christian-democrat (*Sinistra DC*) minister of public works Fiorentino Sullo, intended to carry out a ‘generalized expropriation’ of land that would have gradually been acquired by the city councils (with exceptions made for state properties, or *aree demianiali*). The urban plan would have been issued in strict compliance with the legally binding regulations and zoning of regional and ‘territorial’ (actually defined by the *Comprensori*, see sec. 7.4.2.2) plans. Prices for the dispossessed municipal land would have been determined by the urban plan itself: agricultural land would have been paid as such if, in the plan, the land would have remained agricultural; developable agricultural land would have been paid according to the market prices of nearby urbanized land, by also taking into consideration the relative location of land with regard to the city center; already urbanized land plots would have been paid according to their current market value (De Lucia, 2006, 25-26).

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<sup>47</sup>However, this well-intentioned law paved the path for the common practice, performed by local administration, to supply every municipality with an industrial and commercial area, fostering land consumption, instead of proposing supra-municipal plans to identify common production areas to be used by different municipalities (Indovina, 2012, p. 194).

Through this ‘generalized expropriation’, the Sullo proposal tried to solve the two essential normative lacunae that gave rise to the devastating urban expansion that occurred in Italy (De Lucia, 2006, p. 29-35; cf. Indovina, 2012, p. 270). First, land property would become differentiated from building rights, cutting down speculation and land rent expectations. With the national state (and municipalities) owning the land, private actors would have had to participate in public tenders to obtain concessions for ‘surface rights’ (*diritto di superficie*) to develop land. Second, compensations for expropriated land would have been related to the actual value of land uses according to the land allocation so defined by the official zoning plan, avoiding the risk of speculation (i.e. expropriated, non-developable agricultural land would have been paid as such; De Lucia, 2006, p. 25-26).

However, Sullo’s proposal was never voted in Parliament and instead was consigned to oblivion. There are two main explanations for this treatment. First, the proposed Sullo bill delineated a process of land expropriation that was harshly unpopular, not only because it punched private interests (land owners, real estate actors and builders) in the face, but also because it revealed clear ideological and political standpoints very close to the URSS’ collectivism, a feature that was not well accepted by the Fanfani’s Christian Democratic government, despite the fact that a coalition was established with Republicans and Social-Democrats to form the government at that time (De Lucia, 2006).

Second, the Sullo law proposal implied a strict integration of the *national* plans for economic development and the *local* urban development: the national level would have defined general growth trajectories and needs, which would have been locally redefined by regional and territorial plans (*piani comprensoriali*), and thus by urban local and sectorial plans (*piani particolareggiati*) (De Lucia, 2006). The foreseen coherence between national economic plan documents and local urban development hinted at a top-down, rationalist ‘planned planning’ that was probably too unrealistic. First, it required substantial changes to public administration in order to carry out such integration among plans, and second, it was reminiscent of real collectivism – although its rationalist structure was very much in line with 1960s planning.

Despite such criticisms and problems, which finally did not make the proposal from the light, the initiative by Sullo stands out as an innovative and remarkable attempt to deeply reform the Italian 1942 planning law, and re-establish public interest over private interest in the land management and allocation.

Later, in 1968, the Mancini decree no. 2 (*Decreto ministeriale 2/1968*) tried to regulate the uncontrolled (and often illegal) urban expansion and building practices by setting ‘binding limits of building densities’ (Settis, 2010, p. 201, my translation). Concurrently, the Milanese experience (see sec. 7.4.2.2) fostered the approval of the decree no. 1444 in 1968 on building standards (Centro Studi PIM, 2011, p. 42, 46–47).

However, before the approval of the Mancini decree and the connected limitations to building densities, the ‘amnesty year’ (*anno di moratoria*) was permitted, boosting the acceptance of building permits licenses released according to the previous system. Neither the devastating Florence, Agrigento and Venice floods, both in 1966, could stop the senseless building and planning practices ordinarily performed at that time.

As land property was equalled to building rights, building activity sprouted everywhere, even when such development was carried out in compliance with planning laws; land consumption and urban sprawl diffused all around the country, compelling local governments to provide the necessary basic services to dispersed residential areas. Meanwhile, the phenomenon of *abusivismo* (i.e. illegal urban development) continued in the South of Italy: a practice that



was before determined by housing needs (during 1950s and 1960s), from 1970s it became a rather common way to build houses, whose illegal status was tolerated in the hopes of a later legalization (cf. De Lucia, 2006, p. 103).

In 1971, a new law for social housing (law 865) was passed. The most innovative feature of this law was that local administrations would have acquired the land to allocate for social housing, whose construction was subcontracted to public and private companies that had to comply with strict building regulations, and that had to provide houses for a certain stipulated price. These conditions allowed the control of land rent speculation, as the value of developable land for social housing and the building activity would have been ‘kept in check’ thanks to stringent rules (De Lucia, 2006, p. 83).

Since the 1980s, urban planners, backed up by strong pleas from the academic community against urban diffusion, acknowledged the need to enhance the living quality of citizens, to emphasize local differences, and to stimulate a ‘building sensitivity’ that was lacking in practice (Campos Venuti, 1990, p. 40ff). It was during this period that, for example, Bologna’s innovative plans benefitted from the highest popularity, even internationally, thanks to the connections between the left-wing municipal government and forward-thinking academics and practitioners.

At the same time, the so called *legge Bucalossi* (law no. 10 approved in 1977) tried to reform the Italian land use regime by separating land property from building rights. Such law defined that permission to build had to follow the issuing of a building permit by the local government, if and where the urban plan allowed development, and that such concession to build had to be issued conditional to the payment of a percentage of the land value (between 5% and 20%; i.e. *concessione onerosa*) by the land owner to the local government, together with the payment of planning fees (De Lucia, 2006, p. 136). However, in 1980 and 1983 two constitutional sentences declared the Bucalossi law illegitimate, hampering further attempts to reform the Italian land use regime. Even nowadays, Italy is the only European country that, after the French revolution, does not have a precise legislation on land use regime (De Lucia, 2006, p. 169).

Despite several attempts to update the law and to endorse Italy with a new planning normative framework, and although its incapacity to handle urban growth has been made manifest over the years (De Lucia, 2006), the 1942 law is still valid nowadays. Referring to 1950s–2000s Italian urban development, Settis (2010, p. 54) insists on the loss of those ‘spatial organization codes’ that made Italy famous worldwide for its landscape. Besides the failed attempts to promulgate a new planning law to update the 1942 norm (p. 201), Settis emphasizes the decreasing role of the State in land (use) management and environmental protection (in his view both belonging to the notion of landscape).

As will be shown in the following paragraphs, the role of the State concerning environmental and landscape protection has been downsized in favor of subnational governments, specifically regional governments. In addition, Settis explains how spatial planning and environmental protection have been considered two opposed issues in charge of two different governance scales, municipalities and the state, respectively. Hence, a decreasing role of the State in environmental and landscape protection was counterbalanced by a simultaneous strengthening of the authority that local governments owned in terms of land use management and planning. Both trends resulted in the prioritization of private interests over *utilitas publica*, and the legitimization of a diffuse ‘territorial private governance’ (*governo privato del territorio*; Mazzette, 2011b, p. 14; see also sec. 3.1.5)<sup>48</sup>.

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<sup>48</sup>However, in 1989, the law no. 183 for soil protection has been approved *legge per la difesa del suolo*, despite

### Competences devolution

In Italy, there are currently four governmental levels: the national state, the regions, the provinces and the local governments. Although the 1948 Italian Constitution already defined the establishment of regional governments, it was not until 1970 that regions were formally constituted.

With regard to land management, even though national laws on environment and landscape existed (e.g. 1939 Bottai's laws), the central state never had full competence on these issues. Furthermore, the 1942 national law on land use entitled municipalities with the exclusive role of urban planning. Hence, in Italy, regarding within scale bargaining dynamics, the weak role of the national scale on land and environment protection was combined with great room for action left to local governments to decide on urban land transformation and allocation.

Once regional governments were established in 1970, authority on territorial and urban planning was delegated, through the 1970 no. 281 and 1975 no. 382 laws, from the central government to the regions, including the entitlement to approve territorial, supramunicipal and municipal plans (Settis, 2010, p. 206). Furthermore, a 1977 decree<sup>49</sup> 'completed' the transfer of competences over territorial and urban planning and landscape by handing over to regional governments competences on environment protection (Settis, 2010, p. 206; see also Padovani, 1996).

Hence, in less than a decade, the Italian state weakened its already shaky role regarding land management, especially in relationship to environmental protection and land management as public interest (within scale bargaining dynamics). The transfer of competences on these issues are not negative *per se*, but they did make an already problematic situation worse. Settis emphasizes how the Italian state was confined as a mere supervisory institution, in clear contrast with the constitutional acknowledgment of the primary role of the State with regard to landscape protection as national heritage (the national *territory*, cf. article no. 117 of the Italian Constitution).

Recently, the *Titolo V* constitutional reform approved in 2001 'tied up' this remaining loose end by reformulating the institutional hierarchal structure, and establishing an institutional equivalence among the national state, regions, metropolitan cities, provinces and municipalities (Settis, 2010, p. 57, 195, 213). While the reform ideally aimed at reinforcing regionalism, in reality it implied a complete de-regulation of state control over land management (and not only), with environmental protection being transferred to regions, municipalities keeping the greater control over land allocation.

However, it is true that regions, established in 1970 as a governance scale more than twenty years later than their official institutionalization in 1948, did not take over their responsibilities on territorial planning until the 2001 constitutional reform, as will be shown in the case of the Lombardy regional government (see sec. 7.4.2.2).

In such circumstances, the imbalanced 'within scale bargaining dynamics' in terms of competences over land management, where the state and regions performed a weaker role compared to local governments, private land rent and private interests were not contained, but opportunities to tender multiplied (Settis, 2010, p. 157ff). One of the most striking results of the limited state control over land management, and a legislation prioritizing municipal governments for land allocation, has been the three building amnesties (*condono edilizio*) in 1985, 1995 and 2003.

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its implementation having been slow and fragmentary since its approval; cf. (De Lucia, 2006, p. 195).

<sup>49</sup>In specific, it was the no. 616 decree emanated by the President of the Italian Republic (*Decreto del Presidente della Repubblica*, DPR) in 1977.

To complicate things further, territorial management and governance (*governo del territorio*<sup>50</sup>) officially remain issues over which the central state and the regions compete, as the article 117 of the Constitution entitles the state to supervise and coordinate the activities of the regions with regard to territorial management (Barberis et al., 2006; Settis, 2010, p. 206).

Furthermore, amendments to plans (*varianti*) are also considered to be a ‘plague’ in urban and territorial planning in Italy (see Allen et al., 2004, p. 177, and Mazzette, 2011a, ch. 1). Even if the 1942 planning law defines the implementation of a general urban plan (*piano regolatore generale*) whose validity is indefinite in time (Mazzette, 2011b, p. 28), its incessant remodeling through amendments (*varianti*, together with *deroghe* and *meccanismi perequativi e compensativi*) becomes a dangerous (or efficient) tool in the hands of local authorities to mould urban development according to private interests. As one of the interviewed stakeholders stated regarding the urban plan of Milan (see *infra*):

The law (...) says that you have to present the plan for instance by the 31st of December. Then you can do 1000 *varianti*. However, if you do 1000 modifications [to the plan], (...) it allows many people to change the rules. (...). I mean, people that count, of course.

Gualini (2003, p. 272) defined the role of *varianti* to plans as ‘deregulatory proceduralism’ which fostered ‘the booming of real estate initiatives’, such as the oversupply (and crisis) in office space.

### ‘Landscape–territorial’ plans

In 1939, during Fascist rule, the so-called Bottai law regulated the management and protection of the artistic and cultural heritage, including landscape. This law introduced the obligation to establish ‘landscape–territorial’ plans (*piani territoriali paesistici*), which would refer to a certain supra–municipal area highlighting the most relevant features to be protected. However, the 1939 law was never integrated with the 1942 law on planning, and both laws remain two separate and fragmented texts regulating, on one side, the natural environment, and on the other side, the city, as two completely distinct issues. The problem was that the 1942 law was competence of the Ministry of the Public Works, while the Ministry of Education had authority over the 1939 law on landscape (Settis, 2010, p. 248).

This duality also affected the implementation of territorial planning (or *area vasta*) in 1990 (law no. 142) through the ‘landscape–territorial’ plans. Delegated, territorial offices of the Ministry of Education (*Sovrintendenze*) were entrusted to compile the list of protected areas, and ideally also to supervise any municipal plan before its approval; a competence that was never fully performed. Moreover, following the 1942 law, if municipalities had to adopt master plans and approve building regulations, the 1990 law on territorial planning (*area vasta*) later established that supra–municipal plans should have been issued by the regions, which were nevertheless instituted in 1970. Supra–municipal planning tasks were thus left in an institutional vacuum (Gualini, 2003); one of the interviewees, an official at the Lombardy regional government, clearly stated that:

at a territorial macro–scale, the process of anthropic artificialization of soil has occurred by the self–construction [*autocostruzione*] of urban systems, of all urban systems, because territorial patterns of expansions coincide with the patchwork of all municipal urban plans. There have not been binding territorial and supra–municipal directions, even before the establishment of regional governments in 1970.

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<sup>50</sup>Territorial management and governance (*governo del territorio*) include, in broad categories, landscape management, land containment and environmental protection, local development and taxation, mobility and infrastructures (Mazzette, 2011b, p. 41).

Later, provinces were involved, in order to ‘represent’ the Ministry of Public Works. However, this bond never worked in practice (Settis, 2010, p. 175) and, overall, territorial planning struggled to emerge. The self-organization of metropolitan areas is also discussed by Indovina (2012, p. 57, 101), where individual choices over the territory, if not ‘guided’ by public institutions, can create, in aggregated terms, a scattered, incoherent urbanized environment, fostering land consumption.

### **Italian metropolitan areas and cities**

In Italy, metropolitan *areas* were formally created in 1990 through law 142 (*Legislazione di area vasta*), following a long debate that began in the 1960s (Campilongo, 2005). These were Turin, Milan, Venice, Genoa, Bologna, Florence, Rome, Bari and Naples. Trieste, Cagliari, Catania, Messina and Palermo have been later identified as metropolitan areas between 1980s and 1990s through specific regional laws (Campilongo, 2005). The 2000 decree no. 267 re-confirmed these 14 metropolitan areas, however re-defining them as metropolitan *cities* (*città metropolitane*).

In Italy, the *città metropolitane* are ‘a theoretical construct analogue to English metropolitan authorities’, never properly implemented and overtaken by top-down state and regional initiatives (Herschel and Newman, 2002, p. 94). For the majority of the Italian metropolitan cities, consensus was never achieved concerning the definition of their area, actually consisting of several nearby towns and their hinterlands, and hence they generally lacked a proper government body (Campilongo, 2005). The institution of metropolitan governments tended to trigger a conflict between state and regions, and regions and provinces (Gualini, 2003), implying re-scaling struggles regarding in-between and within scale bargaining dynamics related to the emergence of this new institutional body (see sec. 7.4.2.3). Scholars report that in Italy a mature ‘metropolitan culture’ is not yet recognizable (Campilongo, 2005), and the difficulties in defining the territorial boundaries of the 14 metropolitan cities is a case in point.

For instance, interviews at the Milan urban and metropolitan level confirmed that, in the case of Milan, the formal establishment of the Milan metropolitan area and city, in 1990 and then in 2000 respectively, only made the (arguably long and complex) debate of in-between and within scale bargaining dynamics to crop up. Indeed, boundary delimitation, and competences identification, of such metropolitan scale were not agreed among the involved actors, namely the Lombardy region, the Milan and Monza provinces, Milan municipality and the PIM research center (see sec. 7.4.2.2). A self-standing study would be needed to follow the re-scaling dynamics for the establishment of the Italian metropolitan *cities*, for instance in the case of Milan.

Nevertheless, metropolitan governments are institutions that are considered to be the most effective in facing the economic and social challenges of larger urban systems (Campilongo, 2005), with land consumption being one of the supramunicipal issues that should be managed by metropolitan governments.

The recent 2014 law no. 56 aimed at resolving the arduous establishment of metropolitan governments in Italy, envisaging the assignment of metropolitan competences to the already existing provincial governments. Provincial scales are thus ‘recycled’ into metropolitan institutions as true governing bodies. Moreover, this maneuver avoided the disappearance of provinces as the 2012 decree no. 188, issued by the former Monti government and later declared unconstitutional, previously determined.

#### 7.4.2.2 *Planning in Lombardy, with a focus on Milan*

The previous section outlined the general national normative context regarding land management and land use planning in Italy. Given the late establishment of regions in 1970, and the subsequent 1975 and 1977 laws concerning the transfer of territorial planning and environment competences to sub-national levels, the Lombardy regional government, and the Milan provincial and municipal authorities, have been influenced by the normative fragmentation and institutional sluggishness in implementing new regulations with regard to land use management and in handling urbanization processes.

##### **Attempts to regulate Milan urban expansion**

During the post-war period, when Milan was overwhelmed by dramatic migration that boosted urban expansion, the Bottoni plan was approved in 1953 (see sec. 7.4.2.1). A central business district (CBD), or *centro direzionale* was identified, in an attempt to end Milanese monocentrism, at least on paper. This plan consisted of a deviation from functionalist planning, and tended toward the renewal of the historical center. The 1953 Milan plan reorganized the growth and de-localization of industrial plants outside the city center, leaving room within the historic city for urban renewals and the occupation of such 'urban void' by tertiary activities, such as the debated Milano Porta Garibaldi area (Centro Studi PIM, 2011, p. 82ff).

The South-North internal migration flows, also directed towards Milan (see sec. 5.3.4), which took place from 1950s to 1970s, were a 'totally 'spontaneous' phenomenon' (De Lucia, 2006, p. 73, my translation), and conflicted with the attempts, at the national level, to program and enforce an economic plan that would have regulated the rapid economic, urban and demographic growth ensuing from internal migration. Suburbanization in Milan occurred since the 1960s and involved Milan's surrounding municipalities, where the many Italian immigrants coming from the South of the Peninsula and attracted by the industrial boom (see also sec. 5.3.4) started to accommodate themselves. During the 1970s and 1980s, an acknowledged massive expansion of urban sprawl in the surrounding municipalities of Milan occurred.

In 1976, in accordance with the 1942 national planning law, a new *Piano regolatore generale comunale* (PRG), called *Variante generale al piano regolatore* (i.e. general amendment to the urban plan) was adopted, but only approved in 1980 (Milan Municipality 1980), in order to replace the 1953 Bottoni's plan, which was diluted by many exceptions (called *varianti*) and violations over the years (Boatti, 2011). However, Balducci (1995) reports that the objectives and structure of such *Variante generale* had already been surpassed by the time of its approval: the Variante generale to the Milan urban plan served as a mere legal text to support other ad hoc amendments (*varianti*) that resulted in a much more flexible tool to keep up with the needs of the urban transformation of the city, prioritizing 'projects' over 'plans' (see sec. 3.1.7). Hence, the newly approved Variante generale was a very weak land use document to resist the interests involved in Milan transformation, proof of the deep crisis and divide between the logic of plans and projects, the former turning into unsuitable tools to orient (and, tautologically, to plan) urban transformations (Balducci, 1995, 2003; see also sec. 3.1.7).

As an illustration, in 1983 a regional transport plan was approved (*Piano regionale dei trasporti*), which concentrated the majority of the regional resources in Milan with the aim to enhance its competitive appeal in the service sector (see Kantor and Savitch, 2002, p. 120-123, 196-200). In 1983, the *Documento Direttore del Progetto Passante*, an ambitious project

originally proposed in the 1960s by the Piano Intercomunale Milanese (PIM; see *infra*) to implement an inter-provincial and metropolitan railway system (*Passante ferroviario*) entering the city of Milan underground in order to connect Milan with the surrounding towns and cities, had already been approved. Balducci (1995) relates its innovative character to the not-legally binding and strategic breadth of the document, and the ‘open-endedness’ of the project. However, it turned out to be incapable of serving as a strategic *plan* attracting consensus among public and private actors, as circumscribed *projects* (*progetti d’area*) were completed first (e.g. Garibaldi–Repubblica, Portello–Fiera, Cadorna, Vittoria, Bovisa e Sud–Est), the construction of the railway line was postponed and continued until 2008.

In the 1990s, despite his different political beliefs, professor Luigi Mazza was appointed by the right-wing city council to propose a plan for Milan, which was approved and published by the city council in 2000 (Balducci, 2003). Mazza’s plan has a metropolitan perspective on the role that the city of Milan should perform over its surrounding territory, however it can be regarded as a sort of preliminary analysis for the successive formulation of a strategic (master) plan for (‘Greater’?) Milan’s urban development. However,

[t]he informal planning document [Mazza’s proposal] does not seem to lack statutory powers, but rather the capacity of the business and political community to form a coalition around a development perspective. (Balducci, 2003, p. 66)

Recently, in 2011, the 1980 Piano regolatore (PRG) of Milan, issued according to the 1942 national law on land use, has been substituted with the *Piano di governo del territorio* (PGT), which has been issued according to the 2005 regional law no. 12 (see *infra*)<sup>51</sup>. The *Piano di governo del territorio* (PGT) of Milan foresees the densification of the city by increasing building volumes, and identifies certain transformations areas (*Ambiti di trasformazione urbana*, ATU)<sup>52</sup>: in total, 8 square kilometers within Milan administrative boundaries will be transformed, granting legal advantages and extended building rights to private actors.

The replacement of the Piano regolatore (PRG) with the *Piano di governo del territorio* (PGT) has occurred due to the *Titolo V* constitutional reform in 2001, which established a broader devolution of competences from the state to the regions with regard to landscape protection (see sec. 7.4.2.1). Regions being entitled with the authority to define territorial plans, provinces and especially municipalities had to update their spatial planning instruments and regulations in order to comply with the new regional legislation on territorial planning. In Lombardy, the 2005 regional law no. 12 regulates spatial planning (see *infra*), and the 2011 *Piano di governo del territorio* of Milan has been issued in its compliance<sup>53</sup>.

A highly contested novelty introduced by the 2011 plan for Milan, following the 2005 law no. 12, is the *perequazione*, that is the transfer of development rights<sup>54</sup>. This mechanism is extremely advantageous for stakeholders, such as the building and real estate sector, as it would allow the transfer of building rights accumulated in peri-urban areas to Milan central areas, having a higher value. Stakeholders owning building rights in agricultural and peripheral land plots, where building activities (and land rent outcomes) would be less (or not at all) convenient, *perequazione* allows the transfer of such building rights to areas with higher real estate values. The re-distribution of building rights is actually defined by the

<sup>51</sup>The *piano di governo del territorio* (PGT) includes: *documento di piano* (i.e. where to build), *piano delle regole* (i.e. how to build) and *piano dei servizi* (i.e. which and where services facilities are to be provided); cf. Indovina (2012, p. 256–257).

<sup>52</sup>For instance, Porta Genova, Bovisa, Stephenson, and Cadorna.

<sup>53</sup>The other 1.545 municipalities located in the Lombardy region had to provide new *Piani di governo del territorio* (PGT) as well.

<sup>54</sup>For a critical discussion, from a normative perspective, of the *perequazione* and the transfer of building rights, cf. (De Lucia, 2005).

Piano di governo del territorio (PGT) itself; therefore, the PGT, as a municipal (i.e. public) instrument for spatial planning favors private interests through the *perequazione* mechanism (Mazzette, 2011b, p. 16). The result should be an over-densification of the areas within the Milan administrative boundaries, and a consequent loss of the already questionable quality of the urban environment. Building rights can also be transformed into any convenient use, such as housing or industries, which would be defined in specific partial plans conceived and adopted according to the area to be developed.

Furthermore, building rights do not expire, hence they will orient the medium and long-term urban expansion of Milan. Another advantageous concession made to stakeholders is the exclusion from the transfer of development right of service areas, loosely defined as conference and exhibition centers, universities, clinics or ‘clubs’, that can therefore be located anywhere in the territory without any limit with regard to building volumes and densities (Boatti, 2011, 2013).

The 2011 Piano di governo del territorio was one of the last initiatives carried out by the right-wing Moratti administration, substituted in 2011 by the Pisapia left-wing government. The PGT was then re-defined and updated, and finally approved in December 2012. However, the new plan does not consistently modify the previous 2011 plan, and maintains its main features in terms of transformation areas, building rights and mobility infrastructures, in the absence of a real vision for the much needed metropolitan Milan (Boatti, 2013; Memo et al., 2011; see also *infra*). Furthermore, no metadata are used for the quantification of the foreseen demographic increase, for which huge development forecast is made; moreover the already existing open construction sites and vacant buildings are not taken into consideration (Boatti, 2013).

### **The *Piano Intercomunale Milanese* (PIM)**

The outdated and incoherent normative framework concerning spatial planning characterizing the Italian legal system (see sec. 7.4.2.1) was insufficient to regulate Milan’s dramatic urban expansion during the 1950s and 1960s. Hence, metropolitan, or better, supramunicipal, planning took the lead: Milan and some of the surrounding municipalities jointly attempted to face the challenges posed by the overwhelming urban development the area was experiencing and, in 1961, the *Piano Intercomunale Milanese* (PIM), literally the Milan intermunicipal plan, was established, as a voluntary association of municipalities among Milan and the adjacent local governments (Balducci, 2003; Centro Studi PIM, 2011, 2013). Interviews carried out at the metropolitan level made clear that:

the mayors involved in the constitution of the PIM really believed in it. It was on a voluntary basis, however there were the ‘white’ catholic-conservative mayors, and the ‘red’ socialist-communist mayors, but all of them anyway had a shared vision, which was supported by the parties, and which in turn obviously influenced the municipalities.

In 1963, a first plan was proposed (*Linee programmatiche e obiettivi del Piano Intercomunale Milanese*), and in the subsequent years a supermunicipal plan for green areas was approved. In 1967, the *Progetto Generale di Piano* was passed, with the purpose of harmonizing service provision (e.g. transports, housing, health and education facilities) among the involved municipalities. However, the 1967 PIM plan was:

soon delegitimised by a crossfire of vetoes: the complexity of the decision-making environment and the weight of party politics, emphasised by contrasting local governments’ affiliations along centre-periphery lines, determined a substantial watering-down of the strategy and, finally, its formal abandonment. (Gualini, 2003, p. 269)

Nevertheless, the political cooperation among municipalities orchestrated at the PIM was particularly concerned, in the first decades, with the protection of green areas, and it was reinforced by the collaboration with the newly constituted Lombardy Region (1970, see *infra*). The main outputs of this combined effort were the establishment of the areas reserved for the Milan *Parco Nord* (1970–1975), the Groane Park (1976) and the *Parco Agricolo Sud* (1990), still today very much the ‘green lungs’ of Milan and surrounding municipalities. In addition, the Piano Intercomunale Milanese (PIM) was active in the identification and promotion of transport (and logistic poles), education and health services and commercial areas, together with integrated green areas (natural and agricultural systems) as already mentioned, at a metropolitan, provincial and even regional scale (Centro Studi PIM, 2011, p. 105ff), such as the *Passante ferroviario*, the *Pedemontana* or the Portello fair pole. These initiatives would need a self-standing research to unravel the complex negotiation and decision process at work, considering also the fact that, despite the identification of *centri direzionali*<sup>55</sup>, Milan is still currently lacking a central business district (CBD), a gap which the recent (and contested) urban renewal in Porta Garibaldi is trying to bridge.

It is worth stressing that the Piano Intercomunale Milanese (PIM), and the approval of the Progetto Generale di Piano for Milan in 1967, meant an advanced, absolutely new supramunicipal planning experience in Italy. Moreover, the Progetto Generale di Piano defined urban planning standards for the first time<sup>56</sup>, whose validity would have been promulgated later at the national level through the 1968 decree (Centro Studi PIM, 2011), as already mentioned in section 7.4.2.1. An interviewee, a current employee of the PIM, clearly stressed that:

the supramunicipal plans had ideally to pass through each of the city councils that should have implemented them. (...) however, at the end of the day no supramunicipal plan was ever approved by all the local administrations involved in the PIM. (...) Then the 1980s came, where plans started to give way to projects, and then nobody really believed in plans any longer, much less in supramunicipal plans! (...) Although the [PIM’s] plans have not been really implemented, yet they created visions, that have had a great influence. (...) In the PIM’s rooms, people got together, shared visions and municipal plans were debated. (...) At that time, some municipalities had a plan, others hadn’t, others had only a building plan... (...) During the 1960s, thanks to those efforts, Italian land and town planning was born, national and regional laws were born.

In 1968, the 35 municipalities composing the Piano Intercomunale Milanese (PIM) increased to 94. Such an achievement has however to be downplayed by the voluntary character of PIM membership by local governments, also mirroring the complex party politics that was heavily influencing institutional scales.

During the 1970s and 80s, the Piano Intercomunale Milanese (PIM) as an entity was restlessly working in order to gain political recognition. Proof of this commitment were the presentation and approval, in 1982, of several supramunicipal plans, such as the *Piano di Sviluppo Agricolo* (1981–1990), the *Piano Territoriale Comprensoriale* (1981–1990) and the *Piano Socio-Economico* (1981–1990).

A key moment in the PIM’s history is its *comprensoriale* experience: thanks to the 1975 regional laws 51 and 52, the PIM could be officially declared a *comprensorio*. A *comprensorio* corresponds to an institution that manages an area, composed of various municipalities, which jointly act to fulfill institutional duties (e.g. building, land remediation, health), that is *compiti di governo dell’intercomunalità*. Concerning territorial planning, in Lombardy the

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<sup>55</sup>It is noteworthy to remember that the definition of *centri direzionali* was one of the innovations that influenced the 1976 Barcelona metropolitan plan; see sec. 7.4.1.2.

<sup>56</sup>For instance, these standards define how many cubic meters have to be devoted to sidewalks, common green areas, roads and other facilities compared to the amount of cubic meters of the urban development floor area.



*comprensori* were established to be an intermediary body between the regional government and the municipalities (Treu, 2012, p. 64; cf. Memo et al., 2011, p. 60–62).

In this phase, the PIM as *comprensorio* reached 106 municipalities (1978), which were forced to present their municipal plans to the PIM, and to adjust to the requirements of the *Proposta di Piano Territoriale Comprensoriale per l'area milanese*, presented in 1975. Simultaneously, the PIM changed its name into *Centro Studi per il Comprensorio Milanese* (CSCM), having the aim to carry out analyses, research and plan proposals according to the competences which the regional laws 51 and 52 entitled the PIM with (cf. Balducci, 2003).

During that time, in line with the high population growth during the 1950s and 1970s, a common practice performed by municipalities was to propose 'over-sized' urban plans (*sovradimensionamento*) to accommodate overly optimistic growth demands following expected population increase, and expansion of industrial and commercial areas (Centro Studi PIM, 2011, p. 44). Residential urban sprawl was thus triggered by this incremental mechanism of 'cartographic filling' implemented by municipalities, which resulted in over-sized local urban plans, boosting land consumption and urban sprawl. Interviews at the PIM highlighted that:

The PIM is an effort which has partly failed, however it gave visions, even if no real plan has ever been adopted. It has been a continuous, day-by-day struggle with individual municipalities to orient their development. The first thing that was done at the PIM was to put together all the municipal urban plans, by quantifying it became apparent that an incredible amount of cubic meters was forecast to be built. Some towns, like Corsico or Rozzano, foresaw an increase of their inhabitants by 10 times by the year 2000. (...) There has been both a dialogue among the technical staff of the PIM and the municipalities regarding urban development, and also a political dialogue.

