Essays on Economics and Happiness

Sabrina Vieira Lima

Dottorato di Ricerca in Economia Politica

XXIII Ciclo

Department of Economics, Management and Statistics

University of Milano-Bicocca

December 2013

Abstract

In this thesis it was intended to deepen the literature of the Economics of Happiness, in three different directions. As a conductive line, it was attempted to better explore the multidisciplinary character of the happiness concept, while remaining grounded on economic methodologies. The first chapter presents the insertion of the Economics of Happiness in the broad history of economic thought, emphasizing the original contaminations and the reasons of the early detachment between economics and psychology, while highlighting the happiness' multidisciplinary essence, and its methodological specificities. In the sequence, some findings and theories from different disciplines were then introduced in the following chapters, either as part of their starting hypothesis or to help interpret their findings.

Chapter 2 investigates the causes of a possible happiness differential between men and women, worldwide. Based on the fact that women have passed through historically landmark changes, shaping new original gender roles, it was intended to approach this question with an encompassing view, also borrowing concepts from the Capabilities Approach of Martha Nussbaum and Amartya Sen. The empirical strategy was performed using data from the World Values Survey (WVS), European Values Studies (EVS), CIRI Human Rights and the World Development Indicators (WDI),

which combined together contemplate 20 years spanning from 1981 to 2009 and across 85 countries. The first finding is that there exist a happiness gender gap, and it favours women. The main message from this study, in a nutshell, is that important female rights and achievements are not automatically guarantees of happiness, but only when accompanied by conducive internal and external conditions, such as female's feeling of control over own life and pro-women social beliefs guiding the social norm. These complementary conditions are really important to be considered for public policies, since if they do not materialize, true and meaningfully perceived gender equality will not be attained, regardless the proclaimed formal rights and achievements.

Chapter 3 in its turn revisits the field's "established" finding regarding the impact of unemployment compared to that of inflation in terms of subjective well-being. The universal character of this question is analysed for the case of developing countries. The main hypothesis conducting this study is that the impact of inflation is stronger than that of unemployment, differently from what has been found in the previous literature, focused on developed nations. The reasoning for this idea comes from the fact that developed and developing countries experience very different socio-economic and development paths that can influence the perception of these two relevant macroeconomic conditions and the corresponding coping strategies (also with respect to experiences and social remedies for inflationary and jobless periods). Using the WVS, EVS, WDI, Schneider's (2005) and Dreher's (2006) data, across 55 developing countries and 15 years (from 1990 to 2008), it is performed an empirical two-step methodol-

ogy, which takes into account either individual characteristics (including individual personality traits – affirmed findings in Psychology) and country level characteristics (including two macroeconomic indicators intrinsic of developing countries, i.e. the presence and size of the informal market as well as the existence of foreign debt with the IMF). Three are the main results of practical importance for public policies. The most stable result is the strongly and significant negative effect of inflation and the non significant negative effect of aggregate unemployment on well-being. This inverted trade-off was strengthened and confirmed by robustness tests. An adaptation effect of inflation in high-inflationary periods emerges from a non-linearity investigation of inflation (which can be said to exemplify the framing and set point effects postulated by the Prospect Theory). This work also provides evidence, for the first time on the happiness literature, of an austerity negative effect of the IMF intervention.

All in all, this thesis contributes to the economics of happiness research agenda calling the attention to the country-divergent nature of the happiness' appreciation, especially for what regards the developing and developed worlds, as well as to the importance of taking into account the multidisciplinary essence of happiness. Both elements can evidence collective and individual subjective dynamics usually hidden but present in the economic and social process.

Acknowledgments

I am truly grateful to Luca Stanca, who supervised me for the main part of the doctorate, for his patience and expertise; together with Luigino Bruni, they were the reason of my choice for the PhD program at the department of Economics of the University of Milano-Bicocca. I also thank Bruni, who was a guide when I was gauging my first steps on the Economics of Happiness. Richard Easterlin let me join his team at the University of Southern California for a visiting period, and I am deeply thankful for having benefited from his wisdom.

I am truly grateful to my husband, Nicola Matteucci, for our fruitful discussions, frequent disagreements and big fights (all sources of creative destruction, innovation and maturation), and for precious hints on chapters 1, 2 and 3.

I cannot conclude before thanking, from the deep of my heart, my mum, my family and my family-in-law, for their unconditional support and love. I also thank the special friends that accompanied me along this period.

I dedicate this thesis to my dearest father.

Contents

Introduction

Setting the Stage

There is no question in saying that happiness is a fundamental concern for the human kind since its first appearance on Earth, and that the dilemmas involved of its search have a long history. Well before the scientific paradigm and the economic discipline was born, religion, philosophy, arts and the main literate expressions, across countries and centuries, had investigated the nature and the determinants of happiness.

In what is considered the cradle of Western culture, ancient Greece, happiness and suffering feature as main ingredients of the human saga illustrated in the poems Iliad and Odyssey[1]. The two poems of Homer clearly depict humans as not entitled to enjoy enduring happiness, being this reserved to gods. In particular, the Iliad elaborate on the human condition vis à vis the divine existence, presenting a material world where gods cannot provide men with pure happiness, but rather involve them in painful experiences and tragedies. From a different perspective, the main lesson drawn from the hero of the Odyssey is that men cannot escape human condition and their ultimate destiny. In fact, Odysseus chooses to return home rejoining his family and friends,

---

[1] These are the first documents believed to mark the passage from the oral to the written paradigm of cultural transmission, composed in a period that should range from the VIII to the VI century B.C. We refrain from treating the "Homeric Question", a complex philological debate on the origins of the Homeric writings, the identification of their composer, and the very existence of the poet Homer.

and not to accept the "unnatural" life possible on the Calypso's island, immortal but anonymous and far from his roots.

Later, in the philosophical schools of Ancient Greek, happiness would have been a central topic of the main schools, becoming synonymous of various but correlated concepts, such as ataraxia[2] (in Epicurus) and eudaimonia ("human flourishing" in Plato and Aristotele).

In another masterpiece of ancient culture and civilization and world's best seller – the Bible of the Judaic-Christian tradition – a similar picture of the human condition emerges. The Book of Genesis presents the Eden as the paradisiacal garden where Adam and Eve were used to live happily, free from any pain and discomfort, after God's creation. Following the experience of sin, Adam and Eve – and all the ensuing humankind - abandoned this state of grace and since then, continues the Bible, the human condition would have been affected by pain and suffering. Both for men and women, all the most meaningful and pleasant experiences of life – like giving birth, sharing life as a couple, working - would have been characterised and affected by pain, gender discrimination, sweat and suffering.

---

[2]   It can be defined as a type of static pleasure stemming from freedom from bodily pain and mental disturbance (Konstan, 2009).

More generally, the theme of unhappiness and pessimism permeated many literatures in every century. In Italy, the poet Giacomo Leopardi (1798-1837), is famous for having focused his lyrics and philosophical elaboration (mostly contained in the treatise Zibaldone) on the concept of human and cosmic unhappiness, and on the exam of its main causes, dynamics and consequences. His pessimism, rooted on a encyclopaedic and interdisciplinary study of human history and literature (from the ancient Greeks to the Enlightenment), assumes the status of a philosophical theory on the human existence, and on its impossibility to reach true happiness. Across his main lyrics, Leopardi argues that the human hopeless search for happiness – inspired by Nature – turns to be the main cause of unhappiness. Its main correlate – pleasure - does not have a substantive nature; in fact, it only exists as a positive expectation or desire of future good, likely to be frustrated. Rather, human kind might enjoy small and volatile pleasures, understood as moments of relief, of ceasing pain.

Also in the new Millennium, the quest for happiness continues to inform human search, both at the individual and collective level, and across different levels of intervention, from Academia to business practice and ethics (current experiences of Civil Economy or corporate social responsibility – Bruni and Zamagni, 2004), to broad policy-making. In economic sciences, the long tradition of development economics, as renewed by new streams of thinking such as a the "capability approach" (reviewed in chapter 1), continues their search for framing a policy agenda that can lead to a

sustainable increase of economic wealth and social inclusion (take, for example, the United Nations' Millennium Development Goals). This new generation of development agendas is not more restricted to mere material or monetary wealth targets (such as raising per capita food daily ration or yearly income), but include other non-material attainments, such as improved health, education, social inclusion and civil rights.

In policy-making and constitutional law, aspirations for a better society, where material poverty, deprivation and possible injustice are alleviated, or public happiness is formally recognised as a target of state intervention, continue to receive a formal acknowledgement.

A noticeable example is provided by Brazil where, in 2010, a draft law of constitutional reform has been discussed, aimed at rephrasing article n. 6 of the Federal Constitution, mentioning fundamental social rights . In the reformulated version, these social rights[3] are affirmed to be essential to attain happiness. In particular, the background discussion on the draft law has argued that individual happiness rests on public (collective) happiness, and the latter, to be attained, requires that all citizens can access basic public services. According to its main proponents, this constitutional modification could push public institutions toward guaranteeing minimal standards of life for citizens, beside humanizing the Constitution and rendering it closer to the society's needs and feelings.

---

[3] These are: education, health, employment, house, leisure, personal security, social security, protection of motherhood and childhood, and assistance to the destitute.

It is also interesting to mention that some of the critical comments raised on this prospective reform, either from law scholars or politicians, echo several points of the ancient economic debate on happiness and well-being, which will be reviewed, across its main historical phases, in chapter 1. For example, the law scholar Reale Júnior (2010), former Brazilian Ministry of Justice, contends that the current constitutional reform closely mirrors the typical Enlightenment's utopias, mistaking happiness for well-being; and that the former, contrary to the latter, cannot be easily reconciled with State's role and policy agenda, or easily aggregated through a function summing up individual positions into a collective objective. The main reason of this difficulty, continues Reale Júnior, is ontological, being happiness an individual sentiment, likely to be ephemeral and strictly dependent on individual values. In his commentary, different and irreconcilable drivers of happiness are cited: in modern consumerist societies, for many persons-consumers happiness could stem from mere satisfaction of material desires or, going to an higher level of introspection, from own pairs' tributes of social recognition (on the job, on the clubs, etc.). At the same time in other cultures, like in those permeated by Buddhist values, happiness is assumed to result from freedom from desires. An so on, so forth.

This example, despite its seeming simplicity, is noticeable for clarifying how, after centuries of study, social sciences still touch happiness as if it were a raw nerve. Moreover, most of these sciences endeavor to study the field, while continuing to be

equipped with a weak methodology – sticking to the famous metaphor of Schumpeter (1954), using an insufficient and rough tools box. And this consideration, as will be spelled out in chapter 1, pertains to most of the concerned disciplines: from psychology to economic theory, from sociology to philosophy.

Sticking to economics, a series of questions then arise, moving from the basic observation that, during the first centuries of existence of the economic discipline, such an important theme – happiness, broadly speaking – has received very little attention.

In fact, the pioneer paper first (re)introducing happiness within the established body of economic theory has been that of Easterlin (1974) – roughly two centuries after the symbolic date of foundation of the discipline by Adam Smith, with the *Wealth of Nations*. After that work, in fact, as summarised by Bruni and Porta (2005, 2007), the ensuing developments of the discipline, mostly lead by the Scottish school of economists, led it to be concentrated on the wealth of individuals and nations, rather on their happiness.

The first obvious question is why. As a counterfactual perspective, we can state that, as will be reviewed in chapter 1, this sort of epistemic reductionism was not inevitable, not it was the only direction taken at that time. As recently systematised by Bruni (2004), at the beginning of the discipline other competing economists and schools of thought - mainly from Italy and France - were following a different path, with a research agendas mainly focused on public happiness. Among these authors -

all influenced by the contemporary waves of Enlightenment, there were the Italian Antonio Genovesi, and the French Jean Jacques Rousseau and Simonde de Sismondi, who all emphasised the intrinsic relational nature of human kind, and its instrumental role for creating and sustaining public happiness. Moreover, most of them were aware of the complex ontology of happiness, and its distinction from mere pleasure. Genovesi, for example, being close to the Aristotelian concept of happiness as eudaimonia, defines happiness as the final end of human behaviour and as a life-long construct, based on the practice of virtues, while pleasure is a momentary mental state. Then, the practice of virtues on the market turns out to be instrumental to economic development, especially because it promotes public trust and social capital.

Moreover, at that time there were different methodological and conceptual roots in the same research agenda of the Classical economists themselves. The Theory of Moral Sentiments of Adam Smith is a case in point, offering a multifaceted perspective on human kind and its predominant relational nature, which is also the main driver of private and public happiness. In principle, material wealth (riches) is related to happiness, but this happens through a very complex relational and social dynamics, and mostly at the aggregate level. Basically, social recognition and emulation of wealth of the rich by the poor accomplishes two actions: is a relational phenomenon and psychological reward for the rich, and acts as an individual incentive for the poor to work harder and move across the social ladder. However, for Smith, at the individual

level, more wealth is not intrinsically related to more happiness, so that, while there is an unequal distribution of material means on Earth, concerning real happiness, the poor man is not inferior with respect to the rich one. In other words, as clarified by Bruni (2004) social dynamics, economic development and the ensuing public happiness (this time based on growing material wealth for society as a whole), all rest on social illusion and deception - that material wealth brings individual happiness.

However, these early signs of interest and concern for happiness as distinct from mere material wealth or hedonic pleasure have been rapidly neglected by the following developments of the emerging "political economy".

It is main turning point, de facto, is the Wealth of Nations of Smith (1776). However, the ideological roots which later laid the foundations of mainstream economics – the marginalistic revolution grown between the XIX and XX centuries – are systematically found in the philosophy of the Classical Utilitarians - mostly Jeremy Bentham and John Stuart Mill - whose system of thinking was centred on the so called "hedonistic act consequentialism" (Sinnott-Armstrong, 2008).

In detail, the first term, hedonism, identifies the property of being good with pleasure (while, on the reverse, pain is intrinsically bad); in other terms, the ancient roots of Utilitarians' hedonism go back to Epicurus, the Greek philosopher of IV-III

century BC, who similarly based his moral theory on the human sensations of pleasure and pain[4].

Moreover, the second term, act Consequentialism, illustrates that Utilitarianism belongs to the general stream of Consequentialism (Driver, 2009), according to which the rightness of an action or event can be judged on the ground of the consequences it produces at large (summing up the one's own good and the others, pertaining to the society considered). Taken to its extreme economic implications, according to Consequentialism, the morality of an act stems from its ability to maximize the overall good, net of the overall bad it might creates.

With these authors, the reduction of happiness to pleasure takes its full form, so that happiness becomes understood as psychological hedonism. Moreover, pleasure is used interchangeable with utility; the latter, within a century, will become the crucial operative concept for marginalistic economists. Moreover, this psychological framing of the philosophical concept of happiness is essential to enable the aggregation methodology of the utilitarian programme of research, where collective outcomes are the sum of the individual pleasures.

Last but not least, Bruni (2004) underlines that with Bentham the Classics' distinction between end (happiness) and instrumental means to achieve this (wealth) dis-

---

[4] Differently from its followers, however, Epicurus also argued that, if we can eliminate pain from our lives, we are no longer in quest of pleasure, so that we can attain a state of perfection, peace and existential independence, called ataraxia.

appears, paving the way to the marginalistic approach, where the agent-subject becomes the centre of reference and evaluation of the new ideology (whose metaphor is the "homo oeconomicus") . In this new context, the quest for happiness, once the latter is reduced to pleasure/utility, translates into the quest for (individual) maximal utility; this maximization is typically a socially rival activity, since material resources are scarce and distributive tensions in the remuneration of inputs' owners (labour, capital), after production is made, might arise.

Following this analytical reductionism of human behaviour and social interactions, the following developments of mainstream economics did not accommodate any further instance for a non-hedonistic framing of happiness, and cut any roots with alternative objective characterizations of happiness, like that stemming from the Aristotelian tradition, focused on the intrinsic goodness of the action.

Plan of the Thesis

On the light of the brief literature review carried out so far, it emerges that the new field of "happiness and economics" pioneered by Easterlin (1974) - a comprehensive survey will be offered in chapter 1 - has brought a new and fresh look into an old, complex and neglected debate. In particular its links with the Ancient Greek philosophy, partly highlighted in this brief introduction, uncover a series of possible determinants of happiness, which, for the sake of synthesis, can be summarised in two main groups.

A first group of factors might include items considerable as objective, or at least "ontologically" external to the single person. Main examples of this group are items such as income (absolute), macroeconomic conditions like unemployment or inflation, broad cultural, political and socio-institutional settings (including human rights), environment factors (climate) and the like. A second group of factors, of subjective character, are pertaining to the person and somehow specific to its universe of beliefs, values capabilities and expectations. A main example are personality traits, but other convincing items are capabilities, "functionings"[5], education, early childhood experiences and in general what is specifically the content of constructs like "personality" or "character". We want to stress the importance of these psychological factors as drivers of happiness, in both directions, since they might act as cognitive modulators of external events in a way that might potentially rebalance or counteract the impact of any external force or event. For example, the virtues of having a positive attitude towards life, such as optimism (defined as the capability of reacting to setbacks from a presumption of personal effectiveness) might help that person to take a positive stance towards negative external events (such as forced unemployment, income losses from economic crises), in a way that might potentially sterilise any impact of these negative events. At the same time, a pessimistic stance (from learned helplessness) may lead a person

---

[5]   The capability approach, and the related concept of "functionings" will be reviwed in chapter 2.

to escape normal activities, social relations and reduce her functionings in a way that negative expectations materialise in real negative events.

A final sub-aggregation of factors might be identified – a sort of third type of factors, which is the intersection of the previous two and frequently has an hybrid nature objective-subjective. A main example is relative income (calculated with respect to one own's reference group) that, despite being partly an objective and quantifiable variable, introduces also a subjective information – the peculiar reference group – and captures the subjective value of income[6]. Similarly, the most important socio-economic datasets used in the field usually report variables collected from survey where individuals are asked about subjective judgements on factual issues (importance of human rights, evaluation of job-related events, etc). Most of these variables fall inevitably in the third category, the hybrid one.