However, in 1987 the regional law no. 23, following popular referenda and in the wave of 'the deregulation ideology of that time' (Balducci, 2003, p. 61), abolished the *Comprensori*, hence the PIM was converted again into a voluntary association. The organism was renamed as *Centro Studi per la Programmazione Intercomunale dell'Area metropolitana*, a denomination in existence until today, although it is still known and referred to simply as PIM. The efforts made by the PIM to be recognized as an institutional level managing supramunicipal (and metropolitan) issues have thus been frustrated, and since the 1990s the PIM has maintained its associative character concerned both with pooling resources for intermunicipal service provision, and offering the associated municipalities a research and consultancy service for (master) plans proposals.

Nowadays (2014), the PIM is a sort of consultancy that offers specialized technical competences to the 61 currently affiliated municipalities (e.g. the collection and provision of relevant territorial data concerning demography, environment, urban planning and transport infrastructures) to facilitate and enable the formulation, for instance, of inter-urban plans and projects, sectorial, landscape and master plans, and inter-municipal (and inter-provincial) planning of transport infrastructures.

Hence, despite decades of attempts, the Piano Intercomunale Milanese (PIM) has not been formally recognized as a legally binding metropolitan government. The constitution of (Italian and) Milanese metropolitan area(s) remains an institutional impasse, which will be however possibly resolved by the recent 2014 law no. 56 that designated provinces to become the new metropolitan scales.

### **The *Piano territoriale di coordinamento provinciale* (PTCP)**

Italian provinces having been entitled with new competences on territorial planning through the 1990 law no. 142 (see also sec. 7.4.2.1), territorial provincial plans for the Milan province were proposed in 1995, 2003 and recently in 2012.

In 1995, the center-left provincial government started working on a provincial coordination plan, that was approved in 1999 (*Piano territoriale di coordinamento provinciale*, PTCP). This initiative was not fostered by regulations, but was a late, unsuccessful attempt to regulate the congestion and the inefficiency of the Milanese urban system, trying to rebalance the hypertrophy of Milan as a metropolitan center (Boatti, 2011). Conflicts with the municipalities located in the province, and especially with the municipality of Milan, hampered the decision-making process of the provincial government over territorial land management strategies (Balducci, 2003).

In 2003, the right-wing provincial administration overruled the 1999 provincial plan and approved a new one. Although concerns for a territorial re-balancing between Milan and the surrounding municipalities were unsuccessful, the 2003 plan introduced a more stringent mechanism that would have prevented municipalities from expanding and consuming land over the allocated 5%: the stock of developable land should not grow more than 5% over 5 years. This was quite an innovation, as land consumption was not an issue of shared knowledge, and provincial planners, thanks to the 2003 plan, compelled municipalities to quantify their growth forecasts. One of the architects working in the Milan province that took part in the definition of such land containment mechanism stated that:

we coerced [municipalities] to reason over the topic [land consumption], and we obliged [municipalities] to think rationally with numbers. Hence we aired dirty laundry in public, we said to municipalities: tell us how much land you consume, and municipalities that came here with a 22% increase were welcome with a certain embarrassment. The first thing was to put on paper the extent to which land consumption was being fostered.

After the approval of the 2005 regional law no. 12 (see *infra*), the province of Milan had been working on the adjustment of the *Piano territoriale di coordinamento provinciale* (PTCP) to the new regional norm. During this period of time, the province of Milan tried to find and negotiate consensus among its municipalities over the ‘territorial vocations’ – as they are called – of each area composing the province (e.g. industrial or service oriented North of Milan, agriculture oriented South of Milan). Furthermore, the 2007 proposal for the new provincial territorial plan defined a strategy against land consumption and the incessant urbanization process occurring within the Milan province, by identifying 45% as the maximum threshold of the ratio between the urbanized and the non-urbanized areas (*rapporto vuoto-pieno*; Centro Studi PIM, 2009, p. 27). As it has been shown in tables 6.6, 6.7 and 6.16 in Chapter 6, the proportion of urbanized areas is, according to the considered territorial scale, overcome or approached. For instance, at the provincial scale, Corine Land Cover (CLC) data (see tab. 6.16) show that this proportion has reached 37% of urbanized areas compared to the total provincial surface.

Finally approved in 2012, the actual *Piano territoriale di coordinamento provinciale* (PTCP) pivoted around the Milan area from a metropolitan perspective, trying to arrange a territorial re-balancing through the identification of ‘attraction poles’ where urban development should primarily occur. The 2012 PTCP defined three ‘rings’ around Milan: Milan and 24 municipalities immediately surrounding it<sup>57</sup>, i.e. ‘first ring’, followed by 13 ‘attraction

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<sup>57</sup>The ‘Milan+24’ are: Milano, Assago, Baranzate, Bresso, Buccinasco, Cernusco sul Naviglio, Cewzano Boscone, Cinisello Balsamo, Cologno Monzese, Cormano, Corsico, Cusano Milanino, Novate Milanese, Opera, Pero, Peschiera Borromeo, Pioltello, Rozzano, San Donato Milanese, San Giuliano Milanese, Segrate, Sesto

poles' (Abbiategrosso, Binasco, Cassano d Adda, Trezzo d Adda, Vaprio d Adda, Castano Primo, Gorgonzola, Melzo, Legnano, Magenta, Melegnano, Paullo, Rho) and the remaining 96 municipalities of the Milan province.

In terms of urban development, the 2012 Piano territoriale di coordinamento provinciale (PTCP) is more stringent than the 2003 plan. Besides requiring an increased demographic density and functional mix in newly built areas, it allows for further development only if at least 80% of the expansions contained in previous plans has been attained. Moreover, it requires a minimum 20% re-use and infilling of brownfields and prioritizes urban compaction trends. The PTCP allows for a maximum of 2% of land consumption within its territory, which can be increased to 4% in case of 'justifiable strategic projects', over a 5 year period (corresponding to the validity of the urban plans approved by city councils), in the case of the identified 'attraction poles'. In addition, the 2012 PTCP requires the municipalities to adapt to 'sustainability indicators' (e.g. renewable energies, management of meteoric water and provision of green areas to compensate for the expansion of urban settlements).

'Justifiable strategic projects' are a case in point that reveal the functioning of the dynamics, through spatial planning tools, between municipalities and provinces. One of the interviewed provincial officials indeed clarified that, once an urban plan is adopted and approved, ad hoc modifications (the *varianti*) can always be made, and development can always be postponed until there will be a 'real' opportunity:

If there is something [an urban project] relevant for the public interest, [the municipality] can do it [i.e. the justifiable strategic project], but for the moment [the municipality] has to leave the area undeveloped. (...) The province is the authority that protects the environment, hence the area is left undeveloped; however, if there is a far-reaching project [i.e. the justifiable strategic project], that creates jobs, therefore in the public interest, then the municipality can apply an ad hoc *variante*.

Hence, the 'justifiable strategic project' becomes an expedient both for making amendments to growth thresholds authorized to the municipalities, and also to maintain local governments' growth expectations (politically) dormant, especially when an agreement between the two parties is not found. If many projects can be scratched out from municipal urban plans through this political strategy performed by provincial officials, such land bargaining between local and provincial governments allows the maintenance of urban growth expectations, postponing development. Simultaneously, such tactic allows both the local and provincial governments to present themselves as 'virtuous' because development has not occurred (yet generally being just postponed).

It is hence important to stress that the 2012 Piano territoriale di coordinamento provinciale (PTCP) does not legally bind municipalities, as it is an 'indicative' (i.e. 'coordination', *coordinamento*) action plan to orient territorial development within the province. Its weakness lies in this orientating character, despite its important supervision role on municipal plans: even if municipalities can disregard the suggestions proposed by the province in terms of urban growth, as urban planning is an exclusive competence with which municipalities are required to follow under the 1942 land use national law (see sec. 7.4.2.1), municipal urban plans do not have to clash with provincial regulations on environmental protection (Boatti, 2011). Furthermore, although the 2012 provincial plan respects the 2005 regional law regarding the protection of open and agricultural land, some scholars point out that the plan is still far too lenient regarding building opportunities in protected areas, such as the Parco Sud (Molone and Calaminici, 2014).

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San Giovanni, Settimo Milanese, Trezzano sul Naviglio, Vimodrone.

### **The 2005 regional law no. 12**

A noteworthy moment in Lombardy planning was the regional law no. 12 approved in 2005. This law was promulgated in order to comply with the new competences defined by the 2001 constitutional reform (see sec. 7.4.2.1).

Open and agricultural land has been particularly protected by the 2005 regional law, in particular regarding the preservation of the *Parco Sud* (Molone and Calaminici, 2014). However, proclaimed efforts against land consumption are mainly left to municipal administrations, which are in turn left to bargain directly with private actors in the absence of a more substantial support from higher administrative levels (Centro Studi PIM, 2009, p. 25).

Furthermore, the planning standards identified in the 1968 decree (see sec. 7.4.2.1) have been set aside by article 9 of the 2005 regional law no. 12, which defines minimum provisions but not maximum amounts of standard equipment, allowing municipalities to excessively increase (and cash in on) service areas (De Petris and Stefani, 2005, p. 835).

Furthermore, the *perequazione* was the expedient introduced by the Lombardy regional government in the attempt to resolve the long-standing issue of the coincidence between land property and building rights, boosting land rent and urban expansion in Italy, which the national legislation has been incapable of disentangling (see sec. 7.4.2.1). The *perequazione*, together with the involvement of private actors in decisions regarding territorial planning and management, seems to be the tool for legitimization and regulation of public-private strategies that were already in action.

### **The *Piano territoriale di coordinamento regionale* (PTCR)**

In 1999, Formigoni's right-wing regional administration fostered the use of *Piani integrati di intervento* (PII), which were *de facto* concessions to private interests in exemption from municipal plans (again, *varianti*) (Boatti, 2011; Memo et al., 2011).

In 2010, in compliance with the 2005 regional law, the Lombardy government approved the first territorial regional plan (*Piano Territoriale di Coordinamento Regionale*, PTCR), later updated and modified in 2012 and 2013.

The nature of the plan is essentially strategic, as it provides the guidelines for the Lombardy region's future development in a shared vision with stakeholders. It also integrates the landscape plan approved in Lombardy in 2001 (cf. Memo et al., 2011). The 2010 territorial regional plan has to define and orient the future development strategy of Lombardy, setting priorities in accordance with the characters of each of the 7 individual territories that it identified<sup>58</sup>. Some areas are also provided with an 'area territorial plan' (*Piano territoriale regionale d'area*, PTRR), referring to specific territorial sections.

There is a stated concern for containing land consumption, and a reaffirmation of environment impact assessments as a crucial tool for territorial management, especially in order to prevent soil instability caused by land use transformations.

The role of the department of territorial planning in the Lombardy regional government is to jointly manage the different types of information (geological, planning, landscape, social, a.s.o.), and to integrate them in order to enhance territorial management. In 2001, the Lombardy region implemented a land monitoring project aimed at producing the *Destinazione d'Uso dei Suoli Agricoli e Forestali* (DUSAF) database (see Appendix sec. B.2), providing

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<sup>58</sup>The 2010 territorial regional plan identified 7 broad 'systems': *Sistema Metropolitano, della Montagna, Pedemontana, dei Laghi, della Pianura irrigua, del Po e dei Grandi fiumi*.

raster and vector data of the land use transformations occurring since 1980s, which have been employed in this dissertation as well (see sec. 6.2.1).

There is the impression however that such efforts and the recently produced territorial plans came rather late. One of the interviewed regional officials stated that:

the norms and territorial plans that the regional government is issuing are improvements. More than before, laws are now more detailed, as the regional government is not any more a supervisory governmental tier [*ente di controllo*], but it is a governmental scale [*ente di governo*]. Upon these new regulations, things can change.

Although it is unrealistic to think that plans did not have any effect at all on territorial planning, it is however true that they can only since recently, and *a posteriori* on an already dispersed territory, regulate and contain the plans of urban expansion proposed by local governments, without however having the legally binding capacity to orient urban transformations in a substantial way.

#### **7.4.2.3 Land and scale bargaining**

From the previous section (7.4.2.2), it becomes apparent how in Italy the normative obsolescence of national laws and weak enforcement of existing plans strengthen the authority of local governments on spatial planning, leaving to regions and provinces a supervisory role.

#### **Local scale: municipalities**

In terms of in-between scale bargaining dynamics, with regard to decision-making power over land allocation, local authorities have consolidated their role as strongholds compared to other governance scales. In terms of within-scale bargaining dynamics, given that the 1942 law is still in force, the indicative plans produced by higher institutional levels struggle to contain and regulate municipal decisions over land. The great competences that municipalities hold with regard to spatial planning (within scale bargaining dynamics) hamper a re-scaling process where regions and provinces (in-between scale bargaining dynamics) could lead the way to tackle the land management competences owned by municipalities. Municipalities own control of their land and it is the city council that self-approves the proposed urban plans.

While it is true that before the 2001 constitutional reform, urban plans had to go through the approval issued by the regional government, the late establishment of regions (1970), on the one hand, and the difficulties of the provincial scale to regulate urban development given the duality of the 1942 and 1939 laws, and the late introduction of territorial planning laws (the 1990 *area vasta* regulations, see sec. 7.4.2.1), on the other hand, limited the supervising role of higher institutions. After the 2001 constitutional reform, municipalities self-approve their urban plans, hence the supervisory authority of regional and provincial governments is limited to control the compliance of urban plans to environmental protection laws. Municipalities' competencies in urban planning have thus been strengthened, with the jurisdiction of regional and provincial governments being restricted to environment issues.

The ordinary planning practice, which consolidated through time, performed by local governments in the proposal of urban plans and their amendments pivots around the filling in 'blank spaces' (i.e. not yet urbanized areas) and the re-classification of land uses. In particular, those blank spaces are open and agricultural land that has traditionally been conceived by local administrations to be 'free' soil available for further development (cf. De Lucia, 2006, p. 93). One of the interviewees at the regional level explained that:

for decades, land, in urban planning, has always been considered as a blank, residual space. Urban plans were issued by architects, for the majority of whom their education was mainly focussed on town planning. In the urban plan, only the urbanized areas were represented, together with protected, natural areas. Open and agricultural areas were a white sheet to write on. Hence, all initiatives for urban growth and expansion, such as housing, transport areas, or industrial plants, were almost spontaneously emplaced in those blank spaces, but which actually were agricultural areas.

The occupation of ‘blank spaces’ fosters land consumption and, hence, the expansion of urban sprawl.

As in the case of Barcelona (see sec. 7.4.1.3), urban political choices regarding the type of houses to be built within the municipality can define the residents profile, under the rationale to achieve a competitive asset relative to other municipalities (cf. see sec. 4.4), as one of the interviewed provincial officials stated:

in the 1980s–1990s (...) in Melegnano [a small municipality nearby Milan] houses were too expensive. The city council of one of the adjacent municipalities, Carpiano, decided that they would have given the opportunity to young couples that could not afford to pay 4000 euros per square meter for a house in Melegnano to come and live in Carpiano. Carpiano, in 10, 20 years, has duplicated its population. (...) It’s a choice, right. However then Carpiano had to hurry to provide elementary schools, to offer a certain amount of services. (...) Anyway, this is the mechanism.

The bargaining context model (Kantor and Savitch, 2002) is here again useful, as it explains that, to attain a competitive position in the ‘marketplace’, in this case within the Milan metropolitan area, municipalities develop a certain kind of housing offer to attract those residents that could not locate themselves in Milan city center or in other municipalities where the housing offer is more expensive. The type of houses to be built responds to urban political choices carried out by the local administration.

In this process, housing preferences are a minor factor for housing provision, as households generally choose among the options offered by different municipalities, as Bonora and Cervellati (2009, p. 27) unequivocally (however probably unsubtly) stated:

The demand and the supply of square meters end within the relationship between real estate agents and city councils.

The connections between public and private actors for housing provision have been effectively described by one of the interviewed employees of the Building Constructors Association (ANCE):

the mayor comes here [to Building Constructors Association] and says: sirs, I want to build. In Milan, it happened like that: sirs, I [the mayor] have found out that in Milan houses are expensive. Hence I want to provide houses for all, also to the people that can not pay 5000 euros per square meter. (...) So, we, the stakeholders, reply to him: we can not provide houses for less than 5000 euros per square meter, we have to pay the workers, we have to buy the land, the building materials. (...) Hence the mayor tells us: good, as land is a municipal property, I will give it to you for free, so you don’t have this cost, but you have to promise that then you will provide affordable houses. So we make a deal, a real written contract.

However, there is no control on whether the stakeholders, such as the builders or the real estate agencies, will finally sell houses for the ‘agreed’ price.

As happens in the case of Barcelona (see sec. 7.4.1.2), in order to achieve such a ‘competitive edge’ through land bargaining, land management strategies at the local level imply an instru-

mental use of land, where suburban residential areas are particularly functional in attracting private investments and residents, besides being an attempt to increase the local tax base. One of the interviewees at the regional level stated that:

in no way the land rent produced by agricultural uses rival the land rent coming from land use transformation. Land rent is one of the relevant mechanisms to understand the processes of land consumption. Since in Italy we equal land property with building rights, if I have a land plot and then the local administration decides, or I make the local administration decide, to allocate that land plot for urban uses, this allows me to get a considerable land rent, without any effort on my part. Only by virtue of the fact that my land plot will be transformed, I exploit the legal right to get a surplus from my property. (...) This is a great pressure exerted over local authorities. (...) Land rent has produced in Italy a surplus of land use transformations which is independent from basic needs and demands.

Furthermore, the recent abolishment in 2008, through the government decree no. 93, of the local council property tax on the first dwelling (*Imposta Comunale sugli Immobili*, ICI) further debilitated the fiscal autonomy of local authorities, which were already suffering from the gradual reduction of state grants over the previous decade<sup>59</sup>. Introduced as a one-time tax, the ICI local council property tax remained, and became one of the most consistent tax revenues for local authorities' coffers. Its abolishment, and the simultaneous possibility to fund municipal expenditures (e.g. local council functionaries and employees' paychecks) through planning fees, led local authorities to heavily rely on land use transformation to keep afloat (Centro Studi PIM, 2009, p. 45). The abolishment of the ICI tax worsened the financial situation of local authorities, and had a relevant impact on land management strategies put into place by municipalities. One of the interviewed provincial officers clearly stated that:

there is a tendency to over-plan, only for financial reasons. I mean, if an agricultural area is worth 5, a developable area is worth 20, hence the mere inclusion in the [municipality's] balance sheets of an area with a different value creates a financial profit.

Hence, municipalities convert land (at the beginning only on paper) to put balance sheets on an even keel, allocating land for development as a strategy. Following a common practice, the wrecked local municipal coffers can be artificially recovered by classifying agricultural soil as developable, and by assigning to it a market value, which will then be included in the municipal balance sheets (cash inflows), thus keeping the administration afloat<sup>60</sup>. Land use transformation is thus the most effective way for local authorities to make economic resources available in a limited amount of time. One interviewee at the provincial level stated that:

city officials are not bad people. Newly elected city officials have the best intentions at the beginning of their mandate, however they are faced with real financial problems they have to solve. Furthermore, local governments receive less and less state grants, hence giving out building permits allows them first to cash in planning fees, and then local taxes. (...) In three months you get the permission to build and the local authorities guarantee that municipal coffers are afloat.

Such land management strategies are carried out in a stepwise fashion, where first a land plot is transformed and economic resources are collected, and then the land use transformation of other land plots follows. As described by Balducci (2003, p. 68), the 'complex issue of

<sup>59</sup>However, a similar tax has been reintroduced in 2012 by the Monti government, although with another name (the IMU, *Imposta Municipale Unica*), in order to sustain local taxation.

<sup>60</sup>Such mechanisms would require further inquiries, as local taxation has a great impact on the spatial planning strategies put into place by local authorities.

support for local economic development' is then dealt with, 'at the local level, by the simple allocation of land for use'.

This happens especially in the municipalities surrounding Milan. Interviews highlighted that, especially for the municipalities within the 'first metropolitan arch' of Milan, requests for land use transformation by real estate developers are many, and if they refuse such offers, stakeholders will develop an area in the adjacent municipality, resulting in a lost opportunity for the local government to harvest resources. The benefit that the local government can get through land use transformation is considered, and recognized, as a legitimate strategy performed by city officials to get the best for their citizens, and, hence, for their voters. The high relative variations shown in the Milan 'metropolitan' area (PIM) and province in tables 6.6, 6.7 and 6.8 for the 1954–2009 timeframe, much higher than in the Barcelona case can be considered outcomes of these dynamics. In addition, it is important to recall that a substantial proportion of these land use transformations, in the 1990–2006 period, has been discontinuous residential areas (see tab. 6.16).

However, local governments have also learned that not all opportunities are golden. Another interviewee, who is working as technical staff at the Milan provincial government, reported that:

local governments have also understood that if the land use transformations they decided did not result in the gains they had hoped for, then they would have to face big problems of service provision to scattered areas that cost them more than they thought to earn through them. (...) I mean, city officials know that if they do not allow development, real estate agents will go somewhere else. However, if then the housing offer they put on the market is not sold, then first they did not cash in, and second they consumed land for nothing. In addition, they have to provide these areas with roads and public transportation... those roads or buses however going nowhere.

### **Provincial scale**

Regarding in-between scale bargaining dynamics, as in the Barcelona case, the province remains an interstitial governance scale. Before the 2001 constitutional reform, the Lombardy region partially delegated to the provincial government the supervision of plans, which was competence of the former, to control the compliance of urban plans to environment protection laws. After the 2001 constitutional reform, the within scale bargaining dynamics of the provinces changed, giving them more power to orient municipal decisions over land. Even if urban plans are self-approved by local governments, as discussed above, they have to comply with the territorial development indications defined by the provinces (and regions, see *infra*). As one of the interviewed regional officials explained:

[since 2001] competences over spatial planning have been transferred to local authorities, hence the city officials propose and self-approve the urban plan, however under the supervision of the province, which has to consider also the territorial orientations defined by the regional governments, despite not being legally binding.

The analysis of within scale bargaining dynamics revealed a paradoxical role of the province as a governance scale with regard to land management. On the one hand, urban plans have to comply with the Milan province's *environment* requirements, while, on the other hand, the province cannot intervene in the choices of the type of *urban* development decided by local authorities. By virtue of environment protection laws, the provincial officials can suggest (orally or by written documents) to the mayors to reduce or postpone development, even when it is not in contrast with environment protection laws; however, city officials are not obliged to acknowledge these recommendations. The provincial scale is relevant as it functions



as a ‘buffer’ to limit municipalities growth expectations through the political work done by its functionaries; one of the interviewed provincial officers stated that:

It is really a political role, to find a balance and a dialogue with the mayors. (...) When there are problems on the urban development plans of a municipality, I call the mayor and say that the plan does not comply with the requirements of the provincial plan, which is an important political message. (...) Then they lower their expectations. I mean, not every municipality does it.

Provincial officers supervise the municipal plans and reduce growth ambitions, when political strategies work. On certain occasions, the provincial government opened administrative appeals against those municipalities that did not comply with the provincial plans requirements, and this served to strengthen the province authority.

Provincial planners are aware of the provincial scale’s paradoxical situation, and resolutions are eventually taken in favor of the municipal scale. One of the interviewed provincial officials reported that:

In different moments, decisions made by the province vary. In times of economic crisis, such as in these days, there can be a weakening of certain positions, to the point that we [the province] have to give permission to certain operations. (...) For example, a company threatened to leave a municipality, (...) because they wanted to enlarge their plant, and we did not allow them to. After 15 years of attempts, they finally said they would leave, and this was a tragedy for the municipality with its 1.700 inhabitants, 170 of whom were employed in the company. And so finally we [the province] had to say: ok, enlarge the damn plant and stay.

Provincial officers are aware of the fact that urban development ‘moves around’ the province (and inter-provincially) following offer and demand cycles and accessibility to infrastructures. One of the interviewees at the Milan provincial office for territorial planning reported that:

once a logistic operator, previously located at Milan Docks, wanted to re-locate because that area was completely congested. Hence he took his plant, and de-localized in Lodi Vecchio, where there is a highway toll booth. So he emplaced his new plant on a cheaper and more accessible area, and re-valORIZED his old location as it was closer to the center. (...) Hence where there is accessibility, there is demand, and when accessibility does not work as well as before, the demand re-locates and moves somewhere else, with the previous location finding a new demand for a different urban function.

At the provincial level, it is apparent that urban pressure to transform land is an ordinary issue that the province has to face every day, one that it tries to supervise and coordinate. Economic and mobility factors discussed in Chapter 3 in sections 3.1.1 and 3.1.2 find here a clear illustration.

The province does not own the legal competences (within scale bargaining dynamics) to hamper local authorities from carrying out their urban plans, on the condition that urban growth does not occur on those environmental protection areas established by the province. Hence, the technical and the political staff of the provincial government cannot oppose the land use transformation decisions (into urbanized soil) decided by city councils, except when they are emplaced on protected or geologically fragile areas.

As urban planning is an exclusive competence of local authorities (see sec. 7.4.2.1, and see supra), the possible suggestions on urban land management that provincial officials, through their political work, can propose (or require, if party politics facilitates it) to city officials

remain discretionary. Since provincial coordination plans pivot around environment protection, they cannot tackle the land management strategies carried out by local governments. Even if the provincial plans can ‘suggest’ urban development guidelines, agreements have to be found between local and provincial officials. Hinging on ‘environmental values’ as prerogatives of the province, ‘moral suasion’ techniques, as one of the interviewed provincial official has called them, have to be used to make the mayors ‘reason’ to reduce their growth expectations:

well, an agreement has to be found [between the mayor and the provincial official appointed for territorial and environment protection]. We don’t discuss, we reason together, we do not take away growth expectations without a motivation, we make the mayors reason that some areas they identified cannot emplace development, especially if this development implies urban sprawl. (...) It’s a moral persuasion, a political job basically.

In particular, the 2003, and especially the 2012, provincial coordination plans, as mentioned above (see sec. 7.4.2.2), include more stringent mechanisms to prevent land consumption. As the province receives the urban plans issued by each municipality, it can perform a supervisory role on the emplacements of urban growth areas decided by local governments, and quantify such expectations.

Hence, in a different way, yet as in the case of Barcelona, the province has been active since 2000s in observing the land use transformations occurring in the provincial territory. Furthermore, studies and analyses were carried out, such as Centro Studi PIM (2009) or CRESME (2006), where satellite images have been employed to monitor land use transformations, also in cooperation with the Lombardy regional government and the PIM research center (see *infra*).

In conclusion, in terms of in-between scale bargaining dynamics, the province still remains an interstitial governance body. However, the 2001 constitutional reform, and the subsequent 2005 Lombardy regional law no. 12, reinforced its role as ‘territorial controller’ of land use transformations, even if its focus remains on the environment rather than on the urbanized areas. In comparison to the 1950s–2000s timespan, since 2001 the Milan province gained more competences over territorial planning<sup>61</sup>, however its plans remain non-legally binding with regard to land management strategies, except when urban plans are not in compliance with environment protection laws, putting the provincial scale into a paradoxical governance position.

Moreover, its position as governmental scale is controversial, as the province will evolve into the future Milan metropolitan authority, according to the 2014 law no. 56 (see sec. 7.4.2.1). However, this process is as yet open-ended. The effectiveness of the Milan province, limited by its administrative boundaries, to manage Milan metropolitan area and region is uncertain, as consensus with the near Monza e della Brianza province (see fig. 6.3 and fig. 6.4 in sec. 6.1) will have to be found, possibly slowing down this re-scaling process from the provincial into the metropolitan government<sup>62</sup>. The failure to evolve into a metropolitan authority

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<sup>61</sup>A separate research would be needed to precisely compare and examine the changes in within scale bargaining dynamics (i.e. competences) in the Milan province before and after the 2001 constitutional reform.

<sup>62</sup>Gualini (2003) reports how, already in the late 1980s, in Milan the debate for the establishment of a metropolitan body was triggered by two opposed positions, a ‘structuralist position’ and a ‘functionalist position’. The first supported the ‘transformation’ of the Milan province into a metropolitan province, while the second opted for the strengthening of the role of the region and the simultaneous constitution of a metropolitan body. The recent approval of law 56 seems to indicate that the ‘structuralist position’ finally prevailed.

would probably imply, for the Milan province, its disappearance as governance scale<sup>63</sup>.

### **Metropolitan scale**

Regarding in-between scale bargaining dynamics, the PIM experience did not consolidate into a real metropolitan scale, despite its contribution for urban and supramunicipal planning. Except for the brief interval as comprensorio (see sec. 7.4.2.2), the PIM is currently acting as a research center to support the associated municipalities, and loosing ground as a policy-making scale. In terms of in-between bargaining dynamics, the metropolitan scale can thus be considered a sort of ‘victim’ of re-scaling processes, as it could not consolidate itself into an public institutional scale.

In terms of within scale bargaining dynamics, the ‘deactivation’ of the institutional authority of the PIM as a scale is reflected in the ‘delimitation’ of its role in consultancy competencies, offering high-standard technical support to municipalities for the issuing of plans, and backing up of inter-municipal plans to optimize resources for service provision (e.g. location of schools or commercial centers). The PIM research center is still a highly valuable interlocutor for public and private institutions, however its role as decision-maker has been gradually narrowed down.

Furthermore, the reshaping (and reduction) of its role as research center is also connected to the decline of party politics, which deeply weakened the pressure that the PIM could exert over municipalities, as one the interviewed PIM employees recalled:

Once parties were mediation places, meeting places for bottom-up [participation], they had their architects, their intellectuals, their staff. There were three parties which met in a place, for example at the PIM, and they decided, for better or for worse. Today, putting together 189 municipalities and the relative mayors<sup>64</sup> is practically impossible. (...) It is incredibly difficult to come to a shared vision. (...) Certainly there are regional and provincial plans, which are supra-local, but they give orientations, they do not plan.

The ‘sad destiny’ involving the PIM resembles a lost opportunity. Established in the 1960s, the PIM represented a unique and innovative experience for supramunicipal coordination, hinting at the possible consolidation of a metropolitan scale. Its contribution and successes (see supra) should have led to the emergence of the PIM as a strong metropolitan scale with regard to in-between scale bargaining dynamics. Such ‘lost opportunity’ had three main causes (Gualini, 2003). First, the metropolitan scale of Milan would have extended over the Varese and Brescia provinces, hence provincial boundaries would not be able to serve as appropriate metropolitan delimitations. Second, a metropolitan body would have possibly jeopardized the still too recently constituted Lombardy region (1970). Third, eventually localism prevailed, hampering the formation of a Milan metropolitan body. If, on the one hand, the voluntary character of the PIM strengthened its role as bottom-up governance scale supported by municipalities, on the other hand, local governments were skeptical regarding the reduction of authority that the constitution such metropolitan body would have implied. Furthermore, there is another type of localism that deserves to be mentioned: ‘provincialism’, that is the localism carried out by provincial governments. Indeed, as mentioned in section 7.1, the Lecco and Lodi provinces were established in 1992, and the Monza e della Brianza province in 2004, further fragmenting the Lombardian territory. In addition, Balducci (2003)

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<sup>63</sup>Provinces were officially abolished in 2012. However, their institutional extinction remains to be seen, and they substantially continue to operate in an institutional limbo, while waiting for such a normative void to be filled, for better or for worse (cf. Daina, 2014, in *Il Fatto Quotidiano* newspaper). Their ‘recycling’ into metropolitan bodies, at least for some of them, is yet an ongoing re-scaling process.

<sup>64</sup>The interviewee considered the 134 municipalities belonging to Milan province, and the remaining 55 municipalities pertaining to Monza and della Brianza province.

mentions the fear that provinces, but also the Lombardy regional government, felt with regard to the establishment of the metropolitan cities (*città metropolitana*, see sec. 7.4.2.1): a new governance scale would have implied conflicts and struggles over authority and competences (i.e. ‘in-between’ and ‘within’ re-scaling dynamics). Last but not least, the in-between scale bargaining dynamics that possibly prevented a Milan metropolitan scale from emerging are explained by the political incapability (or will) of Milan to lead a process that would institute such scale, implying the need to cooperate with the surrounding municipalities to carry this out (Boatti, 2011). The political reticence of Milan city officials to ‘think bigger’ and take responsibility over the metropolitan area of influence exerted by Milan is suggested by the respondent to one of the interviews carried out at the urban level:

In this future metropolitan area, Milan will have of course a greater role because it is the bigger municipality, however the problem is that a balance has to be found between Milan and the other adjacent municipalities, because they also have to be represented.

Localism is very much present, and an agreement (over authority) with other municipalities has to be found. However, it seems that no scale is sufficiently strong to lead such process. Such dynamics clearly involve in-between and within scale bargaining processes. In contrast, Boatti (2011) emphasizes how much Milan would benefit from a clearly defined metropolitan area (or region). He states that, with Milan reaching 1,3 million inhabitants, the city would lie at the center of a metropolitan area with more than 5 million inhabitants, and comprising 400 municipalities. Gualini (2003, p. 264–265) similarly stresses how the Milan metropolitan region would even extend over the regional territory to Novara, a city in the Piemonte region, including a total of 10 million inhabitants. Localism is also coupled with the doubtfulness of the Lombardy regional government concerning the institution of a Milanese metropolitan body, which would be an unnecessary institutional tier for the already appropriate institutional structure (regional government, provinces and municipalities; Campilongo, 2006), as one of the interviewees at the regional level stated.

However, as stated before, after the 2001 Constitutional reform (see sec. 7.4.2.1), the 2012 Monti government tried to revive the need to finally establish metropolitan areas in Italy, rescuing also the Milan metropolitan scale from oblivion. More recently, the 2014 law 56 envisages to ‘transform’ the Milan province into the metropolitan government, and this should also be negotiated with the Piano Intercomunale Milanese (PIM), because of its recognized experience and authority as a metropolitan scale. Hence, in terms of in-between scale bargaining dynamics, there is currently an effort to ‘re-arrange’ the governmental scale (I would even say a ‘recycling’ of scales), where the metropolitan scale would emerge from the province. However, even if the the provincial scale is ‘recycled’, within scale bargaining dynamics would remain quite complex, as it is unclear how the distinction and bargaining of competences among an ‘old’ provincial scale and a ‘new metropolitan-provincial’ scale would be carried out. Furthermore, as stated above, it is doubtful that the ‘new’ Milan metropolitan authority, demarcated by the provincial administrative boundaries, is a sufficiently broad scale to effectively manage the challenges posed by the Milan metropolitan agglomeration, extending far beyond Milan provincial borders.

With regard to land bargaining, the failure to establish, in terms of in-between and within re-scaling processes, a Milan metropolitan scale paved the way for localized land management strategies, which had the result of boosting ‘an extensive settlement model, characterized by high land consumption, where the fragmentation of decisions over land allocation and use caused inefficiencies and contradictions, with residential urban sprawl hampering the organization and accessibility of different services’ (Centro Studi PIM, 2009, p. 48, my translation). The Centro Studi PIM (2011) considers this expansion to be also connected

to certain housing preferences, together with the search for a ‘quality of life’ in low density areas (see sec. 3.1.3 and sec. 3.1.4). Furthermore, those peri-urban areas (generally called ‘hinterland’) were more competitive than Milan city center, as lower real estate prices than those found in Milan fostered the settlements of residential, industrial and commercial areas, often accompanied by land speculation on land rent (see supra, and see sec. 3.1.5).

The evidence shown in tables 6.5, 6.6 and 6.8 in section 6.2.1, and in tables 6.10, 6.12, 6.14, 6.16 and 6.17, where the Milan case presents more dispersed residential areas as compared to the Barcelona case can thus be related to the lack of a metropolitan scale able to consolidate over other scales in terms of in-between and within scale bargaining dynamics. Indeed, the work carried out by the PIM since the 1960s has been innovative and beneficial for the land use management of the Milan area, as technical and political efforts were made to limit the municipalities’ growth ambitions.

### **Regional scale**

The analysis of in-between and within scale bargaining dynamics for the regional scale are similar to the provincial scale, as the Lombardy regional government suffers from the same paradoxical governance position as the provincial government. In terms of in-between scale bargaining dynamics, the delayed establishment of regions in 1970 hampered the exertion of authority and competences of regions as a buffer between the state and the municipalities.

Although the 2001 reform strengthened the role of the Lombardy regional government as a governance scale ‘supervising manager’ of spatial planning, as provinces and municipalities had to comply with the new 2005 law, the late approval of regional territorial plans in Lombardy after 2010 hampered such a legitimate position. Nowadays, even if regional territorial plans are approved, they primarily concern environment protection, and they set non-binding guidelines, then re-specified in more detail at the provincial scale, for local urban development. It remains to be seen whether they will effectively restrain local governments’ choices over development, as one of the interviewee at the regional scale stated:

the regional territorial plan was approved only some years ago [2010; see tab. 7.17], and it gives directions, which are adopted by provinces, which in turn have the task of governing the development strategies of local governments. However, if there is no cooperation among municipalities [i.e. supramunicipal cooperation] there will never be an urban form defined by territorial planning.

The regional government, being unable to produce legally binding documents for municipalities regarding land management, bets on (voluntary) supramunicipal coordination, which it tries to facilitate, although with few results.

In terms of land bargaining, regional plans suffer from the same weakness as the provincial plan, as they are similarly incapable of tackling the municipal bargaining over land given the competences over urban planning that the local scale holds. One of the interviewed regional officials stated that:

planning power, planning implementation, is still in the hands of local governments. With instructions, but just instructions, coming from the territorial regional and provincial plans. (...) We try to limit the power of municipalities. (...) The municipality rationale is related to the idea that they are the center of the universe. (...) hence they try to adopt territorial marketing strategies. (...) They see their municipal areas as a bargaining opportunity for territorial marketing. (...) At best the Lombardy region tries to orient development with guidelines, protection laws, development regulations, and at best the provinces increase the level of detail of these guidelines, and at best the municipalities

become aware that they are not an entity on their own, but that for certain topics they need a dialogue with the surrounding municipalities.

Despite the fit in in-between scale bargaining dynamics that the regions have consolidated after their establishment and especially after the 2001 constitutional reform (see sec. 7.4.2.1), the regional governmental scale still lacks those within bargaining competences that would effectively bind municipalities' urban plans. Hence, with regard to land bargaining competences, the Lombardy region remains an institutional scale whose potential has still to be exploited.

However, with regard to land consumption, the Lombardy regional government has started innovative governance tools to guide urban planning and to foster land containment, more substantially hinging on its competences on territorial environment protection. Through the recent establishment of a regional, longitudinal database on land uses, the DUSAF (see sec. B.2), and the reporting of land consumption (i.e. land use transformation from open and agricultural land into urbanized soil) by municipalities to the regional government, the latter could more stringently make local governments accountable for their decisions over land. However, the role of the Lombardy region as a governance scale. with room for action on land management strategies. seems to have just started and remains complex, given the future emergence of the Milan metropolitan authority (see supra).

## Stakeholders

The stakeholders interviewed in this dissertation belong to the building constructors' association (AssimpredilANCE) of the Milan, Monza and Lodi provinces. The territorial extension of stakeholders' scale is indicative of the powerful role they exert over the metropolitan territory of Milan. Founded in 1969, this territorial association currently includes approximately 600 small and medium size building companies and builders suppliers<sup>65</sup>. The analysis of in-between and within scale bargaining dynamics revealed that their role has been consolidated over time, and that they are active in lobbying initiatives and in public-private partnerships with regard to land management.

In the first place, the capacity of stakeholders to act as a governance scale is especially determined by their lobbying initiatives, as in the case of Barcelona. For instance, one of the interviewees of the building constructors' association of the Milan, Monza and Lodi provinces (ANCE) clearly stated that the association lobbied in the writing of the regional law no. 12, highlighting the connections, cooperation and negotiation between public and private actors in defining territorial management and planning regulations. They lobbied in particular with regard to the impact of *perequazione* (see sec. 7.4.2.2). As mentioned above, the *perequazione* is a mechanism that allows building rights to be 'displaced', hence a constructor that owns building rights in peri-urban areas can potentially claim to have those rights in Milan city center<sup>66</sup>.

One of the interviewees at the ANCE underlined how this principle is just, as it is a compensation for the 'changing of the rules' process put into place after the approval of the 2005 regional law. This law accentuated the territorial efforts on land containment required by provinces and municipalities, and had the result to substitute the municipal *Piano Regolatore Generale* (PRG) with the *Piano di Governo del Territorio* (PGT), modifying the previous

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<sup>65</sup>In the last three years, the number of the associates decreased considerably (over 50%) because of the economic crisis.

<sup>66</sup>For a discussion on the principle of *perequazione*, cf. Indovina (2012, p. 275–284); in this dissertation, it is treated only in broad terms, as a complete understanding of this mechanism would require an analysis on its own for its complex legal and planning assumptions.

agreements on ‘how’ and ‘where’ urban growth is possible (see sec. 7.4.2.2). The regional law basically stated that the legally acquired building rights over land property had to be calculated in cubic meters, and separated from specific land plots. If, on the one hand, this strategy allowed the protection of open and agricultural areas, where previous urban plans conceded the right to build, on the other hand, it ‘compensated’ builders and real estate developers to move those building rights to other developable areas within Lombardy. In this way, if a builder or a real estate developer wants to urbanize an area according to a municipal plan, they have first to accumulate sufficient building rights to carry out the operation on those land plots identified by the local administration.

The *perequazione* has been the mechanism agreed between stakeholders and the regional scale to find a compromise between the need to avoid and reduce land consumption, and hence urban sprawl, and the established building right of stakeholders to exploit land rent. It is a compromise because, as one of the interviewees at ANCE admitted, stakeholders such as

builders and real estate developers, are also the land owners... got it? Because I mean, land is for us the raw material.

When land plots are acquired by stakeholders, it is in the hope (or on the promise) that, one day, the city council will finally decide to urbanize the land. When building rights are acquired, they cannot easily be canceled by municipalities. Hence, *perequazione* is a compromise because it allows local governments, in compliance with regional plans, to be more ‘virtuous’ and protect open and agricultural land, but also to guarantee stakeholders their profits.

Interviews with stakeholders in Milan emphasized how developable land is bargained with city councils, specifically with the mayor. Indeed, as Indovina (2012, p. 234) reports, the urban plan becomes the ‘execution plan’ of an individual mayor, who discretely defines land management strategies for urban development in ‘his/her’ municipality.

*Perequazione* tries to solve the problem of the territorial land use transformation ‘piece by piece’, through micro-transformations, pulverizing urban planning over the territory. One interviewee working at ANCE effectively described urbanization processes in Milan as self-forming, similarly to what happens when water simply fills in the ‘empty spaces’ of soil when it flows, hence highlighting the absence of any real plan to regulate this expansion. Similarly, one of the interviewees at the provincial level reported that:

land is considered as a resource; the real estate developer buys many land plots, and then starts to build in a place first and then keeps on building, little by little.

However, critics to the mechanism of *perequazione* argue that spatial planning is ‘reduced to a mere tool to manage [private] building rights’ (Boatti, 2013). In the particular case of Milan municipality, the Piano di governo del territorio (PGT) of Milan is the outcome of the political incapability (or will) of Milan administration to look beyond its administrative boundaries; which is even more serious in the case of Milan as it does not take up the responsibility over its metropolitan and regional area of influence (Boatti, 2013; see *supra*).

In the second place, stakeholders have been able to employ public–private partnership (see sec. 4.4) to give their associates efficient tools to ‘act’ on the Milan, Monza and Lodi provinces. In cooperation with the Milan municipality and the Lombardy region, this building constructors’ association (AssimpredilANCE) has implemented an ICT tool (called ‘e-mapping’), where associates can check the emplacement of developable areas and brownfields to transform,

together with the location of transport infrastructures and other services (e.g. schools, hospital), and the demographic composition of the people living in an area. Such a privately owned tool has been the result of an exchange between the building constructors' association of the Milan, Monza and Lodi provinces with public administrations: the former could access relevant data on transformation areas, the latter (the Milan municipality, the Lombardy region, and the PIM) obtained updated and geo-referenced cartography.

In addition, having been able to open a dialogue also with Legambiente, one of the most famous environmental associations in Italy, builders are now concentrating on consolidated urbanized areas through land reconditioning and restoration initiatives. As in the case of Barcelona, restoration and transformation of brownfields are the new *motto* for builders and real estate developers; one of the interviewees of such an environmental association recalled that:

in one of our meetings, builders admitted that, as we all know anyhow, the houses they built in Milan in the 1970s, 1980s, 1990s and 2000s are terrible. I mean, they are absolutely aware of the speculation activities they did, and even that they have raised very low quality buildings.

Having speculated before, now it is time for stakeholders to go back to the city and find other ways to make profit; restoration is one of them. Public-private partnerships are the project-oriented tools through which such initiatives are possible (see sec. 4.4).

However, one interviewee of the ANCE also downplayed the role of the association as governance scale with regard to land consumption and urban sprawl, by stating that builders are not philanthropists and that their prime goal is profit, however within a normative frame. This interviewee claimed that the pressure put upon stakeholders to be 'green, sustainable, and low land consumers' opposes other requests, coming from public institutions as well, to create economic wealth and jobs. However, such requirements being in opposition (see the concept of 'sustainability fix' discussed in sec. 2.4), the interviewee concluded that builders need to be involved in lobbying actions with governmental actors to find acceptable compromises to be 'green' and also profitable. As in the case of Barcelona, lobbying keeps being an important component of stakeholders' initiatives with regard to land management strategies.

### **National scale**

In terms of in-between scale bargaining dynamics, the unsuccessful attempts to promulgate a new land use law that would have substituted the 1942 law are clear hints of the weak role performed by the state to manage the land. Although regulations have certainly improved, and modifications to the existing laws have enhanced the normative framework of reference for land management and allocation, in terms of in-between bargaining dynamics, the national scale has never exerted that supervisory and regulatory role over the national landscape as established by the Constitution. In addition, the establishment of regional governments weakened its role, as land management competences were transferred, hence also within bargaining dynamics debilitated the role of the national scale.

As a consequence, and as a synthesis of the analysis of in-between and within scale bargaining dynamics over land management, it can be stated that land management strategies in Italy have been performed by considering the territory, and hence land, as the sum of individual, private goods (Mazzette, 2011b, p. 38).



### **International scale: sustainability issues**

The fieldwork has highlighted how concerns over land consumption, urban sustainability and urban sprawl have been acknowledged by all institutional levels, stakeholders included. Innovative strategies put into place by the provincial or regional government, as discussed before, such as mechanisms to account for land use transformation of open agricultural areas, have successfully made local governments aware of the loss of resources and the risks connected with urban development. The transformation of an agricultural area into a dispersed residential area is now carefully examined, at least concerning the evidence collected for the Milan case, as expected gains do not always materialize for municipalities.

The fact that territorial regional and provincial plans are not legally binding for land management strategies concerning urban transformations, but remain limited to environment protection, open up room for political negotiation and bargaining over land management, with regional and provincial officials emerging as key figures for the protection of open and agricultural land. Furthermore, the fact that such territorial plans have been issued in the last 15 years converts them into innovative tools that adopt a ‘European’ sensitivity on environmental protection, sustainable growth and city compaction (see sec. 2.4). However, these plans have just begun to be applied; territorial, provincial and municipal plans in the Lombardy region all are planning tools that have been in force for less than 10 years. This fact does not imply that in Italy there has not been any environmental awareness or a ‘sustainable thumb’; Settis (2010) extensively examined the advanced Italian normative framework on environmental and landscape protection already present since the 19th century.

The problem seems to have been related to in-between and within scale bargaining dynamics over territorial competences: a weakened national state, late-coming regions and residual provinces, whose roles have been re-arranged by the recent constitutional reforms in 2001, could not contrast the powerful role that local governments (and private national and international actors; see sec. 8.2) have performed with regard to land bargaining since 1942.

### **7.4.3 A reference table**

The following table 7.17 summarizes the main planning regulations and laws most of which have been covered in the previous sections on Barcelona (sec. 7.4.1) and Milan (sec. 7.4.2).

**Table 7.17:** A reference table of plans and planning regulations for Barcelona and Milan. Author's elaboration.

Barcelona		Milano	
1859	Cerdà's urban expansion plan (Eixample)	1889	Beruto's urban expansion plan
		1939	Bottai's law on 'landscape-territorial' plans
		1942	Italian urban planning law
1953	Establishment of the Comisión Comarcal de Barcelona		
1953	Barcelona Pla Comarcal	1953	Bottoni's urban plan
1956	Spanish planning law		
1960	Replacement of the Comisión Comarcal de Barcelona by the Comisión de Urbanismo y Servicios Comunes de Barcelona y Otros Municipios (CUSCBOM)		
		1961	Institution of the Piano Intercomunale Milanese (PIM)
		1962	Sullo's proposal for a new land use and urban planning law
		1963	Proposal for a supramunicipal plan for Milan
1964–1968	Barcelona 'plan director'	1967	Approval of the supramunicipal plan for Milan ( <i>Progetto generale di piano</i> )
		1968	Decrees no. 2 and no. 1444 on the definition of general planning standards
		1970	Institution of regional governments
1974	Renaming of the Comisión de Urbanismo y Servicios Comunes de Barcelona y Otros Municipios (CUSCBOM) with Corporació Metropolitana de Barcelona		
1974	Official draft of the Barcelona metropolitan plan	1970–1975	Decentralization and devolution law (state-regions)
1975	Spanish land policy law	1975	Changing of the PIM into a 'metropolitan' comprensorio for Milan
		1975	Proposal for a metropolitan plan for Milan ( <i>Piano Territoriale Comprensoriale per l'area milanese</i> )
1976–1982	End of dictatorship and democratic transition		
1976	Barcelona general metropolitan plan (PGMB)	1977	Decentralization and devolution law (state-regions)
		1977	Bucalossi law on land use regime
1978	Institution of regions (Comunidades Autónomas)		
1980...	Jordi Pujol as Generalitat President	1980	Milan urban plan (Piano regolatore generale, PRG)
1983	Catalan planning law no. 23 on territorial planning	1983	Illegitimacy of Bucalossi law on land use regime

Continued on next page

**Table 7.17 – continued from previous page**

Barcelona		Milan	
1987	Law no.7. Re-establishment of Cormarques and abolishment of Corporació Metropolitana de Barcelona	1987	Regional law no. 23 abolished the PIM as <i>comprensorio</i> transforming it into a research center
1986–1992	Urban interventions and projects for the Olympic Games		
1990	Catalan decree no. 1 on planning	1989	Law no. 183 for soil protection
1992	Olympic Games	1990	Territorial laws (legislazione di area vasta)
1995	General regional plan for Catalonia (PGTC) and definition of the <i>àmbits</i>	1994	Mazza’s plan proposal for a ‘metropolitan’ Milan
1998	Spanish law on land assessment		
		1999	Provincial territorial coordination plan (PCTP)
2002	Catalan law on planning	2000	Approval of Mazza’s proposal for Milan metropolitan plan
... 2003–2011	End of the ‘Pujol era’ and beginning of the left coalition (Tripartit)	2001	’Titolo V’ Constitutional reform
		2003	Update of the provincial coordination plan (PTCP)
2006–2010	Approval of <i>àmbits</i> territorial plans	2005	Lombardy regional law no. 12 on territorial planning
2010	Barcelona territorial metropolitan plan (PTMB)	2010	Lombardy regional territorial coordination plan (PTCR)
		2011–2012	Milan urban plan (Piano governo del territorio, PGT)
		2013	Update of the Lombardy regional territorial coordination plan (PTCR)
		2013	New provincial territorial coordination plan (PCTP)
		2014	National law no. 56 on the conversion of provinces into metropolitan bodies

End of Table 7.17

# Chapter 8

## Discussion and conclusions

### 8.1 Conclusions

By looking at the data on territorial dispersion presented in Chapter 6, the first conclusion that can be put forward on the examined territorial dispersion patterns of residential areas is that the Barcelona case is relatively less dispersed than that of Milan. The examination of urban sprawl through different spatial scales (administrative and metropolitan boundaries, Larger Urban Zones, Urban Morphological Zones, NUTS 3 level or provinces; see sec. 6.1), and for a period of over 50 years employing a diversity of data, has proven fundamental in reaching this conclusion; however, it also made it more complex.

While the built-up form in Barcelona and Milan municipalities maintains a rather compact character, de-industrialization processes have been at work, and urban functions, such as industrial and commercial areas, but also housing, are ‘outsourced’ to the adjacent municipalities within their metropolitan areas.

Specifically focussing on residential areas, it is reasonable to state that the land use data presented in Chapter 6 are evidence that, during the 1950s–2000s period, in the two considered case studies, Barcelona and Milan, there has been a process of residential expansion beyond their respective administrative boundaries. However, if discontinuous residential areas are more consistently found in their metropolitan areas, a comparison between the Barcelona and Milan cases shows how the latter presents, both in absolute and percent values, more discontinuous areas than in the Barcelona case. Such conclusion is confirmed by considering a variety of scales (e.g. municipal, metropolitan and provincial), over recent land use dynamics (1950s–2000s and 1990–2006). It can thus be suggested that, comparatively, Milan presents more dispersed residential areas than Barcelona, despite both cases showing discontinuous residential areas have substantially increased over the considered timespans and have similarly embrace their metropolitan regions.

Evidence has shown that, over the 1950s–2000s timespan, in the Barcelona case, for its metropolitan area (AMB) and region (RMB), transport infrastructures seem to be related more to the development of industrial and commercial areas, than with the expansion of discontinuous residential areas. The enlargement of port and airport facilities suggests that the Barcelona area is heavily investing in its role as a logistic hub at the European level. On the contrary, the Milan case and its metropolitan area, discontinuous residential areas, and industrial and commercial areas as well, appear to be strongly linked with the growth of roads and railway infrastructures. Together with these different patterns of metropolitan development, another distinctive feature between the two case studies is that continuous residential areas substantially characterize the built up forms of Barcelona metropolitan area and region (22,5% and 15,4%, see tab. 6.2 and 6.3), while they do not go beyond 12% in the Milan metropolitan area, and in the Milan and Monza provinces (see tab. 6.6 and 6.7).

Such a conclusion is also confirmed by analyzing comparable land use data of the Corine Land Cover (CLC) 1990, 2000 and 2006 surveys for both cities (see sec. 6.2.2). The built-up form of the Barcelona case shows less discontinuous residential areas (around 25% in the Barcelona LUZ, and around 40% for the Barcelona UMZ and province; see tab. 6.11, 6.13 and 6.15), the increase in transport infrastructures arguably being more connected with the growth of industrial and commercial areas. In the Milan case, transport (mainly roads and railways) facilities appear to be connected with the growth of discontinuous residential areas, whose share is over 60% in the Milan LUZ, UMZ and province (see tab. 6.12, 6.14 and 6.16), and also of industrial and commercial areas.

Such evidence demonstrates that the hypothesized link between the growth of discontinuous residential areas and transport infrastructures can be confirmed more clearly in the case of Milan. Instead, the Barcelona case more directly indicates that the increase in transport infrastructures is connected with the development of industrial and commercial areas. Furthermore, the fact that the Barcelona case presents more continuous residential areas also supports its relative compactness, suggesting a different territorial dispersion process, than the Milan case: in 2006, the Barcelona Larger Urban Zone (LUZ) presents 31,1% of continuous residential areas, this value being only 7,2% in the Milan LUZ (see tab. 6.11 and 6.12); the Barcelona Urban Morphological Zone (UMZ) shows 38,5% of continuous residential areas, this value being 5,9% in the Milan UMZ (see tab. 6.13 and 6.14); and the Barcelona province (NUTS3 level) presents 29,3% of continuous residential areas, this value being 6,3% in the Milan province (see tab. 6.15 and 6.16).

In section 7.1, the examination of the presented demographic data for the 1981–2011 timespan shows how there is a connection between demographic concentration and the occurrence of urban sprawl. More than the population relative variation over the considered period, the proportion of the population residing in different territorial scales as compared to the total inhabitants living in Catalonia or Lombardy has proven useful to single out a general link between demography and land use data. A combined consideration of demographic data with data on land use transformation reveals that in the Barcelona case, residential built-up forms appear to be less dispersed (–) than in Milan case, with a more concentrated population (+); conversely, discontinuous residential areas within the Milan built-up form are more diffused (+), and the population is less concentrated (–). The residential areas in the Barcelona case being less dispersed, the Barcelona municipality concentrates 21,4% of the total Catalan population; the Barcelona Metropolitan Area (AMB) concentrates 42,8%, the Barcelona Metropolitan Region (RMB) 63,5%, and the Barcelona province 73,4% (2011 data). In contrast, the built-up form in the Milan case being characterized by a higher amount of dispersed residential areas, the Milan municipality holds 12,8% of the total population in Lombardy, the Milan metropolitan area (PIM) 25,7%, and the Milan province concentrates 31,3% (2011 data). Hence, there seems to be a connection between a less territorial dispersed pattern of residential areas with demographic concentration in the Barcelona case, and between a more territorial dispersed pattern of residential areas with demographic dispersion in the Milan case.

However, this finding does not explain why the population is more concentrated, and why residential areas are less territorially dispersed in the Barcelona case than in Milan's. Which could be one of the reasons why the residential population is more concentrated in the Barcelona case than in that of Milan?

In section 7.2 it has been discussed how administrative fragmentation at the municipal level seems to play a role, as the less dispersed patterns of residential areas in the Barcelona case can be related to less municipal fragmentation, regardless of municipal size. On the contrary,

the Milan area being more fragmented, a possible connection between a higher municipal fragmentation with the growth of discontinuous residential areas can be suggested. A higher demographic dispersion in the Milan case can thus be due to more administrative fragmentation than in the Barcelona case. It can be put forward that the less territorially dispersed pattern of residential areas can be related to a more contained municipal fragmentation, notwithstanding municipal size, registered in the Barcelona case as compared to the Milan case. As an overall tendency, it can be concluded that the more administratively fragmented a territory is, the more likely urban sprawl becomes.

However, such evidence and conclusions still do not explain how and why administrative fragmentation interacts with more territorially dispersed patterns of residential areas.

For that purpose, the use of a territorial, multi-scalar governance framework, combined with the bargaining context model (see sec. 4.8), has proven to successfully single out those governance dynamics related to land management that can explain the more dispersed character of residential areas in the Milan case compared to the Barcelona one. Such an analysis has been carried out in sections 7.3 and 7.4.

By applying the bargaining context model framework proposed by Kantor and Savitch (2002, 2005), it can be concluded that Barcelona and Milan share similar, yet different characteristics in terms of the four resources (i.e. market conditions, intergovernmental support, popular control systems and local culture) identified in such a model. Barcelona and Milan seem to share a similar bargaining advantage in relationship with driving variables, namely market conditions and intergovernmental support, while they seem to differ more in terms of steering variables, that is popular control systems and local culture. Barcelona appears to have stronger steering variables, as public control systems and local culture are more consolidated and more effective at steering urban development, which allows Barcelona to occupy a more 'social centered' bargaining position than in the case of Milan. Overall harvesting a greater benefit for the city, the influence of more effective and 'social centered' steering variables has been particularly evident during the 'Barcelona reconstruction period' (*la reconstrucción de Barcelona* of the 1980s and 1990s (Degen, 2008; Degen and García, 2012; see sec. 7.3), embodied in the innovative, although criticized, 'Barcelona model' (cf. Capel, 2005).

Hence, it can be concluded that the observed evidence on the less dispersed character of residential areas in the Barcelona case as compared to the Milan case can be related to the stronger role that steering variables (i.e. popular control systems and local culture) have on land management choices performed by actors. Conversely, a more sprawled character of residential areas characterizing the built-up form of the Milan case can be attributed to the weaker role that the steering resources, in the Kantor and Savitch' model, play in guiding the political decisions taken relative to urban development processes.

The Kantor and Savitch (2002, 2005)'s bargaining context model is thus effective in singling out the structural conditions in which 'cities' find themselves deciding over urban development. In particular, this model has proven useful in predicting the tendential land management strategies to be expected in the two different contexts: sharing a similar position in terms of market conditions and intergovernmental support, Barcelona and Milan differ in terms of the influence of steering variables (i.e. local culture and public control systems), orienting Barcelona towards a more socially centered urban development choices, among which the more contained territorial dispersion patterns of residential areas can be included as a result.

However, as mentioned in section 4.8, an enhanced housing model has been put forward to improve some of the drawbacks of the bargaining context model. In the proposed model,

actors are looked upon from a territorial, multi-scale perspective. In sections 7.4.1 and 7.4.2, the proposed theoretical model has been adapted to the two case studies considered in this dissertation (see tab. 7.15 and 7.16), by particularly focussing on the interactions between private and public actors at the meso level, i.e. the ‘gatekeepers’ (cf. De Decker, 2011a; Pahl, 1975a,b), within a territorial, multi-scale governance framework (Brenner, 2001; Gualini, 2006a,b; Martinelli et al., 2013; Smith, 1995; Swyngedouw and Jessop, 2005).

### **In-between and within scale bargaining dynamics in Barcelona**

Since the 1950s, there have been attempts in Barcelona to regulate territorial dispersion patterns of urbanized areas, in particular of dispersed residential areas. More importantly, such attempts have occurred at a supramunicipal scale. The 1953 Plan Comarcal of Barcelona is a key tool in such a trajectory: although territorially limited to 27 municipalities, it has been a concrete attempt to regulate the spatial planning and land management strategies in the area immediately surrounding Barcelona. The Plan Comarcal issued and approved during the dictatorship, when land consumption was a diffuse and unregulated practice, stands out as an innovative tool in an attempt to direct urban development and contain the spreading out of dispersed residential areas. Similarly, the 1976 ‘metropolitan’ plan for Barcelona, however comprising 27 municipalities, updated and re-elaborated the commitment that the Comisión Comarcal, later renamed as Corporació Metropolitana de Barcelona, took over with regard to the spatial development of the Barcelona area. In the making of the 1976 plan, the planners Serratosa and Solans, and their collaborators at the Corporació Metropolitana de Barcelona, have been key figures in bringing the plan to light and in facilitating a relative political consensus among the involved municipalities, consolidating political practices over territorial management that would have then been developed under the newly constituted (1978) Catalan regional government (Generalitat).

Such plans have to be nevertheless considered transient expressions of in-between and within scale bargaining dynamics in the Barcelona context. In terms of in-between scale bargaining dynamics, local governments (i.e. municipalities) maintain their solidity, and hold the greater competences over spatial planning, i.e. the power to propose and approve of urban plans. It is interesting indeed to note that the Barcelona municipality never approved either the 1859 Cerdà enlargement plan, or the 1953 comarcal and 1976 ‘metropolitan’ plans (Serratosa, 1997); this shows the reticence of local governments, even (and probably especially) in the case of Barcelona, to adapt to supramunicipal plans coming from other territorial governance scales.

The provincial level (*Diputació*), although performing a crucial role for providing consultancy and technical services to municipalities, even fostering supra-municipal coordination, does not have any formal competences, its role being residual; the in-between and within ‘position’ of the provincial level as a scale is rather weak. However, it withstands re-scaling processes, as in the case of the possible substitution of the Diputació with the *comarques* scale. Nevertheless, as has been shown, it performed a key role in identifying, measuring and analyzing urban sprawled areas within the Barcelona province, in an attempt to propose solutions to the problems of environmental, social and transport costs that urban sprawl areas presupposed for local municipalities.