The two main groups of factors (or, if we want to avoid any hypothesis of straight one-way determinism, correlates of happiness) have been conventionally investigated by different disciplines. The first group of factors has been typically tackled by the economic discipline, following the seminal contribution of Easterlin (1974) on the importance of income for happiness, while the second group are conventionally associated to other social sciences – mostly psychology. Philosophy and sociology, in some

---

[6] This reformulation of income might also capture phenomena of social comparison and emulation, similar to those already described by Adam Smith, and more recently investigated by the psychology of personality and the sociology of consumption.

respects, have been more flexible and versatile in tacking either groups of happiness factors.

Obviously, psychology has a longer tradition in the happiness field, together with a more specific box of analytical instruments specifically developed to grasp mental phenomena not likely to be reflected in actions, differently from mainstream economics, where over time the revealed preferences assumption eliminated ex-ante most of non-orthodox predictions, without further investigations.

Moreover, psychology as discipline was born with an intrinsic experimental status, and its development was less concerned with normative evaluation and more with positive assessment – all elements with certainly benefited its analytical search on the causes of happiness.

Hence, a first main ambition of this thesis is to critically review and build on a selected body of these overlapped literatures, borrowing from their peculiar disciplinary contexts. As a main attempt, we will try to reconcile a few research tools and hypotheses used in other social sciences, to insert them in "our" standard research framework from the field "happiness and economics". Typically, the feasibility of this hybridization would be constrained – for psychology and the other disciplines - by the possibility to incorporate their suggestions in variables amenable to econometric estimations under the form of standard happiness equations.

In chapter 2, the issue of the happiness gender gap will be addressed and explained. This issue is intrinsically interdisciplinary, since it meets at the cross-roads of economics, philosophy, gender studies (and other disciplines, potentially). Indeed, the issue of the happiness differences between men and women call into question the possible existence of other more basic differences between sexes – related both to objective external factors and to subjective (here understood as gender-specific) traits and conditions.

In particular, an emphasis will be paid to the explanation of a recent stylised fact appearing in gender happiness equations – a seemingly negative impact of female job participation. This is a main case calling for a more disaggregated and refined approach (possibly including better time-series and panel evidence) to happiness studies, where gender seems to emerge as a discriminating factor in the way the "technology of happiness" (in the sense of Bruni, 2004) emerges.

Moreover, in the attempt to include other explanatory dimensions were women attitudes might play differently from men, the paper will gather in one unique dataset several variables on socio-economic and institutional conditions (typically, human rights), gathered from different statistical sources.

Another typical case of our quest for interdisciplinary will be that of incorporating psychological traits or their correlates to estimate their impact on happiness, beside the role of more objective factors (like income, inflation and unemployment,

with a long tradition). This attempt can be deemed increasingly necessary by the fact that, within the psychological discipline, there seems to emerge a recent consensus on the fact that previous studies on the role of personality traits were methodological biased (for a leading example, see Steel et al 2008, addressing the issue of variables commensurability). As such, that new evidence deriving from psychology about the existence of a bigger and significant impact of personality traits on the variance of subjective well being might positively fertilise the economic stream, in search of new refined explanatory variables and better empirical tests.

The inclusion and test of variables on personality traits would be performed both in chapter 2 and 3.

In chapter 3, with a paper devoted to developing countries, the emphasis will come back to typical exogenous and objective determinants of happiness, traditional in the economic science. In particular, a basic question would be to examine the relative importance on happiness of unemployment and inflation. Conventionally, the available literature contends that the negative impact of unemployment surpasses that of inflation. However, this evidence might be country-specific, due to the fact that most studies have addressed developed countries, which in general during their recent history did not undergo dramatic periods of high inflation, compared to developing ones. In the latter, economic chronicles and social accounts are rich of details on the social externalities, generalised phobias and chronic distress phenomena caused on the pop-

ulation by living in a country in economic turmoil. So, with appropriate time-series data and original data sources, we want to analyse these phenomena, looking for the possible existence of cognitive phenomena exacerbating or modulating the impact of high inflation.

In sum, we believe that our multi-disciplinary and conceptual work (differently from a mere interdisciplinary account, likely to end up in separate pieces of evidence, still irreconcilable) is worth, for a series of reasons.

A first point is rather obvious, and is that we need to recognise the intrinsic complexity and methodological richness of the themes faced by the "happiness and economics" literature, which presents powerful heuristic opportunities but is also constrained by severe methodological criticalities and lack of appropriate data. As such, we would provide an original view on the field, offering an internally consistent framework of economic analysis, while at the same time bridging distant streams of literature, including psychology, but occasionally borrowing interpretations and intuitions from philosophy, political science and gender studies.

This multidisciplinary account of the research field, after having highlighted a few central concepts, will be tested and complemented by the empirical analysis.

References

[1] Bruni, L. (2004), "The 'Technology of Happiness' and the Tradition of Economic Science", *Journal of the History of Economic Thought*, 26(1).

[2] Bruni, L., Zamagni, S. (2004), *Economia Civile*, Bologna: Il Mulino

[3] Bruni, L., Porta, P.L. (2005), "Introduction", in: Bruni, L,. Porta, P.L., (Eds.), *Economics and Happiness: Framing the Analysis*, Oxford: Oxford University Press.

[4] Bruni, L., Porta, P.L. (2007) "Introduction", in: Bruni, L., Porta, P.L.,(Eds.), *A Handbook on Happiness and Economics*, Cheltenham: E. Elgar.

[5] Diener, E. (1996) "Traits Can Be Powerful, but Are Not Enough: Lessons from Subjective Well-Being", *Journal of Research in Personality*, 30(3), pp. 389-399.

[6] Driver, J. (2009), "The History of Utilitarianism", The Stanford Encyclopedia of Philosophy (Summer Edition), Edward N. Zalta (Ed.), available at: http://plato.stanford.edu/archives/sum2009/entries/utilitarianism-history.

[7] Konstan, D. (2009), "Epicurus", The Stanford Encyclopedia of Philosophy (Spring Edition), Edward N. Zalta (Ed.), available at:

http://plato.stanford.edu/archives/spr2009/entries/epicurus.

[8] Reale Júnior, M. (2010), "Direito à felicidade", O Estado de São Paulo, 5 February, available at: www.academus.pro.br.

[9] Schumpeter, J.A. (1954), *History of economic analysis*, London: Allen & Unwin.

[10] Sinnott-Armstrong, W. (2008), "Consequentialism", The Stanford Encyclopedia of Philosophy (Fall Edition), Edward N. Zalta (Ed.), available at:

http://plato.stanford.edu/archives/fall2008/entries/consequentialism.

[11] Steel, P., Schmidt, J., Shultz, J. (2008), "Refining the relationship between personality and subjective well-being", *Psychological Bulletin*, 134(1), pp. 138-161.

Chapter 1
Happiness research: disciplines and intersections

1.1 Introduction

Probably no topics are more interdisciplinary than human mind, behaviour, choice and happiness, being at the centre of social sciences. Furthermore, the need for multidisciplinarity[7] seems to be intrinsic to these topics, both for substantive and procedural reasons.

A first obvious and partly tautological reason is that behaviour is somehow the product of mind – so that, in the case of the human kind, the subject carrying on the research and the object of the latter inevitably overlap, producing a sort of de-objectification of the topic. In this sense, the research on human mind and choice behaviour possesses an inevitable recursive and introspective character, which translates into an higher level of analytical complexity. As we will see in the next sections, these elements also fed a long debate on the epistemic potential of the different social sciences, in relation to their specific disciplinary statuses, to study these themes.

---

[7] We distinguish between interdisciplinarity, as the ontological property of a phenomenon (like human behaviour) of being of common interest for different disciplines, and multidisciplinarity, as the property of an analytical approach of using the (mono-disciplinary) methodologies and results of different disciplines for the study of a common phenomenon.

Moreover, human choice behaviour typically unfolds through social interactions between individuals in different life domains. Starting from the original mental process of the individual agent, whose behaviour is under study, the social science researcher should also include in her analytical framework most of the complex net of relations linking the agent to his natural and social environment, broadly understood.

In other words, in social sciences disciplinary hyper-specialization inevitably run into decreasing returns when, for the sake of analytical (over)simplification, it separates one unique human phenomenon into separated and un-interrelated spheres and bodies of knowledge, loosing the appreciation of fundamental causal relations between these bodies. In many cases, partial analytical approaches turn out to be misleading, so that often social sciences strike the balance and reduce analytical complexity performing "ceteris paribus" analyses; in this way, they acknowledge the conditional value of their analysis – in mainstream economic theory, a main example is comparative static analysis.

The concern of performing an encompassing analysis of human functions had ancient roots, before sinking gradually into oblivion in the modern era,[8] when the hyper specialization path engendered by the adoption of the scientific method[9] increased the difficulty and the costs of being multidisciplinary. In particular, the adoption of

---

[8] Commonly understood as the period starting with the 16th century, after the Middle Ages.

[9] Since the 16th century, with the Scientific Revolution, natural sciences started to develop vigorously from modern philosophy, and gradually assumed an autonomous status. Later on, also economics followed. Main contributors of the scientific method were Copernicus, Keplero, Galileo, Bacon, Leibniz and Descartes, later followed by Newton (18th century) For a detailed account, see Sacrepanti and Zamagni (2005; chp.1) .

a broad research framework interconnecting the main branches of the human knowledge was the "golden standard" of research methodologies since Ancient Greek authors – two main examples were the encyclopaedic works of Aristotle and Plato[10].

A strict delimitation of the investigated themes constitutes a first way of being reductionist in social sciences – a character that we might call "domain-reductionist"; after all, during the initial phases of existence of any science, a certain delimitation of the disciplinary boundaries is typical and somehow necessary to lay the foundations. A main example could be provided by an early 20th economist, who studies the (mostly) individual economic behaviour as separated from the insights on personal, social and political dynamics studied by psychologists, sociologists, or political scientists. But it is also common in other disciplines – for example, when a psychologist tackles the phenomenal appearance of human behaviour ignoring its neurobiological basis, as studied by brain scientists and neuro-biologists (neurosciences).

In turn, for a discipline to be clearly recognised as such, its composing sub-domains need to be fastened together by a high degree of internal consistency, which usually involves that the fundamental assumptions and research methodologies of the discipline are chosen in such a general way to be applicable to all its sub-domains. Consequently, the delimitation of disciplinary boundaries inevitably interacts with the choice of assumptions and methodologies. However, seldom the priority of em-

---

[10]   Moreover, the encyclopaedic character of the knowledge production of Ancient scholars was both quantitative (meant as encompassing and cataloguing different fields of knowledge – from the physics of the nature to history, from medicine to politics) and qualitative (understood as grounding on a common philosophical and explanatory basis different fields).

phasizing internal consistency might obscure the existence of sub-domain' specificities, being the latter at odds with the priority of highlighting commonalities (Zwick et al 1999). In this respect, as we will see, economics and psychology present two different ways of solving the engendered trade-off, with the first discipline having been more concerned for (theoretical) generality and universal principles, while the second privileging (experimental) accuracy and ad-hoc assumptions, even at the cost of narrowing down the domain of applicability of the discovered regularities.

1.2 Economics and psychology: the early fracture

Over time, in social sciences the specialization path might be reverted. Neoclassical economics provides an interesting example of disciplinary evolution, connected to its intrinsic emphasis on generality. In fact, neoclassic theory was born as domain-reductionist, for being centred on a rational model of decision-making confined to a restricted set of economic phenomena, mostly involving simple production, consumption and exchange decisions. Actually, it remained so for a long period – approximately until the II World War aftermath, when neoclassical economics started "invading" neighbouring fields of social research, such as politics, institutions, law, history, arts, or tackling new domains such as individual decisions on personal and not-strictly economic issues, such as fertility, marriage, drugs use, etc. The success of the so-called "economic imperialism", as nicely illustrated by Frey and Benz (2004), has indeed been rooted on the initial heuristic performance of the normative

and abstract approach of mainstream economics in tackling and "managing" a series of individual and social phenomena sensitive to economic stimuli. In particular, is main strengths would have lain in the possibility of drawing policy implications from theoretical explanations, and to design ways of manoeuvring people behaviours enacting (external) economic incentives, rather than pursuing the more difficult task of steering behaviours by changing the underlying individual and social preferences - as conventionally searched for by psychology, sociology or even political sciences.

At the same time neoclassical economics, while expanding its disciplinary boundaries into new and unconventional topics, has remained methodologically reductionist, and the level of abstraction of its normative approach has increased even further, removing from its theoretical body any reference or insights coming from other social sciences – particularly those from psychology. This early fracture has long remained an hot question for both disciplines, and the recent surge of specific reviews and systematic accounts (among these, see Bruni and Sudgen (2007), Camerer et al. 2005, Earl 1990, 2005, Frey and Benz 2004, Lewin, 1996, Rabin 1998, Sent 2004, Muramatsu, 2009) witnesses a burgeoning interest in its reasons.

In particular, Bruni and Sudgen (2007) describe at length the complex evolution of the theoretical basis of neoclassical economics and its attitude towards psycology, from its roots in the Utilitarians' thinking, through the so-called "Paretian turn", and towards its current heated debate with behavioural economics. As a matter of fact, Pareto's writings mark a major discontinuity between early neoclassical authors

(such as W. Jevons, F. Edgeworth and M. Pantaleoni) and the following scholars, taking a different way which will culminate, in a crescendo of logical and mathematical formalism, at the "revealed preferences paradigm" (Hicks, Allen, Samuelson), in the Thirties and the Forties of the 20th century. For our purposes, it is worth to examine some crucial passages of the reconstruction of these early neoclassical authors proposed by Bruni and Sudgen (2007), aimed at uncovering their genuine orientation for multidisciplinarity.

During the last part of the 19th century, neoclassical economics was firmly grounded on the contemporary acquisitions of the psychology of sensation (then known as psychophysics). As a matter of fact, these economists explicitly derived the scientific status of their theory from the fact that it was based on empirically-verifiable psychological regularities. In particular, in their hedonistic programmes of research, pleasure and pain were considered as true psychological sensations whose pursuit (and avoidance) were characterising human behaviour. These sensations were reactive to stimuli, according to predetermined dynamics; notably, the law of decreasing marginal utility was considered a main example of an economically-relevant stylization of an underlying psychological regularity of human behaviour. Further, at that time, in both economics and psychology, introspection was considered as a legitimate source of empirical evidence guiding the researcher through the discovery of the laws governing these sensations, and hence choice behaviour.

According to Bruni and Sudgen (2007), the influence of contemporary psychology' acquisitions on the early neoclassical theory is particularly strong in the Edgeworth's contribution. First, this author states axiomatically the measurability of pleasure, and the operational possibility of comparing and aggregating individual ones on a single cardinal scale – a proposal operationally similar to that introduced by the two psychologists Fechner and Wundt. Moreover, Edgeworth's theory on the dynamics of decreasing sensitivity (utility) to stimuli seems to be particularly insightful, and surprisingly mirrors contemporary developments in the happiness literature, reviewed in the following chapters. In particular, Edgeworth stylises two explanatory mechanisms underlying the commonly held phenomenon of decreasing utility from consumption: the first, more traditional, having a static nature, and another one dynamic, understandable as intertemporal process of adaptation in consumption, by which later consumption experiences derive less pleasure from the same bundle of goods with respect to the original ones; mathematically, the utility function would be shifted downwardly, across time. Again, reference is made to contemporary works of psychologists (A. Bain in this case, with experiments in visual sensations). This point is particularly important since it seems to largely anticipate the current belief on the reference-dependent character of preferences, advanced by behavioural economists. Similarly, Pantaleoni argued about the existence of an asymmetry between variations in wants and consumption, following corresponding variations of income; in other words, wants and consumption would possess a path-dependence character.

These insights are remarkably anticipatory with respect to some fundamental acquisitions put forward by current contributions in behavioural economics and in the happiness literature. Unfortunately, according to Bruni and Sudgen (2007), their abandonment was an unavoidable consequence of the methodological turn impressed by Pareto on the mainstream body of the discipline. In short, Pareto pursued an intentional and explicit elimination of any cross-disciplinary reference from economics, holding the epistemological belief that any science would have progressed smoother and faster, once based on specific and secondary principles, rather than looking at general or "universal" (meant as cross-disciplinary) foundations. Clearly, having rational mechanics (!) as an ideal disciplinary benchmark for economics, Pareto wanted to propose an economic theory logically deduced from a few empirical propositions on choice, rather than sensation, with the concept of indifference taking the central place previously held by utility and pleasure.

At the time of Pareto, and until the first half of the 20th century, this methodological presumption would have remained empirically unchallenged, and the recursive character of its main argument hidden. The radicalization of the Paretian argument is patent in the extreme position of Friedman (1953) who clearly spelled out that economic theories should only be assessed against their ability to predict reality; so, in the Friedman's view, not only psychology becomes irrelevant for the validation of the theory, but the theory itself needs not to possess any descriptive value or realism in its assumptions and logical structure, to be judged as a convincing explanation

(prediction) of the economic reality. Only the following discoveries of systematic deviations of experimental behaviour from the ideal axioms of rational choice (since the seminal papers of Allais, 1953 and Ellsberg, 1961) would have gradually acted as a mounting body of evidence capable of supporting the diffusion of an alternative scientific paradigm (in the sense of Kuhn, 1962) – that of (old) behavioural economics[11].

Finally, we believe that the reconstruction offered by Bruni e Sudgen, (2007) is particularly valuable for its emphasis on the contingent and non-inevitable character of the Paretian turn which, however, turned to become a watershed, engendering a strong path-dependent evolution in the whole economic discipline. Curiously, even heterodox approaches such as the Austrian school seem to have been influenced by the Paretian turn, with some of its main contributors remaining hostile to the integration of psychological constructs into economic theory - L. von Mises is a case in point (Vihanto, 2004). In other words, not only the early neoclassical research agenda – that rooted on psychology - might have been fruitfully developed, but its discontinuation influenced permanently the status of the discipline – across its main schools, and also the relation between social sciences.

---

[11]   As discussed later, there are different opinions on whether all behavioural economists qualify as supporters of an alternative scientific paradigm, with respect to neoclassical economics. Some authors limit this to the early proponents (like H. Simon), and distinguish between old and new behavioural economics (Sent 2004).

1.3 Economics and psychology: main 20th century developments

During the 20th century, in parallel with the evolution of economic theory, also psychology underwent radical transformations, witnessing a succession of different schools of though, orthodoxies, and methodologies of research. All in all, we can say that we need to wait until the second half of the century, to see new promising signs of convergence between the two social sciences, and the emergence of a proper common field of research – called economic psychology, psychological economics or even behavioural economics[12].

First, at the beginning of the 20th century, psychology departs from the early mechanistic view of the mind - borrowed from physiology, applying a similar perspective to the study of the body - to enlarge its perspective towards two main axes. First, a landmark contribution was that of S. Freud. Psychoanalysis, in fact, opens up a new perspective and experimental methodology for the investigation of the mind, abandoning the early classical constructs of sensation, stimuli and response, and introducing the analysis of repressed memories as major determinants of actual behaviour, acting through the unconscious side of the mind. However, the main characters of the Freudian schools (focus on long-term introspection, prevalence of a focus on individuality, non-replicable empirical evidence, etc.) restricted its role mostly to

---

[12] These terms are not perfect synonymous, despite sharing strong commonalities. Sent (2004) provides a compact guide to behavioural economics, while Earl (2000) and (2005) focus on the differences between economic psychology and psychological economics. Earl (2005) provides a systematic appraisal of its research programme.

clinical psychology and medicine and to psychotherapy, while another main school –

behaviourism[13] - was developing a more performative experimental methodology to

permeate a broader class of human behaviours.

A noticeable character of behaviourism is that it first denied the scientific va-

lidity of introspection as a reliable source of empirical evidence, thereby abandoning

previous psychological constructs without observable correlates (for example, most

of the affective states would fall in this category). Only observable phenomena be-

come legitimate objects of interest for psychology; in practice, while actual behav-

iour can be studied, and stands at the centre of this approach (markedly experimen-

tal), mind and brain cannot be scientifically assessed; only indirect inferences can be

drawn.[14] More fundamentally, for the core of psychological behaviourism (as synthe-

sised in the work of B. F. Skinner (1904–90), the determinants of behaviour do not

originate "internally" (into the mind or brain), but are external to the agent (basically,

they come from the environment, through stimuli and reinforcement). In this sense,

face to the current development of neurosciences, the psychological behaviourism of

the Skinnerian tradition is both methodologically and analytically reductionistic, be-

ing focused on a very limited area of empirical evidence (explicit behaviour), and

refraining from considering derived psychological constructs, or new sources of ev-

---

[13]   Despite the nominalistic analogy, this psychological school does not share any commonalities with behavioural economics, based on opposite hypotheses and methodologies.

[14]   Strictly speaking, this summary fits the J. Watson (1878–1958) approach, usually defined as "methodological behaviourism". Differently from the experimental emphasis of psychological be-haviourism, the methodological one is mainly a normative theory about the scientific conduct of psy-chology, restricted to the analysis of the behaviour of human and nonhuman animals. For a detailed account of the different veins of behaviourism, see Graham (2010).

idence (as those made available by contemporary imagining techniques – see later). As such, it shares strong similarities with the general attitude and the reductionism characterizing neoclassical orthodoxy – at least until the Eighties of the 20th century – thereby justifying their long and reciprocal isolationism.

However, in the middle of the 20th century, contemporary advancements in computer technology and digital communications contribute to an un-expectable revival of social sciences' interest for psychology, opening up a new cycle of potential convergence between psychology and economics (Sent 2004). In particular these new powerful computational techniques could be used to investigate more fruitfully traces and causes of purposive behaviour. At the same time, on the psychological arena, the early orthodoxies of Freudianism and behaviourism came to be challenged by the advent of cognitive revolution, bringing back categories as mind and brain and proposing introspection as a legitimate way of gathering evidence on internal (non manifest) psychological processes. Indeed, the cognitive revolution (again, the analogy with the Kuhn 1962's paradigm is remarkable) was "in the air", since at that time in several domains Freudianism and behaviourism were clearly showing decreasing returns, both in the relevant questions addressed by their research programmes and in their experimental and publishing productivity.

The II World War aftermath indeed had a multidisciplinarity champion - H. Simon, who later was awarded the 1978 Nobel Prize winner in Economics. His main

contribution[15] can be appreciated in several domain: from the wideness of his research interests (spanning from computer science and artificial intelligence to organizational theory and economics, from political science to psychology) to the novelty of his paradigm of bounded rationality, which has been a landmark position pledging for bringing back psychology into economics. More generally, the idea underlying Simon's life-long work has been that of creating a unique and proper multidisciplinary behavioural social science; as argued by Augier (2001), in fact, his cross-disciplinary ventures were primarily aimed at using pieces of different disciplines to understand one unique problem- that of human decision making. So, different theoretical tools from different disciplines enabled him to tackle different parts of the same problem, pertaining to different specialised social sciences. Obviously, at that time his approach appeared very revolutionary – and in fact Simon, face to the mounting scepticism of the colleagues-economists, ended up his career in a psychology department.

For our previous considerations on reductionism, it is interesting to notice that, despite the fact that the paradigm of bounded rationality constitutes a main critique to the theory of rational choice, nevertheless it continues to be founded on the same mathematical basis – although with different analytical assumptions and optimization routines. In particular, Simon starts from the usual game theoretical and stochastic settings used to analyse decision making, but he soon recognises "the unre-

---

[15]   Indeed, the work of H. Simon cannot be thought as a paradigm developed by a single person, being deeply rooted on the intellectual environment of the Carnegy Mellon University (Augier 2001).

alistic assumption of vital omniscience and unlimited computing power" underlying its mainstream formulation (Simon, 1982; p. 204). Then, he explicitly mentions the necessity of a return to psychology; its insights would highlight that people can only process a limited quantity of information at each time, that emotional components or quasi-rational mechanisms may frequently enter and hamper the pure logic of the actual decision, and that most of the times the agent's objective is simply to reach a satisfactory pay-off, rather than the maximal one predicted by rational choice (having as a reference the theory of "expected utility" - EUT, henceforth – from the Von Neumann and Morgenstern (1944)'s reformulation). As such, with Simon the typical decision setting of the agent collapses to a simplified structure of pay-offs between actions/strategies enabling a satisfactory or unsatisfactory outcome. Moreover, agent's aspirations –a truly psychological construct – determine the cut-off point between satisfaction and unsatisfaction. In other words, the typical decision process envisaged by Simon (with the collaboration of other colleagues – like J. March) depicts an agent following a "satisfying behaviour" process of choice : when outcomes tend to converge to aspiration levels, the search for better alternatives decreases and eventually stops, while the reverse holds, should the gap between the two increase (Augier 2001).

Later on, another noteworthy case of major critique moved to the micro-economic core of the mainstream approach comes to be the work of D. Kahneman and A. Tversky. The main contribution of these two psychologists is that of having systematically

tested the main predictions of neoclassical theory of choice under risk, based on experimental evidence. In their seminal paper (Kahneman and Tversky, 1979), these authors present the foundations of the "prospect theory", claiming that actual human choices present systematic deviations from the normative outcomes predicted by the EUT, hardly reconcilable with the assumption of rational behaviour. Some of the main characters of the "prospect theory" are worth to be briefly mentioned here, since they appear useful for the following review of the "happiness and economics" stream of literature.

First, Kahneman and Tversky build on the concept of "value function", instead of adhering to the standard tool of utility function; while the latter is a theoretical target variable defined in terms of net wealth, the former is conceptualised as stream of gains and losses; in other words, they propose an aggregate for the analysis of behaviour and choice that expresses deviations (respectively, positive and negative) from some reference point - understandable as a neutral or status quo point. Importantly, they find that the value function is convex for losses (risk seeking, when choosing between them) and relatively steep, while the value function for gains is concave (risk aversion, when choosing between them) - please, see figure 1. Moreover, the fact that agents have a generally steeper function for losses than for gains show a general behaviour of loss aversion characterising the human kind. Further, decision weights, as resulting from experiments, are smaller than probabilities (their ex ante correspon-
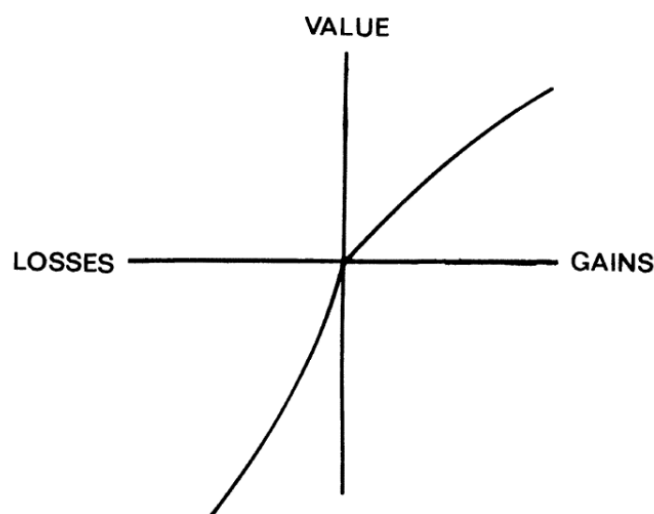
Figure 1.1: An hypothetical value function - Source: Kahneman and Tversky (1979)

dent)[16] - except in the range of low probabilities (corresponding to decision settings where remote or very hazardous events are involved, such as those considered in gambling and insurance).

A qualifying point of prospect theory is that preferences are not stable, since they depend on how the choice setting is framed.[17] This point has far reaching implications which go well beyond the critique to mainstream demand or choice theory under risk. In fact, the idea that individuals evaluate their wealth as deviations from some reference point (eg: the status quo) is not only intuitively and empirically appealing, but seems to be confirmed by neighbouring disciplinary traditions

---

[16]   In fact, the prospect theory distinguishes between the actual decision weights and the ex-ante probabilities, which usually do not coincide. So, actual preferences are properly function of decision weights.

[17]   As previously said, if the outcome of a decision is framed as a gain, with respect to the reference point, agents will prove to be risk adverse, while the reverse will happen in the case the outcome is expressed as a loss.

of social sciences, like psychology and medicine; in fact, they also analyse the adaptation dynamics occurring in a wide range of cognitive processes and human body metabolism. Main examples are provided by studies on the physiology of sensorial perception, or from those investigated in medicine, ranging from skeleton functional development to immunological response to external attacks.

More broadly, the Darwinian paradigm of biological evolution stresses biological adaptation as a main driving force of evolutionary processes and selection of biological species. Across disciplines and domains, processes of adaptation might or might not be reversible, depending on various intrinsic and extrinsic circumstances (in the happiness and economics literature, this topic will be discussed in detail). In other terms, (also) humans possess powerful adaptation capabilities to external circumstances, and many psychological processes of the mind, or even physiological processes of the body, provide convincing examples.

Indeed, prospect theory provides a good case to demonstrate the shacking foundations of the model of human behaviour used in mainstream micro-economics, and a convincing proposal to bring more psychology into economics, while at the same time continuing to use a tractable mathematical framework of analysis (absent in psychology). Moreover, it maintains a few central assumptions of mainstream economics, like the validity of the general law of diminishing marginal returns – this time readapted in a different conceptual realm: from the neoclassical utility function to the Kahneman and Tversky (1979)'s value function.

Prospect theory is not the only proposal to have systematically challenged neo-classical decision theory by recourse to psychology, nor the unique example of radical critique advanced by the expanding field of behavioural economics. At the same time, a debatable question is the current status of behavioural economics – if it can still be considered as an alternative scientific paradigm, or if assimilation and cross-influences have de facto merged it with the most receptive streams of neoclassical orthodoxy. Sent (2004), for example, carefully distinguishes between the old and the new generation of behavioural economists, with H. Simon being a major example of the first group, being characterised for proposing a distinct and rival paradigm based on original hypotheses and analytical tools. At the same time, the following waves of contributions – including prospect theory - would qualify as New Behavioural Economics, since they are brought together by the common usage of a prevalently neoclassical framework to analyse experimental deviations from rational choice axioms, rather than proposing a new theoretical framework, as in the original ambitions of Simon. In other words, the debate would end up in the analysis of the "degrees of deviation" (Rabin, 1998) and the corresponding patches to be put on mainstream theory to come up with experimental reality – a perspective that, by definition, would not question the ultimate validity of the former . Sent (2004) even arrives to mention the influence of a sort of assimilation and fascination phenomenon played by neoclassical theory over behavioural economists, similarly to resilience and other path-dependent phenomena exhibited during the competition between incumbent and rival scientific

paradigms. Others, like Bruni and Sudgen (2007), advance a more composite picture on the kind of disciplinary clash characterising the contemporary debate, analysing in detail the case of the "discovered preference hypothesis", proposed by authors such as V. Smith. Basically, they conclude that, in assessing the validity of that theory (currently one of the most credited reactions of mainstream scholars to behavioural economics), one end up with the need of finding a substantive (or instrumental) measure of rationality, like a mentally gratifying experience (potentially, pleasure). In other terms, the Bruni and Sudgen's judgment on the current state of the economic discipline poses again the original dilemma engendered by the Paretian turn, and seems to envisage the need for a radical shift of paradigm foundations. After all, it might well be that the supposedly gradualist research programme characterising New Behaviourism is more a rhetoric artefact than a real property of its current research programme.

On the contrary, a noticeable case of net disciplinary bifurcation seems to be offered by early behavioural scholars such as R. Nelson and S. Winter, who, from their original studies on a behavioural theory of the firm ended up representing two main pillars of evolutionary economics (since their seminal book, Nelson and Winter, 1982; for this vast literature, we briefly refer to Dosi et al. 1988, and a recent review by Witt 2008). Indeed, the latter represents a radical challenge to neoclassical theory – rooted on a more realistic view of human behaviour enriched by psychological elements. Concerning micro foundations, the evolutionary (or neoschumpeterian)

approach is highly critical of the concept of the representative agent and its perfect rationality. In fact, it has gradually built an alternative analytical framework of human behaviour, based on original hypotheses: those of the heterogeneity of agents, the criterion of satisfying (or adaptive) behaviour and the behavioural properties arising from the network of interactions among agents. These peculiar microfoundations, once exploited with cutting-edge simulation tools,[18] can explain and predict aggregate economic facts as original combinations (or emergent aggregate properties) of individual satisfying or adaptive actions (not oriented at maximizing any target function, such as utility, profit or revenues). Again, an alternative theoretical paradigm in economics emerges when major behavioural hypotheses are changed and psychology is brought back into economics.

1.4 Economics and psychology: final miscellaneous examples

Before concluding this review, it is worth to give an illustrative counter-example of the possibility of having diverging disciplinary trends based on similar objects of study. The case is that of the relation between economic theory and the neighbouring areas of business studies, like corporate management (including organization theory and human resources) and marketing. In particular, given its closer relation with consumer theory, we ought to notice that contemporary marketing literature is firmly

---

[18] In this respect the legacy of H. Simon and of the Carnegie Mellon interdisciplinary group is patent.

rooted on state-of-the-art psychological and sociological insights; in fact, its theory of consumer behaviour includes the assessment of the role of both individual characteristics and "external" factors and circumstances. Examples of the first are psychological constructs like personality, attitude, education, knowledge, culture – all examined to include their psychological drivers (eg: attention, perception, persuasion, reinforcement, memory). Examples of the second are all the cultural and social factors likely to influence consumption, such as family, social class and reference groups, or even media influence and broader societal trends of lifestyle. All these factors shape the decision context where actual consumer choices are observed and studied – mostly experimentally; thereby, most of the marketing literature tries to incorporate them, as many as possible. Moreover, from a methodological point of view, marketing scholars intensively use both "large-sample" methodologies (like multivariate methods) and "small-scale" empirical evidence, such as case studies; in both cases, no general theory of consumption is axiomatically formulated ex-ante, or looked for through the systematization of the observed empirical evidence; rather, ex-post regularities and stylizations with limited scope for generalization prevail.

Finally, also psychology is not immune from radical disciplinary evolution and blurring boundaries. In addition to the compact historical survey carried out in section 3, we must add that psychology is currently witnessing a major contamination process with other cognitive sciences: in particular, neuroscience currently represents its closer partner.

An early antecedent for the current surge of neuroscience literature is the watershed book of A. Damasio (Damasio, 1994), who first uncovered and dismissed the disciplinary prejudice held by studies of mind, rooted on the philosophical approach of separation between mind and body; put at its extremes, according to the original Cartesio's approach, this prejudice would tell us that mind does not even possess a material foundation. Thanks to modern digital imaging techniques (such as PET, Positron Emission Tomography, CAT, Computed Axial Tomography, or MRI Magnetic Resonance Imaging) is now possible to study the functions of the mind while appreciating their specific biological correlates in the brain (hence body), detected during its activity. A first major consequence is that these new studies and investigation techniques tend to reunify under a common epistemic umbrella distant phenomena and disciplinary approaches, blurring established boundaries (Camerer et al. 2005). In particular, these techniques studying the brain and the nervous system enable the direct observation of feelings and thoughts.

In the case of economics, consequences are far reaching. The case of revealed preference theory is patent, since it abandoned the consideration of (internal) feelings on the basis of their non measurability. Hence, it assumed that observed choices are consistent with unobserved preferences, thereby solving the measurability issue. But this is just an ex-post type of obsolescence that neuroeconomics – this is the new hype – can bring into economics. According to Camerer et al. (2005), the most promising and radical revisions to the theory of human decision making are

expected to derive from the consideration of the role of automatic and emotional processes of decision - those which the human kind shares with animals. All in all, the study of human behaviour will be revolutionised once the interactions existing between controlled and automatic processes of decision and those between cognitive and affective systems of thinking are taken into account.