It is yet the metropolitan and regional scales that, in the case of Barcelona, appear to be relevant for the containment of sprawled residential areas. In terms of in-between scale bargaining dynamics, the metropolitan body went through clear processes of re-scaling, singled out by its renaming in 1960 and 1974, and its substitution by a territorial metropolitan body after the abolishment, in 1987, of the Corporació Metropolitana (see tab. 7.15 and 7.17).

Such evolutions explicitly indicate the dynamics of in-between re-scaling, where processes of scale re-definition are crucial in the emergence, consolidation or disappearing of governance scales. The establishment of the Barcelona Metropolitan Area (AMB) and Region (RMB, that is the Àmbit Metropolità de Barcelona following the 1995 Catalan spatial planning law), replacing the former metropolitan body (Corporació Metropolitana), are evidence of the commitment, in the Barcelona case, to manage and optimize supramunicipal resources, services and planning. In terms of in-between scale bargaining dynamics, the metropolitan body extended its influence over a larger territory (36 municipalities for the AMB, and 164 for the RMB) than the previous Corporació, and, in terms of within scale bargaining dynamics, the metropolitan body has seen its role strengthened in terms of competences not only over spatial planning, but also housing, environment, mobility and economic development. The RMB spatially encompassing the AMB, yet the former is still not yet established as a proper institution, while the AMB has already been formally recognized as an authority on its own.

However, the re-establishment of the metropolitan body through the AMB and the RMB has been orchestrated by the Catalan region. The 1983 and 1987 laws, together with the 1995 plan for the Catalan territory, have been the normative tools through which the Catalan government (Generalitat) has taken control over the Barcelona metropolitan area<sup>1</sup>. The historical conflict between Barcelona and the Catalan government (García, 2003) has been resolved, concerning land management issues, by bridling Barcelona within the Catalan legislation and plan over territorial planning, and through the approval, in 2010, of the Barcelona ‘territorial-metropolitan’ plan (PTMB), in compliance with the 1995 territorial plan for Catalonia. If, before, the implementation of the 1976 plan was facilitated by the fact that the mayor of Barcelona was also the president of the Corporació metropolitana (García, 2006, p. 345), after the abolishment of the Corporació, the Generalitat consolidated its role with regard to territorial and spatial planning leading the process of approval of the 2010 plan. However, it must also be remembered that territorial planning laws have been fostered by the right-wing party CiU (*Convergència i Unió*) in an attempt to centralize land management at the Catalan regional level, as a functional strategy to strengthen a top-down approach on territorial policies, such as in the case of cultural policies (Rodríguez Morató, 2008). The left-wing coalition that ruled Catalonia between 2003 and 2011 took stock of, and elaborated on, the strengthened role of the regional government ‘completing’ the territorial planning structure by fostering the approval, within their political term, of the 7 *àmbits* territorial plans (see sec. 7.4.1.2).

In Catalonia, the regional government performed a significant role concerning territorial and spatial planning. This is not only due to an advanced national legislation on land use planning and management (national 1953 and 1975 laws), but also because of a more diffuse local culture on land management. With the re-establishment of democracy, the illegal and low density occupation of the Catalan territory, given the previous poor enforcement of existing plans, came to a halt by means of the 1976 Barcelona metropolitan plan and the commitment by the regional government to endorse Catalonia with a proper territorial legislation, resulting in the 1983 and 1987 laws. There has been a cultural reaction to the senseless land management during 1950s and 1970s, giving the regional government political room for action in working with the municipalities to reduce land consumption and to enforce urban development plans.

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<sup>1</sup>The ‘taking over’ of metropolitan responsibilities by the Generalitat, officially defining the Barcelona metropolitan delimitations (the AMB and the RMB areas, see sec. 6.1), did not seal its ‘ultimate’ territorial scale definition; rather, such a boundary demarcation is at times contested (in-between scale bargaining dynamics), as discussed in section 7.4.1.2.



Concurrently, the approval of the metropolitan plan for Barcelona in 1976, despite including only 27 municipalities, reveals a strong ‘metropolitan culture’, where politicians and planners debated over the crucial role that Barcelona, for its large metropolitan and regional influence, played and should have played at the supramunicipal level. The Catalan territorial planning regulations took over this legacy and tried to harmonize the role of Barcelona as a municipality within the wider vision for Catalan territorial development. Furthermore, the fact that the Generalitat has the last word in the approval of the urban plans submitted by local governments, reinforces its competences and role in terms of within scale bargaining dynamics. The devolution of competences over spatial planning in 1978 by the democratic Spanish state consolidated the Generalitat as a scale, both with regard to in-between and within scale bargaining dynamics<sup>2</sup>.

The interviewed stakeholders highlighted the key function they perform(ed) in the material construction of the built environment in Barcelona. However, the interviewed representatives of the considered stakeholders did not openly take responsibility for illegal soil occupation and the low quality housing stock as heritage of the 1950s–1970s decades, differently than what has been discussed for the case of Milan. Conversely, the associations of real estate developers and building constructors emphasized their current commitment to ‘city building’: the aim is to maintain profitable economic activities, while respecting laws and regulations, which have increased and made real estate promotion and building activity more complex. Lobbying is thus the main activity performed by the two associations in the attempt to mould legislation according to their associates’ interests. So far, nothing new; however, restoration, especially of historical buildings within Barcelona city center, emerges as an activity increasingly involving stakeholders (building constructors and real estate developers); while the high pace of construction activity saturated the housing market in the metropolitan area and region, resources ‘return’ to the city and make Barcelona city center a new business opportunity for stakeholders (Feinstein, 2001; Martinotti, 2005; Urry, 1995; Vicari Haddock, 2004, ch. 4).

At the national level, the 1956 and 1975 laws constitute a sound normative framework allowing the Generalitat to improve and consolidate spatial and territorial planning. The recent 1998 national law, aimed at ‘freeing’ considerable amounts of developable land in the market, could not substantially undermine the solidity of the previous legislation (1956 and 1975) on land use, besides its incapability of tackling the stringent Catalan laws on spatial planning. In terms of in-between scale bargaining dynamics, the devolution of exclusive competences on territorial planning to the regions and of urban planning to the municipalities strengthened the supervisory role of the national scale, which identifies general rules and procedures on land use and property management as its main residual competences on land management in terms of within scale bargaining dynamics.

Finally, from the fieldwork it emerged that sustainability has to be pursued over the metropolitan territory, in particular through strategies of polycentrism, which seems to be the key principle for territorial and urban planning in the area. Although ‘city compactness’ has become a powerful catchword for Barcelona, the municipalities included in its metropolitan area of influence cannot be considered as compact. However, efforts have been made, following the 1975 national law and the 1995 Catalan territorial plan, to build dense, new urban development in morphological continuity with the already consolidated urbanized areas. In Catalonia, it can tentatively be put forward that there has been a political commitment to transform sustainable development directions into concrete planning regulations in order to

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<sup>2</sup>Probably, the ‘metropolitan culture’ found in Barcelona could also have been consolidated by the contrast with the Spanish central government, fostering the emergence of a ‘Catalan’ planning culture, consolidated by the competences devolution in 1978 with regard to territorial and urban planning to regional governments.

foster land containment, at least on paper.

It can thus be concluded that the less dispersed character of the built-up form in the Barcelona case with regard to residential areas is substantially related with a more incisive role in land management issues performed by the metropolitan body, yet *in combination with* the Catalan regional government.

### **In-between and within scale bargaining dynamics in Milan**

In the Milan case, the 1942 national law being still in force, local governments do the lion's share with regard to land management. The local scale maintains a solid position in terms of in-between and within scale bargaining dynamics. Proposing and self-approving their urban plans, municipalities act solipsistically with regard to land management strategies, and the decision-making process over land cannot easily be tackled by higher governmental institutional scales.

The provincial scale remains, similarly yet differently to the Barcelona case, interstitial. In terms of within scale bargaining dynamics, before the 2001 constitutional reform the regional governments delegated to the provinces the control of the compliance of urban plans to environment protection laws. After the 2001 constitutional reform, the Milan province has strengthened its role as it can issue territorial coordination plans. However, such plans pivot around environment protection, and are not legally binding for municipalities with regard to urban development, on the condition that urban plans are compliant with environment protection laws.

Moreover, the approval of the 2014 law no. 56 set in motion a re-scaling process where the Milan province, among others, will be re-arranged in the new metropolitan authority. However, the 'recycling' of the provincial scale into the new metropolitan body remains a complex and uncertain matter.

The regional scale occupies, as already discussed in section 7.4.2.3, a similar position to the provincial scale. First of all, there is a clash between the regional governments and the national scale with regard to competences over environment and landscape protection. The 1970, 1975 and 1977 laws on state-regions decentralization did not solve the overlapping share of competences upon territorial management and governance (*governo del territorio*).

Second of all, before the 2001 constitutional reform, the regional government received the urban plans issued by the local authorities and controlled, with the cooperation of provincial governments, their compliance to national and regional environment and landscape protection laws. After the 2001 constitutional reform, one of whose aims was to strengthen subnational governments (in-between scale bargaining dynamics) with regard to competences over territorial management (within scale bargaining dynamics), the regional governments strengthened their governing role, shifting from an 'ente di controllo' to an 'ente di governo'. With regard to land management, the 2001 constitutional reform compelled regions and provinces to be endowed with proper territorial strategies and plans. In compliance with the 2001 constitutional reform, the Lombardy region promulgated the 2005 law no. 12 on territorial management, initiating a process of enforcement of the territorial regional (PTCR), provincial (PTCP) and local plans (PGT).

Nevertheless, such an effort did not tackle one of the core problems of Italian planning tools: the predominance of the local scale on land management. Hence, it seems that names have changed and new (and much needed) plans have been issued and updated, but the in-between and within scale bargaining dynamics remain almost unchanged. The regional and the provincial governments having competences on environment and landscape protection,

they cannot orient the urban development choices of local authorities, sheltered under the 1942 law. Moreover, the 2001 Constitution reform put at the same level the state, the regions, the metropolitan cities, the provinces and the municipalities, making within scale bargaining dynamics over land management even more complex and confused (Settis, 2010).

In Italy, the premises for reconstruction introduced by the 1942 law established a ‘municipality regime’, where it is very difficult to limit, change and regulate local governments’ decisions over land. Localized decisions over planning make urban transformations proliferate, leading to a ‘self-forming’ and uncontrolled urban expansion, sheltered by a permissive national legislation on land use planning conceived to promote post-war recovery. While there is a diffuse recognition that the 1942 national law needs to be updated, its late implementation allowed, in the 1950s and 1970s, the consolidation of land consumption practices, many of which are outside any type of planning regulation, later legalized through building amnesties in 1985, 1995 and 2003. The approval of urban plans, the establishment of the regional governments (1970s), the late approval of territorial regional and provincial plans after the 2001 constitutional reform, could only *a posteriori* act on a territorially dispersed built-up form in the country, especially with regard to housing areas.

In such circumstances, the emergence of the Milan metropolitan scale has not been easy. Both in terms of in-between and within scale bargaining dynamics, the promising beginning in the 1960s of the Piano Intercomunale Milanese (PIM) and its consolidation in the 1980s could have led to a reinforcement of the metropolitan scale. The establishment of the PIM as a voluntary association across Milan and some of the surrounding municipalities indicated the presence of a ‘metropolitan sensitivity’ towards territorial management and spatial planning. From the 1960s throughout the 1980s, the PIM strengthened its competences by proposing and approving supramunicipal plans to optimize resources and service provision (within scale bargaining dynamics). However, the 1987 referenda and the 1990 territorial *area vasta* laws weakened its authority, ‘bringing back’ competences over territorial planning to regions, which, however, never fully took over such an assignment until 2000s.

It is relevant to note that, when the 1976 general metropolitan plan for Barcelona was approved, the PIM similarly proposed in 1975 a metropolitan plan for Milan, the *Piano Territoriale Comprensoriale per l’area milanese*, although never approved. The similar trajectories of both metropolitan bodies, since the 1950s, in the cases of both Barcelona and Milan, signal a comparable metropolitan understanding of the need to regulate urban development and land management strategies at a supramunicipal level. The 1976 plan and the 1975 plan proposal, by the Corporació Metropolitana and the PIM, respectively, similarly attempted to regulate and substantially reduce the overly optimistic growth expectations of municipalities, both in terms of productive and service areas and of housing. However, the Corporació Metropolitana and the PIM’s parallel paths separated in the 1980s. If, in 1987, the Corporació Metropolitana was abolished and replaced by ‘territorial metropolitan’ governance bodies orchestrated by the Catalan region (see sec. 7.4.1.3), the conversion of the PIM from a governing body (a *comprendorio*) into a research center was carried out without the Lombardy regional government or the Milan provincial government to ‘fill in’ this ‘void’. While in the Barcelona case, the region took the lead (top-down) of the ‘metropolitan issues’ posed by Barcelona, in the Italian case, the PIM was ‘set off’ and converted into a research center (in-between scale bargaining dynamics), limiting its competences (within scale bargaining dynamics).

The weakening of the in-between and within position of the PIM as a metropolitan scale has been possible because, as argued by Gualini (2003), and shown in the case of Milan (see sec. 7.4.2.3), the establishment of a metropolitan government tends to increase conflicts between state and regions, and regions and provinces, as the metropolitan scale is seen as a competitor

in in-between and within scale bargaining dynamics (i.e. re-scaling struggles). As a matter of fact, the proposal to ‘recycle’ the provincial scale as a metropolitan scale through the 2014 law 56 indicates the efforts made to downscale the metropolitan institution within an already established hierarchical system.

This is particularly important in terms of land management. As the weakening of the PIM as metropolitan scale in 1987 (see tab. 7.17) did not coincide with a simultaneous taking over by the Lombardy regional government (or the Milan province) of territorial planning, the ‘subsequent absence of corresponding regional institutions and forms of governance hinder[ed] the development of a region-based civil society and thus regional ‘civicness’ ’ (Bagnasco and Oberti, 1998, p. 162). The work carried out by the PIM for land containment and supra- and inter- municipal planning was left aside, and there was no clear commitment by the regional government to steer territorial development in a more coherent frame, as it happened in the case of Barcelona, until late 2000s.

The interviewed stakeholders in Milan emphasized lobbying as a crucial activity of their association. The builders’ association appears to be an important governance scale that has been able to consolidate in-between scale bargaining dynamics by establishing negotiations, dialogues and public-private partnerships with public institutions. Building activity appears to be related to real estate promotion, as the interviewees at the builder’s association of the Milan, Monza and Lodi provinces suggested that builders generally act in the territory through building *and* real estate promotion activities. In comparison to the Barcelona case, the associates of the builders association in Milan appear to operate both as builders and real estate developers, as building companies are generally also land owners. The newly implemented planning instrument of *perequazione* seems to be functional to stakeholders in contributing to land containment, while maintaining their interests in city centers, especially in Milan. Restoration of buildings within already urbanized areas, and urban renewal projects identified by the recently approved (2012) Milan’s *piano di governo del territorio* (PGT), become the strategy through which stakeholders act on the built environment. Arguably, *perequazione* strengthened their within scale bargaining dynamics, giving to the associates of the considered builders’ association more room for action in (centrally located) artificial areas.

In the Milan case, the debate on sustainability has been recognized and integrated in territorial planning by the regional and provincial governments, which try to direct urban planning towards more compact and less ‘land consuming’ management strategies decided by municipalities. Stakeholders have also acknowledged the need to be ‘more sustainable’, however they present the necessity to ‘be green’ as a political requirement whose actual feasibility is open to negotiation. For instance, having opened round tables also with environmental associations, stakeholders admit the need to renovate the housing stock constructed from the 1970s with more efficient buildings, however such commitment has to correspond to complementary incentives to builders’ to be ‘environmentally virtuous’. The regional and provincial governments holding competences over environment and landscape protection, they seem to be receptive to sustainability requirements made by the European Union. In recent years (since the late 2000s), under the umbrella of European regulations and discourses on polycentrism and sustainable development (see sec. 2.4), they have been able to more consistently propose initiatives and strategies for land containment, and to require their compliance from local governments.

The more dispersed character of residential areas in the Milan case can thus be related to the ‘de-activation’ of the metropolitan scale, and the incapacity of the Lombardy region or the Milan province to take the lead with regard to territorial land management issues. The

re-scaling struggles involving the regional, provincial and metropolitan scale ended up with a strengthening of in-between scale bargaining dynamics for the regional and provincial scales; however, within scale bargaining dynamics did not substantially change the competences that regions and provinces have on territorial management, leaving local governments (i.e. the local scale) almost entirely unmonitored on land management decisions. More specifically, despite local municipalities having to comply with the environmental regulations included in the territorial regional and provincial plans, their choices over land management recorded in their urban plans remain sovereign. The more dispersed character of residential areas in the Milan case can hence be related to the unrestricted power of the local scale, in terms of in-between and within scale bargaining dynamics, over land management strategies.

### **A (not so brief) synthesis...**

In sum, the different spatial dispersion patterns of residential areas in both the Barcelona and in the Milan cases can be explained by the role that the regional government played in connection with the metropolitan scale, and the legally binding approval of municipal plans characterizing the Catalan case compared to that of Lombardy. In the Barcelona case, the within scale bargaining dynamics over land management put into place by local governments are mediated, and mitigated, by a stronger role (in-between and within scale bargaining dynamics) played by the region, through the means of the approval of municipal plans and the re-establishment of the 'territorial metropolitan' scale, the Barcelona Metropolitan Area (AMB) and Region (RMB).

With regard to the hypotheses stated in section 5.2, hypothesis H1, relating to functional decentralization, can be considered confirmed, as there has been a decentralization of functions in both the Barcelona and Milan administrative and metropolitan areas. However, the connection between urban sprawl and transport infrastructures can be more clearly observed in the case of Milan.

Demographic decentralization patterns are also confirmed. Even though discontinuous residential areas have increased in both cases, in the Barcelona case the population is more concentrated, while in the Milan case it is more dispersed, mirroring the less dispersed character of residential areas in the former, and the more dispersed character of housing areas in the latter.

Hypothesis H2 is confirmed. As discussed in section 7.2, and as concluded above, in general less administrative fragmentation is a sufficient condition to observe a lesser spatially dispersed pattern of residential areas. The local scale (municipalities), being entitled to local urban planning, takes localized planning decisions over urban development, hence producing a scattered (and, in the case of Milan, a 'self-forming') territory. This confirms the acknowledgement that 'city councils play an important role in the structuring of modes of governance' (Le Galès, 2002, p. 228) with respect to land management strategies.

Evidence has proven that municipal governments bear the most prominent responsibility for urban sprawl, which consistently appears through the 'welding' and proximity of scattered and low-density residential areas. Urban sprawl consists of land use micro-transformations carried out to obtain a competitive edge with regard to the other municipalities located within the metropolitan boundaries.

Clearly in connection with the confirmation of hypothesis H2, hypothesis H3 is also corroborated. Hypothesis H3 specifies which mechanisms are set in motion by independent municipalities (i.e. how localized planning works) when urban sprawl is assumed to be an outcome of governance processes. The analysis of in-between and within scale bargaining

dynamics confirmed that, in the two case studies, medium and small local governments compete with adjacent municipalities within their relative metropolitan area to attract resources. The fact that small and medium size municipalities are located within a metropolitan area means that they have to struggle for resources, as they are within the radius of influence of the metropolitan center. Although housing preferences have an influence on urban sprawl occurrence, local housing provision stems from the individual negotiations between city officials and stakeholders in charge of building houses over certain land plots (developers and building contractors).

In turn, the Barcelona and Milan administrations, as metropolitan centers (and as a particular type of local governments) manage their bargaining powers differently. By referring to the bargaining context model (Kantor and Savitch, 2002), Barcelona and Milan, as dominant local authorities within their respective metropolitan areas, share a similar position in terms of their economic position and the intergovernmental support they can expect from higher level institutions: they are both post-industrial, wealthy cities, and, while state grants have been reduced over time, they can still count on a certain share of public resources from the centralized government. However, the Barcelona and Milan administrations have managed these economic resources differently: the type of urban development that has been materialized in the two cities is directed from contrasting values and cultures regarding land management. The stronger role of steering variables (i.e. popular control systems and local culture) supports the reasonable expectation, in the case of Barcelona, for land protection as a collective resource and service provision, rather than for sprawled residential areas.

Evidence shows how, in both cases, the local scale owns the greater amount of authority regarding land management, deciding on how to bargain land for development, and attracting a certain type of inhabitant in order to find their 'competitive niche' within interurban competition dynamics with other surrounding municipalities. Hypothesis H3 is confirmed, corroborating that land bargaining is carried out mostly in order to compete with nearby municipalities within the metropolitan area. However, amendments to local plans (i.e. *varianti* in Italy and *alegaciones* in Spain) in the defense of private interests and to attract resources are no problems themselves, but the governance context in which they are proposed is determinant. In other words, is the context where localized decisions on planning are taken to be distinctive.

Hypothesis H4 is only partially confirmed. Though the decisive role of the metropolitan scale in the containment of urban sprawl has been correctly hypothesized, the performed analysis in the two case studies showed that, in terms of in-between bargaining dynamics, it is the role of the regional scale, and its connection with the metropolitan scale, to effectively contain urban sprawl. Such metropolitan-regional cooperation reveals that, for urban sprawl containment, it is the predominant in-between scale position of the regional government to be a deterrent for land consumption. In addition, such a role has to be coupled with more consistent competences on land use management: in terms of within scale bargaining dynamics, different to the Lombardy region, the Catalan government emits a binding, final approval of municipal urban plans, influencing the localized choices over urban development, and thus trends toward urban sprawl, proposed by the municipalities. In the Barcelona case, urban plans also have a territorial character: local governments being entitled with the production and approval of *urban* plans, it is the Generalitat to finally approve such plans in light of the *territorial* consequences that such documents have. Such a 'territorial' character is not present in the Italian urban municipal plans, as the regional (and the provincial) scale intervenes solely in terms of environmental protection (it is thus an 'urban-environmental' plan).

The normative framework seems to be more advanced in the Spanish case than in the Italian one, where a more modern and up-to-date national legislation, and a more consolidated regional territorial planning, facilitated land protection and control over land use change. In particular, since the 1980s the Catalan regional government has made efforts to reform territorial organization and planning, by re-introducing the *comarques* and by defining territorial *àmbits* that would have been endorsed with a territorial plan. In contrast, the Italian normative framework on land use appears to be insufficient and inadequate to face the challenge posed by post-war urban development. The Lombardy region has been less able than Catalonia to provide a sound and strict normative framework to bind local governments' urban choices over land use planning.

As discussed in the Introduction to this dissertation (Chapter 1), housing provision, as a governance policy setting, has to be negotiated at different territorial scales. The analysis carried out in this dissertation can reasonably conclude that, in order to contain urban sprawl, as a land management strategy for housing provision, a territorial (regional) perspective is needed, more than a metropolitan one<sup>3</sup>. Such a finding is relevant as it suggests that, while regional governments have been considered ideally antagonists of metropolitan bodies, as the former try to re-balance territorial disparities and limit the functional primacy of the metropolitan center, it is their cooperation, and even the regional control over the metropolitan body that can effectively tackle urban sprawl.

In the two analyzed cases, local governments behave similarly, and constitute a sort of 'baseline'. The differential factor that can explain the less dispersed character of residential areas in the Barcelona case than in that of Milan is the role that higher institutional levels play. The adopted theoretical framework, stemming from the combination of territorial, multi-scalar governance and the bargaining context model (see sec. 4.8), proved to be particularly valid in distinguishing the role that actors at different governance scales play with regard to land regulations and land management, thus influencing the occurrence of urban sprawl.

Although the Catalan regional government may have (and actually has) continued the work on territorial land management left by the metropolitan Corporació Metropolitana, its role in terms of in-between and within scale bargaining dynamics is key to 'muddle through' the different interests among different governance scales over land management and land allocation.

Private actors will therefore have more room for action when the regional government has a limited capacity (within scale bargaining) to bind local municipal choices on urban development to plans and regulations.

Urban sustainability, while not having a relevant role in municipal planning decisions and urban political choices, certainly permeates higher institutional levels guidelines and values, influencing land management practices, in particular in terms of land consumption. However, the effective implementation of the European Union's guidelines to sustainability and to the compact city depends on the contextual characteristics of institutional arrangements, and specifically on the in-between and within scale bargaining dynamics that allow actors, at different governance scales, a certain scope for action within land management strategies in light of sustainability dictates.

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<sup>3</sup>Such a claim is also discussed by (Chin, 2002, p. 8), who states that, urban sprawl being part of overall regional growth, may then be more effectively dealt with at this governance scale.

## 8.2 Discussion

Taken together, and as a contribution to the international literature on urban sprawl, and in particular on the identified political and planning factors as driving forces towards urban sprawl (see sec. 3.1.7), these findings qualify how and at what territorial governance scale political and planning factors are relevant to the occurrence of urban sprawl. The use of the proposed theoretical framework, which combines the bargaining context model with a territorial, multi-scalar and multi-actor governance perspective, helps shed light on how political dynamics and the varying enforcement of planning tools can foster (or not) the territorial spatial dispersion patterns of residential areas.

### Theory

The focus of this dissertation has been on governance processes as driving factors towards urban sprawl. However, as discussed in Chapter 3, and in particular in section 3.1.8, political and planning driving forces should not be considered in isolation. Similar to the arguments of previous research on urban sprawl, explaining factors for the occurrence of urban sprawl interact and are context-dependent. This dissertation has closely examined political and planning conditions, which are embedded in a broader economic, cultural, political and social context.

The strength of the De Decker's housing model presented in section 3.2 is precisely to have analytically identified, and theoretically framed, the processes at work at the macro, meso and micro level for the material production of housing models. Such a theoretical model has been improved and adapted to the occurrence of dispersed residential areas, which is a type of housing model, having a suburban character. However, only some of the actors taking part in such processes have been considered in this dissertation, and the meso level has been particularly focussed on. Such a move has been made to the need, in a comparative, multi-method and time-limited research, to find a balance between the risks of reification and of hyper-complexity that the researcher has to face when studying 'the city' (Le Galès, 2002, p. 183)<sup>4</sup>.

Consequently, not all private actors (and, especially, no international private actor) that have a role in local housing provision have been taken into consideration, nor have the whole of governmental actors. However, it can be maintained that a sufficiently broad perspective has been offered regarding public actors, as the urban, provincial, metropolitan and regional scales have been considered. However, it can also be argued that the considered public and private actors are a segment of the institutional bodies that have been considered relevant to the occurrence of urban sprawl. For instance, the interviewed officials at the provincial level belong to a certain department (e.g. territorial planning, housing, environment protection), hence they present their perspective conditional to the positions that they own internally relative to that governmental institution we call 'province'. This and other limitations of the research will be discussed in the following section (see sec. 8.3), however it matters here to underline that the identification of actors had been guided by the employed theoretical

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<sup>4</sup>Le Galès (2002, p. 183) more elegantly states that 'Any study of cities must steer a course between the Scylla of representing, the city as a separate unit, thus risking its reification, and the Charybdis of showing it to be infinitely diverse and complex. Avoiding the first of these risks means taking into account the diversity of actors, groups, and institutions that make up the city. The city is also by its very nature fluid, confused, full of movement, and made up of individuals who live, work, have fun, trade, and participate. However, tackling this diversity presupposes that we will not fall into the trap of *merveillement du tout collectif*, which amounts to marvelling at the diversity of a multitude of actors, their interactions, and their contradictory discourses, while conveniently ignoring the constraints, institutions, power relations, conflicts, and resources of these actors – and the relations of domination'.



framework. If, as in other studies, another theoretical frame would have been used, such as, for instance, urban regimes (see sec. 4.7.2), the types of considered actors would have been different, as well as the scope of the analysis, which would probably have been focussed on some particular housing projects. Furthermore, since private not-for-profit actors have not been considered, it does not mean that they are not influencing interlocutors in the negotiations and dynamics between public and private actors<sup>5</sup>.

Furthermore, the attempt to combine a ‘functionalist’ with a ‘constructivist’ framework (see fig. 4.2 and 4.3 on pages 111 and 112), namely the bargaining context model and the territorial, multi-scalar governance framework, has been, if anything, at times hazardous. Possibly, the respective authors of these governance perspectives would not agree with such a combination. However, the consideration of land as an asset to bargain over has been a key idea stemming from the Kantor and Savitch (2002) model, as well as the territorial, multi-scalar governance dynamics (Brenner, 2001; Gualini, 2006a,b; Lambooy and Moulaert, 1996; Martinelli et al., 2013; Smith, 1995; Swyngedouw and Jessop, 2005) have been crucial in understanding who actually has the power and authority, and how, to influence decisions over land allocation.

Such hazardousness has nevertheless been sincerely propelled by the effort to theoretically frame land management strategies to allow me to answer to the question: ‘how is land managed for the occurrence of urban sprawl?’.

Nevertheless, the moment of ‘coming back’ to theories, which is implied in any academic research, and the re-reading of some of the literature employed in this dissertation, let me see different shades of thought that previously passed by unperceived<sup>6</sup>. Although useful, the functionalist character of the Kantor and Savitch (2002) model reveals its stiffness. Although similar dimensions have been identified also by Le Galès (2002, ch. 8), the condensation of many types of conditions within the broad categories of ‘local culture’ and ‘popular control systems’ (the steering variables) can be, at a closer look, an analytical expedient. Having adopted a critical realist approach (Sayer, 1992), one is not totally convinced how such steering variables work. If, on the one hand, it can be accepted that good market conditions (i.e. economic wealth) and intergovernmental support (i.e. state grants) put ‘cities’ into a favorable position with regard to urban development, local culture and popular control systems happen to be wide analytical categories less readably operationalizable (and operationalized by the two authors) than the driving variables. Such criticism is due to the fact that, in positioning Barcelona and Milan within the bargaining context model framework (see sec. 7.3), the operationalization of the steering variables has been more complex than for the driving variables. One can thus ask herself if the bargaining context model should be, besides being integrated with a territorial, governance perspective, more clearly and carefully re-defined.

With respect to the theoretical framework employed in defining urban sprawl, a shadow remains whether this dissertation actually grabbed the phenomenon under analysis, i.e. urban sprawl. The several revisions of the literature on urban sprawl gave me the impression that

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<sup>5</sup>Similarly, individual households or citizens have not been considered, besides that fact that they are placed, in the employed theoretical model (see fig. 4.4 on 115), at the micro level, hence not at the meso level that this dissertation has focussed on.

<sup>6</sup>Similarly, the gradual ‘discovering’, during these almost 3 years of writing, of authors and approaches that were new to me let me critically re-consider my former theoretical standpoints; the desire to have started from some of the theoretical perspectives discovered late (or too late) to allow the entire re-elaboration of the research already done is probably part of any almost completed dissertation. For the same reason, however, in more than one occasion this ‘discovery’ of authors and theoretical perspectives highlighted the rightness of some theoretical and methodological intuitions I had performed.

the real meaning of suburbanism is still too far to grasp. Probably, Keil (2013a) is right when he defines urban sprawl as a phenomenological kaleidoscope of different morphologies and contexts, produced by different processes, and which extends from Western countries to the Global South. In these terms, he calls for a theoretical re-framing of urbanization in the light of the overwhelming presence of suburbanism as a global phenomenon, and urges us to get ready for a ‘suburban revolution’ that has the potential to re-structure urban theories (Keil, 2013b).

However, despite a diversity of definitions, I am deeply convinced of the theoretical and methodological appropriateness to consider urban sprawl as a type of land use (i.e. a pattern), and in particular as a type of land use consumption (i.e. a process; see sec. 2.5). As discussed in Chapter 2, urban sprawl becomes a term that can be a bridge among different disciplines, in an attempt to establish an inter-disciplinary ‘land change science’ (Lambin and Geist, 2006), where interactions between environment and society will be approached by different perspectives, yet having a shared understanding of land use transformations. Land management will thus possibly become a term encompassing both ‘land handling’ and ‘political land use strategies’ (see footnote 1 on page 2).