On a different domain, the discovery of the mirror neurons (Iacoboni, 2008) depicts a much more intricate causation of human interactions and sociability, introducing a sort of a biological basis for it, beside traditional behavioural or sociological approaches. Further examples of domains currently investigated with modern scan and neuro-imaging techniques span from the "on the job" dynamics to financial trading, from political and electoral activity to meditation or even religion. As an example of the latter case, D'Aquili and Newberg (1999) characterise the religious practice through the mapping of the exact brain structure responsible for the whole process of faith. To summarise, these recent discoveries open new interpretative perspectives on the possible neurobiological correlates (or causation) of conventionally studied behavioural phenomena: in a near future, most of the social sciences are expected to face severe challenges to their methodological foundations and assumptions, coming from the insights got from these cross-disciplinary contaminations.

To conclude, this review wanted to show how the need of a multidisciplinary approach in conducting social sciences has been booming, and currently features on the top of the agenda for both economics and psychology.

All in all, since the Eighties, for economics, the time has come to embark in a deeper and more courageous test of its psychological foundations, and particularly on cross-contamination with the overlapping results obtained in psychological studies. The example of the prospect theory has illustrated as this trend produced a radical and permanent shift in economic theory. For the first time, scholars dared to affirm that actual circumstances and limitations of the process of cognition determine the expected utility (value) from choice, thereby weakening the usual analytical emphasis on ex-ante stable preferences. Moreover, the fact that utility (value) might depend on a reference point, instead of being a simple additive function, provides new insights to extend the analysis of behaviour from an individual-centred process of decision to a more complex and relation optimization path, including relational comparisons with the behaviour of other agents.

This process of relativization in the metrics of utility plays a foremost importance for our analytical perspective, since it contributes to pave a straight highway towards the interpretation of apparently counterintuitive empirical results uncovered by the happiness and economics literature.

1.5 Basis and validity of Happiness research in Economics

An unquestionable point in the economic theory had always been the principle "the more the better". A good can provide diminishing marginal utility, but, in any case, a shift of the utility function towards the right (in a representative graph of goods x1,

x2 in the axis) would lead the agent to a better position. This principle, moreover, would be particularly valid for income. An increase on national income would be considered to enhance not only economic welfare but also national happiness. In 1974, Easterlin questions this general law of "the more the better" (i.e.: are we really happier with income growth?), with the hypothesis that happiness is not confined to economic welfare, and that the latter is mistakenly taken to be equal to social (overall) welfare.

For the first time this principle was put under test, and the answer was not that straightforward. The well-known Paradox of Easterlin (also known as the paradox of happiness) postulates that substantial growth on national income (as verified in the post-World War II), is not accompanied by significant improvements in individual happiness; on the other side, at any given point in time, individuals with higher income report higher levels of happiness. Recent research (in economics: Stevenson and Wolfers, 2008; Sacks et al., 2010; in other social sciences: Veenhoven and Hagerty, 2006; Inglehart et al., 2008) show disagreement (and the term "Easterlin hypothesis" has started to be used by some scholars). Notwithstanding, the paradox certainly will become clearer once longer time-series data become available worldwide.

The importance of Easterlin's (1974) seminal work must not be thought of mainly as the first check on the economics' rule "the more the better" – which underpins all the welfare analysis in general – but rather as the starting point of a new

field of research on economics. A field that has been growing with accelerated rates[19] and has been dialoguing with other sciences and possibly lending and incorporating some of their specific knowledge. Human and health areas such as psychology, biology, demography, sociology, law, philosophy, political and neurosciences are the main examples (see for instance, Diener et al., 1993, 1999; Jorgensen et al., 2010; De Neve et al., 2012; Chen et al, 2013; Roysamb et al., 2002; Easterlin, 2006; Venhoveen, 2012; Farber, 2011; Clark, 2009; Nussbaum, 2012; Inglehart et al., 2008; Bouman et al., 2009; and more broadly, Gallese, 2003). A number of topics has been discussed, such as the behaviour of subjective well-being over the life cycle, by gender and age; the impacts on it caused by marriage/divorce, personal unemployment, education, health, children and parenthood; by other external conditions like general unemployment, inflation, inequality, economic growth, economic freedom, democracy, institutions; as well as by personal interactions, sociability, relational and non market goods[20]. The studies carried by this field are of great value, inasmuch as, in Becchetti and Pelloni's words (2010, p.1), they convey "relevant information about individual preferences and what is behind utility functions".

---

[19] Krueger and Schkade (2008) count 157 papers on subjective well-being published from 2000 and 2006, according to a search on EconLit.

[20] The literature is very extensive, therefore for further references we address the reader to the works of Dolan et al. (2008), which details a literature review focusing on papers published in economic journals since the 1990's; to McBride (2010), which provides information on a number of books, journals' special editions and conferences dedicated to the theme. See also Stutzer and Frey (2010) for a review of recent developments, possible applications of happiness economics in the economic theory and among different fields in economics, as well as its relation with public policy.

From the economic perspective, relative income position was one of the main issues raised as an attempt to demystify the happiness paradox. With it, other concepts emerged, such as the role of aspirations, comparison status, the hedonic treadmill. These topics as well as the happiness concept itself called the interest for the similarities and differences of varying facets of the utility concept: decision (or expected) utility, experienced utility, the (S) value function (from prospect theory), as well as the human flourishing concept. The experienced utility is closer to the happiness reality, and distinguishes itself from decision utility as the latter refers to the process one undergoes ex-ante when choosing his own behaviour; the two concepts (as shown by the interconnections with psychology and behavioural economics) do not coincide, representing indeed distinct realities of human behaviour – findings that can be interpreted also as a critique to the utility concept itself, on which is based mainstream economic theory.

As we can see in the introduction of the thesis, different meanings have been given to happiness over the centuries. So, which is the concept, how does the economics of happiness approach the theme, and how is happiness measured? For the very reason that different concepts can be related to happiness, the happiness research does not follow any pre-established concept. The richness of this process is that the concept, so to say, comes directly from the individuals, by their answers to the question of how happy they are. Individuals state their happiness level, and it is the researcher's role to find the correlates to it. The questions are usually of the type:

"Taking all things together, would you say you are: very happy, quite happy, not very happy, not at all happy?". With a different framing but usually used as a synonym of happiness to capture individuals' subjective well-being, "life satisfaction" questions in general follow the type: "All things considered, how satisfied are you with your life as a whole these days?" – in a scale from 1 to 10, where 1 stands for "dissatisfied", and 10, "satisfied"[21]. In fact, the idea behind is that the respondents are the best judges of their own subjective feelings.

This empirical method is passive of critiques or skepticisms. The mainly ones are of measurability concerns. Easterlin (1974) highlights five: (i) validity of self-reports on happiness; (ii) stability of replies; (iii) likelihood of reporting true feelings to anonymous interviewer; (iv) context in which happiness is questioned; (v) variations in the way the questions are framed. For all of them it is found some support to the underline idea that people know and express their true happiness. Regarding the first concern, whether people are able to assess their true subjective feelings and well-being, there are two lines of argumentation. Examinations of the consistency of self-reports were made either by comparisons with evaluations of outside judges, such as family members and friends (Wilson, 1967; Sandvik et al., 1993), either by correlations with other reported and non-reported measures that could signal well-being, such as physical and psychological health – as for example, depression and self-esteem (Bradburn, 1969; Linley et al., 2009; Sandvik et al. (1993) provide

---

[21] Both questions are from the Word Values Survey Integrated Questionnaire. Similar ones are found for example in the Eurobarometer, Latinobarometer, GSS, BHPS, SOEP data.

a number of references on this matter); both lines support genuine self-assessment reports of individual subjective well-being.

Secondly, one can ask how 'stochastic' is happiness. Comparing the results of the same population between short periods of time, Easterlin (1974, 1995, 2001) show evidence that happiness levels remain virtually the same (see also Blanchflower and Oswald, 2004; Kenny, 1999). Sandvik et al. (1993) find that there are both long-term consistence as well as a certain amount of short-term fluctuations on subjective well-being; moreover, their results suggest "some stability across life periods, but greater levels of stability of SWB within a life period" (idem, p. 336).

The three following concerns regard the issues that can influence happiness reports. Perhaps the most important is the social norm bias (see also Sandvik et al., 1993) that an individual may have when answering to an interviewer; the likely answer will be in accordance to what is individually perceived to be socially expectable or acceptable. In our view this bias would not represent a on purpose change in the interviewee's answer when reporting it to the interviewer[22]; but instead it is fruit of a natural tendency of adequating oneself to what is more socially acceptable. In other words, there is a direct bias on the evaluation itself one have on his own well-being[23]

---

[22]   For example: "I am not too happy, but it is better to say I am happy" (be it to "please" the interviewer or because he feels in his conditions one should say so).

[23]   This is the same critique we make to the "vignette" discourse. When presenting to someone a "picture" of an individual that pursue certain characteristics, the vignette-individual is likely to be judged as happy or not according to what the respondent understands is closer to the social norm (or stereotypes) – i.e., perhaps not through previous interiorization and reflection over one's feelings and believes as source of happiness, but instead trough an introjected, unconscious prompt answer connected to the social norm.

and not so much when reporting his answer. The social norm bias would influence happiness' report almost in the same manner that optimism (and other personality fixed effects) would[24].

Indeed, Furnham (1986) and Diener et al., (1991), find evidence that social desirability is a stable or important factor of the personality, in such a way that it is understood to be closer to a personality trait, and therefore "an important factor in the ethiology of SWB" (Diener et al., 1991, p.37), rather than a source of error. In any case, the previous tests we mentioned, which have correlated pretty well self-reports on happiness with other measures of well-being, support the confidence on individual subject evaluation.

Likewise the context and framing of the happiness question may bias individual response (see for example, Schwarz et al., 1983) . By context is understood the sequence in which the question is asked. For example, asking it after information on income or socio-economic status has been assessed may favour the respondent to link the two aspects and fall in the social norm bias' trap. At the same time, the "reply options" wording can bias the happiness reports towards more positive or more negative edges. Easterlin (1974), for instance, shows that people perceived the "pretty happy" option as closer to "very happy" than the option "fairly happy". This problem, though is not much relevant when the reply options are augmented or –

---

[24] In the same way, it is very unlikely someone will think before answering: "given that I am optimistic, I have to adjust my response in order not to bias it towards a higher level of happiness".

more clearly – when the options are on numbered scales (as in the life satisfaction case).

Diener et al. (1991) discuss two other situational effects that can be source of interference on self-reported subjective well-being: weather and current mood. If there is a particular change in the weather in such a way that it is experienced by all those self-reporting their subjective well-being, then the influence of the weather would tendentiously affect all in the same manner (positive or negatively), therefore representing a systematic error. In the case of current mood the results are mixed. It was found a certain pattern of its effect on the evaluation of a long term measure of SWB, suggesting it can have a significant artifactual impact on the self-reports; in the other hand it was not a constant problem in other SWB measures, which shows its limited effect.

The authors suggest that a possibility to overcome these issues would be – being aware of their possible influence – to "obtain measurements of current mood so that its effects can be observed and controlled for if necessary" (idem, p. 54). This is valuable and practicable for psychologists, whose data collection is designed and controlled within the parameters of their specific studies. The same does not occur to economists; the majority of their empirical work on happiness is made possible by data already collected and made available by other institutions (as we will mention in the sequence, bellow). At this point, the betterment of economists' work on happiness depends a good deal on the social survey designs, not only for this specific

issue, but at least also for two others: (i) for collecting repeated data for the same individuals along the time – in order to make possible to perform panel analysis, which intrinsically takes into account individual fixed (and situational) effects; (ii) and for systematically collecting data on multiple measures of well-being – which allows the realization of robustness tests (reducing the possibility to use a well-being measure that had been influenced by some strong event that impacted the mood (and thus the avowing) of some or all respondents in a given measurement (Diener el al., 1991; Sandvik et al., 1993).

The evidence shown in Diener et al. (1991) and Sandvik et al. (1993) obtained by their works and by those of others, is encouraging in what regards the self-assessment of SWB and suggest clearly that "SWB or happiness is a scientifically defensible area of study" (idem, p.339). We cannot exclude that a sort of bias is possible; nonetheless it would not be reasonably strong to invalidate all the studies so far. All in all, it was found fair support to the underlying idea that people know their happiness, state it truly and that their answers are stable, despite being subject to the influence of the words framing of the question, the context and situational effects. Therefore, reported happiness has the characteristics that gives scientific validity to the researches of the theme but, at the same time, calls the attention of survey designers to potentiate it.

Connected to the prior discussion on the novelty of happiness' measurability in economics, it was not the unique novelty that the economics of happiness brought

to the economic concept of utility. Since Bentham economists have been reluctant in saying that utility could be cardinal so to enable interpersonal comparisons. Despite no explicit argument on the cardinality versus ordinality of the utility function, microeconomic well-being functions have being estimated either by models of ordinal latent variables (such as ordered logit or probit) either by OLS (which implicitly accounts for some degree of cardinalization), and the results do not differ much.

While economics pursues a vision that life events have fundamental influence on individual's level of well-being, psychology's belief is that individual personality has fixed traits which are the most fundamental ones to define subjective well-being. In the dispute "external factors" versus "internal factors", both disciplines have carried out their researches with sensible credit for their assumption[25].Concerns for economic matters, in any case, are among the most serious worries people have. Easterlin (1974), for example, shows Cantril (1965)'s evidence of people's worries and hopes for 12 countries (with very different cultures and degrees of development). The list is headed by economic matters, followed respectively by family, health, values and character, job/work, social, international, political, and status quo factors (which corroborates the importance of the investigations on happiness from the economic discipline). It is interesting to notice that "values and character" comes, in general,

---

[25] For example, from the economic perspective, Becchetti and Castriota (2008), perform a quasi-natural experiment in Sri Lanka, providing an interesting example of how external factors (material damage and monetary losses) can impact individual happiness and self-esteem; in the psychology's turn, De Neve and Cooper (1998), showing evidence for 137 personality traits that influence subjective well-being, concentrated on the five more commonly found in the literature (extraversion, agreeableness, conscientiousness, neuroticism, openness to experience) to conclude that their importance in western cultures is among the highest compared to other biosocial factors.

at the 4th place, i.e. after economic matters, family and health – all external factors. On the other hand it is also interesting to notice that "values and character" comes first with respect to "job/work" concerns – external factor that is extremely connected with providing economic means to one's family (the top two in the list). De Neve and Cooper (1998)'s meta analysis show that the only variable which presents stronger correlation to SWB after personality ($r=0.19$) is health ($r=0.32$).

Summing up and making a bridge to the following chapters, the list above shows somehow what we want to investigate in the sequence. We highlight two groups of possible SWB determinants. One regards the economic factors themselves; we will approach them (on chapter 3) by deepening the literature on unemployment and inflation, and introducing the international debit and shadow market roles into the happiness literature. Concerning a certain list of socio-economic and institutional determinants we will tackle them as applied to the investigation of the happiness gender gap (chapter 2). In both cases we will take into account directly or indirectly the "values and character" of the sample surveyed individuals (using some proxies for personality traits, following recent praxis on the economics of happiness).

Indeed, the incorporation of variables that captures some (fixed) traces of personality, in the studies of happiness and economics, is part of a current debate. From one side, they can be considered as a source of endogeneity in the empirical models – and thus their inclusion in the analysis would not be advisable. On the other side, especially in the cross-sectional studies, where the possibility of taking into account the

time invariant unobserved individual factors is absent, the personality traits variables can at least minimize the lack of control of these important determinants of subjective well-being (as shown in the psychological literature). From an economic methodology point of view Ferrer-i-Carbonell and Frijters (2004) discuss exhaustively about the importance of taking the individual fixed effects into account. They argue that this is even more relevant for the happiness models than assuming cardinality or ordinality of the subjective well-being function, and the respective adoption of OLS or models of latent variable such as ordered logit or ordered probit. Since individual fixed effects cannot be controlled for in cross-sectional studies, alternatively, the authors conclude by recommending the inclusion "as regressors the time-invariant personality traits that have such large influence on general satisfaction" (idem, p. 655). They go even further in highlighting the importance of these factors, suggesting that it would be important also "to understand what determines the distribution of personality traits in the population" (ibidem). Perhaps, future developments on the literature of psychology and neurosciences may help to shed some light on this issue.

Current data availability exist for individual longitudinal datasets. They are available at national level, as for example, the United States General Social Survey (GSS), the British Household Panel Survey (BHPS), and the German Socio-Economic Panel Study (SOEP). However, cross-country panel datasets at the individual level do not exist yet – and hence, those who aim at worldwide analysis face inevitably the debate above. Further, one can build cross-country longitudinal

datasets by simply aggregating individual-level data sources, and have a panel (at least unbalanced) of countries (which implies investigating a different type of phenomena). In an individual worldwide and cross-sectional perspective (as in chapters 2 ad 3) the available datasets are the European Values Study (EVS) and World Values Survey (WVS)[26]. In these datasets precise variables for psychological indicators (such as optimism, pessimism, narcissism, depression etc - useful to take into account the personal characteristics) are absent. Alternatively, they provide variables that come from statements related to the perception of life, like trust on others, control over one's own life and other similar contents (depending on the survey), that can be used as proxies for the personality traits.

1.6 Conclusion

The aim of our analysis was to focus on the multidisciplinary aspect of happiness, as a reading key of the economics of happiness' field of research, marking its conceptual stance. In our view the field has been well successful in pursuing its monodisciplinary research by contemporaneously being opened to insights and findings from other disciplines. This disciplinary marriage enriches the development of the field and, at the same time, helps economics to polish its toolbox improving the less satisfactory corners of mainstream economic theory. Slowly, as intrinsic to any human

---

[26] The Gallup poll data is also cross-sectional, and apparently a very rich source of individual data. Unfortunately, given its extremely high economic cost, detailed information on its variables are less available among studies.

development, this process has been opening an interesting and intriguing path within economics science – and, more in general, it also greatly contributes to our own individual pursuit of happiness.

References

[1] Allais, M. (1953), "Le comportement de l'homme rationnel devant le risque: critique des postulats et axiomes de l'école Américaine", *Econometrica*, 21, pp. 503-546.

[2] Augier, M. (2001), "Sublime Simon: The consistent vision of economic psychology's Nobel laureate", *Journal of Economic Psychology*, 22(3), p. 307-334.

[3] Becchetti, L., Castriota, S. (2008), "Does money affect happiness and self-esteem? The poor borrowers' perspective in a quasi-natural experiment", AICCON Working Papers 48-2008.

[4] Becchetti, L., Pelloni, A. (2010), "What are we learning from the life satisfaction literature?", Econometica Working Papers, wp 20.

[5] Bouman, Y.H.A., Ruiter, C., Schene, A.H. (2009), "Recent Life events and subjective well-being of personality disordered forensic outpatients". *International Journal of Law and Psychiatry*, 32, pp. 348-354.

[6] Bradburn, N.M. (1969), *The structure of psychological well-being,* Chicago, Illinois: Aldine.

[7] Bruni, L., Sugden, R. (2007), "The Road Not Taken: how psychology was removed from economics, and how it might be brought back," *The Economic Journal,* 117, Jan., pp. 146-173.

[8] Clark, D.A. (2009), "Adaptation, Poverty and Well-Being: Some Issues and Observations with Special Reference to the Capability Approach and Development Studies", *Journal of Human Development and Capabilities*, 10, pp.21-42.

[9] Camerer, C., Loewenstein, G., Prelec, D. (2005) "Neuroeconomics: How neuroscience can inform economics," *Journal of Economic Literature*, 43, pp. 9-64.

[10] Cantril, H. (1965), *The pattern of human concerns*, New Brunswick, New Jersey: Rutgers University Press.

[11] Chen, H; Pine, D. S.; Ernst, M.; Gorodetsky, E.; Kasen, S.; Gordon, K.; Goldman, D.; Cohen, P., (2013), "The MAOA gene predicts happiness in women", Progress in Neuro-Psychopharmacology and Biological Psychiatry, 40, pp. 122-125.

[12] Damasio, A. (1994), *Descartes' Error: Emotion, Reason and the Human Brain*, New York: Putnam.

[13] D'Aquili, E.G., Newberg, A.B. (1999), *The Mystical Mind: Probing the Biology of Religious Experience*, Fortress Press.

[14] De Neve, K.M., Cooper, H. (1998), "The happy personality: A meta-analysis of 137 personality traits and subjective well-being", *Psychological Bulletin*, 124(2), pp. 197-229.

[15] De Neve, J.E., Christakis, N.A., Fowler, J.H., Frey, B.S. (2012), "Genes, Economics, and Happiness", CEP Discussion Paper 1127.

[16] Diener, E., Sandvik, E., Pavot, W., Gallagher, D. (1991), "Response Artifacts in the Measurement of Subjective Well-Being", *Social Indicators Research*, 24, pp. 35–56.

[17] Diener, E., Sandvik, E., Seidlitz, L., Diener, M. (1993), "The relationship between income subjective well-being: Relative or Absolute?", *Social Indicators Research*, 28, pp. 195-223.

[18] Diener, E., Suh, E., Lucas, R., Smith, H. (1999), "Subjective well-being: Three decades of progress", *Psychological Bulletin*, 125(2), pp. 276-302.

[19] Dolan, P., Peasgood, T., White, M.P. (2008), "Do We Really Know What Makes Us Happy? A Review of the Economic Literature on the Factors Associated with Subjective Wellbeing", *Journal of Economic Psychology*, 29, 94-122.

[20] Dosi, G., Freeman, C., Nelson, R., Silverberg, G., Soete, L., (Eds.), (1988), *Technical Change and Economic Theory*, London: Francis Pinter and New York: Columbia University Press.

[21] Easterlin, R. (1974). "Does economic growth improve the human lot? Some empirical evidence", in: David, P., Reder, M. (Eds.), *Nations and Households in Economic Growth: Essays in Honour of Moses Abramowitz*. New York: Academic Press.

[22] Easterlin, R. (1995), "Will raising the income of all increase the happiness of all?". *Journal of Economic Behavior and Organization*, 27, pp. 35-47.

[23] Easterlin, R. (2001), "Income and Happiness: Towards a Unified Theory", *The Economic Journal*, 111, pp. 465-484.

[24] Easterlin, R. (2006), "Life Cycle Happiness and Its Sources: Intersections of Psychology, Economics, and Demography", *Journal of Economic Psychology*, 27(4), pp. 463-482.

[25] Edgeworth, F. (1881/1967), *Mathematical Psychics*, New York: Kelley.

[26] Ellsberg, D. (1961), "Risk, Ambiguity, and the Savage Axioms", *Quarterly Journal of Economics,* 75 (4), pp. 643–669.

[27] Earl, P. E. (1990), "Economics and Psychology: A Survey", *Economic Journal*, 100(402), pp. 718-55.

[28] Earl, P. E. (2005), "Economics and psychology in the twenty-first century," *Cambridge Journal of Economics*, 29(6), pp. 909-926.

[29] Farber, D. A. (2011), "Law, Sustainability, and the Pursuit of Happiness". Berkeley Program in Law and Economics, Working Paper Series.

[30] Ferrer-i-Carbonell, A., Frijters, P. (2004), "How Important is Methodology for the Estimates of the Determinants of Happiness?," *Economic Journal*, 114 (497), pp. 641-659.

[31] Frey, B.S., Benz, M. (2004), "From imperialism to inspiration: a survey of economics and psychology. in: Davis, J., Marciano, A., Runde, J. (Eds.), *The Elgar companion to economics and philosophy*, Edward Elgar.

[32] Friedman, M. (1953), "The Methodology of Positive Economics," In: Friedman, M. (Ed.), *Essays of Positive Economics*. Chicago: University of Chicago Press.

[33] Furnham, A. (1986), "Response bias, social desirability, and dissimulation". *Personality and Individual Differences*, 7, pp. 385-400.

[34] Gallese, V. (2003), "The Roots of Empathy: The Shared Manifold Hypothesis and the Neural Basis of Intersubjectivity", *Psychopatology*, 36, pp. 171-180.

[35] Graham, G. (2010), "Behaviorism", *The Stanford Encyclopedia of Philosophy (Fall 2010 Edition)*, Edward N. Zalta (Ed.), available at:

http://plato.stanford.edu/archives/fall2010/entries/behaviorism

[36] Iacoboni, M., (2008), Mirroring People: *The New Science of How We Connect with Others*, New York: Farrar, Straus & Giroux.

[37] Inglehart, R., Foa, R., Peterson, C., Welzel, C. (2008), "Development, Freedom, and Rising Happiness", *Perspective on Psychological Science*, 3, pp. 264-285.

[38] Jorgensen, B.S., Jamieson, R.D., Martin, J.F. (2010), "Income, sense of community and subjective-well being: Combining economic and psychological variables", *Journal of Economic Psychology*, 31, pp. 612-623.

[39] Kahneman, D., Tversky, A. (1979), "Prospect Theory: An Analysis of Decision under Risk", *Econometrica*, 47(2), pp. 263–292.

[40] Kenny, C. (1999), "Does Growth Cause Happiness, or Does Happiness Cause Growth?", *Kyklos*, 52(1), pp. 3–26.

[41] Krueger, A.B., Schkade, D.A., (2008), "The reliability of subjective well-being measures", *Journal of Public Economics*, 92(8-9), pp. 1833-1845.

[42] Kuhn,T. (1962), *The Structure of Scientific Revolutions*, Chicago: University of Chicago Press.

[43] Lewin, S. (1996), "Economics and Psychology: Lessons for Our Own Day from the Early Twentieth Century", *Journal of Economic Literature*, 34(3), pp. 1293–323.

[44] Linley, P.A., Maltby, J., Wood, A.M., Osborne, G., Hurling, R. (2009), "Measuring happiness: The higher order factor structure of subjective", *Personality and Individual Differences*, 47, pp. 878–884.

[45] McBride, M. (2010), "Money, happiness, and aspirations: An experimental study", *Journal of Economic Behavior & Organization*, Vol.74, pp. 262-276.

[46] Muramatsu, R. (2009), "The death and resurrection of 'economics with psychology': remarks from a methodological standpoint", *Brazilian Journal of political Economy*, 29 (1), (113), pp. 62-81.

[47] Nelson, R.R., Winter, S.G. (1982), *An Evolutionary Theory of Economic Change*, Harvard University Press.

[48] Neumann, von, J., Morgenstern, O. (1944), *Theory of Games and Economic Behavior*, Princeton University Press: Princeton, NJ.

[49] Nussbaum, M. C (2012), "Who is the happy warrior? Philosophy, happiness research, and public policy". Forthcoming in *International Review of Economics*.

[50] Oshio, T., Umeda, M., Kawakami, N. (2012), "Childhood Adversity and Adulthood Subjective Well-Being: Evidence from Japan", Forthcoming in *Journal of Happiness Studies*.

[51] Rabin, M. (1998), "Psychology and Economics", *Journal of Economic Literature*, 36, (1), pp. 11-46.

[52] Roysamb, E., Harris, J. R,, Magnus, P., Viiterso, J., Tambs, K. (2002), "Subjective Well-Being. Sex-specific effects of genetic and environmental factors", *Personality and Individual Differences*, 32, pp. 211-223.

[53] Sacks, D.W., Stevenson, B., Wolfers, J. (2010), "Subjective Well-Being, Income, Economic Development and Growth", IZA Discussion Papers 5230.

[54] Sandvik, E., Diener, E., Seidlitz, L. (1993), "Subjective Well-Being: The Convergence and Stability of Self-Report and Non-Self-Report Measures", *Journal of Personality*, 61(3), pp. 317-342.

[55] Schwarz, N., Clore, G. L. (1983), "Mood, misattribution, and judgments of well-being: Informative and directive functions of affective states", *Journal of Personality and Social Psychology* 45, pp. 513–523.

[56] Screpanti, E., Zamagni, S. (2005), "An Outline of the History of Economic Thought", II ed. Oxford: Oxford University Press.

[57] Sent, E.M. (2004), "Behavioral Economics: How Psychology Made Its (Limited) Way Back Into Economics", *History of Political Economy,* 36(4), pp.735-760.

[58] Simon, H. (1982), *Models of Bounded Rationality*, Vols. 1 and 2. MIT Press.

[59] Stevenson, B., Wolfers, J. (2008), "Happiness Inequality in the United States", *The Journal of Legal Studies*, 37(S2), pp. S33-S79.

[60] Stutzer, A., Frey, B. (2010), "Recent Advances in the Economics of Individual Subjective Well-Being". Working papers 2010/04, Faculty of Business and Economics, University of Basel.

[61] Venhoveen, R., Hagerty, M. (2006), "Rising Happiness in Nations 1946-2004. A reply to Easterlin", *Social Indicators Research*, 79, pp.421-436.

[62] Venhoveen, R. (2012), "Cross-national differences in happiness: Cultural measurement bias or effect of culture?", *International Journal of Wellbeing*, 2(4), pp. 333-353.

[63] Vihanto, M. (2004), "Extending Austrian Economics toward Psychology: Rules in Loan Decisions", *The Review of Austrian Economics*, 17(4), pp. 323-344.

[64] Wilson, W.R. (1967), "Correlates of Avowed Happiness", *Psychological Bulletin*, 67(4), pp. 294-306.

[65] Witt, U. (2008), "Evolutionary Economics", in: Durlauf S.N., Blume, L. E. (Eds), *The New Palgrave Dictionary of Economics*, Palgrave Macmillan.

[66] Zwick, R., Erev, I., Budescu, D. (1999), "The Psycological and Economical Perspectives on Human Decisions in Social and Interactive Contexts", in: Budescu, D., Erev, I., Zwick, R. (Eds.), *Games and Human Behaviour: Essays in honor of Amnon Rapoport*, L. Erlbaum Associates: New Yersey.

Chapter 2
A Cross-Country Investigation of the Determinants of the Happiness Gender Gap

2.1 Introduction

In the last two decades, major developments of the neurosciences provided valuable information about differences on male and female brain. This evidence yields new biological support for the conventional belief held in social sciences that men and women are different (Croson and Gneezy, 2009), both for cognitive processes and behavioural outcomes, and may react differently to external conditioning factors, thereby unleashing different psychological well-being outcomes[27]. These differences also shape different paths of social interactions, and, as such, the entire social process might also result in a different gender happiness path.

On the literature of Economics and Happiness, gender is considered generally as a socio-demographic control variable. Few authors gave a closer attention to this topic along the way (Easterlin, 2003; Blanchflower and Oswald, 2004; Marcelli and Easterlin, 2007; Bjornskov et al., 2007; Plagnol and Easterlin, 2008; Stevenson and Wolfers, 2008; 2009; Guven et al., 2009), while the latest contributions focused

---

[27] For a survey of gender differences in negative moods and disorders and positive moods and behaviours, see Nolen-Hoeksema and Rusting (1999).

mostly on the work and leisure spheres[28] (see, for example, Berger, 2009; Gashet al., 2010; Gimenez-Nadal and Sevilla-Sanz, 2011; Trzcinski and Holst, 2010). To our knowledge, little has been done to frame the study in more encompassing terms, or in a worldwide perspective. A first contribution of our paper is the attempt to fill this gap of the literature.

Evidences so far showed that, on average, the two genders do not share the same subjective levels of happiness; but there is no consensus on who is the happiest (see, for example, Bjornskov et al., 2007; Blanchflower and Oswald, 2004). Nonetheless, the works of Stevenson and Wolfers[29] (2008; 2009) and Plagnol and Easterlin (2008), respectively, indicate shifts in the happiness gender gap: from favouring women to favouring men, or disfavouring women later in life. Following the state of art, we do not form a specific hypothesis on who is the happiest. However, it was women's life that historically suffered major challenges in the economic, political and social spheres of worldwide civilizations. Therefore we want to investigate these broad phenomena for the most recent period, for which a certain wealth of new interdisciplinary data is available.

In fact, starting from the second half of the last century, there were noticeable instances where women gradually conquered a right that was previously and exclu-

---

[28] An exception (both methodological and thematically) is the work on fertility of Pakaluk and Burke (2010), which investigates whether changes in the contraceptive technology may have negatively impacted female happiness.

[29] Stevenson and Wolfers' (2009) paper is noteworthy since, using different sources of data and measures of subjective well-being for the USA and 12 European countries, shows that female happiness has declined absolutely and relative to male one over the past 35 years.

sively reserved to males (the right to have a job other than being housewife, to participate in socio-political representative bodies and engage in social activities outside the family context). Moreover, even independently of any (feminist or not) theory of gender equality, nowadays women's lifestyles face important role changes and new original challenges and trade-off emerge, which naturally impact on both genders, at the personal, family and aggregate levels[30]. A main example are the family and social consequences (child raising, household care of the elderly and sick members) associated with the increasing women participation to the labour force, and the enabling socio-institutional elements (structure of the welfare state and the public health system, public provision of social services such as kindergarten, nursing homes, etc.).

Another important contribution of our paper is its test of the women's rights contribution to the happiness gender gap, besides assessing the role of institutional variables. The issues of women's rights is central, in our perspective. A noteworthy heuristic approach to the issue of attaining a good life condition (or human flourishing) and living in a just society , which gives a particular attention to the female role, was developed by both Amartya Sen (1995, 1999) and Martha Nussbaum (Nussbaum and Sen, 1993; Nussbaum and Glover, 1995; Nussbaum, 2000; 2001; 2003); henceforth, the capability approach. In particular, Nussbaum (1995) departs from

---

[30] A selection of recent news and titles (from small to front page articles) helps to illustrate these issues. On the "The Economist": "Gendercide. The worldwide war on baby girls", (March, 2010); "What happens when women are over half the workforce", (January, 2010). On "The New York Times": "The Stigma of Being a Housewife", (July, 2010); "Italian Women Rise Up", (August, 2009). These articles respectively deal with issues such baby girls selective abortion or homicide and gender preference across cultures; attitudes towards female work and criticism to the feminism; the status of being housewife in the XXI century in a developed country like Italy; sexism in modern, democratic Europe.

the observation that no country in the world treats women as well as men, in different respects: longevity, health, education, employment, political participation. Like Sen, she argues that an adequate theory of gender (and social) justice is possible if we take into consideration fundamental individual entitlements (a broad concept including individual capabilities, opportunities and rights). She defends that the best approach to this end is to center on capabilities (this concept needs to be considered as the reflection of the freedom to achieve a worthy functioning, or achievement), which means to focus on what people are effectively able to do and to be. She argues that it is necessary to guarantee to each person the material, legal and social conditions that make possible her human "flourishing". This also calls for political and institutional support: in fact, the role of a just government (and society at large) should be to help its citizens to pursue a core of capabilities (meant as fundamental entitlements) by providing the necessary resources and social conditions. To this end, Nussbaum, differently from Sen, arrives to specify a provisional list of core Central Human Capabilities to be guaranteed (Nussbaum 2003; p.40): they are meant as real opportunities based on personal and social circumstances - and not merely ideal rights formally included in political Constitutions and legal systems[31]. Looking at the above list, they concern the capability of being able to have good health, to be secure against violent assault (even sexual, or domestic violence), to receive adequate education, to engage in critical reflection about the planning of one's life (includ-

---

[31] Nussbaum (2003; p.40) says that these capabilities "all are part of a minimum account of social justice: a society that does not guarantee these to all its citizens, at some appropriate threshold level, falls short of being a fully just society, whatever its level of opulence".

ing religious observance), to live with others (including the freedom of assembly and political speech), to seek employment on an equal basis with others, and others.