## Methods

The methodological operationalization of urban sprawl employed in this dissertation needs some comments, *a posteriori*. Although urban sprawl has been operationalized as discontinuous residential areas, following the Corine Land Cover (CLC) nomenclature (see sec. 5.3.1), hence by referring to the definition provided by a European, top-reputation agency such as the European Environment Agency (EEA), the breadth of the 30%–80% threshold to define discontinuous residential areas – less than 30% indicating agricultural areas, more than 80% referring to continuous residential areas – is nevertheless problematic. As mentioned also in section 5.3.1, many different morphological typologies are included in such a wide range. On the one hand, the difficulty in further detailing the degree of continuity in terms of intensity of land use of residential areas may have been due to the intrinsic technical difficulty for the involved researchers to carry out a more precise interpretation of satellite data<sup>7</sup>. On the other hand, the 30%–80% threshold may be connected with the ineradicable nature of urban sprawl to escape definitions, both theoretical and methodological. Nevertheless, I am still convinced that the generally uncommon availability of longitudinal surveys on land use transformations, even at the European level, such as the Corine Land Cover (CLC), should be considered a great opportunity for inter-disciplinary research.

After having completed this research, the general impression is that a complete understanding of urban sprawl remains remote (see sec. 8.5). However, such consideration should not block further and continuous attempts to analyze suburbanism, and, with regard to this dissertation, efforts to operationalize urban sprawl as a type of land use change have proven useful.

Indeed, in the examination of urban sprawl and other land use types in the two considered case studies, non-comparable datasets have been used for Barcelona and Milan with the aim to analyze historical patterns of spatial dispersion in both areas. This task has been performed thanks to the theoretical and methodological choices adopted in this dissertation to define and operationalize urban sprawl. Although pertaining to two different databases, the framing of urban sprawl as a type of land use transformation has allowed the successful description of the general trajectory of land use transformation over a sufficiently large amount of time (the

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<sup>7</sup>Such an attempt has been performed for the Larger Urban Zones LUZ, see sec. C.0.1, by employing other types of land use data than the Corine Land Cover (CLC) surveys.

last 50 years) for both case studies, identifying general patterns of territorial dispersion.

## Findings

The findings and conclusions put forward in this dissertation refer to the two case studies. Both findings and conclusions are generalizable as far as the theoretic framework is considered. The findings on the different and changing role of a diversity of actors at different territorial scales with regard to land management, and their impact in the occurrence of urban sprawl, can be generalized and examined in other (European) contexts. Different patterns of spatial dispersion of residential areas in different settings can be considered as an outcome of governance processes, which should be analyzed through the theoretical framework adopted in this dissertation (see sec. 4.8). In-between and within scale bargaining dynamics would thus be analytically effective to single out the governance dynamics influencing land management. In addition, such theoretical framework could be applied not only to dispersed residential areas in a variety of contexts, but also to other land use types, such as the territorial dispersion of service areas and the expansion of transport infrastructures.

Nevertheless, a larger pool of case studies would have improved the comparative power of the research. However, the in-depth analysis required to look into multi-scalar and multi-actor governance dynamics, the examination of the main plans and regulations, and the exploration of land use trajectories necessarily restrict the analysis to fewer case studies. An analysis of an institutional system is a time-consuming task, which has been here empirically performed on two case studies. With the two considered case studies being Southern European, findings and conclusions are arguably more readily generalizable to other Southern European case studies. However, comparisons with other European metropolitan areas and regions would be relevant and useful in future research (see sec. 8.5).

Furthermore, despite having referred to an urban sustainability framework (see sec. 2.4), the observed evidence that the built-up form in the Barcelona case is less characterized by dispersed residential areas than in the Milan case does not have to lead to the easy conclusion that the Barcelona case is more virtuous than Milan. The current (2007–present day) economic crisis related to the housing market has had a negative effect on the Catalan economy as well. Although this dissertation did not include analysis of the ‘Spanish real estate bubble’ (*burbuja inmobiliaria*), in 2003 scholars were already very aware of the critical situation concerning the housing market in Spain. In particular, analyses on the Catalan housing market highlighted the emergence of a paradoxical situation (Esteban Noguera and Tarroja, 2004, p. 34–39; 188–194): the excessive (and seen for the first time in Catalonian history) pace of the construction sector (cf. also Serra, 2003, p. 64) poured into the market a great amount of new dwellings, whose prices however kept growing (for example, between 1997 and 2003 housing prices in Barcelona doubled), while, at the same time, the purchasing power of people gradually decreased. Hence, paradoxically, the more the number of houses, the more expensive. Therefore citizens, especially young and old people, or low-income residents, could hardly access such good and were thus under risk of exclusion, despite the ease with which the credit system allowed people to sign for mortgages. These critical analyses are relevant as far as evidence has shown how most of the dwellings built in 1990s and 2000s had a suburban character (Muñoz, 2007). Hence, scholars pointed out this alarming, paradoxical situation (i.e. the evidence of a ‘heated’ housing market), in an attempt to call the attention of policy makers and public opinion, and to warn about the wrong assumptions founding the 1998 land use law (see sec. 7.4.1.1): as a *limited* resource, land can not be treated as a ‘typical’ economic good, hence a larger housing offer does not necessarily lead to a decrease in price.

Catalan scholars have been and are very critical towards housing policies in Catalonia (see

for instance Observatori de projectes i debats territorials de Catalunya, 2008), especially concerning the lack of social housing and the slowness of the ‘public machine’ to provide social housing according to the 1998–2001 housing plan (Esteban Noguera and Tarroja, 2004, p. 188–194; Serra, 2003, p. 68ff), and the need to improve territorial planning to protect natural and agricultural areas, biodiversity and land (Esteban Noguera and Tarroja, 2004, p. 299–300).

Furthermore, as mentioned before, governance dynamics are important, but are only one type of driving factor influencing land management. The housing market and the macro-economic situation, globalization and international competition, local taxation and the financial market are further conditions that have an impact on such decisions. However, the aim of this dissertation has been to dig into political and planning factors as conditions towards urban sprawl, not to identify (if indeed this is possible) the ultimate driving factor(s) leading to suburbanism. We have always to remember that ‘explaining the observed [land use] change, i.e., identifying and assigning causal power to candidate factors’ (Geist et al., 2006, p. 42) is an extremely difficult task.

In addition, the findings and conclusions of this dissertation are related with the focus on planning tools and plans that has been examined in section 7.4. As explained in Chapter 5, planning tools have been considered as they are the instruments through which the institutional actors put into place their choices over land management. However, other documents, data and devices may have been considered, during a sufficiently broad period of time, such as the number of building permits, the number and type of newly built houses, homeownership rates, the territorial distribution of household incomes or average housing prices, opening up other and various insights.

Besides, the relevance of regional governments as governance scale for land management, especially in a context of competences devolution (Herrschel and Newman, 2002, p. 21), should be however thoroughly examined. The risk of reification should be avoided by considering the regional scale as a complex institutional actor where in-between and within scale bargaining dynamics are *internally* occurring. Regions are not, and should not, be conceived as a unitary institutional actor; hence their role should be analyzed by taking into account such complexity (see also sec. 8.5).

Finally, the conclusion that land containment can be attained when metropolitan authorities cooperate, and are guided by, regional governments, highlights, in the Milan case, on the one hand, the institutional ‘void’, left by the absence of a proper metropolitan scale, and on the other hand, the difficulty of the Lombardy region to lead the re-scaling process of a metropolitan authority for Milan. The presence of a metropolitan body, whose boundaries are territorially transversal (i.e. independent from provincial boundaries), as in the case of the Barcelona Metropolitan Region (RMB) and Area (AMB), seems to be the key for urban sprawl containment. The current attempt to re-arrange the Milan province into the new metropolitan authority thus seems an involution, making administrative boundaries prevail over the actual metropolitan area of influence of Milan. However, even in the Barcelona case, it is important to note that the Barcelona Metropolitan Region (RMB) and Area (AMB), encompassing 164 and 36 municipalities, respectively, belong to the same Barcelona province (see fig. 6.1 and 6.2). Hence, in the Milan case, because of the different administrative and provincial fragmentation, the identification of a territorially transversal metropolitan body relate not only to the municipal level, but also to the involvement of provincial scales, such as the Monza e della Brianza, Lodi, Como, Varese, Lecco, Brescia and Bergamo provinces. The fact that the comarcal capitals of the Barcelona province (such as Martorell, Vilanova i la Geltrù, Vilafranca del Penedès, Sabadell–Terrassa, Matarò) are not provinces themselves, somehow

facilitates the constitution of a metropolitan scale, as in-between and within scale bargaining dynamics are played directly between the municipal and the regional scale, the governance role of the Diputació remaining residual, and the other Catalan provinces (Girona, Lleida, Tarragona) remaining beyond (for the moment) the re-scaling processes of the metropolitan area of influence of Barcelona.

### 8.3 Comparative strengths and shortcomings

A non-exhaustive list of the theoretical and methodological contributions of this dissertation can be the following:

- urban sprawl has been theoretically defined as a land use type, and as a predominantly residential territorial phenomenon of urban expansion, prioritizing the territorial and metropolitan scales of analysis rather than a project-bound perspective;
- urban sprawl has been conceived as an outcome of governance processes, in particular as a territorial dispersion pattern of residential areas in metropolitan regions: Therefore, both quantitative (i.e. data on land use transformations) and qualitative (documents and interviews) data have been employed: urban sprawl, as a measurable outcome, has been conceived as a result of governance political processes. This strategy has been an attempt to overcome the distance between micro (project-and city-based) and macro (national and regional trend) analyses of urban sprawl. The use of the provincial level (NUTS 3) and the consideration of the metropolitan scale have functioned as ‘meso’ tiers to connect the quantifiable phenomenon of urban sprawl and the political (qualitative) processes that were under scrutiny;
- urban sprawl has been operationalized by considering the discontinuous urban fabric class of the Corine Land Cover (CLC) data, which has also been used to guide the selection of case studies;
- once case studies had been selected, urban sprawl was examined at different scales both through the European Corine Land Cover (CLC) dataset for the 1990–2006 timespan, and also through local datasets, in an attempt to account for the recent historical trajectory (1950s–2000s) of territorial development;
- the adoption of a territorial, multi-scalar governance perspective allowed the problematization of the scales through which spatial phenomena are analyzed, by considering a diversity of scales (and boundaries definitions) to describe and examine urban sprawl;
- the combination of a territorial, multi-scalar governance framework with the bargaining context model effectively allowed the explanation of the bargaining of a specific resource, i.e. land, and the inclusion of urban political choices over urban development within a multi-scalar structure, where within and in-between bargaining dynamics over scale definitions and competences are crucial to explain the political agency with regard to land use allocation;
- political and planning factors become effective ‘predictors’ of urban sprawl occurrence when in-between and within scale bargaining dynamics are considered. This is a clear contribution to the international literature on urban sprawl, as political and planning factors tend to be considered distinctively; in contrast, once assumed as an outcome of governance processes, urban sprawl can be explained through the employment of a territorial, multi-scalar and multi-actor theoretical framework that identifies the mechanisms, the actors and the scales (i.e. the settings) where decisions over land use allocation are made;
- with this regard, the focus on planning tools has been fruitful in helping to single out in-between and within scale bargaining dynamics;

- the employed analytical framework will preferably facilitate the replicability of the analysis in a variety of settings. The enhanced housing model presented in figure 4.4 can serve as a useful reference for future studies that compare patterns of spatial dispersion as an outcome of governance processes.

Some of the shortcomings of this research are as follows:

- the use of Corine Land Cover (CLC) data presents some limitations, both in terms of the Minimum Measurement Unity (MMU) and data manipulation choices (see Appendix sec. B), and also in terms of the type of possible statistical analyses that have not been performed, for instance to select cases;
- the definition of urban sprawl following the 30–80% threshold so defined by the European Environment Agency (EEA) is too broad for a detailed grasp of the ‘morphological melting pot’ empirically characterizing urban sprawl;
- while urban sprawl has been clearly operationalized by using the Corine Land Cover (CLC) class of ‘discontinuous residential areas’, the employed geo-referenced data have not been further exploited by considering the precise localization of sprawled areas;
- different technical choices in the use of the local datasets and the Corine Land Cover (CLC) surveys for land use transformation could have been carried out, such as the application of spatial statistics or the performing of land use flows analysis (see also sec. 8.5);
- another cases studies selection process could have been performed, and other criteria could have guided the identification of emblematic and comparable case studies, as mentioned in Appendix sec. B.1;
- the choice to consider NUTS3 (provinces) as proxy for metropolitan areas (see Appendix sec. B) could have been substituted by other territorial delimitations, such as Larger Urban Zones (LUZ) or Urban Morphological Zones (UMZ; see Appendix sec. C). However, as discussed in section 5.3.3, a more ‘conservative’ choice has been carried out and administrative provincial boundaries have been considered instead (cf. Jensen-Butler et al., 1997, ch. 1).
- only a limited amount of influencing factors relevant for territorial transformations has been considered, compared to the literature review that has been presented in Chapter 3;
- interviews are complex to carry out; other and different interviewees could have been talked to, and a different method to carry out interviews could have been chosen, together with another set of questions;
- despite the use of interviews, it remains problematic to open the ‘black box’ of political decisions over micro-territorial transformations, which in this dissertation have been analyzed in aggregated terms. How local governments (i.e. city officials) actually ‘live through’ land bargaining dynamics and how they decide over land allocation include also private meetings, previous and variably solid acquaintance between city officials and land owners or building constructors, interests and returns in political affiliation and in spatially delimited settings (e.g. ‘making favors’). These dynamics that are hard to account for at the macro-level.

## 8.4 Policy recommendations

It is apparent how inter- and supramunicipal coordination should be fostered for the containment of urban sprawl and for a more rational land management at a territorial scale. The findings showed how the role of regional governments should be reinforced, both as key interlocutor and in particular as managers of territorial metropolitan processes. The provision

by regional governments to provide legally binding approvals of municipalities' urban plans proves to be a particularly relevant tool to contain the occurrence of urban sprawl.

In Italy, a much needed update of the national land use law, and the re-arrangement of in-between and within scale bargaining dynamics in favor of a much stronger role of the regional governments with regard to territorial and urban planning would be key in limiting the 'dictatorship of local governments' characterizing urban political choices. Furthermore, the emergence of metropolitan cities and regions, whether mono- or poly-centric (Herschel and Newman, 2002), should be fostered and consolidated. In particular, metropolitan cities, such as Milan, should take the responsibility to take seriously their role as metropolitan and regional capitals (Centro Studi PIM, 2009, p. 100, 124). However, the establishment of metropolitan authorities should mirror the actual territorial area of influence of metropolitan agglomerations, beyond municipal, provincial and sometimes even regional administrative demarcations<sup>8</sup>.

As urban diffusion is an inexorable reality, such commitment would also include the taking over of territorial planning tools to manage and regulate urban sprawl (Mazzette, 2011b, p. 48). This is particularly relevant for housing provision, as the relative 'outsourcing' of sprawled residential areas outside the administrative boundaries of the metropolitan center hampers the formulation of effective (social) housing policies. Sprawled houses being comparatively less expensive than the dwellings in the city center, the population is simply 'left alone' to choose among the housing offer provided by competing municipalities. In particular, specific housing policies for small size households would be useful in containing urban sprawl (Centro Studi PIM, 2011, p. 44).

The sprawled and the compact city have been constructed in opposition to each other, but practically there is a need to overcome 'the existing polarization between absolute versions of the dispersed and the compact urban forms', problematizing 'the patterns of development of alternative urban environments in areas outside North-America' (Catalán et al., 2008, p. 175), as urban sprawl as a term first originated in the USA (see sec. 2.3). The sprawled-compact city opposition, similar to the city-countryside dualism or the rhetoric of urbanism and anti-urbanism, have to be overcome by re-elaborating the relationship between urban and periurban (Meloni and Borelli, 2012) and the suburban. For some, the superposition of such ideal conceptual couple to the real, observable territorial patterns is unrealistic, lacking in empirical adherence (*manca di aderenza empirica*, Meloni and Borelli, 2012). Polycentrism may be one possible policy tool to re-elaborate on the city-countryside continuum, orienting territorial development policies around a diversity of 'centers' and 'peripheries'.

Indeed, although the artificial surfaces of the Barcelona case present, as compared to Milan, relatively less dispersed residential areas, the presence of dispersed residential areas in both case studies implies the need to manage such scattered housing areas. Service provision, such as public transport, public lighting or the opening of public spaces, are some of the policies that could enhance the quality of life in such areas. However, issues on their economic feasibility, and the questionable acceptance by public expenditures of high management costs to provide these services, given the private (as opposed to collective) character at the origin of such dispersed residential areas, make the proposal of viable policy instruments to enhance these areas even more important. Research focussing on practical proposals for the management of scattered residential areas as, for instance, Gandelonas (2011), Hayden (2004) or Muñoz (2011), should be fostered, also as example of the connection between research, design and spatial planning (cf. Segers et al., 2013).

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<sup>8</sup>Cf. also Coimbra Swiatek (2011).

Finally, as discussed in section 8.2, this dissertation has emphasized how definitions of urban sprawl and city compaction, for example at the European level (cf. EEA European Environmental Agency, 2006; Kasanko et al., 2006), should consider not only quantitative data, but should also include qualitative analysis of the institutional context in which a diversity of actors make decisions on land management strategies, influencing the occurrence of urban sprawl more than ‘simply’ setting thresholds for land consumption<sup>9</sup>.

## 8.5 Suggestions for further research

As a friend of mine (who is an experienced academic) once said, my dissertation only begins to ‘look into the abyss’ of space–society interactions, territorial and land management decisions, and urban sprawl occurrence. Of course, in this dissertation I did not pretend to offer an exhaustive analysis of this complex territorial phenomenon, however the final lines of my dissertation included in the present Chapter merely start a whole set of new research opportunities, among which I will just mention some.

In the urban sprawl literature, the selection process of cases for analysis is often not clarified, or scantily explained. When in the form of collections of studies on sprawled cities, the consideration of certain cases seems almost self–explanatory, and generally geographical arguments are put forward to justify the selection (e.g. Northern and Southern, Western and Eastern European cities). Further research should seriously deal with the selection of cases in urban sprawl analysis, by examining the *kinds* of surveyed cities, metropolitan areas, urban systems and regions<sup>10</sup>. Galster et al. (2001) and Wolman et al. (2005) already discussed the importance of critically defining geographical scales in the attempt to measure urban sprawl for comparative analysis. Furthermore, neighborhoods and local ‘communities’, and more localized studies on project–led urban sprawl development, could also be considered<sup>11</sup>.

Furthermore, such analysis would also force researchers to more clearly define ‘cities’ for comparative research. Researchers should clarify what ‘city’ is meant for, and delimit its boundaries either in administrative terms, or through the identification of certain scales, by employing different indicators<sup>12</sup> or by using Larger Urban Zones (LUZ) or Urban Morphological Zones (UMZ). Ideally, a diversity of scales should be considered for each case study, as done in this dissertation. A promising method is the one proposed by Thomas et al. (2012) and Tannier and Thomas (2013) (see also sec. 5.4), which would be relevant to apply at the European scale to reach a consensus among European researches on metropolitan delimitations of European cities, a goal which is very much needed and highly valuable for future comparative analysis<sup>13</sup>. Comparative social sciences, and comparative urban studies in particular, would definitely benefit from such advancement in boundaries definition of European cities, and possibly become truly ‘spatial’ or ‘territorial’. Only after such efforts, the limited number of case studies included in this dissertation could be possibly overcome in future analyses.

As a consequence, statistical methods, such as cluster analysis, or comparative methods, such as qualitative comparative analysis (QCA), could be fruitfully employed to classify and

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<sup>9</sup>For a discussion, see for instance Arcidiacono et al. (2010).

<sup>10</sup>Cf., for instance, Tannier and Thomas (2013).

<sup>11</sup>A focus on neighborhoods to analyze urban sprawl could be also connected and compared with social innovation practices in other neighborhoods; cf., for instance, Moulaert et al. (2010); Moulaert and Van Dyck (2011).

<sup>12</sup>The *Centre de Política de Sól i Valoracions* (CPSV) of the Barcelona Polytechnic University (UPC) is a research center that is working towards this direction.

<sup>13</sup>See however, Eurostat (2012a).



define typologies of European cities as *land consumers*. With this regard, the Corine Land Cover (CLC) longitudinal surveys, whose 2012 data will be soon available, are a key set of data that can be used to define categories of land consumers. In such efforts, some of the variables, such as for instance industrial and commercial areas, transport areas, and construction sites, could arguably be considered relevant conditions towards urban expansion and urban sprawl, as they indicate the connection with production and service activities, mobility infrastructures and future potential for development. In addition, further research could deepen the relationship between the territorial dispersion patterns of residential areas and the decentralization of services, especially with regard to less knowledge-intensive services (cf. Martinelli and Moulaert, 1993).

The new, crucial steps in the definition and explanation of urban sprawl are to be taken by considering a multi-dimensional (or multi-variate) theoretical framework where different conditions can be operationalized. The presence or accessibility to transport areas (e.g. roads or airports), to industrial and commercial sites, or certain demographic thresholds could all be included in such analysis, whether by employing spatial statistics (cf. Brueckner, 2011; Cavailhès et al., 2004; Haag et al., 2002) or set-theoretic methods (Ragin, 1987, 2008; Rihoux and Ragin, 2009; Schneider and Wagemann, 2012).

Additionally, the need to explore urban sprawl by employing population figures and mobility flows is particularly relevant in the operational definition of urban sprawl beyond, yet in connection with, a definition of urban sprawl as a pattern and process of land use transformation (cf. García Coll et al., 2014; and see sec. 2.5). Moreover, more efforts are needed to identify the socio-demographic attributes of the population that resides in sprawled areas. Are the lifestyles of those people ‘urban’ or ‘suburban’? And, in any case, what do we actually mean with ‘urban’ and ‘suburban’? There is a strong sociological component in urban sprawl related to the type of people who dwell in dispersed areas that would need more research<sup>14</sup>. Furthermore, such type of analysis would be fruitfully complemented with a more detailed inquiry on demographic variations and densities in connection with municipal sizes, in order to single out those demographic flows that could signal territorial dispersion (e.g. demographic growth in small and medium size municipalities, located at a certain distance from the metropolitan center<sup>15</sup>). Studies such as García Coll et al. (2014) are a good example of these kinds of research, which, however, have to attempt to be comparative.

Similarly, further research on urban sprawl could more precisely concentrate on land take analysis (i.e. land use flow analysis), by focussing only on the hectares of increase in built-up areas (i.e. land use change), or more specifically, in sprawled residential areas – by considering, for example, the Corine Land Cover (CLC) class of ‘discontinuous residential areas’ (see sec. 5.3.1) –, and analyzing the types of land use from which such change has originated (e.g. which types of land uses sprawled residential areas have come from, for instance croplands, forests, and so on).

Furthermore, the connected topic of peri-urban and urban agriculture and its role for food production could be a further research topic in connection with the debate on the opposition between urban sprawl and the compact city, land consumption and urban sustainability. For instance, in the cases of Barcelona and Milan, a good comparison would be the *El Prat* agricultural park and the *Parco Sud* as examples of peri-urban agriculture.

Recent studies on suburbanism (Keil, 2013a) highlight the morphological diversity of suburbs, and their different characterization in terms of land uses; other types of urban sprawl

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<sup>14</sup>Cf. for instance, Caiello and Colleoni (2013); Molinari (2012).

<sup>15</sup>For instance, see the concept of ‘population gradient’ proposed by Couch et al. (2007b), also mentioned in sec. 2.3.

should thus require more investigation, such as transport infrastructure-led urban sprawl, or dispersed patterns of service areas development, since different types of urban sprawl may arguably be produced by different dynamics than residential urban sprawl.

The sharpening of case studies definition, classification and selection would allow as well for a more comprehensive comparative analysis on the political factors that can explain the behavior of institutions with regard to land management. Furthermore, political and planning factors should also be clearly operationalized and possible ranking could be put forward with regard to planning regulations at the national, regional, provincial and municipal level (cf. ESPON, 2007).

As previously mentioned (see sec. 8.1), the theoretical framework proposed in this dissertation (see sec. 4.8) could be applied to other contexts, besides being completed, improved and re-worked, in the cases of Barcelona and Milan, by considering other and different actors, at different territorial scales as well, with the aim to include the ‘macro’ and ‘micro’ processes involved in the construction of a housing model.

The interviews performed for this dissertation had the aim to make land bargaining between private and public actors crop up, shedding light on urban political choices over land by considering the multi-scalar institutional structure where decisions on land allocation are made (see sec. 5.6). However, land management is a complex issue; the difficulty in opening ‘the black box’ or the ‘abyss’ of political decisions over land could also be proficiently dealt with and examined through ethnographic approaches. Participant observation and interviews carried out within the planning departments of the provincial or the regional governments, or of some local municipalities, would reveal in-depth the routine planning practices and the actual processes through which land is allocated, managed and bargained. In addition, within and in-between scale bargaining dynamics could be further detailed, by adopting an actor- and frame-based Goffmanian perspective (setting definition; cf. Collins, 2004). Under this perspective, land (and land development) is ritually negotiated among institutional actors (e.g. public and private actors) to consolidate a certain social order and structure.

Such an approach would be particularly fruitful in analyzing the in-between and within scale bargaining dynamics *internally* occurring at a certain institutional scale, for example at the regional or the local governments, avoiding the risk of actor (and scale) reification (see sec. 8.2).

In addition, within a selected pool of metropolitan areas, certain municipalities could be identified where interviews could be carried out. The selection of the most emblematic local governments should follow a rigorous selection process, in order to identify types of local governments with regard to the variety of land management strategies put into place, and influencing the likelihood of observing urban sprawl. In particular, this effort should be focussed on matters of local taxation, land development being very much connected with the (fine) fettle of municipal coffers. Local taxation, as well as analysis of land property and land rent, and building permits, would complement the analysis carried out in this dissertation paying attention to planning tools and plans.

Further research is also needed into the dynamics of inter- and supramunicipal coordination, which may be connected with such qualitative approach just mentioned. Territorial polycentrism should be further investigated as a theoretical and methodological perspective, as well as a policy tool to approach urban sprawl from a ‘city-network’ point of view, emphasizing connections, networks and flows among cities more than processes and patterns. Hence, contributions to the city-countryside debate would be re-elaborated. Similarly, urban sprawl could be also approached from a city-region perspective (Parkinson, 2004), analyzing more

in depth the economic (e.g. economy wealth, commuting flows), political (e.g. territorial governance) and social (e.g. demographic redistribution within the metropolitan area, mobility flows) relationships between core cities and their related metropolitan regions

Housing preferences, and the ‘cultural’ preference for a detached house, should be further investigated, in order to understand the criteria by which people choose their houses, especially with regard to land prices and house size, and whether they ‘include in the equation’ rising mobility costs and time, car dependency (cf. Urry, 2004), and closeness to services (accessibility). The analysis of the ‘micro’ level in De Decker’s model (see sec. refsec:governance processes) on the role of citizens play in urban sprawl and how they experience it would definitely enhance the understanding of the emergence and the persistence of suburbanism as a housing model. Survey methods would be also useful in carrying out this task, as shown, for example, by Couch and Karecha (2006). Similarly, it would also be of interest to revive neo-weberian, qualitative approaches to suburbs and ‘metropolitan villages’, such as the ones performed by Pahl (1965) or Gans (1968) as types of ‘community studies’, singling out the sociological types residing in suburban areas and analyzing their different relationships. Furthermore, analysis on how housing demands are socially constructed (i.e. how suburbs became a type of ideal living) would also effectively complement surveys on housing preferences and critically amplify their findings.

As mentioned in the acknowledgements to this dissertation, this research is just a beginning, not an end, for the analysis and explanation of the spatial dispersion patterns of residential areas; . . . more to come.

# Appendices



# Appendix A

## The Corine Land Cover 1990, 2000 and 2006 surveys

In recent decades, major efforts have been made at the European level to establish a common understanding and methodology for the collection of a variety of socio-economic and environmental indicators, with the aim to provide European level comparable data on a wide range of topics (e.g. demography, economics, households; Eurostat, 2009b, 2011c, 2012b).

The Corine Land Cover (CLC) project is a specific and ambitious initiative which has been aimed at collecting and elaborating land cover data for Europe in its entirety. The Corine Land Cover (CLC) project is an acronym for ‘COoRdination of INformation on the Environment’, and was first started in 1985, the pilot study being settled in Portugal. The Corine Land Cover (CLC) project has been carried out through the cooperation and complex coordination among different national and subnational research teams in each of the involved countries (see tab. B.1), employing a common methodology of research to photo-interpret land cover pictures of the European soil with the aim to produce a Europe-wide digitalized database on land covers.

The Corine Land Cover (CLC) database stands out as an innovative effort to provide longitudinal, comparable<sup>1</sup> data for land covers (see sec. 2.1.1) at the European level, land cover surveys having been performed in 1990, 2000, 2006 and 2012<sup>2</sup>.

The common methodology used to produce the Corine Land Cover (CLC)<sup>3</sup> data is composed of five stages (EEA European Environmental Agency, 1994a, p. 26):

1. preliminary work;
2. production of false-colour images on scale of 1:100.000;
3. computer-aided photo-interpretation, delineation and identification, controlling the quality of the photo-interpretation;
4. digitization;
5. validation of the database.

Behind this common methodology, a great amount of autonomy on project management has been granted to each national team (EEA European Environment Agency, 2007; EEA European Environmental Agency, 1994a); priority has been given to the adaptation of European standards of analysis in order to produce comparable data at the European level.

During the first stage of the CLC project, satellite data were collected and compared to an inventory of existing aerial photographs, which has been so far the diffuse, traditional method used to monitor land cover and land use change. Furthermore, a large variety of other data

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<sup>1</sup>For further discussion on comparability, see Appendix sec. B.

<sup>2</sup>Preliminary data of the Corine Land Cover (CLC) 2012 survey will probably be available only in the course of 2014.

<sup>3</sup>From now on, CLC.

(e.g. documents, statistical data, photographs) have been collected and compared with the employed satellite data in order to allow each national team to provide a first classification of land cover, vegetation and pedology according to the agreed CLC methodology. The satellite data being complemented with statistical data and available documentation on land covers, detailed topographic maps on land cover, vegetation and pedology have then been produced (scales 1:100.000, 1:50.000, 1:25.000) as a result of this first phase. The first stage of the CLC project has been essential and particularly challenging, as not only a large amount of different data were employed, but also as a first, crucial effort towards methodological homogenization had to be carried out.

The second stage of the CLC project consisted in the production of false-color images on 1:100.000 scale, carrying out a ‘cleaning’ of digital data (e.g. removal of artifacts, geometric corrections, resampling, enhancement of images). Basically, it was a sort of ‘data polishing’ process on the data collected during the first phase.

The third stage consisted of the running of a computer-aided procedure in order to interpret and assign a common land cover classification to the maps produced in the second stage. On the topographic maps, land cover units have been preliminarily defined and identified. In this stage, boundaries have been delineated and specific colors have been assigned to each land cover typology. The different research teams have been involved in a continuous and complex work of photo-interpretation and evaluation, identifying interpretation problems that generally led to in-site verifications. Furthermore, in order to precisely classify the land according to a specific nomenclature, ancillary data and additional procedures have been necessary (see tab. A.1).

The result of the third stage has been the attribution of the CLC nomenclature to the 1:100.000 topographic maps. There are, in total, 44 land cover classes, classified within 5 broad categories (see also tab. A.1:

- artificial surfaces;
- agricultural areas;
- forests and semi-natural areas;
- wetlands;
- water bodies.