Obviously, to guarantee these capabilities, a coherent list of conditions should be in place, not merely restricted to legal ones (the latter being, traditionally, the role of the Government/Parliament and the State, meant as regulator of the use of order, force and violence); among these further conditions, society at large – including its intermediate bodies, associations, interest and representative groups – should behave in a way that allow citizens to practice and enjoy effectively these fundamental entitlements; the focus on effectiveness is, in fact, one of the most important differences between the capability approach and the line of thought practiced by the human rights movement. Despite preaching similar concepts and being in close relationships, Nussbaum (2003; p.37) believes that "the language of capabilities gives important precision and supplementation to the language of rights". For instance, concerning the right to political participation, "women in many nations have a nominal right of political participation without having this right in the sense of capability: for example, they may be threatened with violence should they leave the home" (ibidem, p. 38).

Therefore, Sen and Nussbaum's theoretical work help to inform our hypothesis that human rights, institutions and collective beliefs (also including social norms) impact on functionings and capabilities in ways that may go beyond what rights and achievements let to imagine, when appreciated as stand-alone entities: for example,

formal gender equality in political activity or a high rate of women labour force participation, despite being conventionally registered as worthy achievements per se, need to be checked against other relevant background elements, that might dampen their final effect on women subjective well-being. In other words, translating the "capability approach" concepts in our empirical context (see section 3), we may say that rights, social beliefs and achievements may register complementarity, substitution or trade-off effects, affecting the final effect on subjective well-being.

For what specifically regards institutions, the literature on gender and happiness has not much specifically explored their role[32]. Institutions though, have been shown to play an important role on individual subjective well-being. A seminal contribution in this direction was given by Frey and Stutzer (2000a; 2000b; 2002). Although not focusing on gender aspects, their work provides us with empirical evidence that shows the importance of democracy to individual well-being. They find that the greater the degree of democracy, the happier the citizens are. We try to capture these sources of happiness to the gender context by using variables of female political rights.

Other contributions consider the varying impact of civil rights on happiness. Veenhoven (2000), for instance, provides intriguing results when exploring the role of freedom in subjective well-being of 46 nations. He finds that freedom is not always positively related to happiness: it contributes positively to happiness in rich

---

[32]   The work of Bjornsvok et al (2007) is an exception. They account also for institutions when incorporating indicators of women rights as a measure of discrimination.

countries, but not in poor ones. On the contrary, he uncovers that economic freedom is positively related to happiness in poor countries but not in rich ones. Similarly, we try to test these relations in a gender context, using measures of female economic, political and social rights.

Within this background we form our hypothesis that rights, social beliefs and achievements may respond for the happiness gender gap across countries. We measure these factors by variables of female rights, female actual achievements and on the national beliefs' environment, all captured in their relevant economic, political and social dimensions.For the purpose of this study we apply two different empirical methodologies: two-step and then one-step. Each one has is pros and cons. The first strategy is similar to Stanca's (2010) methodology; it consists of, first, explaining the subjective well-being at the individual level; in the second step, macro level conditions are used to explain the differences in the country-year-varying target variable (i.e., the estimated coefficient of the gender dummy from the first stage, measuring the gender premium connected to happiness). With the second methodology, a single-step equation is estimated, combining both individual and country-level variables. For the first stage we use combined data from the World Values Survey and the European Values Study (WVS-EVS), which offer repeated cross-sections (five waves) for a maximum of 97 countries, spanning the period 1981 to 2009. Additionally, for the indicators of the macro conditions, we use two other sources: the World

Development Indicators (WDI) and the Cingranelli-Richards (CIRI) Human Rights data set.

This work contributes to the literature in three main ways. First, it helps to deepen the scanty literature on gender and happiness with a methodology so far unused for gender issues; second, it introduces and tests the role of broadly meant institutions (understood as female economic, political and social rights and achievements, like women seats in Parliaments) and the related long-run materialization of social and cultural processes (beliefs, also interpretable as capturing social norms) as determinants of the gender happiness gap; third, it investigates the happiness gender gap in an encompassing way, by taking into account women's life as a whole instead of focusing on single aspects (as, for example, in previous studies focused on female age and work). We start our investigation by pursuing two main questions: 1) whether there is a happiness gender gap at all, and 2) what factors may explain it across countries and time.

The paper is structured as follows: sections 2 and 3 present, respectively, the methodology and the data used for the empirical analysis; the results are presented in section 4; section 5 concludes with the main implications of the analysis.

2.2 Methodology

We first apply an empirical strategy building on Stanca's (2010) methodology[33]. It is composed of two empirical steps. In the first, we have a subjective well-being equation at the individual level for a set of countries-years. In this stage, we run separate regressions for each single country-year cell, controlling for a set of factors that, in the state-of-the-art literature[34], are considered to influence individual happiness: economic (ECO), social (SOC), and demographic ($DEMO$) aspects. In the second step, we are interested in explaining the happiness gender gap (estimated as the coefficient of the gender dummy in the first step), across countries-years: to this end, we use as explanatory variables a set of economic, institutional and socio-cultural conditions at country-year level, that partly overlap with the concepts and categories used in the "capability approach", in the human rights and in the gender studies literatures: rights, achievements and social beliefs (see section 1). The individual level equation (in the first step), where we estimate the effect of gender on individual well-being, is given by:

$$ SWB_{ijt} = \alpha + \beta_{1jt}ECO_{ijt} + \beta_{2jt}SOC_{ijt} + \beta_{3jt}DEMO_{ijt} + \beta_{4jt}GEN_{ijt} + \varepsilon_{ijt} \quad (2.1) $$

---

[33] In a further step his work contemplates spatial patterns to capture the effects of economic conditions on happiness, while here we are interested in the country-level effects on the happinessgender gap.

[34] Across a variety of research themes, we cite Blanchflower and Oswald (2000); Alesina et al. (2001); Wolfers (2003); Frey and Stutzer (2004); Di Tella and MacCulloch (2006); Blanchflower (2008); Clark et al (2008). For a recent global overview of the field, and its main results, see Dolan et al. (2008).

where SWB_{ijt} is the subjective well-being of individual i in country j at time t: it is measured by the WVS-EWS life satisfaction variable, which varies in a scale from 1 (minimum) to 10 (maximum); for this reason, we chose to use ordered probit model, to better account for its ordinal nature. Coming to the regressors, the variables that account for the individual economic conditions are income and the unemployment status; socio-demographic factors are captured by the level of education, marital status, age and gender, whose dummy, GEN_{ijt}, is set to 1 to capture the effects of being female; for better clarity of presentation, the gender dummy is showed separately in the equation, to emphasize its central role in our study. As such, its estimated coefficient for that country-year cell will capture the differential effect on individual subjective well-being of being female, with respect to male (henceforth, the gender happiness gap). In the first-step equation, and in the alternative one step-model equation (see below), we always control for the log of GDP per capita, expressed in PPP (at 2005 prices).

In the second step, the gender happiness gap is assumed to depend linearly on female rights ($RIGH$), female achievements ($ACHI$) and societal beliefs (BEL) about women' and men's roles in society. Further controls are used: the country-year averages of individual-level personality traits and values (PV)[35], and two proxies that

---

[35] Their inclusion is made here and not in the first stage to avoid a possible endogeneity bias at the individual level. Variables are: sense of trust in others, sense of control over one's life, honesty and importance of religion. On this point, opinions diverge. Ferrer-i-Carbonell and Frijters (2004; p.655) propose to include personality traits as a second-best solution, when the used datasets and methodologies do not enable to control for time-invariant fixed effects. Similarly, for different theoretical reasons rooted on the etiology of personality traits, the psychological literature, being focused on the individual-level determinants, commonly uses these traits or values as explanatory variables of

may somehow capture the importance of relational goods (importance of family and importance of friends)[36], (RG). Hence, the country-year level equation, estimated by OLS, is given by:

$$GAP_{jt} = \alpha + \beta_1 RIGH_{jt} + \beta_2 ACHI_{jt} + \beta_3 BEL_{jt} + \beta_4 PV_{jt} + \beta_5 RG_{jt} + \epsilon_{jt} \quad (2.2)$$

where GAP_{jt} is the gender gap for country j, at time t.

Finally, we would like to stress the advantages of our first-choice method (two-step), with respect to existing one-step studies (as, for example, Bjornskov et al, 2007). First, it works similarly to a difference-in-difference method: the gender happiness gap only captures the gender-variant happiness components. Second, since individual level regressors (used in the first step) have higher variance with respect to macro ones (used only in the second step), by estimating separately their contributions the two-step methodology achieves a higher explanatory power. Third, aiming at employing interactive terms (see below), with two steps we insert them where relevant, we keep down the specification complexity and facilitate the results interpretation.

---

well-being measures. See, for example, the Big Five construct.

[36] Alternatively, the WVS-EVS provide two genuine measures of relational goods (frequency of contacts with parents/relatives and friends) but, unfortunately, their missing values would have implied a large drop in observations. To this end, we preferred to use two second-best measures, that are loose proxies of relational goods, measuring their ideal importance, but not the actual time spent with others.

However, for robustness check, we also present the results obtained estimating a single-step equation, featuring both individual-level variables, macro controls and their interactions, where relevant and feasible.

In the following section, we detail the data sources and the variable definitions.

2.3 Data

In this study we use three data sources. For the individual level (first step), we use only the WVS-EVS data (supplied by institutions that promote worldwide-coverage surveys on socio-economic, cultural and political phenomena). For the second step (or as macro controls in the one-step robustness checks), we use the World Development Indicators (WDI) and the Cingranelli-Richards (CIRI) Human Rights data.

To maximize the number of observations and countries included (97), so to uncover global and robust trends, we chose to collect from the WVS and EVS web sites separately all the available surveys, which are the 1st-5th from WVS and 1st-4th from EVS[37]. Together, they span the period 1981-2009 (including 25 years), for a total of 416,600 individuals interviewed, before data-cleaning (including missing values[38]). After matching the WVS-EVS with the WDI and CIRI and performing

---

[37] Taken together, the waves correspond to the periods: 1981-1984, 1989-1993, 1994-1999, 1999-2004, 2005-2009. The countries investigated are not the same in all the waves. Obviously, within a given survey-period, different countries may have different reference years.

[38] Some variables imply a large drop of observations. Income is missing in 107,898 cases.

data cleaning, we obtain 85 countries, 20 years, and individual-level information for 139,400 individuals[39].

We use life satisfaction as the proxy of individual subjective well-being (the underlying question being: "All things considered, how satisfied are you with your life as a whole these days?", from 1 to 10. Alsotheincome variable spans the range 1-10, indicating the person's subjective perception of her personal position in the national distribution of income; since it is not expressed in monetary terms, it remains directly comparable between countries. Unemployment is a dummy variable from the employment status that also includes the options retired, student, housewife, part-time, full-time and self-employment. Education has three levels: low, medium and high. For the complete list of the WVS-EVS variables used in the first step, whose descriptive statistics can be found in table 2.1, we refer to table 2.3.

The first dataset employed in the country-level analysis is the CIRI Human Rights. Its advantage is that it distinguishes the human rights polices from their actual practice, taking the second as its main reference[40]: as such, they are a good preliminary proxy for measuring the construct of "capabilities" featured in Sen' and Nussbaum's approaches (see section 1). This point is important for two reasons: 1)

---

[39]   These figures apply when requiring non-missing values only in the life satisfaction variable. Further drops in observations happen when requiring non-missing values in all the regressors (in both steps).

[40]   For practices it is meant all the government human rights-related actions. Within government is included any of its agents, such as police and paramilitary forces (Cingranelli and Richards, 2008b,). Since they consider only practices, human rights conditions are not accounted for. Conditions would enclose all that can happen within a country, besides the government's action, such as acts of guerrilla, social protests and revolutions. Although conditions would be more informative than practices, they are more difficult to monitor and register, while practices give reliable and objective information.

there may be a sizable difference between government's rhetoric proclaims and actual policy implementation, and 2) this difference can be particularly large in gender domains, due to a complex series of factors which are only partly controlled or influenced by the State' institutions (government, Parliament, public administration and other public bodies): in fact, gender domain outcomes also register the influence of interest groups and social forces/dynamics, beside strictly meant institutions. Unfortunately, for the last factors of influence CIRI data do not help; hence, our estimation strategy will look at another set of aggregate variables (social beliefs, aggregate values and personality traits, relational goods) which, beside rights and achievements, can impact on the happiness gender gap.

The CIRI database uses as source of its information the annual US Department of State Country Reports on Human Rights Practices, and the Amnesty International Annual Report[41]: they consider physical integrity rights, civil liberties, worker's rights and women's rights to equal treatment, for 200 countries from 1981 to 2007.

From the CIRI database we use the following three variables: women's economic rights, women's political rights, women's social rights[42]. Each variable origi-

---

[41]   In case of disagreements among the reports, the Amnesty International report is taken as authoritative, in order to avoid any US American bias. However, on the broad accordance between the two reports, see Poe et al., 2001.

[42]   Women's economic rights go from the right to equal pay for equal work, to job security, right to work or exercise a profession without male's consent, and to be free of sexual harassment. Women's political rights account for right to vote, to run for political office, join political parties, among others. Women's social rights consider right to inheritance, enter marriage in equality with men, participate in socio-cultural and community events, freedom from genital mutilation (see Cingranelli and Richards, 2008b).

nally assumes a value that ranges from 0 to 3, from minimum to maximum practice of rights[43]. Additionally, we created a fourth variable which is an average of these three, called women's rights. The expected sign for their coefficient is positive, since they reflect provision of means women have in order to be equal to men in economic, political and social domains. Hence, making a preliminary comparison with the human flourishing goal of the eudemonic tradition (the equivalent of our hedonic empirical framework), we assume that more rights can impact positively on the happiness of women, *ceteris paribus*.

The other source of data is the World Development Indicators dataset, provided by the World Bank, with data for 234 countries, covering the period 1960 to 2009[44]. This is our source of female achievements in society. As Nolen-Hoeksema and Rusting (1999, p. 341) affirm, inequalities in rights, opportunities, achievements and decision power leave women feeling helpless and devalued and contribute to their higher rates of internalizing disorders (such as depression and anxiety) or moods (sadness). Therefore, we expect that their achievements in society contribute to enhance female happiness and, potentially, also the happiness gender gap. We use five variables to capture the degree of female achievements in society. The first is female labor force

---

[43]   0 is assigned if there is none of the (specific) legally codified right for women or if sex discriminations are present; 1 if women have some legal rights but they are not effectively enforced; 2 if women are granted legal rights effectively enforced, allowing low level of discrimination; and 3 if women have all or almost all legally codified rights, fully enforced in practice. We recoded them into 1-4 to enable easier interactions with other variables.

[44]   Also for WDI, as for CIRI, data completeness differs across countries and years. To minimize losses of observations, we carried out a detailed work of dataset reconstruction, calculating average values when neighboring years of missing observations were available.

participation, which is thefemale percentage of the total labor force. The second is the percentage of seats held by women in national Parliaments. The third is the ratio of the gender educational achievement, measuring the female achievement in educational terms with respect to males': it is given by the ratio of girls to boys in primary education. The fourth is the life expectancy ratio, used as a proxy for the female health status in comparison to males'[45]. The fifth variable is the fertility rate, given by the national number of births given by women, per capita[46]. For all variables, percentage rates were transformed in decimals. To sum up, for all achievements, we expect positive coefficients as we assume that they may enhance women's feelings of participation in the social/national life, thereby increasing the gender happiness gap.

Lastly, we select a set of variables that measure population beliefs within each country over a series of gender-sensitive socio-economic and political matters. In particular, the WVS-EVS dataset contains individual level replies to statements expressing, to say the least, a general pro-males sentiment or orientation[47], if not gender discrimination: individuals are asked to express agreement or disagreement, choosing

---

[45] The WDI provides us with the life expectancy at birth (in number of years) for females and males, that permits us to construct the ratio of female to male life expectancy at birth.

[46] Fertility indicators are the core of development economics and demography, and it may also work as a synthetic measure of women status within a society, since fertility choices are correlated with several domains (women's role in the family, labour force participation, etc.). It is important to recall also that one of the reasons women quit job and give up their career is exactly due to motherhood. Hence,beside being a measure of women's achievement, fertility rate also uncovers possible trade-offs and substitution effects with other types of achievement (for eg., as in the second shift theory, with labour force participation). Our basic hypothesis is that higher levels of national fertility are positively related to female happiness.

[47] The statements are: "when jobs are scarce, men should have more right to job than women"; "men make better political leaders than women do"; "university education is more important for a boy than for a girl".

from an ordering that indicates 1 for strong agreement, up to 4 strong disagreement; we rescaled these variables (when necessary) so that they all express a pro-women ordering[48]. In one particular case[49], we have a very interesting sentence leaving the women free to choose case-by-case her ideal working condition. We take the individual answers replied by both genders, and average them out to the country-year level, thereby obtaining a proxy that can also measure the social climate and norms prevailing in that country. We assume that an aggregate pro-women system of beliefs is conducive to women's flourishing and happiness[50]. Table 2.2 provides summary statistics for all the variables used in the macro level analysis, and others elsewhere (for eg., log GDP pc). Multi-collinearity problems were prevented using the rule-of-thumb of not including into the specifications regressors reciprocally correlated at high and significant levels (more than 70%).

---

[48] Exceptionally, for one variable which has only a binary response (agree or disagree) plus indifference, "when jobs are scarce, men should have more right to a job than women", we scaled the indifference position as intermediate one between pro-women and pro-men.

[49] The sentence is: "being a housewife is just as fulfilling as working for pay", and is different from the other beliefs, since it implicitly affirms that woman need to be left free to choose between the two options (being housewife or having an external job), not assuming a particular condition as ideal for all.