Although the European Environment Agency warns that the CLC database primarily captures land *covers* and not land *uses* (EEA European Environmental Agency, 1994a,b), artificial land covers necessarily refer not only to land covers, but also to land uses, as residential areas, transport infrastructures, or dump sites imply also the consideration of the urban functions that those land areas perform for society. The same can be said for the ‘agricultural areas’ category, as different classes of agricultural areas are defined according to the type of agricultural use that is performed (e.g. non-irrigated agricultural land, permanently irrigated land, rice fields, vineyards, olive groves).

Stage four comprised the re-checking of the interpretation work carried out on the produced maps in stage three, and their digitization into geographical information databases (both in a raster and vectorial format).

The fifth stage consisted of the validation of the processed information through the application of sampling statistical techniques aimed at checking the goodness of the data and at detecting possible errors of omission or commission<sup>4</sup>. The goal of the validation process was

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<sup>4</sup>This stage was carried out by comparing the information on the database with the information obtained from data not previously employed (EEA European Environmental Agency, 1994b).

to determine the reliability of the results supplied to the end user, especially concerning the unit boundaries and the classification of the nomenclature units.

The process of land covers classification foreseen and carried out in the CLC project has not only encompassed a large-scale and complex comparison of satellite data and documents (stages 1–2), and a continuous dialogue between the data collected and the actual areas of analysis (stage 3), but also the validation and production of high-quality land cover maps compatible with European requirements and standards (stages 4–5) in order to built a powerful database of comparable data:

The particular values of CLC methodology and data layers come from the merging of general with local top-down vision summarized in a simple and standard methodology, single detailed and hierarchic nomenclature, precise definition of geographical object and scale. (Feranec et al., 2007, p. 243)

Thanks to a common methodology, the main strength of this ambitious and complex research project on land covers and land uses has been the provision of longitudinal, comparable<sup>5</sup> data at the European level (EEA European Environmental Agency, 2011, see).

For the purposes of this research project, as the focus is on urbanized soil, and the city in particular, land covers regarding the first category (artificial surfaces) have been considered. In such a perspective, the city can be considered as an assemblage of land uses (see sec. 2.2). Furthermore, in this dissertation, the CLC data are employed at the NUTS3 level (Nomenclature of Territorial Units for Statistics, see Eurostat, 2009b, 2012b), corresponding to the administrative boundaries of provinces, counties and *arrondissements* (see Appendix sec. B and sec. 5.3.3).

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<sup>5</sup>See also footnote 1 on page 321.



**Table A.1:** Corine Land Cover nomenclature. Source: EEA 1994a:26. Author's elaboration.

Classes	ID	Code	Code description	Ancillary data (AD)		Description
				Additional	Processing (AP)	
1. Artificial surfaces	1	1.1.1	Continuous urban fabric	AD		Topographic maps, Aerial photographs
	2	1.1.2	Discontinuous urban fabric	AP		Vegetation index, PCA (Principal component analysis), Filters
	3	1.2.1	Industrial or commercial units	AP		SPOT data
	4	1.2.2	Road and rail networks and associated land	AD		Topographic maps
	5	1.2.3	Port areas	AP		Filter, SPOT data
	6	1.2.4	Airports			
	7	1.3.1	Mineral extraction sites	AD		Topographic maps, Aerial photographs
	8	1.3.2	Dump sites	AP		Improving contrast
	9	1.3.3	Construction sites			
	10	1.4.1	Green urban areas	AD		Tourist and topographic maps, Aerial photographs
	11	1.4.2	Sport and leisure facilities	AP		Vegetation index, PCA (Principal component analysis), Filters
2. Agricultural areas	12	2.1.1	Non-irrigated arable land	AD		Agricultural statistics, Maps of farmland
	13	2.1.2	Permanently irrigated land			
	14	2.1.3	Rice fields	AP		Viewing images of different seasons; Multitemporal vegetation index
	15	2.2.1	Vineyards	AD		Confirmation from agricultural statistics and large-scale maps
	16	2.2.2	Fruit trees and berry plantations	AD		Aerial photographs
	17	2.2.3	Olive groves	AP		Vegetation index, SPOT data
	18	2.3.1	Pastures	AD		Topographic maps (in some countries), Agricultural statistics, Aerial photographs

Classes	ID	Code	Code description	Ancillary data (AD) Additional Processing (AP)	Description
				AP	Vegetation index, Additional satellite data for spring and winter, Supervised automatic classification
	19	2.4.1	Annual crops associated with permanent crops	AD	Agricultural statistics, Thematic maps, Aerial photographs
	20	2.4.2	Complex cultivation patterns	AP AD	Vegetation index Agricultural statistics, Aerial photographs
	21	2.4.3	Land principally occupied by agriculture, with significant areas of natural vegetation	AD	Topographic maps, SPOT checks, Aerial photographs
	22	2.4.4	Agro-forestry areas	AP	Vegetation index, PCA (Principal component analysis) Identification on false-colour images and systematic checking against aerial photographs
3. Forests and semi-natural areas	23	3.1.1	Broad-leaved forest	AP	Vegetation index, PCA (Principal component analysis), Automatic classification
	24	3.1.2	Coniferous forest		
	25	3.1.3	Mixed forest	AD	Forest inventory maps, Topographic maps, Aerial photographs
	26	3.2.1	Natural grassland	AP	Vegetation index, Topographic map, Geological map
	27	3.2.2	Moors and heathland	AD	Vegetation map, Geological map, Aerial photographs
	28	3.2.3	Sclerophyllous vegetation	AP	Vegetation index, PCA (Principal component analysis)
	29	3.2.4	Transitional woodland/shrub	AD	Aerial photographs
	30	3.3.1	Beaches, dunes and sands plains	AP	Improving contrast
	31	3.3.2	Bare rock		

Continued on next page

Classes	ID	Code	Code description	Ancillary data (AD) Additional Processing (AP)	Description
	32	3.3.3	Sparsely vegetated areas	AP AD	Vegetation index Aerial photographs
	33	3.3.4	Burnt areas		
	34	3.3.5	Glaciers and perpetual snow	AP	Automatic reconnaissance programme
4. Wetlands	35	4.1.1	Inland marshes	AP	Displaying the near infra-red channel, Improving contrast,
	36	4.1.2	Peatbogs	AP	Vegetation index
	37	4.2.1	Salt-marshes	AD AP	Topographic maps Displaying the near infra-red channel, Images for periods of high water
	38	4.2.2	Salines	AD	Topographic maps
	39	4.2.3	Intertidal flats		
5. Water bodies	40	5.1.1	Water courses	AD	Topographic maps
	41	5.1.2	Water bodies		
	42	5.2.1	Coastal lagoons		
	43	5.2.2	Estuaries	AD	Topographic maps
	44	5.2.3	Sea and oceans		

End of Table A.1

# Appendix B

## Case studies selection for comparative analysis

Considerable time has been dedicated to the selection of the case studies, as it was assumed that choosing comparable case studies, showing similar yet different patterns of urban growth and urban sprawl, would have been crucial in answering the research questions (see sec. 5.1). Before the selection process started, also with reference to some of the previously surveyed literature (see Chapters 2 and 3), a pool of eligible cities had already been considered, including European capitals such as Paris, Madrid, Rome or Brussels, or other European metropolises (e.g. Munich, Lyon, Milan, Palermo), or metropolitan regions like the Venetian region or the Ruhr. The range was wide, so a precise selection process had to be carefully designed and carried out. Taking inspiration from the international literature (Camagni et al., 2002a; Kasanko et al., 2006), key indicators (see tab. B.2) have been descriptively employed in order to orient the selection of a group of eligible areas for comparative analysis, which the two case studies have been chosen from.

### **The use of Corine Land Cover (CLC) surveys**

In this dissertation, the Corine Land Cover (CLC) datasets for years 2000 and 2006 (see Appendix sec. A) *at NUTS3 level* (Nomenclature for statistical territorial units) have been used as the best available proxy for a territorial perspective on urban sprawl (1.245 observations). NUTS3 levels refer to conventional administrative boundaries, corresponding to provinces, counties or *arrondissements*, and have been considered more convenient units of analysis (observations) than Larger Urban Zones (see Appendix sec. C.0.1) or Urban Morphological Zones (see Appendix sec. C.0.1)<sup>1</sup> to the purpose of case studies selection through the Corine Land Cover (CLC) data. Furthermore, the use of administrative boundaries as statistical units of analysis is still generally more accepted and predominant in research (Jensen-Butler et al., 1997, p. 47).

Among the three different Corine Land Cover (CLC) available surveys (see Appendix sec. A), the 2000 and 2006 datasets were chosen for different reasons. In the first place, for data availability and easier access. At the beginning of the dissertation process (beginning of 2012), the 2000 and 2006 Corine Land Cover (CLC) inventories were more accessible than the 1990 data. The free version of the 1990 Corine Land Cover (CLC)<sup>2</sup>, which is available at the European Environment Agency's website, only exists in raster format (100 and 250 meters grid)<sup>3</sup>. Hence, the first barrier consisted in the need to transform the raster version of the 1990 CLC land cover survey into a vector version. This operation required external support, not readily available at that time, and also a powerful computing machine with at

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<sup>1</sup>Nevertheless, Larger Urban Zones (LUZ) and Urban Morphological Zones (UMZ) have been integrated in the analysis on urban sprawl in sections 5.4 and 6.2.

<sup>2</sup>From now on, the Corine Land Cover (CLC) dataset will be referred only as 'CLC'.

<sup>3</sup>This is due to copyright reasons related to the employed satellite data for the 1990 Corine Land Cover (CLC) inventory.

least 8GB of RAM was needed to perform the calculations and the management of more than 3 millions polygons.

In the second place, another barrier was that the (already transformed) vectorized version of the 1990 CLC dataset had to be intersect with NUTS3 levels. Such operation implied some technical problems: first, certain system requirements of the computer, as for the previous operation consisting in transforming the 1990 CLC dataset from raster to vector version; second, my personal knowledge on ArcGIS<sup>®</sup> software on the treatment of data and use of data management tools (i.e. intersection tools), which required technical support; and third, and more importantly, the diversity of scale between NUTS and CLC data. NUTS3 levels are provided at a geographical scale of 1:3.000.000 (NUTS-RDF Project. EuroGeographics, 2012), while the CLC datasets are provided at 1:100.000; such a difference in scale causes alignment problems which have to be technically bypassed. This scale difference is also present for the 2000 and 2006 CLC data, however these inventories have been provided, already crossed at NUTS3 levels (1.245 observations), by the European Environmental Agency itself. This meant that, methodologically, the intersection of the data might have been performed differently than for the 1990 CLC data.

Furthermore, there are other substantial reasons why the 1990 CLC data have not been employed in the process of case studies selection, although later integrated and taken into account for the two considered case studies (see Appendix sec. 6.2). All three CLC surveys – 1990, 2000 and 2006 – have some minimum characteristics in common (Eurostat, 2007, p. 6), namely:

- geographical scale: 1:100.000;
- Minimum Mapping Unit (MMU): 25 ha;
- minimum width of linear elements: 100m.

However, the 2000 and 2006 CLC surveys are methodologically superior and are more similar in terms of methodological standards as compared to the 1990 CLC survey (Eurostat, 2007, p. 7). For instance, the number of European countries involved in the 1990 CLC project are 26, while they are 32 and 36 for the 2000 and 2006 CLC surveys, respectively. And, more importantly, the time frame is more precise: 1990 CLC data have been collected over 8 years (1986–1998) and took 10 years to be ready, while the 2000 CLC data have been collected in 3 years (2000 +/- 1 year) and were launched in after 4 years, and the 2006 CLC data have been collected in 3 years (2006 +/- 1 year) and were ready only after one year and a half.

Additionally, the 2000 CLC survey is the most complete inventory among the three. As it is possible to see in table B.1, which compares the main characteristics of the 1990, 2000 and 2006 CLC surveys, and the total values per broad land categories and land use types (the latter only for Category 1 ‘Artificial surfaces’), the 2000 CLC survey does not have any missing data, as it defines the total extend in hectares (729.717.070 hectares) of the surveyed territory (EEA Enquiry Service Admin, 2014b). The 2000 CLC inventory thus serves as a reference for the 1990 and 2006 surveys: the 1990 survey shows 24,0% of missing data as ‘only’ 26 countries were included in this survey compared to the reference number of 32 in the 2000 CLC. The 2006 survey shows a 4,4% of missing data because Greece was not included in the 2006 CLC survey as compared to the 2000 CLC dataset, despite the former comprised 36 countries and not 32.

Finally, 1990 CLC data have incomplete metadata due to copyright problems related to the first edition of the project (i.e. use of satellite data), while standard metadata can be freely consulted for the 2000 and 2006 CLC data, which are also freely available on the European Environmental Agency’s website, both in raster and in vector version. Such difference is also

**Table B.1:** Comparison of the main characteristics and land use data among the 1990, 2000 and 2006 Corine Land Cover surveys. Source: EEA (European Environmental Agency), 2012. Author's elaboration.

Land use class	1990	% to total	2000	% to total	2006	% to total
	1986–1998	26	1999–2001	32	2005–2007	36
Number of surveyed countries						
Timeframe						
111. Continuous residential urban fabric	629 070,0	3,4	674 604,0	3,2	672 615,0	3,1
112. Discontinuous residential urban fabric	13 386 154,0	73,4	15 260 340,0	71,9	15 354 226,0	71,4
121. Industrial or commercial units	1 800 872,0	9,9	2 282 581,0	10,8	2 371 912,0	11,0
122. Road and rail networks and associated land	144 863,0	0,8	217 027,0	1,0	256 678,0	1,2
123. Port areas	96 344,0	0,5	112 371,0	0,5	114 615,0	0,5
124. Airports	288 414,0	1,6	339 923,0	1,6	337 822,0	1,6
131. Mineral extraction sites	580 131,0	3,2	716 145,0	3,4	721 592,0	3,4
132. Dump sites	98 687,0	0,5	114 051,0	0,5	111 979,0	0,5
133. Construction sites	173 860,0	1,0	187 478,0	0,9	189 965,0	0,9
141. Green urban areas	258 841,0	1,4	312 098,0	1,5	309 944,0	1,4
142. Sport and leisure facilities	782 375,0	4,3	1 008 004,0	4,7	1 053 571,0	4,9
Total urbanized areas	18 239 611,0	100,0	21 224 622,0	100,0	21 494 919,0	100,0
1. Artificial (urbanized) surfaces	18 239 611,0	2,5	21 224 622,0	2,9	21 494 919,0	2,9
2. Agricultural areas	236 655 589,0	32,4	250 045 261,0	34,3	244 177 622,0	33,5
3. Forest and semi natural areas	181 620 764,0	24,9	286 176 365,0	39,2	278 498 696,0	38,2
4. Wetlands	5 636 685,0	0,8	13 618 057,0	1,9	13 501 840,0	1,9
5. Water bodies	112 628 474,0	15,4	158 652 765,0	21,7	139 861 158,0	19,2
No data	174 935 947,0	24,0	0	0,0	321 828 35,0	4,4
Total	729 717 070,0	100,0	729 717 070,0	100,0	729 717 070,0	100,0

due to the fact that the 2000 and 2006 CLC datasets are ‘twins’ as the 2000 CLC survey has been used and corrected to produce the 2006 version (ETC LUSI European Topic Center, Land Use and Spatial Information, 2012, p. 15–16).

The different characteristics of the 1990 CLC dataset as compared to the 2000 and 2006 surveys, and the technical problems related to computing tools and the technical knowledge needed to manage the datasets and the softwares, which were only solved in an advanced state of this dissertation, made me decide to use the CLC surveys for 2000 and 2006 to carry out the descriptive analysis to select the case studies to compare. Nevertheless, the 1990 CLC survey has been later integrated once the case studies were selected (see sec. 6.2)<sup>4</sup>.

Methodologically, only the 11 artificial land use classes for each the 1.245 NUTS3 level (the units of analysis) in both the 2000 and 2006 CLC datasets have been considered in a descriptive way in order to strategically address the complexity and the diversity of characteristics on land use change presented by each territorial unit. In particular, the descriptive use of the 2000 and 2006 datasets was directed at reducing the number of eligible NUTS3 areas by the identification of meaningful characteristics that would have grouped *kinds* of NUTS3 areas (see below and tab. B.2) to choose the two case studies among.

### **Main steps for case studies selection for comparative analysis**

Below, the five main steps followed to manipulate the CLC dataset for the 2000 and 2006 surveys for the selection of the case studies are reported and discussed.

#### **First step**

As a first step for the selection of the two emblematic case studies for comparison, the Excel<sup>®</sup> worksheets provided by the European Environmental Agency (EEA) for the CLC 2000 and 2006 surveys sorted by NUTS3 level were imported into Stata<sup>®</sup>. The two datasets were then merged into one database, and some land use categories were recoded: I maintained the CLC specification for the 11 classes concerning artificial uses, while I recoded the remaining 33 classes into four broader categories following the CLC classification (see tab. A.1 in Appendix sec. A)<sup>5</sup>.

I noticed however that several cells were not specified. For instance, for some of the NUTS3 areas, no value was indicated for transport areas, therefore the cell was blank. This was at first puzzling, as it was reasonable to assume that there had to be transport areas, such as roads and railways, in each of the European provinces, counties or *arrondissements* (NUTS3). After consultation with academics and the European Environmental Agency (EEA) itself, I decided to consider absent values as 0s instead of missing values.

Such a problem has its origin in the fact that the CLC data are collected through a Minimum Measurement Unit (MMU) corresponding to 25 hectares (0,25  $km^2$ ) or 100 meters width of detail (see EEA European Environment Agency, 2007). In other words, the CLC dataset does not capture land covers below 25 hectares, or under 100 meters width<sup>6</sup>. As a result,

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<sup>4</sup>In addition, further research on the comparison among 1990, 2000 and 2006 (and potentially 2012) CLC inventories on land covers may be developed in the future (see also sec. 8.3).

<sup>5</sup>Following the CLC main groups, agricultural land uses have been coded into ‘Agric’ (CLC classes from 2.1.1 to 2.4.4); forests and semi-natural areas have been coded into ‘Forest’ (CLC classes from 3.1.1. to 3.3.5); wetlands have been coded into ‘Wetland’ (CLC classes from 4.1.1 to 4.2.3); and finally water bodies have been coded into ‘Water’ (CLC classes from 5.1.1 to 5.2.3).

<sup>6</sup>Despite this dissertation is written in American English, the international metric system is employed, hence territorial data are expressed in hectares, kilometers or squared kilometers, rather than miles or acres.

the EEA warns that CLC is generally underestimating transport infrastructure due to the Minimum Measurement Unit (MMU) (EEA Enquiry Service Admin, 2013b)<sup>7</sup>.

The Minimum Measurement Unit (MMU) displays one of the main limitations of the CLC dataset, as the CLC dataset underestimates land covers and land uses (Arcidiacono et al., 2010; EEA European Environment Agency, 2010b; in particular, see Prokop et al., 2011, p. 15). For the purposes of this dissertation, such underestimation is not only limited to the measurement of transport areas, but also to artificial surfaces on the whole, although it may be more apparent for roads and railways. Because of the use of this coarse-grained Minimum Measurement Unit (MMU), Pileri (2012) criticizes the usage of the CLC data for analyzing local variations, suggesting instead that CLC datasets should be more appropriately used only for land use growth rates at the national scale.

Nevertheless, because of the advantages offered by the CLC dataset that have been previously discussed in this section, the use of NUTS3 levels was considered to be a suitable compromise (a sort of ‘meso’ level) between a too general use of the CLC dataset by national areas (NUTS0) and the land use micro-transformations at the local level (i.e. municipalities or communes) over all European territory. The following figures (fig. B.1 and fig. B.2) show the different precision on land use changes attained with the 2000–2006 CLC dataset (fig. B.1) and the DUSAF dataset (see Appendix sec. B.2) for years 1999–2000 and 2009 (fig. B.2) for the municipality of Gaggiano, located within the Parco Sud in the Milan province and metropolitan area. It is clear how the Minimum Measurement Unit (MMU) turns the CLC dataset into an unsuitable (or not so suitable) tool for capturing land transformations at the local level of detail, given that a more precise dataset, in this case the DUSAF surveys, catches a larger amount of land use change occurring in the area during a comparable timespan.

Consequently, I deemed acceptable to code seemingly missing values (the blank cells) into 0, implying that a 0 would not necessarily refer to the absence of a certain type of artificial areas (e.g. missing roads, or missing dumps), but that cells with 0 value might refer to a land use type which is present but *under* the Minimum Measurement Unit (MMU) threshold, that is under 25 hectares or under 100 meters width. In practice, this methodological expedient allowed to consider absent values not as missing values, but as land covers probably present below the 25 hectares and/or 100 meters thresholds.

Hence, missing values for the 11 artificial land use classes, such as continuous residential areas, ports, airports, roads and railways, urban green areas, dumps or construction sites, could indicate either an absence of these types of areas within the considered provinces (something that is highly improbable for certain uses), or a presence of these land uses below the detectable Minimum Measurement Unit (MMU)<sup>8</sup>.

## Second step

As a second step, the land use growth rate between 2000 and 2006 has been calculated for each of the 11 CLC artificial land use classes per NUTS3 area. The land use change has been expressed in relative change (Corbetta et al., 2001; Pacini and Raggi, 2007; for a critical assessment, see Pileri, 2012). The relative change (i.e. the growth rate) has been preferred to simple index numbers with fixed basis, which are normally used to compare the variation of

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<sup>7</sup>Being aware of this problem, the European Environment Agency (EEA) is working to develop a better methodology to especially capture seamless, linear transport structures (EEA European Environmental Agency, 2013), which are generally less than 100 meters wide, and whose data will be probably disseminated by 2015.

<sup>8</sup>In contrast, it is interesting to note that almost all the NUTS3 level units show discontinuous residential areas (the proxy used in this dissertation to refer to urban sprawl, see sec. 5.3.1) and industrial and commercial areas, meaning that such land uses are consistently diffuse in the European territory.



different attributes among different territorial entities through two points in time, precisely because it was necessary to deal with the 0s previously substituted in the blank cells.

As a further methodological expedient, when calculating the relative change for transport areas, industrial and commercial areas, construction sites, and dumps and mineral extraction areas, it could be the case that both values, or only one value in 2000 or 2006, was 0. In such cases, the denominator was set to 1; this stratagem allowed to keep the information conveyed in the relative change formula.

Of course, and as a consequence of treating blank cells as 0s, this approximation is problematic. As an illustration, if we accept the legitimacy of the replacement of blank cells with 0s, a transport area that is coded to 0 in 2000 and that present a value different than 0 in 2006 displays, in relative terms, a huge increase<sup>9</sup>. Therefore, it is reasonable to question if 0 values really convey useful information, since those land use classes that have been coded as 0 will show a very high percent increase in land use variation between 2000 and 2006. The increase would have probably been less if the empty cells treated as 0s would have reported the true value.

In other words, the treatment of the ‘empty cells’ of the CLC dataset could be criticized, as better ways to handle such cases (and the dataset in general) could have been applied. However, decisions were made by continuous consultation with peers and academics, and through the available documentation on the CLC dataset.

In calculating the relative change (i.e. growth rate) for each of the 11 CLC artificial land use classes per each NUTS3 unit of analysis, I carefully and throughout checked for the substantial meaning of the operations I carried out on each land use category. For example, the province of Potsdam (Kreisfreie Stadt, NUTS3 level code: DE423) was the only observation being intentionally dropped as it showed 11 hectares of transport areas in 2000 and 0 hectares in 2006. It was considered reasonable to remove this observation as the decrease of transport areas was paradoxical and could not be accounted for<sup>10</sup>.

Similarly, regarding construction sites, some provinces showed a decrease in construction areas (–100%), while others showed a very high increase (>1.000%). In the first case, it was considered that former building sites had eventually, whether partially or totally, been built. For example, for the city of Leuven, in Belgium (NUTS3 code: BE242), construction sites amounted to 54 hectares in 2000, and 0 hectares in 2006; therefore, in this case, there was a –100% decrease in building yards. In the second case, it was considered to be possible that the province may have experienced a ‘development boost’ during the 2000–2006 timespan. For instance, the province of Toledo in Spain (NUTS3 code: ES425) increased from 191 hectares of construction sites in 2000, to 4.756 hectares in 2006 (+2.390%).

It is also noteworthy to remember that land use areas coded as 0s can refer to construction sites below 25 hectares and 100 meters of width, being non-detectable through the Minimum Measurement Unit (MMU). For example, Lecce province, located in Italy (NUTS3 code: ITF45), shifted from 0 hectares of construction sites in 2000 to 13 hectares in 2006 (+1.300%), a land use change that was considered nevertheless realistic.

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<sup>9</sup>As an example, if in a certain NUTS3 area, the value for transport areas is 0 in 2000, and 15 hectares in 2006, the growth rate (x) will result in  $x = ((15-0)/1) * 100 = 1.500\%$  increase in transport areas.

<sup>10</sup>As noted before, the 2000 and 2006 CLC surveys are more similar than the 1990 CLC dataset. One reason not to include the 1990 CLC dataset in the selection of case studies was that, according to the performed data management of the CLC 1990 inventory, there are more than 200 observations that do not show transport areas in 1990, something that was considered problematic, given also the centrality that transport areas theoretically and methodologically own in this dissertation (see sec. 5.2).

Additional to the calculation of the growth rate per each of the 11 artificial land use classes of the 2000–2006 CLC dataset per each NUTS3 area, by drawing from the contributions of some of the reviewed literature on urban sprawl (Alberti, 1996; Camagni et al., 2002a; Chin, 2002; Couch et al., 2007b; EEA European Environmental Agency, 2006; Ewing, 1997; Kasanko et al., 2006), the CLC classes have been complemented with specific Eurostat demographic statistics per NUTS3 level (i.e. number of inhabitants for years 2000 and 2006). Furthermore, a macro–European geographical attribute was also added to classify the 1.245 NUTS3 units that composed the 2000 and 2006 datasets into four broad geographical classes: Northern Europe, Eastern Europe, Central Europe and Southern Europe (see below for further details).

### Third step

Once the growth rate for each of the 11 artificial land use classes per NUTS3 area was calculated for the 2000–2006 timespan, and information on the population for both years and on the geographical group were added, the third step for choosing the case studies consisted in the selection of four main indicators, which are shown in table B.2.

First, the first and second indicator (variation of discontinuous residential areas and variation of transport areas) were linked to the need to consider those NUTS3 areas that presented a sufficient land use change (i.e. growth rate) in CLC classes 1.1.2 (discontinuous urban fabric) and 1.2.2, 1.2.3 and 1.2.4 classes (the whole of transport areas; see tab. A.1), in agreement with the hypotheses (see sec. 5.2).

A *sufficient* relative variation in discontinuous residential areas and transport areas has been defined as being above the median among the 1.200 NUTS3 statistical units composing the dataset<sup>11</sup>. Given the pronounced skewness of the data, the median was preferred as a more appropriate threshold measure of reference to divide the observations into qualitatively different groups (0=below the median, 1=above the median)<sup>12</sup>. The choice to consider the median rather than the mean relies in the fact that the average value is more sensitive to extreme values (see Le Gléau et al., 1997, p. 7; Pacini and Raggi, 2007, p. 90-92, 102). The median of each land use variation was considered to be the best tool for the selection process of case studies, that is separating the observations into two *qualitatively different groups*<sup>13</sup>.

In other words, the logic underpinning the treatment of the CLC dataset was oriented to the selection of meaningful characteristics of the cases to study, i.e. *kinds* of case studies, and their combination into a specific set of conditions in order to guide the selection of two emblematic case studies. Hence, those NUTS3 levels presenting a relative variation of discontinuous urban fabric and of transport areas above the median were retained, reducing the number of the 1.200 NUTS3 units of analysis to 255.

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<sup>11</sup>Originally, the CLC dataset consisted of 1.245 NUTS3 level. Data polishing resulted in the dropping of 45 cases, because they lacked of demographic data for 2000 and/or 2006, and because of Potsdam province had been deleted (see supra).

<sup>12</sup>This strategy has been inspired by the crisp set analysis method as presented by Ragin (1987, 2008), although further substantial implications required by the configurational comparative methods are not further developed in this research. Nevertheless, in this research an attempt has been made to maintain set–theoretical thinking as a guiding principle for the selection of case studies (grouping of cases). Other statistical methods for classification, such as cluster analysis, have not been performed, however they may be addressed in the future (see sec. 8.3).

<sup>13</sup>In the case of transport areas and construction sites, the binary variable has been generated by coding to 1 (above the median) the values greater than the median ( $>$ , and not *equal* or greater,  $\geq$ , than the median, as for the other land use change), since many NUTS3 areas presented transport areas as 0. By doing so, the groups were not equal in size.

**Table B.2:** The employed indicators for the selection of the case studies, detailing the timespan and the correspondent sources. Author's elaboration.

Indicator	Type of measure	Description	Time horizon	Sources
1. Variation of discontinuous residential areas	Core dynamic measure	Variation of the discontinuous residential areas for years 2000 and 2006, relative change.	2000–2006	Corine Land Cover code: Artificial surfaces, Discontinuous urban fabric 1.1.2.
2. Variation of transport areas	Core dynamic measure.	Variation of transport areas for years 2000 and 2006, relative change.	2000–2006	Corine Land Cover code: Artificial surfaces, roads, railroads, airports and ports 1.2.2 – 1.2.4.
a. Average number of inhabitants (> 800.000)	Added static measure.	Average number of inhabitants between years 2000 and 2006.	2000–2006	Eurostat Regional Statistics, Regional Demographic Statistics, Population and area, Annual average population by sex (1.000) (code: demo r d3avg).
b. Geographic group	Added static attribute	Attribution of NUTS3 levels to Northern, Eastern, Central and Southern Europe	Own classification by drawing from the UN regional groups.	

#### Fourth step

In order to further narrow down the units of analysis, in accordance with the hypotheses (see sec. 5.2), the fourth step consisted in considering only those provinces with more than 800.000 inhabitants<sup>14</sup>, calculated as the population average value between years 2000 and 2006. Such choice was aimed at selecting those NUTS3 areas potentially presenting a metropolitan character (i.e. whose urban structure is organized in a metropolitan urban system). The result of the consideration of this added indicator (indicator a, see tab. B.2) has been to reduce the number of units of analysis from 255 to 54 NUTS3 areas (see tab. B.3).

As previously mentioned, in the third step, the geographical location of NUTS3 areas was also examined. NUTS3 areas were grouped in four main geographical clusters, namely Northern, Central, Eastern and Southern Europe:

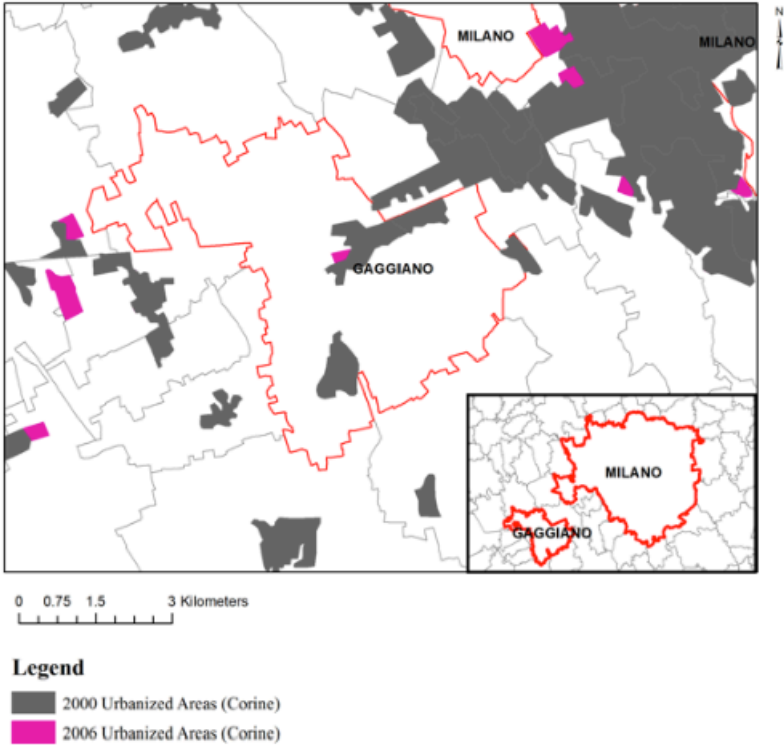
- Northern European NUTS3 areas: Denmark, Finland, Ireland, Iceland, Norway, Sweden;
- Central European NUTS3 areas: Austria, Belgium, Germany, France, Lichtenstein, Luxemburg, The Netherlands;
- Eastern European NUTS3 areas: Bulgaria, Czech Republic, Estonia, Croatia, Hungary, Lithuania, Latvia, Macedonia, Poland, Romania, Slovenia, Slovakia;
- Southern European NUTS3 areas: Cyprus, Spain, Italy, Malta, Portugal, Turkey.