[50] As said before, with respect to the statement "being a housewife is just as fulfilling as working for pay" our expectation on women life satisfaction is less clear-cut. If it is meant as a discriminatory belief that would prevent or discourage women from working despite their personal will, then a disagreement with this statement would contribute to female happiness. However, in selected cultures, this negative bias might not be present. So, we remain somehow neutral regarding the effect of this variable.

2.4 Results

2.4.1 The two-step model

The first column of table 2.3 presents the individual determinants of subjective well-being (equation 1) when using the two-step model; due to the high number of country-year cells estimated (more than 130), here we simply present the specification obtained pooling all the country-year cells (ordered probit is used), constituting a sort of general benchmark. On the basis of the established literature (for a recent survey, see Dolan et al 2008), we notice that individual variables possess the expected coefficient sign: age is significantly U-shaped, while education (higher, compared to lower levels), marriage, being housewife, income and GDP per capita are all positive; on the contrary, being divorced/widow and unemployed have negative effects.

Table 2.4 presents the vector of the estimated coefficients of the happiness gender gap across countries and years (136 cells): it can be easily seen that this gap assumes positive and negative values, across different countries and years, and that both halves of the distribution contain developed and developing countries. In reality, as common sense suggests, there is no equivalence of happiness levels between the two groups: in fact, running a simple test on the means' difference with respect to the type developed/developing country for the distribution of the happiness gender gap, we find that the two means indeed differ in a statistically significant way (t test, with $Pr(T < t) = 0.024$): they respective values is 0.066 for developed and 0.033

for developing. So, on average, in developed countries, women have the double of the happiness gender gap with respect to their gender fellows from the developing world. Concerning the time persistency, it is frequent the case that a country maintains the same sign of the gap across different years (for example, see US, France, Germany, but not UK), although encountering wide variations in the ranking (due to the naturally high volatility of the positional ordering).

In this respect, we need to spell out that the prevailing cross-sectional nature of our dataset does not enable us to perform a test of the so-called paradox of (declining) female happiness[51]. Stevenson and Wolfers (2009) coined the expression, and Blanchflower and Oswald (2004) also referred to this paradoxical phenomenon, given the fact that women life-styles encountered major changes in the past half century, but many of these changes, in theory, were promoting women's rights and their effective achievements in the society. Nations, even if in different degrees, have decreased the gender discrimination in many fronts, especially in the developed and more industrialized countries (for recent years, see for instance the Gender Gap Index Reports, from 2006 to 2010). Nonetheless, all these functioning advantages seem not to have been matched, so far, by a positive dynamics of the women's happiness gap.

We now turn to the country-level estimates, analyzing the potential determinants of the happiness gender gap. Tables 2.5 to 2.7 present the results of the most basic specifications, including only the single regressors ($RIGH$, $ACHI$ and BEL),

---

[51] Stevenson and Wolfers (2009) analyzed women happiness along the time, pointing to a declining pattern. Our analysis does not account for the longitudinal dimension (as in panel data), but still confirms some specific aspects of women preferences and behaviours highlighted by these two works.

in all their possible variants/domains. Most of the expected coefficient signs are confirmed - although only in a minority of cases they are statistically significant. In detail, $RIGH$ (Table 2.5) are always positive; within $ACHI$ (Table 2.6), female labour force participation, educational ratio, and life expectancy ratio are negative (the latter significantly), while women in Parliament and fertility are positive (the first, significantly); within BEL (Table 2.7), unexpectedly, all the types of pro-women beliefs are positive (although insignificantly), while the last belief (housew & job fulfilling), that we interpreted as a sort of woman's freedom of "self-determination", is significantly positive; we delve more into this interesting piece of evidence later. Obviously, these trivial specifications explain very little variance, and call for additional regressors.

A first choice is to use the information we got on the sample mean differences with respect to the nature of developed/developing country; hence, we plan to include its dummy variable-developed country. Additionally, before introducing fuller specifications, we need to go back to theory. In our case, the capability approach serves as a natural logical scheme to figure out which are the most promising and significant links among regressors. First, we remind that the concept of capability is related to the informative content of $RIGH$, $ACHI$ and BEL, but in different ways. $RIGH$ are a good proxy of external enablers of capabilities, and logically stand out as potential (future) achievements ($ACHI$); obviously, they might not manage to become fully implemented in society, especially in human contexts where existing social beliefs and norms (BEL) are not conducive. $ACHI$, instead, regroup realized func-

tionings, thereby being the first-best predictors of gender subjective well-being paths; however, also in this case, complementary factors may be needed to generate the full effect on the happiness gender gap, especially when we examine functionings that yield prevalently external, medium-run and systemic outcomes (like women seats in Parliament), that seek expansion towards other external domains (active women presence in other socio-political domains of life, work and volunteering), or that even need the complementary activation of internal capabilities and beliefs (such as control over the one's life or particular values and personality traits, such as honesty). Finally, some achievements may also imply trade-off or crowding-out effects with other capabilities or functionings, like the case in which increased women labour force participation may deter the consumption of relational goods or deprive women of the joy of maternity/fertility.

Having these logical steps in mind, we go first to introduce a battery of specifications dealing with rights and some complementary factors, such as social beliefs and personality traits: Tables 2.8 and 2.9 (economic rights), and 2.10 (political rights)[52].

Table 2.8, column 1 includes the development dummy, positively significant (as expected): economic rights remain positive and insignificant. Column 2 controls for pro-women social beliefs (negative but insignificant); the F-test of the whole model approaches the significance threshold (at 5,48% level) only with the last specification

---

[52]   The analysis of social rights, albeit promising, is omitted for likely multicollinearity of regressors and insufficient number of observations.

(column 3), featuring the interaction between economic rights and pro-women beliefs (positive and significant at standard levels): hence, only the combination of economic rights with coherent non-discriminatory social norms yields a positive and significant contribution to the happiness gender gap, across countries[53]. We believe that this is a first noticeable result, fully in line with the capability approach; for further check, later we compare it with evidences found in the one-step model.

Similarly, table 2.9 investigates the possible joint impact of economic rights and women's life control (aggregated from individual-level answers[54]), for the happiness gender gap. In fact, also the latter personality trait might serve as a catalytic factor for activating potential rights and transforming them into realized subjective well-being (probably going through the phase of achievements). Moving from column 1 to 3 we see that, while the single variables are not significant, the interaction terms is fully significant and positive, demonstrating that the above catalytic effect matters[55]. Further diagnostics support this specification[56]. Obviously, a related question left unanswered is what determines the distribution of personality traits within a given population/country. Table 2.10 replicates the same discussion for political rights, using the most coherent version of social norms we possess[57]. Column 1 in-

---

[53] A further F test on the separate significance of the interactive term rejects the null hypothesis of the equality of the two regressors (with Prob > F = 0.0235).

[54] Obviously, the sample mean of the individual level variable of life control was calculated taking into account only the female subsample.

[55] We may draw a broad analogy between life control and conscientiousness:, one of the Big Five traits studied in the psychological literature on the determinants of well-being.

[56] Both the F test for the significance of all regressors (Prob > F =0.0464), and that for the significance of the interaction term (Prob > F = 0.0343).

[57] In this case, due to the narrow informative content and the lower number of observations of the

cludes the development dummy, column 2 controls for social beliefs (fully significant and positive) and column 3 includes the interaction term between rights and beliefs. The F-test in theory supports the full significance of the whole model in specifications 2 and 3 (Prob > F =0.0238 and 0.0227, respectively), although in 3 nothing is individually significant - including the interaction term's difference from the basic regressor; hence, the interaction effect is not confirmed, while the simple control for the beliefs is (then, column 2 is the final specification). On overall, the evidence on the positive effect of political rights is not convincing; instead, that of social beliefs alone is. In particular, this social belief is pro-women in an original way: it affirms that women do not necessarily privilege working outside over being housewife, since the two can be equally satisfying.

We now pass to present specifications featuring achievements, thinkable as "realized" functionings. Also in this case, it is reasonable to assume that their impact on the gender gap may be mediated or complemented by other factors, like social beliefs or personality traits: in particular, we want to re-test the importance of women's life control, which seems a naturally complementary factor requested for extracting the full happiness potential of the achieved functionings. Having many options, of varying stand-alone significance, here we highlight the most meaningful instances of achievements[58]; as before, we present first that with the development dummy, second

---

variable on political beliefs , we used another option, that we called woman's freedom of "self-determination".

[58]   The other combinations are available upon request by the author.

we control for the life control and then we check for the significance of the inclusion of the interaction term (achievements*life control).

Table 2.11 presents the effects of female political achievements (women in Parliament); inserting the dummy, column 1 does not detect anymore the previous stand-alone significant positive effect of the degree of Parliamentary representation on the happiness gender gap: this is not surprising, given that this variable measures only a specific aspect of women political involvement, that we call intensive but not extensive[59]. To this end, controlling for women's aggregate sense of life control in life can add a further informative qualification to our search (column 2); but again there is no effect. The real solution comes from interaction: once the achievement is coupled with life control, both the whole F-test for the significant of all regressors (Prob $>$ F $=0.000$), and the positive small-size but highly significant effect of the interaction term rise up[60]. Hence, women political achievements matter more for their gender gap when the representative action of small élites is extensively supported by widespread societal movements and campaigns, as reflected in a robust societal feeling of life control, such that we measure.

Another important achievement is the possibility to live a longer life, compared to men. Biological factors are usually invoked to explain women longer life expectancy at birth; however, not all the societies can guarantee this to their female

---

[59]   In other words, Parliamentary membership may often be the expression of belonging to narrow élites, rather than a good proxy of the extensive presence of women in politics-related activities.

[60]   Additionally, also another F-test rejects the null hypothesis on the equality of the two terms (Prob $>$ F$= 0.000$).

citizens, with poorer and less egalitarian countries traditionally depriving women's lives of important welfare and care functionings (malnutrition, inferior education opportunities, gender social stigma, etc.). Despite this, in our sample the two means of life expectancy ratio are not statistically different between developed and developed countries (Pr(T>t) = 0.1691) so that, despite being important for health care, the development status does not seem to be the underlying explanatory factor which drives the life expectancy ratio's effect on the gender gap. Table 2.12 confirms this conjecture. Column 1 shows that the original large, negative and significant coefficient of life expectancy continues to holds even when controlling for the dummy, and when including women life control (column 2). Neither the interaction life expectancy*life control is significant/helps (results not showed here); instead, what ameliorates the R2 is the interaction life expectancy*development dummy (column 3), fully significant in its-self and finally positive. Hence, the happiness gender gap seems to respond to a conjunction of factors: in other words, the development stage alone matters for the women differential happiness, but another part of the story is accounted for by the life expectancy ratio, and by all the elements connected to it (for example, environmental factors).

Finally, we go to explore the relations between the gender gap and one of the most gender-specific achievements: fertility. Despite the unavoidable humor, we need to say that modern life put on women' shoulders a series of complex challenges and opportunities, often leading to harsh choice dilemmas between privileg-

ing maternity or career; hence, the pro-happiness potential of contemporary female functionings and achievements need to be assessed carefully, looking for interaction effects and trade-offs. The second shift theory (Hochschild and Machung, 1989), for example, tackles this point. The fact that working women face a second shift at home[61] constraints fertility decisions, and even basic opportunities for conducting a richer social life, such as entertainment or relational activities; thereby implying a possible fertility or relational crowding out effect, where higher rates of female social achievements (labor force participation, for instance) lower the gender happiness gap[62]. Unfortunately, these complex phenomena are not easily amenable to exam with macro-level variables, not cross-sectional datasets are fully adequate to grasp the inter-temporal effects: unfortunately, both qualifications hold here, so that extreme caution should be put in interpreting these evidences.

First, we need to remind that our sample uncovers, at the individual level, an effect on life satisfaction close to zero and insignificant (table 2.3) for the regressor number of children while, at the aggregate level, a positive insignificant effect of fertility rate (on the happiness gender gap, table 2.6). In the literature, instead, a certain prevalence of a negative effect of parenthood on well-being is uncovered, especially at the individual level (see Margolis and Myrskyla, 2010; Stanca, 2012).

---

[61]   Despite some evidence that the male time in home production is increasing (Blau, 1998), in many countries home making remains largely a women role.

[62]   Bruni and Stanca (2008) investigate the role of relational goods for individual happiness, finding not only a significant positive relation, but also suggesting a relational-income treadmill, where the effect of higher income on happiness would be offset by a lower consumption of relational goods - caused by an increasing and pervasive role of TV viewing.

Since we look at aggregate relations and at the women happiness gap, our relations might unfold differently[63]. Table 2.13 shows that, with the simple control for the dummy, the fertility coefficient remains positive and turns significant, and remains so when adding the control for labour force participation, while the latter remains not significant (column 2); their interaction brings a joint negative effect, insignificant, and does not even add explanatory power to the model[64]. Hence, no robust evidence of a displacement effect between maternity and work outside the family emerges in our sample, but rather a sign that fertility contributes, at least at the aggregate level, to women's differential well-being. Other specifications including the control for relational goods or life control (columns 3 and 4) do not yield any relevant news or change in goodness of fit or parsimony, neither via interactions: again, only fertility remains positive and significant. Similarly, studying the joint behavior of female labour force participation and relational goods, it emerges that only the first is significant and negative (controlling for the development status[65]), the inclusion of relational goods is insignificant, and the same for that of the interaction term. Again, despite its likely presence, no direct proof of a crowding-out effect between working outside and relational goods is detected when we estimate relations at the aggregate

---

[63]   In fact, we might suppose that, while at the individual level to decide to have a numerous family involves substantial costs and trade-offs, at the aggregate level a high fertility rate might signal a economic policy-friendly country and a virtuous social environment, promoting large family lifestyles and parents' happiness.

[64]   Again, results are not displayed here, but are available on request.

[65]   Similarly, the means difference of the labour force participation rate by development status is significant (P (T<t = 0.030)).

level; but this may be due partly to the level of analysis (macro), concealing internal diversities, and partly to the limits of our relational goods measure.

To sum up, the stand-alone effects of fertility (positive) and female labour force participation (negative) are the two most robust evidences of achievements directly adding to the women's aggregate differential well-being in our sample, similarly but more convincingly than with women in Parliament.

Concerning the explanation of the negative and significant coefficient of the women labour force participation (found also by Lalive and Stutzer, 2010 and Vendrik and Cörvers, 2009)., a few considerations from the existing literature help us to sort out this apparently puzzling evidence. Beside the relational crowding out effect (not verified here), we highlight the following possible explanations: (i) social costs involved in the gender transition; (ii) self-perception of freedom/autonomy; and (iii) rights-expectations treadmill effect.

For hypotheses (i) and (ii) we recall Nussbaum's work, which highlights that the conquest of higher rights involve conflicts and social tensions (what we refer to as social costs), which might eventually decrease the net benefit of acquiring them at least in the short and medium run[66]. Following this line of reasoning, one could collect the subjective benefit of social activism only in the long run, perhaps after a generation and this requires a proper account of the time dimension of the underlying

---

[66] Easterlin (2009) provides empirical evidence on this respect. He shows that Eastern Europe's transition from socialism to capitalism in the 1990's was not followed instantaneously by an increase in life satisfaction. Instead, around 15 years later subjective well-being records were bellow pre-transition levels. More specifically, he argues that the increased satisfaction with material living level occurred at the cost of satisfaction with work, health and family life.

rights-happiness relation, which is severely constrained by the predominant cross-sectional nature of our estimation exercise.

The second hypothesis suggests the importance of accounting for the self-perception of freedom/autonomy (or, in our case, life control). Nussbaum argues that human flourishing (to our ends, well-being) depends on material and social conditions as well as on internal capabilities. Indeed, without being accompanied by suitable personal traits, women's rights and achievements themselves are not sufficient to increase female happiness relative to male's. Therefore, we might be missing out the role of internal individual factors, that need to be further investigated. Indeed, Bavetta and Navarra (2011) show empirical evidence that the individual perception of own freedom or autonomy is complementary to the country's economic freedom in enhancing one's well-being.

Finally, the negative coefficient may conceal the existence of a rights-expectations treadmill, that would follow in a certain way the income treadmill, which means that some beneficial effect of rights and achievements can be offset by further aspirations of more/better rights and results. For example, someone who lives in a developed country, with her rights guaranteed by the democratic State, may feel tempted to judge insufficient what is already available[67]while, on the other side, there are many

---

[67] For instance, we can mention the German case that offers part-time child care, or the French case that provides a certain amount of money for mothers who decide to stay at home to bring up their children. In the first case, a part of the mothers who make use of this right are not satisfied as they judge insufficient the amount of time made available by the welfare state. In the second case, some women may judge as not fair or insufficient the amount of money reserved for the finality of raising their children.

women in the developing world that probably do not know (or understand) the existence of rights (we can think of the least developed African countries, for example)[68]. In the next section, working at the individual level, we will attempt to do a test of the second explanation (control for women life control).

2.4.2 The one-step model

Table 2.3 preliminarily introduced the one-step model, where a basic equation with individual variables and macro controls is estimated with OP first (column 2) by pooling all the available country-year observations, and adding country and year dummies: this is the benchmark of a sizable part of the existing literature (for eg. Bjornskov et al., 2007). Beside traditional socio-economic and demographic factors, we also add personality traits and beliefs and value variables (bottom part of the columns 2 and 3): although this inclusion may be questionable for potential endogeneity concerns (see the discussion made in section 2), it may be the lesser evil, lacking (cross-country) longitudinal evidence (see Ferrer-i-Carbonell and Frijters, 2004; p.655); moreover, their inclusion reflect the received wisdom from the psychological well-being literature. Interestingly, the coefficients of the one-step model come (almost) all with the expected signs and significant, and are remarkably similar[69] to the

---

[68] It is worth noticing, in this case, that when people answer how satisfied they are with their lives as a whole (which originates our dependent variable), they are considering what effectively exists in what they conceive their universe is.