Such classification has been carried out by referring, although not strictly, to the United Nations' classification of (European) countries in geographical clusters (i.e. 'geoscheme', see Wikipedia, 2014). However, I re-interpreted such classification by coding, for example, Lithuania, Estonia and Latvia within the Eastern European countries and not within the Northern European countries, as belonging to the ex-communist block. Likewise, countries like Slovenia or Croatia have been coded within the Eastern European countries for the same reason, even if they could well belong to the Southern European NUTS3 area, as per the UN Geoscheme. In addition, Turkey and Cyprus have been coded as Southern European countries, even if they are classified to belong to Western Asia in the UN classification. Finally, I considered France to be geographically and politically 'borderline', however more similar to the Central European 'block' than to the Southern European one, following the UN Geoscheme.

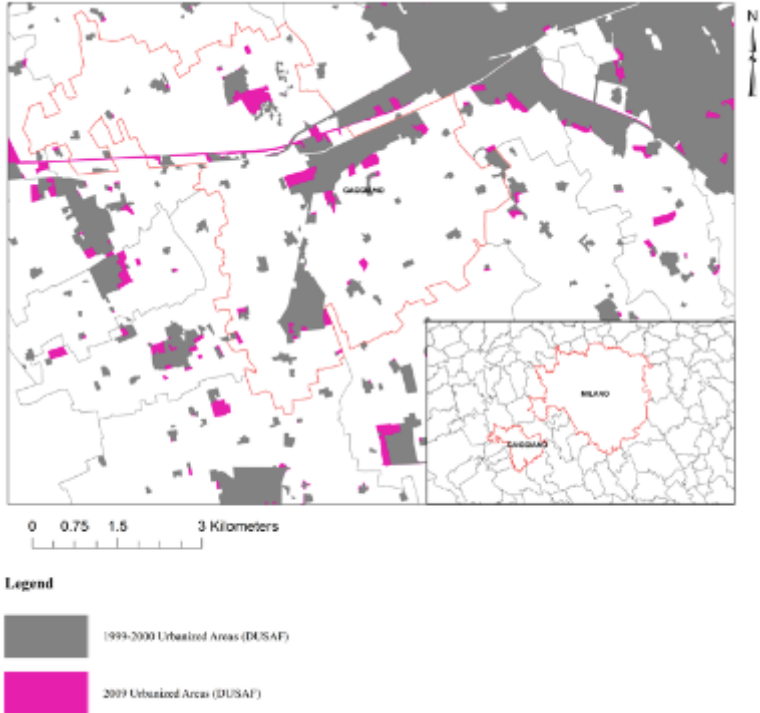
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<sup>14</sup>The lack of agreed-upon (urban) population thresholds (see Brenner and Schmid, 2014 in statistics, despite my efforts to cross-check possible 'European' values with the Italian Statistical Institute (ISTAT), the Catalan regional statistical institute (IDESCAT), and the demographic report published by the Eurostat (2011a), becomes a problem when it is necessary to deal with demographic data. Hence I set my own population size thresholds (250.000, 500.000 and 800.000) as a reference to manage the CLC dataset. Furthermore, in order to include those areas approaching to the 'psychological' threshold of 1 million inhabitants to identify metropolitan areas (Boffi et al., 2012; Serra, 2003, p. 12), I 'got the long way round' and considered 800.000 inhabitants instead.

**Figure B.1:** An illustrative map of 2000–2006 Corine Land Cover data capturing land transformations in Gaggiano municipality, Milan, Italy. Source: EEA, Istat. Author's elaboration.



**Figure B.2:** An illustrative map of 1999/2000–2009 DUSAF data capturing land transformations in Gaggiano municipality, Milan, Italy. Source: ERSAF, Istat. Author's elaboration.



**Table B.3:** The 54 NUTS3 units of analysis remaining after the fourth step of data manipulation. The NUTS3 areas are ordered by the increase in discontinuous urban fabric for years 2000 and 2006. Source: EEA 1994a,b. Author's elaboration.

NUTS3 codes	NUTS3 names	% Variation of discontinuous urban fabric 2000–2006	% Variation of transport areas 2000–2006	Average popula- tion (inhabitants) 2000–2006	Geographic group
TR621	Adana	0,8	0,4	1913850	Southern Europe
FR102	Seine-et-Marne	1,0	15,4	1244950	Central Europe
FI181	Uusimaa	1,0	34,8	1332000	Northern Europe
SE232	Vastra Gotalands lan	1,0	15,9	1512550	Northern Europe
FR413	Moselle	1,1	1,7	1032200	Central Europe
FR824	Bouches-du-Rhone	1,2	7,6	1901050	Western Europe
BG411	Sofia (stolitsa)	1,2	8,2	1225850	Eastern Europe
FR612	Gironde	1,3	4,3	1354400	Central Europe
ES111	A Coruna	1,4	6,0	1102400	Southern Europe
TRA11	Erzurum	1,5	2,9	902600	Southern Europe
ITD35	Venezia	1,5	2,9	821600	Southern Europe
FR716	Rhone	1,6	2,8	1634400	Central Europe
ITD55	Bologna	1,7	11,2	930800	Southern Europe
CZ010	Hlavni mesto Praha	1,7	1,9	1184400	Eastern Europe
CZ020	Stredocesky kraj	1,7	1,9	1139900	Eastern Europe
ITC45	Milano	1,8	2,2	3789800	Southern Europe
ITD32	Vicenza	1,8	60,6	813450	Southern Europe
ES511	Barcelona	1,8	31,7	4980850	Southern Europe
SE224	Skane lan	1,9	10,3	1151800	Northern Europe
FR522	Finistere	2,2	0,2	871350	Central Europe
PT114	Grande Porto	2,2	50,8	1259300	Southern Europe
PL127	Miasto Warszawa	2,3	1,8	1695700	Eastern Europe
FR511	Loire-Atlantique	2,3	0,8	1196750	Central Europe
ITD36	Padova	2,9	4,8	869550	Southern Europe
ITE14	Firenze	2,9	16,2	952150	Southern Europe
TR411	Bursa	3,0	23,3	2259950	Southern Europe
FR523	Ille-et-Vilaine	3,1	1,9	916300	Central Europe
HU102	Pest	3,2	1,4	1109700	Eastern Europe
TR622	Icel	3,3	80,8	1677150	Southern Europe
TR721	Kayseri	3,5	38,6	1092650	Southern Europe

Continued on next page

**Table B.3 – continued from previous page**

NUTS3 codes	NUTS3 names	% Variation of discontinuous urban fabric 2000–2006	% Variation of transport areas 2000–2006	Average popula- tion (inhabitants) 2000–2006	Geographic group
ITE43	Roma	4,3	3,6	3815200	Southern Europe
ES523	Valencia	4,3	17,0	2285050	Southern Europe
FR813	Herault	4,6	7,2	960350	Central Europe
FR623	Haute-Garonne	4,6	4,6	1133450	Central Europe
NL335	Groot-Rijnmond	4,6	3,0	1346950	Central Europe
PT171	Grande Lisboa	5,1	13,8	1980000	Southern Europe
ES120	Asturias	5,2	43,5	1060700	Southern Europe
TR421	Kocaeli	5,2	2,4	1293750	Southern Europe
TR100	Istanbul	5,2	0,6	11000000	Southern Europe
NL326	Groot-Amsterdam	5,5	13,6	1188050	Central Europe
ITD31	Verona	5,6	0,7	846800	Southern Europe
ITF42	Bari	5,7	2,0	1577000	Southern Europe
NL310	Utrecht	5,7	3,9	1149100	Central Europe
ES213	Vizcaya	7,0	0,1	1126400	Southern Europe
IE021	Dublin	8,5	24,7	1145150	Northern Europe
ES300	Madrid	10,3	125,7	5612800	Southern Europe
ES521	Alicante	10,3	15,5	1575200	Southern Europe
ES243	Zaragoza	12,0	58,4	882400	Southern Europe
TRC11	Gaziantep	12,9	8,4	1381200	Southern Europe
ES617	Malaga	21,0	25,5	1362600	Southern Europe
ES612	Cadiz	21,9	4,2	1142500	Southern Europe
ES620	Murcia	23,2	35,9	1255850	Southern Europe
ES618	Sevilla	23,6	1,1	1753650	Southern Europe
ES614	Granada	23,7	6,7	845300	Southern Europe

End of Table B.3

### **Fifth step**

Finally, I noticed that 32 of the remaining NUTS3 areas (almost 60%) were located in Southern Europe (Spain, Italy and Portugal)<sup>15</sup>, as table B.3 shows<sup>16</sup>.

After some reflection, for the selection of two emblematic case studies, I decided to consider only the pool of those NUTS3 units of analysis pertaining to Southern Europe. This decision was supported by the fact that, in the literature, Southern European cities are generally considered to be more compact than Western and Northern European cities (Arellano Ramos and Roca Cladera, 2012; Colleoni, 2011; EEA European Environmental Agency, 2006; Hall and Hay, 1980; Kasanko et al., 2006; see also sec. 2.3.1). However, for the 2000–2006 period, the performed manipulation of the CLC dataset highlighted how Southern European provinces with more than 800.000 inhabitants stood out as ‘land consumers’, showing a sufficiently high growth rate of discontinuous urban fabric and transport areas among the 54 provinces in Europe with similar characteristics.

This was an intriguing finding, which not only supported the goodness of the descriptive manipulation of the CLC dataset, but which also hinted to the presence of specific processes of suburban diffusion in Southern Europe. This decision was also corroborated by other studies (Christiansen and Loftsgarden, 2011; ESPON, 2010), which point out that Mediterranean cities do not appear to be as compact as before, having experienced a particular high level of sprawl since 1990.

## **B.1 The selection of Barcelona and Milan**

From the 32 Southern European NUTS3 levels identified in table B.3, Barcelona and Milan were ultimately selected as suitable case studies to compare. Substantial motivations guided the meaningfulness of the comparison between these two cities (see also sec. 5.3.3).

In the first place, they present a similar increase in discontinuous residential areas (+1,8%), while they substantially differ with regard to the increase in transport areas (+2,2% for Milan, and 31,7% for Barcelona). Such difference was considered relevant for the stated hypotheses (see sec. 5.2), where (the growth rate of) transport infrastructures are assumed to support urban sprawl. Instead, a similar increase in discontinuous residential areas was combined with a very different increase in transport areas, hinting to two different types of spatial expansion processes concerning dispersed residential areas.

In the second place, they are both the largest non-capital cities in their countries, and have a pronounced metropolitan character. They are both important metropolitan centers not only within their regions, but also at the national and international levels. Barcelona and Milan are the center of their polycentric metropolitan regions, exerting relevant influence on the surrounding areas in geographical, political, economic and social terms. Barcelona is both the metropolitan center and the capital of the Catalan region (*Comunidad Autónoma*), and similarly, Milan is both the regional capital of Lombardy and its (although not official recognized) metropolitan center.

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<sup>15</sup>This is even more striking in the case of Spain, for which CLC data have been collected in a 5 years timespan instead of 6 (EEA European Environmental Agency, 2013). This indicates the extreme character of the phenomenon in the Spanish case, and it emphasizes also its specificity in relationship to the ensuing economic crisis in 2008.

<sup>16</sup>Despite this dissertation is written in American English, data are conventionally presented with commas separating decimals, and points separating thousands. The international metric system is also employed, hence territorial data are expressed in hectares, kilometers or squared kilometers, rather than miles or acres.



In the third place, both Milan and Barcelona are post-industrial cities, having recently shifted their economic functions to the service sector. This change implies a transformation in the social uses of space in the urban environment, ‘releasing’ ex-industrial areas for the tertiary sector, and modifying the composition of their employment sectors (see also sec. 7.3).

In the fourth place, both cities have been gone through a similar historical process of urban expansion in the XIX century, as the beginning of demolition of the old city walls is almost contemporary, during 1850–1860 for Barcelona (turning down of the medieval walls) and during 1850–1950 for Milan (turning down of the ‘Spanish walls’) respectively (cp. sec. 5.3.4; see also sec. 2.3.1.2).

In the fifth place, Barcelona and Milan have also been chosen to ensure a theoretical continuity with other previous studies on urban sprawl and urban compaction. For example, Milan and Barcelona have been considered examples of the Southern compact city by previous studies (Busquets and Corominas, 2010; Catalán et al., 2008; EEA European Environment Agency, 2002; EEA European Environmental Agency, 2006; Kasanko et al., 2006), identifying the latter as one of the models of city compactness<sup>17</sup>. Being both Southern European cities, their comparative analysis helps clarify the changes that the ‘Southern European urban compact model’ has been experiencing, as there is a need to analyze the political, cultural and historical patterns characterizing urban development towards urban sprawl or densification in Mediterranean cities (Catalán et al., 2008).

Furthermore, Barcelona and Milan were chosen as examples of the Southern European housing model as examined by Allen et al. (2004), where the construction of ‘small self-promoted single-family houses in low-density, non-urban areas or at the periphery of the urban area; secondary home developments on state-owned land along the coastlines; and large housing developments at the periphery of the urban areas’ (Allen et al., 2004, p.176) represented the main housing policy characterizing a certain type of welfare state, which created social stability by assisting and encouraging the investment capacity of households in suburban housing goods (see sec. 5.3.3).

Finally, my personal knowledge of both cities (in particular of Barcelona) allowed me to select Barcelona and Milan as case studies among the 32 other Southern European metropolises, such as Madrid, Sevilla or Lisbon.

However, I am fully aware of the fact that the use of different estimates than the median, and a different selection of indicators, as well as the application of statistical methods such as cluster analysis, could have led to the selection of another pool of NUTS3 areas, where two different case studies could have been chosen from. In response to this consideration, I repeatedly pondered over the use of the 2000 and 2006 CLC databases as a strategic tool to orient the selection of case studies. The employment of descriptive indicators in a binary form (above/below the median) was deemed an effective way to use the comparable data offered by the CLC dataset sorted by NUTS3 areas as units of analysis to select the case studies from for further qualitative inquiry (see Chapter 5 for further details).

In any case, theoretical assumptions on the choice of indicators, and my substantial knowledge of the cities included in the CLC database at NUTS3 level, supported and guided the use of these land use data throughout the whole process of data manipulation and case studies selection and, among the pool of 32 Southern European units of analysis, Barcelona and Milan were finally identified as relevant case studies to approach in a more qualitatively oriented research.

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<sup>17</sup>For a critical review on the ‘Barcelona model’, see Capel, 2005.

## B.2 Local datasets for Barcelona and Milan

Once Barcelona and Milan were selected as the two case studies to compare, I searched for local data on land use for both cities. I define such datasets as ‘local’ not only because they refer to a particular territory, in this case Barcelona and Catalonia, and Milan and Lombardy, but also because they are provided by local territorial agencies and geographical information services. Tables employing these local land use data are presented and commented upon in section 6.2 of Chapter 6.

The aim to include local datasets on territorial land use transformations in the two selected case studies was to account for the recent historical trajectory of land use transformations in both cities, contrasting the information retrieved from the Corine Land Cover (CLC) database for the 1990–2006 timespan with more detailed databases on land covers and land use. The local datasets employed in this dissertation have been chosen with the aim to offer a historical overview of land use transformations in both Barcelona and Milan areas, selecting the most comparable datasets in terms of time.

For Barcelona, land use data for the 1956-2006 timeframe have been used<sup>18</sup>. These data measure and account for the transformations occurred in the built environment by type of land use (mainly residential, industrial and transport areas), and by type of planning category (planned or unplanned land changes), according to the then Spanish planning law (1956; see also sec. 7.4.1.1). They refer both to the Barcelona metropolitan area (AMB), composed by 36 municipalities, and to the Barcelona metropolitan region (RMB), composed by 164 municipalities, and are divided into the 7 *comarques* that compose such areas (see sec. 7.4.1.2). These data classify artificial land uses into 10 different classes, which have been recodified in order to be roughly comparable with the artificial land uses as per the Corine Land Cover (CLC) nomenclature already employed (see sec. A), and with the local datasets found for Milan (see infra), which also follow the Corine Land Cover (CLC) classification. The AMB dataset include only land use data on artificial land uses, as it does not present information on agricultural areas, forests and natural areas, and water bodies. However, the total amount of land in hectares per *comarca* (see also Appendix sec. C), hence a general reference to ‘open and agricultural land’, could be made by simply subtracting the total hectares of artificial areas to the total hectares of the surface areas.

For Milan, the DUSAF database<sup>19</sup> has been used. DUSAF data correspond to a digital geographic information dataset of the planning transformations occurred in the Lombardy Region (see also sec. 7.4.2.2).

In this dissertation, the 1954 and 2009 surveys (ERSAF Ente Regionale per i Servizi all’Agricoltura e alle Foreste, 2013) have been compared. It was not possible to employ the 1980 DUSAF data, as a comparable time frame for the 1977 land use data for Barcelona, since they are qualitatively different from the other two surveys. The 1980 data have been produced with different technical characteristics than other DUSAF datasets, and their level of precision is not comparable; however, the 1980 dataset has been produced and later integrated in the DUSAF database, hence it is a sort of ‘outsider’ of the DUSAF inventories (Fasolini, 2014). The DUSAF datasets have generally a 1:10.000 scale and the minimum measurement unit is  $1.600\text{ m}^2$  (0,16 ha), while the 1980 survey has been produced at a 1:100.000 scale and has a minimum measurement unit of  $40.000\text{ m}^2$  (4 ha). Furthermore, the consideration of types

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<sup>18</sup>I thank the Barcelona Metropolitan *Àmbit* (AMB) for making these data available for my research.

<sup>19</sup>DUSAF is the acronym for *Destinazione d’Uso dei Suoli Agricoli e Forestali*, the main focus of this database being the monitoring and measurement of the changes in agricultural and forest land uses. However, as it follows the CLC nomenclature, it also includes information on the urbanized areas and their land uses.

of artificial soil (i.e. the 11 land use classes for urbanized areas) corresponds to a detail of ‘artificial soil’ in general, more clearly revealing the 1980 dataset’s deficiencies – especially if such land cover and use data are employed at municipal level, as it has been done in this dissertation for these types of data.

The 83 land use classes of the 1954 dataset, and the 72 land use classes of the 2009 dataset, have been re-codified into 12 categories of artificial uses, and 4 others for open and agricultural land. Most of the differences between the land use classes of the two datasets refer to agricultural uses, forests and other land covers; the classification of artificial areas is almost the same. The reclassification of urbanized uses have been carried out to ensure compatibility with the Corine Land Cover (CLC) data classification already employed, and also with the AMB land use surveys for Barcelona. The recodification has been checked and modified several times, hence the recodification involves a certain degree of subjectivity. Nevertheless, the DUSAF data make explicit reference to the Corine Land Cover classification to categorize land covers and land uses, hence recodification was somehow facilitated (see also ERSAF Ente Regionale per i Servizi all’Agricoltura e alle Foreste, 2010)<sup>20</sup>. An interesting specificity of the 1954 and 2009 DUSAF datasets refers to transport infrastructures, which are codified into four different classes: roads, railways, ports and airports.

The AMB and DUSAF local datasets roughly refer to the same timeframe (1950s–2000s), and are considered to effectively complement the CLC data available for 1990–2006.

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<sup>20</sup>The land use atlas compiled by ERSAF Ente Regionale per i Servizi all’Agricoltura e alle Foreste (2010) on Lombardy region has been taken as a reference to guide re-codification.

# Appendix C

## Scale definition: city and metropolitan boundaries

As highlighted in the hypotheses (see sec. 5.2), in this dissertation the definition of meaningful and comparable metropolitan boundaries holds a crucial theoretical relevance. In Europe, there is currently no agreement on the criteria to define metropolitan areas, differently than the work carried out since the 1950s by the Bureau of Census in the USA (Arellano Ramos and Roca Cladera, 2012). However, the European Environment Agency (EEA) provides two types of ‘metropolitan’ delimitations, namely Larger Urban Zones (LUZ) and Urban Morphological Zones (UMZ), which will be presented and briefly discussed in sections C.0.1 and C.0.2.

Larger Urban Zones (LUZ) and Urban Morphological Zones (UMZ) can be considered attempts carried out at the European level to identify the limits of urban and metropolitan agglomerations (‘cities’) beyond administrative boundaries for intra-European comparative analysis. The following sections C.0.1 and C.0.2 discuss their characteristics and shortcomings, justifying the reasons why they were only later integrated in the analysis once the two case studies were selected (see sec. 6.2).

### C.0.1 Larger Urban Zones (LUZ)

Larger Urban Zones (LUZ), available for year 2009, identify the functional area of influence of the considered Urban Audit cities (Eurostat, 2004, 2007). Similarly to Urban Morphological Zones (UMZ) (see sec. C.0.2), Larger Urban Zones (LUZ) try to effectively respond to the need to work with information on cities that are actually molded on the real area of expansion of the city itself, overcoming the obstacles posed by its administrative boundaries:

Cities can no longer be treated as discrete unrelated entities without a spatial dimension. (...) Urban rural connectivity and inter-urban relations have become critical for balanced regional development. (...) The larger urban zone is an approximation of the functional urban area extending beyond the core city. (Eurostat, 2009a)

The Larger Urban Zones (LUZ) are defined by employing a variety of sources, and the term ‘functional’ refers to the real influence that a city (supposedly) exerts on the surrounding areas for economic and social activities (work flows, services as education, health, and so on) and that can be represented on a map through the continuity of land uses (Eurostat, 2009a). The explicit theoretical reference employed for the identification of Larger Urban Zones (LUZ) has been the concept of Functional Urban Region (FUR) proposed by Hall and Hay (1980).

The Urban Audit project (Eurostat, 2004, 2007) has been carried out between 2003 and 2004, comparing a large variety of indicators in three points in time (1981, 1991 and 1996) for EU15 (Belgium, Denmark, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, The Netherlands, Austria, Portugal, Finland, Sweden United Kingdom) and EU27 countries

(EU15, and Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia). Data on demography (e.g. population), social aspects (e.g. housing and health), economic aspects (e.g. labour markets), civic involvement, training and education, environment (e.g. air quality and noise, waste management), travel and transport (e.g. travel patterns and commuting flows), information society and culture and recreation have been collected and compared with the aim to identify three spatial levels, namely Core Cities (CC), Sub-City Districts (SCD) and Larger Urban Zones (LUZ).

A demarcation process was applied in defining the Larger Urban Zones: the Eurostat office followed some general guidelines to decide which municipalities were to be included in the functional zone of a certain city, mainly considering commuting flows, spatial contiguity and data availability (Eurostat, 2009a). Furthermore, the Larger Urban Zones boundaries have been defined by observing that ‘larger urban zones tend to have a lower population density and a higher percentage of green areas than core cities’ (ib.). Therefore, Larger Urban Zones (LUZ) tried to operationalize the city functional area by identifying a boundary through population density and intensity of land use.

The Larger Urban Zones’ (LUZ) boundaries have been defined by referring to Corine Land Cover (CLC) surveys. The seamlessness of the urban trim within Larger Urban Zones (LUZs), classified by type of land uses (mainly industrial, transport and residential), has been one of the criterion employed to delimit the functional area of influence of what we call a ‘city’<sup>1</sup>.

Although the Eurostat provides a throughout statistical specification of the data employed for the definition of Larger Urban Zones (LUZ), it is not clarified *how* the over 100 indicators have been (theoretically and methodologically) used. For instance, it remains unclear how ‘inclusion/exclusion’ thresholds have been identify to include or not certain municipalities within each of the Larger Urban Zones (LUZ), or on how commuting flows have been used to delimit the functional area of a certain city.

Furthermore, despite the ambitious and certainly necessary effort carried out by the Eurostat to provide comparable urban functional areas at the European level, the fact that mostly 1990s data were employed to define the boundaries of Larger Urban Zones (LUZ) was considered a shortcoming, as more recent data would have almost certainly shown a different spatial delimitation (and given also the timespan when this dissertation has been carried out and written, 2012–2014).

Hence, for this dissertation, a more ‘conservative’ choice was taken, and NUTS3 areas were finally considered as units of analysis for the selection of case studies, corresponding to administrative boundaries of provinces, counties and *arrondissements* (see Appendix sec. B). However, Larger Urban Zones (LUZ) were employed in the interviews during the fieldwork (see Appendix sec. D.1) and also once the two case studies were selected (see sec. 6.2).

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<sup>1</sup>In specific, the Larger Urban Zones (LUZ) dataset classifies the satellite imagery directly. As part of the Urban Atlas (UA) project, Larger Urban zones (LUZ) are derived from very high resolution imagery, while the Corine Land Cover (CLC) dataset is derived from high resolution imagery. No direct correlation exists between the two datasets, and reliability between the LUZ or CLC datasets is difficult to assess in isolation from a given interest or use (EEA Enquiry Service Admin, 2014a). In the Larger Urban Zones (LUZ) dataset, discontinuous urban fabric has been classified into four different categories, namely discontinuous dense urban fabric (S.L. : 50% – 80%) – code 11210; discontinuous medium density urban fabric (S.L. : 30% – 50%) – code 11220; discontinuous low density urban fabric (S.L. : 10% – 30%) – code 11230; and discontinuous very low density urban fabric (S.L. < 10%) – code 11240. The thresholds identified are linked with the 30%–80% range of threshold of land use intensity (gradient of built form) mentioned in section 5.3.1 and sec. 5.3.3, and refer directly to the Corine Land Cover (CLC) dataset, although the LUZes are derived from very high resolution imagery.

## C.0.2 Urban Morphological Zones (UMZ)

Similarly to Larger Urban Zones (LUZ), Urban Morphological Zones (UMZ) employ Corine Land Cover (CLC) data, although in a different way. Urban Morphological Zones (UMZ) correspond to the continuous urbanized fabric of the cities, defined as the seamlessness of urban constructions under a 200 meters threshold, outside their enclosed administrative boundaries (EEA Enquiry Service Admin, 2014b; ETC LUSI European Topic Center, Land Use and Spatial Information, 2012; Eurostat, 2009a). In contrast with Larger Urban Zones (LUZ) (see Appendix sec. C.0.1), Urban Morphological Zones (UMZ) are defined only in physical (i.e. morphological) terms, 200 meters being set as the physical threshold to identify the morphological continuity of urban built forms. In total, 354 Urban Morphological Zones (UMZ) are available.

The Urban Morphological Zones (UMZ) stem directly from the Corine Land Cover (CLC) data, which have been rearranged in the following categories (see EEA 2011d):

- core classes composed by continuous urban fabric (CLC class 1.1.1), discontinuous urban fabric (CLC class 1.1.2), industrial or commercial units (CLC class 1.2.1) and green urban areas (CLC class 1.4.1);
- enlarged core classes composed by core classes and port areas (CLC class 1.2.3), airports (CLC class 1.2.4), and sport and leisure facilities (CLC class 1.4.2), which are considered ‘if they are neighbors to the core classes or to one of them touching the core classes’ (EEA 2011d); in the enlarged core classes road and rail networks (CLC class 1.2.2) and water courses (CLC class 5.1.1) are also included, if they are neighbors to the core classes within a 300m buffer;
- forests and scrub corresponding to the Corine Land Cover (CLC) classes 3.1.1, 3.1.2, 3.1.3, 3.2.2, 3.2.3, 3.2.4, and are included only if they are completely lying within the core classes.

In synthesis, once core classes have been identified, the 200 meters threshold is ‘corrected’ by including those urban elements, such as forests, industrial areas, transport areas, or rivers that, despite creating a geographical space of more than 200 meters, nevertheless morphologically belong to the urban area under analysis (cp. also Le Gléau et al., 1997).

The process of delineation of Urban Morphological Zones (UMZ) can however be criticized, since no justification is proposed regarding the selection of the ‘200 meters threshold’ to discriminate the ‘in’ and the ‘out’ (e.g. why not 250 meters, or 500?)<sup>2</sup>.

Furthermore, Urban Morphological Zones (UMZ) do not include land use information, as they are ‘solid’ polygons, hence their simple overlap of 1990, 2000 and 2006 Urban Morphological Zones (UMZ) tracks the changes (the variation) in the total morphological built-up areas registered in European cities (see sec. 6.1). Because of their ‘solid’ character, Urban Morphological Zones (UMZ) have not been used as units of analysis to select the case studies, having preferred the original Corine Land Cover (CLC) dataset instead <sup>3</sup>.

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<sup>2</sup>See Tannier and Thomas (2013) for a brief discussion on such methodological problem, and for the proposal of a possible solution (see also sec. 5.4).

<sup>3</sup>Although intersection of the UMZ boundaries with Corine Land Cover (CLC) land use classes (see Appendix sec. A) would have been possible through Esri ArcMap<sup>®</sup> software, such operation has been carried out only for the two selected case studies, since difficulties in managing the Urban Morphological Zones (UMZ) shapefiles within the Esri ArcMap<sup>®</sup> software environment were encountered in carrying out such procedure, requiring specialized technical support.

Furthermore, Urban Morphological Zones (UMZ) dataset for year 2000 included a specific shapefile with a selection of cities with more than 50.000 inhabitants, which facilitated comparison among European urban agglomerations: the morphological boundaries were indeed defined by the European Environmental Agency (EEA) itself. However, such database was not yet available for 2006 Urban Morphological Zones (UMZ), and hence a comparison between years 2000 and 2006 was not possible for the selection of case studies.

Finally, the 200 meters threshold was considered quite problematic for the definition of the ‘true’ morphological areas of urban agglomerations. Hence, similarly to Larger Urban Zones (LUZ, see Appendix sec. C.0.1), Urban Morphological Zones (UMZ) data have been employed only descriptively in the form of a map to start the interviews (see sec. D.1)<sup>4</sup>, and also once the two case studies were selected (see sec. 6.2).

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<sup>4</sup>It is relevant to stress that some of the interviewees contested the 200 meters threshold for the definition of Urban Morphological Zones (UMZ), which was considered to support the ‘conservative’ choice to use NUTS3 levels instead for the selection of the two case studies.

# Appendix D

## Interviews

Interviews have been carried out as a qualitative method in order to analyze how and why urban sprawl has occurred in the selected case studies, according to the research questions that have been formulated (see sec. 5.2). The aim was to unravel the decisions taken at the different government layers, involving private and public actors, ‘which influence the arrangement and use of physical and service components of the urban system’ (Gale and Moore, 1975, p. 122).

The reconstruction of the causal chain of decisions on land management that at different governance scales can be related to the occurrence of urban sprawl, mainly referring to urban plans and laws, has been performed by taking inspiration from the methodological guidelines for policy analysis defined by Dente (2011)<sup>1</sup>.

A policy decision can be defined as the decisional process among different alternatives to treat and solve a collective problem and, also, to provide innovative solutions to it (Dente, 2011). Policy analysis should therefore:

(...) provide reasoned descriptions of the mechanisms through which some outcomes [of the phenomenon under investigation] have been produced with the aim to generate hypotheses on which factors of the process, which caused the outcomes, can be singled out and/or with the aim to advance on the models and representations found in the literature [on that specific phenomenon].(Dente, 2011, p. 197) [my translation]

Such perspective was considered to be compatible with Sayer’s critical realism (Sayer, 1992) taken as methodological reference for this dissertation (see introduction to Chapter 5 of this dissertation).

According to Dente (2011), policy analysis should include:

- the identification of actors;
- the identification of the decisional context;
- actors’ aims and rationale;
- what is at stake;
- the modes of interaction among the different actors.

Such ‘checklist’ was considered to be fully included in the theoretical framework employed in this dissertation combining territorial. multi-scalar governance with the bargaining context model (see sec. 4.8 and fig. 4.4).

As the scope of the analysis was to understand the ‘in-between’ and ‘within’ bargaining dynamics over land management at different governance scales (see sec. 4.8), interviews have

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<sup>1</sup>Dente’s book focusses on the analysis of specific policies, especially oriented to understand how innovation in public policy can be reached. Notwithstanding, Dente’s handbook on the analysis of policy decisions was considered to be an helpful tool to organize and perform the fieldwork.



been carried out to those actors that were considered key informants or directly related with land use policies at the urban, provincial, metropolitan and regional level. Individual municipalities composing the metropolitan areas or regions of Barcelona and Milan were not taken into account, as the rationale underpinning the need to carry out interviews was to understand and explain how institutions at different governance and administrative levels managed land, and in particular how Barcelona and Milan as *metropolitan centers* (see Appendix sec. B.1), handled land use policy and housing provision policy in the face of the surrounding municipalities.

Interviews to municipalities were considered to be substantially and methodologically more difficult, as city officials may not have been willing to disclose or to account for decisions on land management within their municipalities, especially in relation with their links with private actors. I assumed that politicians and planners at higher administrative levels, as well as key informants, could have drawn a more reliable and general picture of the general patterns and ordinary practices of land use management. Furthermore, I deemed problematic to ‘pick up’ some (how many?) municipalities within Milan and Barcelona provinces or metropolitan areas; such choice would have led to a different research design and thus to different theoretical and methodological choices on how to carry out the fieldwork.

In other words, in order to indirectly examine the role of local governments on land use management within a territorial, multi-scalar framework, it was considered to be more efficient and methodologically feasible to target institutions at higher level to get more objective and realistic information. The only interviews carried out at the municipal level have taken place in the municipalities of Barcelona and Milan.

The interviews have been carried out to planners, politicians, key informants and stakeholders in order to identify the actors, the settings, the rationale and interlinkages of policy decisions and land use planning regulations related to land use change. The goal of the interviews was to understand which public and private actors pursued their own strategies for the provision of residential areas, which different roles different governance scales performed (‘within’ bargaining dynamics) in relationship to their different entitlements on land use competences (‘in-between’ bargaining dynamics), and which role and relationships public institutions and stakeholders had at the different governance levels (see also fig. 4.4). An additional attempt of the interviews was to reveal the social practices of land management and governance as front-stage activities (rhetorics and discourses on residential sprawl) and backstage activities (the actual agreements and consensus among city constructors that lead to urban dispersion).

In total, 30 in-depth interviews were performed and fully transcribed, whose information are also complemented with other informal meetings and debates with other key informants, on a personal basis or during public debates on planning regulations, urban land consumption and urban sprawl. The interviews lasted on average for 1 hour, and interviewees were selected through a snowball technique. By drawing from other studies (Campbell, 1996; Mazza and Rydin, 1997; Molotch, 1993; Still, 1996; see also Hillier, 2002, p. 193), planners have been considered as the preferable brokers to account for the occurrence of (dispersed) residential areas. As practitioners, planners could effectively convey useful information with regard to the routine land use planning practices and procedures, land use change being one of the very characteristic areas of planning as a discipline (Campbell, 1996).

General (Mela et al., 2000) and specific studies on Milan (Memo, 2007; Memo et al., 2011) and Barcelona (Esteban Noguera, 1997; Miralles-Guasch and Pujol, 2012; Muñoz, 2008b) have also been used as useful references to identify the ‘right’ people to interview for unraveling the paths and ordinary planning practices and processes leading towards urban sprawl in

both cities.

In Milan, the fieldwork started by arranging interviews with provincial and regional officials, while in Barcelona a key reference was Prof. Josep Maria Llop, who provided essential bibliographical references and who facilitated the contact with some of the interviewees. Strangely enough, I got in touch with Prof. Llop through the Lombardy regional agency of the Italian National Environmental Association (Legambiente Lombardia), whose president has been interviewed for the Milan case.

The list of interviewees can be examined in the table D.1. The table also lists the occupation, the administrative level of belonging, and the possible (past or present) involvement of the interviewees in land use planning<sup>2</sup>.

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<sup>2</sup>It is relevant to stress that some of the interviewees in Barcelona played a crucial role in regional and urban planning, and have been appointed as officials. For instance, professor Antonio Font Arellano was one of the drafters of the Barcelona Metropolitan Infrastructures Plan in 1969–1970. Professor Juli Esteban Noguera has been the director the *Corporación Metropolitana de Barcelona* in 1983–1987, subsequently director of planning in the *Mancomunidad de Municipios* of the Metropolitan Area of Barcelona (1987–1992), and also director of the urban planning department for Barcelona municipality (1992–2004). Carrera Alpunete is the current director of planning at the Catalan Territorial Research Institute (IET, Institut d'Estudis Territorials). Professor Oriol Nello has been the director of the Barcelona Institute for Metropolitan Studies (IERMB, Institut d'Estudis Metropolitans de Barcelona) (1988–1999), member of the Catalan Parliament (1999–2003) and secretary of territorial planning for the Catalan regional government (Generalitat) from 2003 to 2011. Carmen Trilla Former has been appointed as functionary in the housing and social housing department for the Catalan regional government (Generalitat). Lawyer Dolors Clavell has been a member of the Catalan Parliament in the Commissions for territorial policies, environment and housing.

**Table D.1:** The fieldwork: list of interviewees. Author's elaboration.

ID	Interview date (d/m/y)	Name	Type	Role	Details	Scale
1	12.09.12	Marco Felisa	Interviewee	Architect	Official of the territorial planning department of the Milan province	Provincial
2	14.09.12	Luca Minella	Interviewee	Architect	Official of the territorial planning department of the Lombardy region	Regional
3	02.10.12	Damiano Di Simine	Key informant	NGO	President of the Lombardy delegation of one of the Italian environmental organizations (Legambiente)	Regional
4	03.10.12	Fabio Altitonante	Interviewee	Engineer	Council member for territorial planning, housing and social housing, and infrastructures of the Milan province	Provincial
5	07.10.12	Stefano Pareglio	Key informant	University professor	University (Sacro Cuore Catholic University)	Regional
6	12.10.09	Raffaella Avitto	Interviewee	Consultant	Communication assistant of Fabio Altitonante, Milan province	Provincial
7	18.10.12	Andrea Arcidiacono	Key informant	Researcher	Researcher at the Research Center for Land Consumption (Centro di Ricerca per il Consumo di Suolo), connected with the Italian Institute of Urban Planning (INU)	Regional
8	19.10.12	Luca Grassi	Stakeholder	Planner	Building Constructors' Association of Milan, Monza and Brianza, and Lodi Provinces (AssimpredilANCE)	Metropolitan
9	24.10.12	Luca Martinelli	Key informant	Journalist	Journalist at AltrEconomia Magazine	Regional
10	24.10.12	Stefano Agostoni	Interviewee		Official at the environmental department of the Lombardy region	Regional

Continued on next page

**Table D.1 – continued from previous page**

ID	Interview date (d/m/y)	Name	Type	Role	Details	Scale
11	25.10.12	Giovanni Procacci	Stakeholder	Urban planner	Building Constructors' Association of Milan, Monza and Brianza, and Lodi Provinces (AssimpredilANCE)	Metropolitan
12	30.10.12	Cecilia Bolognesi	Stakeholder	Architect, University professor	Building Constructors' Association of Milan, Monza and Brianza, and Lodi Provinces ces (AssimpredilANCE)	Metropolitan
13	31.10.12	Pietro Lembi	Interviewee	Planner	Researcher at the Metropolitan Research Center (PIM)	Metropolitan
14	20.12.12	Ada Lucia De Cesaris	Interviewee	Public functionary	Council member for urban planning, construction and agriculture of Milan municipality	Urban
15	18.11.12	Antonio Font	Interviewee	Architect, University professor	University (Polytechnic University of Catalonia), emeritus professor ; Former drafter of the Metropolitan Infrastructures Plan (1969–1970)	Regional
16	03.12.12	Zaida Muxí	Interviewee	Architect, University professor	University (Polytechnic University of Catalonia)	Urban
17	05.12.12	Josep Roca Cladera	Key informant	Architect, University professor	University (Polytechnic University of Catalonia)	Metropolitan
18	11.12.12	Manuel Herce Vallejo	Key informant	Engineer	University (Polytechnic University of Catalonia)	Regional
19	12.12.12	Josep Serra	Interviewee	Planner	Official at the department for territorial planning of Barcelona Metropolitan Area (AMB)	Metropolitan

Continued on next page

Table D.1 – continued from previous page

ID	Interview date (d/m/y)	Name	Type	Role	Details	Scale
20	13.12.12	Juli Esteban Noguera	Interviewee	Planner, University professor	University (Polytechnic University of Catalonia); Former director of the territorial planning department of the Barcelona Metropolitan Area (AMB)	Metropolitan
21	10.01.13	Ricard Fayos	Interviewee	Architect, University professor	Official at the department of urban services of Barcelona municipality; University (Polytechnic University of Catalonia)	Urban
22	16.01.13	Josep Maria Carrera Alpunete	Key informant	Planner	Catalan Territorial Research Institute (IET, Institut d'Estudis Territorials)	Regional
23	30.01.13	Oriol Nello	Interviewee	University professor	University (Autònoma University of Barcelona); Former secretary of the territorial planning department of the Catalan government	Regional
24	13.02.01	Carmen Trilla	Key informant	Economist	Official for Caritas housing department; Former director of the housing department of the Catalan government	Regional
25	01.02.13	Pilar García Almirall	Key informant	University professor	University (Polytechnic University of Catalonia)	Regional
26	18.02.13	Dolors Clavell i Nadal	Key informant	Lawyer	Former member of the Catalan parliament in the commissions for territorial policies, environment and housing	Regional
27	24.01.14	Juli Esteban Noguera	Interviewee	Planner, University professor	University (Polytechnic University of Catalonia); Former director of the territorial planning department of the Barcelona Metropolitan Area (AMB)	Metropolitan

Continued on next page

**Table D.1 – continued from previous page**

ID	Interview date (d/m/y)	Name	Type	Role	Details	Scale
28	16.07.14	Joan Marc Torrent	Stakeholder		Director of the Association of Real Estate Promotors (APCE) of the Barcelona province	Provincial
29	18.07.14	Ambròs Martínez	Stakeholder		Vice-president of the Building Constructor's Association (Gremi de Constructors d'Obres) of the Barcelona province	Provincial
30	11.08.14	Javier Francisco Boneta Lorente	Interviewee	Political scientist	Official at the department for economic development of the Barcelona province (Diputació)	Provincial

End of Table D.1

For the performing of the interviews, I flexibly used a track of questions, allowing the interviewees to touch specific topics of interest and to freely refer to their personal experience (see also Sayer, 1992, p. 245). Although a traditional semi-structured technique has been used to conduct the interviews, an integration with the anecdotal approach by La Mendola (2009) was attempted. This dialogical method for interviewing consists of asking the interviewee to make examples, tell anecdotes, contextualize planning practices, decisions and procedures ‘in this situation’ or ‘in that particular context’. This method is called ‘dialogical’ because the questions posed by the researcher have the aim to establish a dialogue between the interviewer and the interviewee, allowing the latter to freely talk about examples of the considered phenomenon.

La Mendola (2009)’s method to carry out narrative interviews aims at collecting episodic information on the studied phenomenon (and not properties of it, like in a semi-structured interviews) and consciously avoids quantification and the pressure to ‘interrogate’ the interviewee for getting the desired information<sup>3</sup>. By the use of examples and anecdotes, and by an attentive formulation of questions, the interviewee chooses what and how to explain the topic under analysis. In this way, the sense of the action crops up.

Together with La Mendola (2009)’s dialogical interviewing method, Hillier’s conception of ‘planning as communication’ (adopting an action-network theory perspective) effectively offers a methodological tool to unravel key actors and governance structures in land management processes:

Local planning and policy decision-making processes involve the complex interplay of a range of actors (planning officers, elected members, members of local communities, technical and other experts and professionals, etc.). Each actor brings their own (or their group’s) representations of issues, places and nature to the process. The question of which representation/s will prevail is the result of the negotiations and conflicts of formal public participation processes, informal lobbying manoeuvres and so on. No representations are neutral. No decision is neutral. (...) Land-use planning decision making processes act as points of temporary fixation for the meaning of place as networks of actors with different representations come together. (Hillier, 2002, p. 88-89)

In policy analysis, in-depth and minimally structured interviews are functional to uncover policy decisions (Dente, 2011). La Mendola’s technique (2009) was considered to effectively complement a more semi-structured formulation of questions when the aim of the researcher was to ‘unveil’ ordinary planning practices, processes of negotiation and ‘hidden’ relevant actors. By asking to make examples, or by ‘telling the story of the everyday practices’, the interviewee was better set ‘at ease’ in explaining to the researcher what at times was happening ‘behind the closed doors’ of planning practices and policy decisions on land use allocation. Actual or former practitioners had to cooperate and negotiate with the politicians from the local, provincial or regional level for the approval of local plans, therefore episodes and examples could better report key decisions and identify key actors.

In general, the interviews had the aim to dig into and uncover the common general attitude towards the use and occupation of ‘empty land’, that is all the open and agricultural land that is not (yet) ‘urban’ (Arcidiacono et al., 2010).

The interviewees have been oriented towards the free formulation of explanatory statements and the narration of the *modus operandi* in land management and allocation. In this way, problematic nodes of interpreting land management cropped up, revealing the actual culture at work within the process of city expansion for residential uses in the considered case studies,

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<sup>3</sup>In specific, La Mendola (2009, p. 56) proposes a polarization between, on one side, informative, typifying and evaluative questions and, on the other side, narrative, anecdotal and limitedly evaluative questions.

and allowing to qualitatively consider the influence of different types of factors as contextual configurations leading to the occurrence of urban sprawl.

The questions that were posed referred first to the kind of representation offered by the maps (see *infra*, Appendix sec. D.1), and then to the alternative and more valid representation of Barcelona or Milan that could be proposed by the interviewee instead. Then, it was asked to put forward a periodization of Barcelona or Milan urban development process, singling out the key moments that could best characterize it. This question is important in policy analysis as it allows to recreate the causal process that led to the outcome, and to compare the different types of retrieved information (Dente, 2011). In fact, a key step in policy analysis is to define a periodization of the causal process that led to the outcome, identifying temporal thresholds to differentiate among the several stages of the process (*ib.*).

At this point, more precise questions were posed on the residential areas, on their provision, on citizens' housing preferences and on the possible context-related definition and location of sprawled municipalities and areas. In doing so, the main conditions characterizing urban development and in specific leading towards urban sprawl were identified by the interviewee.

The central part of the interviews aimed at disclosing the processes of 'in-between' and 'within' bargaining governance dynamics over land allocation, identifying the actors that at different governance scales decide on land management.

According to the role of the interviewee, specific questions were posed on the role of the institution or organization the interviewee belonged to, and on its relationship with other relevant institutional and private actors. A concluding side question that could possibly be done was related to urban sustainability, and if and how the concept of the compact city has/had a role in the recent land management processes of Milan or Barcelona, sustainability being a powerful motto in political discourses (see Richardson, 1996, 2002). However, the interviews carried out to stakeholders differed to a larger extent from such interview pattern, as they were aimed at identifying the role of the private actor within the institutional structure so defined by the 'suburban housing model' proposed in section 4.8 (see fig. 4.4 on page 115).

Here below, the main questions addressed to the interviewees are reported translated into English, as interviews have been carried out in Italian and Spanish:

- This map is a possible representation of Barcelona/Milan. By looking at this map, I would like that you could try to tell how the path of urban development in Milan/Barcelona has can have possible led to such representation.
- Which have been the crucial steps that have led Barcelona/Milan to this situation in morphological terms?
- In this process, which have been the actors that have had an important role?
- (For example) In that situation, which have been the actors that have had an important role for the final decision on land allocation?
- (For example) In that occasion, which has been the crucial moment for taking the final decision on land allocation?
- In that context, which has been the role of the municipality/province/metropolitan entity/region in taking the final decision on land allocation?
- Now I would like to pose you a different question. Dow you think that sustainability has had a role in the recent urban development process of Barcelona/Milan? How?
- Is there something that you would like to add?

This interview track allowed me to be sufficiently flexible to touch the interviewee's issues of



interest, emphasizing his/her point of view and allowing for comments and personal opinions to flow.

Interviews' transcripts were examined throughout and answers given by the interviewees have been coded. No computer-aided software was used to analyze the content of the interviews, rather re-reading and coding by broad categories (e.g. 'planning', 'governance', 'actors', 'urban development') were helpful to extract useful information from this qualitative material, which has been more extensively presented and quoted in Chapter 7.

However, performing interviews is always a challenging task. Not only interviews are highly time and energy consuming, but also conducting interviews in social research is generally methodologically troublesome. The conduction of the interviews is literally a minefield, where different parts are played (the 'interviewee' and the 'interviewer'). La Mendola's (2009) dialogical method has been useful in preparing myself for the performing of the interviews, however misunderstanding, false steps, missed opportunities and time constraints have influenced the quality of the data retrieved through the interviews.

In addition, it has been difficult to get in touch with some of the economic agents that had a role in the city's development, and interviewees to stakeholders in Barcelona have been done almost at the end of the writing process. Moreover, interviews in Barcelona were mostly carried out to academic staff that had been variably involved as practitioners in the making of plans and laws on planning at the urban or the regional level. In contrast, in Milan the proportion between politicians and technical staff involved in the land management and handling of plans was more balanced.

Another problematic issue encountered during the interviews consisted of the difficulty to distinguish between different urban land uses. Although the focus was on (dispersed) residential areas, it was at times difficult for the interviewee to 'tell the story' about the city's urban development differentiating the trends occurred in residential, industrial and commercial and transport areas. Since no area or project in particular was chosen for comparative purposes, at times it has been challenging to get more specific information solely on the provision of residential areas, ensuing from the focus on the metropolitan scale of both cities.

## **D.1 Maps as photo-stimuli for interviews**

Two simple maps of both Milan and Barcelona have been used as a preliminary photo-stimuli for conducting the interviews. Pictures and images are functional in qualitative research as they allow narratives and discourses to crop up, a method that gave rise to a sociological branch called visual sociology (see Faccioli and Losacco, 2010). Furthermore, the maps displayed a possible, graphical representation of the outcome under analysis (urban sprawl, highlighted in bright green), which is a common strategy in policy analysis: by starting from the outcome, it is possible to trace 'backwards' the causal chain of events and decisions that led to the final outcome (Dente, 2011), thus inviting the interviewees to comment and challenge the type of representations projected on the map on Milan or Barcelona. The maps were an expedient to start the interview by proposing a comparable data source of the two cities (however, during the interview only the Barcelona *or* Milan map was showed to the interviewee, unless it was otherwise requested). The maps also helped introduce the main issues that would have been covered with the questions, giving the interviewee the freedom to comment and challenge the type of representations projected on the map on Milan or Barcelona.

The plain use of the Corine Land Cover (CLC) data to create the maps (see figures D.1

and D.2) was considered to convey a rather unclear representation. Hence, I decided to use a combination of the Larger Urban Zones (LUZ) and Urban Morphological Zones (UMZ) datasets for both cities. The combination of these two sources of geographical information – the seamlessness of the urban trim (UMZ) and the different land uses related to the functional area of the city (LUZ) – offered two different and possible representations of both cities. Hence, it was assumed that the interviewee would have been able to compare the quality of the information provided with other sources of data.

The simple projection of Urban Morphological Zones (UMZ) and Larger Urban Zones (LUZ) data instead of the Corine Land Cover (CLC) data for Milan and Barcelona has been preferred in order to avoid tracing out subjectively defined local boundaries. Hence, official, ready-to-use datasets have been employed instead to start the interviews.

The employed maps are shown in figures D.3 and D.4. As it is possible to note, in the case of Barcelona, the LUZ area widely stretches outside the boundaries identified for its UMZ area. The discontinuous areas, shown in bright green, in Barcelona are located mostly along the coast and in the Northern part of its area of influence. The UMZ of Milan is quite fragmented and, interestingly, the discontinuous urban areas (in bright green) are located all around the city.

The maps and the projected information have also been used as tools for hypotheses generation. As it was noticed that their form quite matched the structure of the mobility infrastructures, an hypothesis on the role of roads and rails has been defined (see sec. 5.2), also coherently linking it with the literature on the topic (see sec. 3.1). Through the maps it has been possible to see how Milan expands in the Northern part of its region, along the Sempione, Como and Lecco's mobility systems, while Barcelona expands along the coast and on the areas immediately behind the urban center, over the Collserola hill. In both cases, the centrality of Barcelona and Milan as attraction poles is clear.

For this research, Esri ArcMap<sup>®</sup> and Stata<sup>®</sup>, have been used as suitable softwares to manage the geographical information available for both cities.

Certainly, the maps could have been enhanced to look nicer<sup>4</sup>. As an explanation, I have to say that these maps were produced at the beginning of the research, when I performed my first (lonely) steps with the Esri ArcGis<sup>®</sup> software. In addition, the Larger Urban Zones (LUZ) shapefile for Milan presented a projection problem (EEA Enquiry Service Admin, 2013a), hampering its correct visualization until at the end of 2013 when Giovanni Procacci (one of the interviewees) helped me to solve the problem.

Another difficulty consisted in the fact that the employed Urban Morphological Zones (UMZs) refer to 2006, while Larger Urban Zones (LUZ) are only available for 2009.

Despite these shortcomings, I anyway decided to use the maps as photo-stimuli as they were only the initial support to start the interviews. Hence, I thought that the simple projection of the official shapefiles would have served this goal. Geographical references to locations were intentionally left out from the representations, in order to emphasize the conventional character of the map representation.

Notwithstanding, the maps were harshly criticized by some interviewees, as the representations they proposed were deemed to be more realistic (and definitely nicer than mine). In

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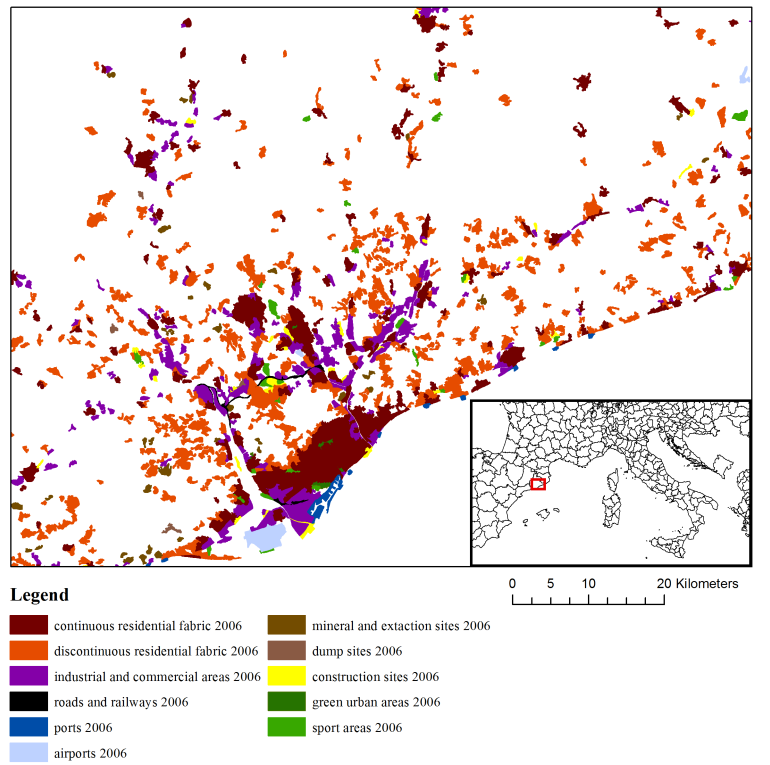
<sup>4</sup>And also, more coherent. Thinking that it would have been provocative, for both maps I identified the dispersed residential areas according to the Larger Urban Zones (LUZ) dataset in green color. However, interviewees immediately thought that those areas referred to green urban areas... a naive mistake that I will certainly not repeat in the future.

particular, the maps rose a certain skepticism on the validity of the representations. Some of the interviewees had previously worked in projects aimed at defining a more specific and ‘trustful’ map for Barcelona or Milan beyond its administrative boundaries, and interviewees, as urban planners, architects, or functionaries, had access to digital source of information (e.g. cadaster) that would provide a more detailed account of ‘how the city is’.

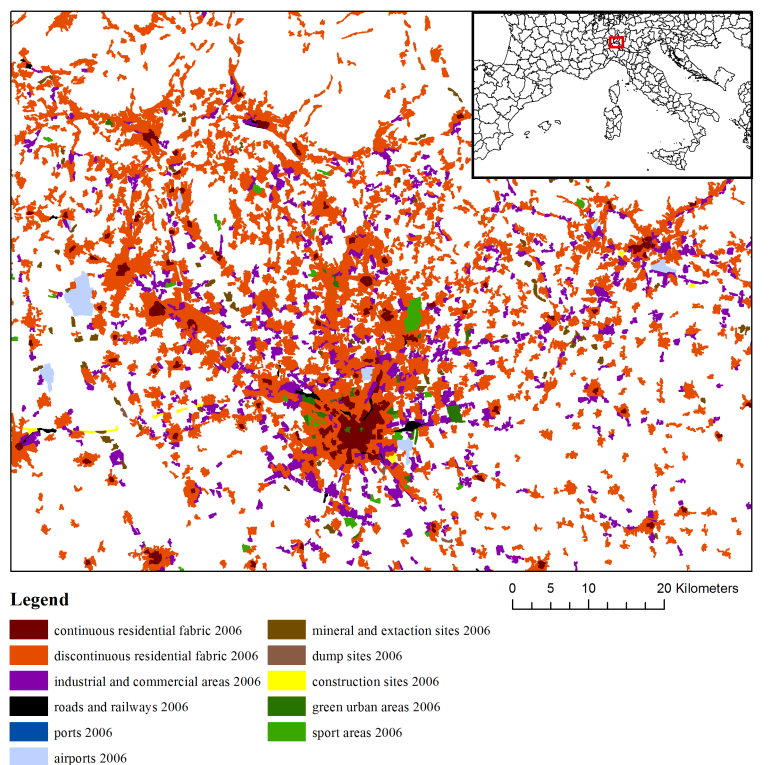
Therefore, the European representation of Barcelona and Milan, created by the use of Urban Morphological Zones (UMZ) and Larger Urban Zones (LUZ) data, was challenged with what the interviewees considered to better correspond to the ‘reality’. This issue is also connected with the difficulty, when emplacing social phenomena in space, to define the boundaries of the context itself, a procedure that is not straightforward and that may become problematic as different perspectives may collide and propose a diversity of evenly acceptable ‘true representations’ of territorial phenomena (see also sec. 5.4).

The fact that maps were contested by some of the interviewees resulted to be useful as the legitimacy and correctness of the representation proposed by European institutions (Eurostat and European Environment Agency) were critically assessed, together with the display of my technical skills in using Esri ArcGis<sup>®</sup> software (which improved so far over time).

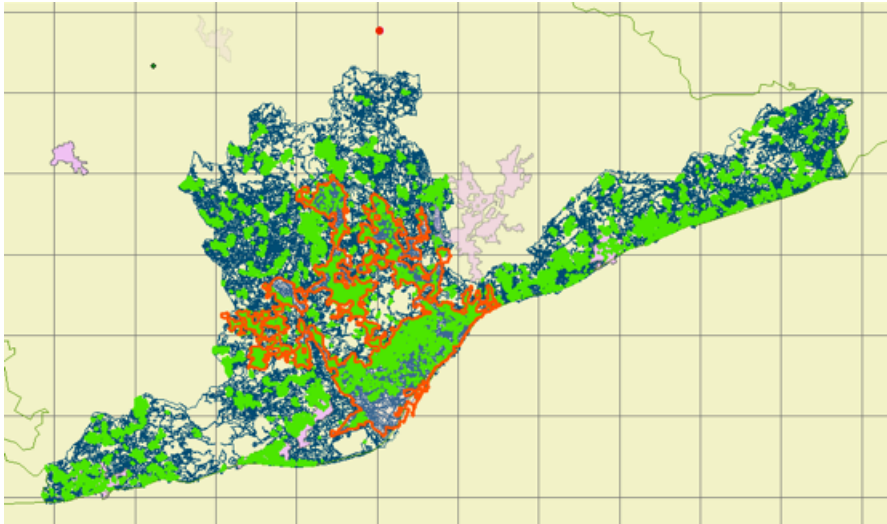
**Figure D.1:** Corine Land Cover data (CLC) in the Barcelona area for year 2006. Source: EEA. Author's elaboration.



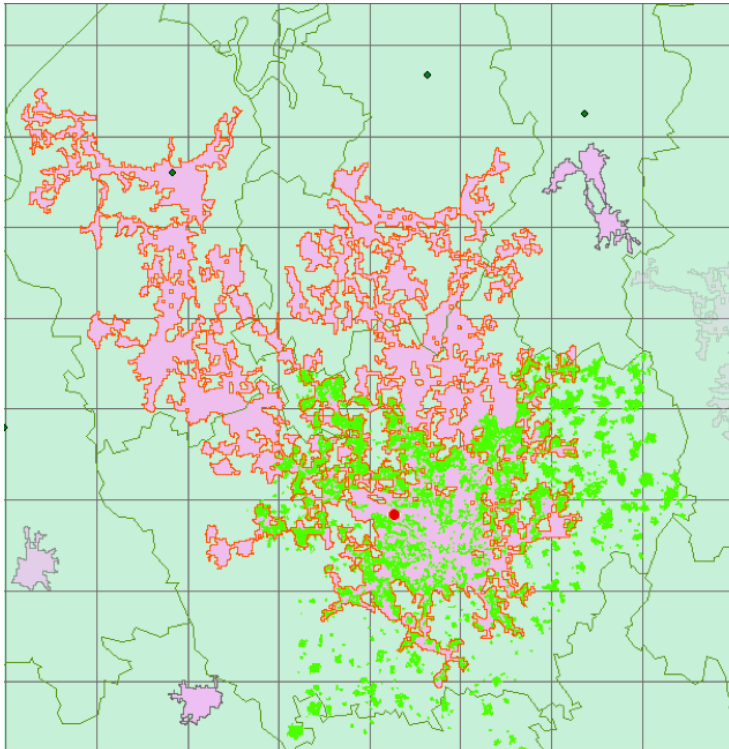
**Figure D.2:** Corine Land Cover data (CLC) in the Milan area for year 2006. Source: EEA. Author's elaboration.



**Figure D.3:** Map of Barcelona employed during the interviews with the projection of UMZ areas (orange line) and the LUZ area (in light blue), identifying all the areas occupied by discontinuous urban fabric for Barcelona. Source: EEA, Eurostat. Author's elaboration.



**Figure D.4:** Map of Milan employed during the interviews with the projection of UMZ areas (orange line) and the LUZ area (in light blue), identifying all the areas occupied by discontinuous urban fabric for Milan. Source: EEA, Eurostat. Author's elaboration.



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