[69] The only sizable difference appears in the education coefficient, insignificant in the one-step model. However, due to the non-marginal diverse sample sizes, we cannot trace back the main causes of this difference.

"benchmark" specification of column 1, exemplifying the first-stage whole sample equivalent deriving from the two-step methodology. A peculiar non-trivial result to be noticed here is the significant positive effect (0.05-0.07) on life satisfaction of the variable at home (roughly corresponding to being housewife); this phenomenon can be partly compared by loose analogy with the positive effect of the II-step macro variable "housew and job fulfilling", reflecting a very original and anti-dogmatic opinion on a long sensitive gender issue and stigma (to be housewife).

At this point, we want to perform controls and interactions similar to those made in the two-step model, using our variables on rights, achievements, social beliefs and others. To enable a more flexible usage of dummies and multi-level interaction effects, we decide to estimate a second version of the one-step model, splitting the sample by gender. Hence, column 3 in table 2.3 presents the baseline specification of the one-step model, once estimated on the splitted (female) sample. While this specification features only WVS-EVS individual-level variables (and the conventional macro control GDP per capita), beside country and year dummies, it does not contain a few other macro-controls (from CIRI and WDI), nor interaction effects. We are going to introduce the latter in tables 2.14-2.15, focusing on women economic rights, where a few literature key-hypotheses particularly apply.

Tables 2.14-2.15 present first the baseline specifications featuring economic rights, and then add a further control (for example, in table 2.14, life control (micro level) –column 1; relational goods (micro) – column 3; income (micro) – column 5);

finally, in the last specifications (columns 2, 4, 6), the interaction terms are added. Some remarkable regularities with results of table 2.9 emerge: for example, the interaction term economic freedom*life control is always positive and significant in both specifications (compare column 3, table 2.9 with column 2, table 2.14), and this confirms that, to have an effect on the gender gap, external economic freedoms and rights need to be coupled with perceived control over one's individual life, as argued in the capability approach. Further, the significance of the negative effect of the interaction term economic rights*relational goods (column 4, table 2.14) signals that a certain relational crowding out effect may be unfolding in more liberal, gender-equal and democratic societies, putting an emphasis on market freedoms and individual rights but depressing relational goods; thereby, the net effect on the gender gap might be negative[70]. Finally, the very interesting negative sign of the interaction term economic rights*income confirms for gender studies the largely anticipated fact that also the happiness sensitiveness to increasing economic rights and justice can be lessened by higher levels of own wealth; conversely, one can say that poor people (and so the deprived gender) are usually more sensitive to economic rights and justice, while more affluent classes are often captured by status-quo concerns. Similarly, table 2.15 broadly confirms the interactive term effects of table 2.8 and, although not strictly comparable, of table 2.10 (due to the different type of rights – political): in particular, here we stress the fact that, although the stand-alone effects of rights and

---

[70]   This result can also be related to the fact that women's subjective well being is particularly sensitive to relational goods.

pro-women beliefs may be negative, their interaction, when significant, is typically positive (compare column 3 of table 2.8, or column 3 of table 2.10 with column 4 of table 2.15). This positive effect demonstrates once again the catalytic effect of pro-women social beliefs and norms to harness the full happiness potential of women rights.

2.5 Conclusion

This paper was interested in finding the existence and explanation of a possible gap unfolding between female and male subjective well-being, across countries and years. A close reference in the literature is the well-know paradox of "declining female happiness", epitomized by the work of Stevenson and Wolfers (2009) and mentioned since Blanchflower and Oswald (2004). According to this view, the paradoxical side of the evidence would be that the female decline in happiness (both in absolute terms and relative to men) would unfold in a period, the most recent decades, characterized by noticeable and almost continuous progresses in women rights and achievements, from economic to social and political domains. So, while traditional forms of gender discrimination appear to be shrinking worldwide, the happiness gender gap seems not to benefit from this – at least in those countries where the decline has been specifically investigated.

So far, no longitudinal sample exists capable of supporting the proper analysis of these phenomena, appreciating their temporal dimension at the world-wide level.

However, we are satisfied with examining its static dimension, looking at a broader set of countries, larger than those –mainly developed – on which the literature so far has focused. For this purpose, we built an explanatory framework featuring female rights, achievements and social beliefs, together with other individual and country effects, relevant in different domains (economic, political and social). Constructing an original matched dataset from the World Values Survey, World Development Indicators and CIRI Human Rights data, we employ principally a two-step estimation strategy (and later counter-check with its one-step closer equivalent).

A wealth of original and interesting results arise. First, most rights, achievements and social beliefs may register expected (positive) or unexpected signs (typically, negative), but when further controls and interactions are added, the whole picture clarifies, and some of the initial puzzles are solved. For example, the main reason for the positive but insignificant sign of most women rights in the gender gap equation, when these are considered alone, is probably due to the fact that complementary conditions and resources need to be ensured, in order to transform formal rights in actual capabilities and functionings (according to the A. Sen and M. Nussbaum original constructs), so to impact significantly on the happiness gender gap. For example, results show that women economic rights need coherent pro-women social beliefs and norms, to unleash a positive effect on the gender gap: and this holds after controlling for the country development level. Similarly, the same economic rights seem to benefit from the presence of personal freedom and conducive

personality traits (interaction with life control) while, meaningfully, political rights, being state (centre) and not market (periphery)-driven/enforced, appear to depend less on this complementarity and might exert an autonomous positive effect on the gender gap. Coming to achievements, a similar story apply: women political achievements exert a tiny but highly significant effect on the gender gap, provided that they are complemented by conducive individual conditions of capacity, commitment and freedom. Regarding social achievements, the gender gap impact of the ratio of life expectancy at birth seems to rely both on unknown biological and environmental correlates and the development stage. Lastly, we fully explored the intersections among a series of women strictly-interrelated achievements, such as fertility (having a positive individual effect on the gender gap), and labour force participation (negative). Unexpectedly, the two do not seem to "work together" at the macro-level when interacted, and the same applies when they are combined with relational goods or life control. However, we tend to believe that the nature of these crowding-out or substitution phenomena cannot be easily appreciated with the estimation of cross-sectional and macro relations, and seems to call for better proxies of certain regressors (especially for relational goods, the one most data-constrained in our sample).

Finally, the usage of the alternative one-step model with micro-macro interaction terms significantly confirms the main results achieved with two-steps - particularly the catalytic effect of social beliefs and norms for a better impact of women rights on the gender gap. Further, the one-step individual-level exam also uncovers

new peculiar relations (such as the evidence of a crowding-out effect between women economic rights and relational goods, or the negative trade-off between income and women economic rights, with respect to the gender-gap) that result to be more easily appreciable at the micro-level.

Concerning the research agenda, extending the time-frame of the analysis beyond that of our work can add more robustness to some specifications. However, despite many efforts to enriche our data, we believe that data limitations, especially for developing countries, at present constitute a real challenge, requiring better institutional cooperation and harmonization efforts between international bodies.

On a more "small-scale" effort side, improving the informative content of some regressors, by introducing new original proxies (eg., for relational goods, or leisure activities) and better synthesizing the available equation right-hand side evidence (for example, using factor analysis tools), could also strengthen these promising evidences.

Table 2.1: Descriptive statistics at individual level

Variable	Mean	Std. Dev.	Min.	Max.	N
Life Satisfaction	6.7	2.42	1	10	273539
Age	41.34	16.52	15	101	266452
Age Squared	1982.2	1536.32	225	10201	266452
Female	0.52	0.5	0	1	268917
Lower Education	0.37	0.48	0	1	210684
Middle Education	0.43	0.49	0	1	210684
Upper Education	0.21	0.4	0	1	210684
Married	0.57	0.49	0	1	268605
Living as married	0.06	0.23	0	1	268605
Divorced/Separated	0.05	0.22	0	1	268605
Widowed	0.06	0.25	0	1	268605
Single	0.25	0.43	0	1	268605
Number of Children	1.88	1.73	0	8	251648
Empl. Full Time	0.37	0.48	0	1	263482
Empl. Part Time	0.08	0.27	0	1	263482
Self-employed	0.09	0.29	0	1	263482
At Home	0.14	0.35	0	1	263482
Student	0.07	0.26	0	1	263482
Retired	0.14	0.35	0	1	263482
Empl. Other	0.02	0.13	0	1	263482
Unemployed	0.09	0.28	0	1	263482
Income	4.63	2.46	1	10	236175
Family/Friend Important	3.59	0.44	1	4	244239
Trust	0.29	0.45	0	1	261205
Honesty	8.56	2.35	1	10	255664
Life Control	6.76	2.39	1	10	258771
Religion Importance	2.95	1.07	1	4	240379
Survey wave 1	0.09	0.28	0	1	273539
Survey wave 2	0.15	0.36	0	1	273539
Survey wave 3	0.31	0.46	0	1	190493
Survey wave 4	0.3	0.46	0	1	273539
Survey wave 5	0.25	0.43	0	1	273539

Table 2.2: Descriptive statistics at country level

Variable	Mean	Std. Dev.	Min.	Max.	N
Gender Hap Gap (female)	0.05	0.1	-0.23	0.42	136
Women Economic Rights	2.48	0.68	1	4	136
Women Political Rights	3.07	0.47	1	4	136
Women Social Rights	2.53	0.9	1	4	135
Women Rights (Average)	2.69	0.58	1	4	135
Female Labor Force Part	0.42	0.08	0.14	0.53	134
Women in Parliament	0.35	1.61	0	15.5	135
Educational Ratio	0.99	0.08	0.68	1.46	136
Life Exp. Ratio	1.09	0.04	0.99	1.19	135
Fertility	2.16	1.16	1.08	6.52	136
Log GDP pc	9.14	1.09	5.8	10.94	136
Men more right to job	2.18	0.39	1.3	2.92	134
Men better Pol Leader	3.03	0.31	2.13	3.7	101
Univ more imp. boys	2.55	0.42	1.46	3.41	99
Housew & job fulfilling	2.75	0.29	1.85	3.4	122
Family/Friend Important	3.59	0.13	3.28	3.84	134
Life Control	6.73	0.8	4.69	8.39	132
Honesty	8.58	0.72	6.21	10	129
Religion Importance	2.93	0.65	1.48	3.98	132
Developed Country	0.44	0.5	0	1	136

Table 2.3: Individual Determinants of Subjective Well-being, pooled model

	2 Steps	1 Step	Female Sample
Regressors			
Age	-0.03***	-0.03***	-0.03***
	(-18.63)	(-17.92)	(-13.40)
Age Squared	0.00***	0.00***	0.00***
	(17.59)	(16.57)	(12.69)
Female	0.04***	0.03***	
	(4.01)	(3.97)	
Middle Education	0.06***	0.02	0.02
	(3.69)	(1.35)	(1.09)
Upper Education	0.08***	0.02	0.02
	(4.55)	(0.98)	(0.92)
Married	0.15***	0.16***	0.17***
	(10.15)	(9.65)	(8.91)
Living as married	0.06***	0.09***	0.09***
	(2.72)	(3.85)	(3.04)
Divorced/Separated	-0.10***	-0.09***	-0.08***
	(-6.32)	(-5.67)	(-4.38)
Widowed	-0.05***	-0.04**	-0.01
	(-2.92)	(-2.27)	(-0.43)
Number of Children	0.00	0.00	0.00
	(0.90)	(0.92)	(1.00)
Empl. Part Time	-0.03**	-0.03**	0.02
	(-2.13)	(-2.14)	(1.10)
Self-employed	-0.01	-0.03	0.00
	(-0.43)	(-1.46)	(0.12)
At Home	0.05**	0.05***	0.07***
	(2.13)	(2.87)	(3.91)
Student	0.01	0.02	0.03
	(0.64)	(1.05)	(1.36)
Retired	-0.02	-0.01	0.01
	(-0.91)	(-0.67)	(0.42)
Empl. Other	-0.07**	-0.05*	0.05*
	(-2.55)	(-1.67)	(1.87)
Unemployed	-0.22***	-0.19***	-0.13***
	(-10.20)	(-8.39)	(-5.29)
Income	0.08***	0.07***	0.07***
	(15.74)	(14.08)	(14.10)
Log GDP pc	0.86***	0.71***	0.70***
	(4.51)	(4.25)	(4.38)
Family/Friend Important		0.15***	0.16***
		(14.67)	(15.22)
Trust		0.10***	0.10***
		(8.09)	(6.91)
Honesty		0.01***	0.01***
		(5.44)	(4.16)
Life Control		0.16***	0.16***
		(22.87)	(23.19)
Religion Importance		0.07***	0.06***
		(13.49)	(12.24)
Country dummies	yes	yes	yes
Year dummies	yes	yes	yes
Pseudo R2	0.06	0.09	0.09
N	166783	142924	73150

Note: Dependent variable: Life Satisfaction. Ordered Probit Estimators. Cut Points omitted. Standard errors are clustered by country and year. z-statistics reported in brackets. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01. Country/year dummies are used in column 1 only to somehow replicate the typical results of the individual regressions for a given country in a given year.

Table 2.4: Gender Gap (Female-Male), Life Satisfaction (OP), by country and year

Rank	Country	Year	Coef.	Rank	Country	Year	Coef.
1	Finland	1996	0.424	35	Denmark	1999	0.104
2	Algeria	2002	0.326	36	Spain	1999	0.102
3	Iraq	2006	0.307	37	Turkey	1990	0.100
4	Tanzania	2001	0.274	38	United States	1995	0.099
5	Zimbabwe	2001	0.259	39	Sweden	2006	0.098
6	Jordan	2001	0.242	40	Iran	2000	0.098
7	France	2006	0.204	41	Japan	2000	0.087
8	United Kingdom	2006	0.193	42	Iceland	1999	0.086
9	Finland	2005	0.186	43	Philippines	2001	0.082
10	Ireland	1999	0.185	44	Canada	2000	0.080
11	Macedonia	2001	0.181	45	South Korea	2001	0.079
12	Malaysia	2006	0.173	46	Belgium	1999	0.077
13	Mexico	2000	0.166	47	Poland	2005	0.075
14	South Africa	2007	0.163	48	Spain	2000	0.072
15	Japan	2005	0.158	49	Czech Republic	1999	0.071
16	Czech Republic	1998	0.151	50	Uruguay	1996	0.067
17	Netherlands	1999	0.148	51	Latvia	1999	0.067
18	Australia	1995	0.140	52	Germany	1999	0.067
19	Guatemala	2005	0.138	53	Spain	2007	0.066
20	Switzerland	1989	0.138	54	Sweden	1996	0.065
21	Slovenia	1999	0.138	55	Saudi Arabia	2003	0.063
22	Morocco	2001	0.137	56	Moldova	2006	0.062
23	New Zealand	1998	0.128	57	South Africa	1996	0.061
24	Turkey	2001	0.123	58	Latvia	1996	0.060
25	Romania	1998	0.123	59	France	1999	0.060
26	Iran	2007	0.120	60	Norway	1996	0.057
27	Romania	1999	0.119	61	Nigeria	2000	0.055
28	Poland	1999	0.115	62	Bulgaria	2006	0.055
29	Croatia	1999	0.114	63	Spain	1995	0.052
30	Switzerland	2007	0.113	64	Ghana	2007	0.051
31	Estonia	1999	0.109	65	Estonia	1996	0.050
32	Slovakia	1999	0.106	66	Netherlands	2006	0.049
33	Ethiopia	2007	0.106	67	Peru	2001	0.045
34	Canada	2006	0.105	68	South Africa	2001	0.045

Continues in the next page.

Rank	Country	Year	Coef.	Rank	Country	Year	Coef.
69	South Korea	2005	0.043	103	Belarus	2000	-0.020
70	Pakistan	2001	0.043	104	Ukraine	1996	-0.020
71	Zambia	2007	0.043	105	China	2007	-0.023
72	Lithuania	1999	0.042	106	Moldova	2002	-0.025
73	Finland	2000	0.042	107	Italy	2005	-0.027
74	Australia	2005	0.040	108	Burkina Faso	2007	-0.031
75	Germany	1997	0.039	109	Lithuania	1997	-0.031
76	Switzerland	1996	0.038	110	Germany	2006	-0.033
77	Albania	1998	0.036	111	Colombia	1998	-0.042
78	Slovakia	1998	0.034	112	Moldova	1996	-0.046
79	Sweden	1999	0.034	113	Hungary	1999	-0.046
80	Morocco	2007	0.033	114	El Salvador	1999	-0.047
81	India	2006	0.033	115	Andorra	2005	-0.052
82	Turkey	1996	0.030	116	Bulgaria	1999	-0.052
83	Venezuela	2000	0.029	117	Greece	1999	-0.053
84	Albania	2002	0.026	118	Mexico	2005	-0.053
85	Venezuela	1996	0.024	119	Italy	1999	-0.055
86	Mexico	1996	0.024	120	Serbia	2006	-0.057
87	Bosnia and Herzegovina	2001	0.021	121	Thailand	2007	-0.059
88	Mali	2007	0.021	122	Rwanda	2007	-0.062
89	United Kingdom	1998	0.018	123	Cyprus	2006	-0.065
90	India	2001	0.017	124	Macedonia	1998	-0.067
91	Indonesia	2006	0.014	125	Luxembourg	1999	-0.072
92	China	2001	0.010	126	Indonesia	2001	-0.074
93	Armenia	1997	0.008	127	Slovenia	2005	-0.076
94	Bulgaria	1997	0.008	128	Turkey	2007	-0.096
95	United States	1999	0.007	129	Ukraine	2006	-0.097
96	Kyrgyz Republic	2003	0.001	130	United Kingdom	1999	-0.111
97	Peru	1996	-0.002	131	Azerbaijan	1997	-0.115
98	Singapore	2002	-0.006	132	Trinidad and Tobago	2006	-0.123
99	Bangladesh	2002	-0.010	133	Belarus	1996	-0.148
100	Brazil	2006	-0.011	134	Brazil	1991	-0.150
101	Ukraine	1999	-0.012	135	Uruguay	2006	-0.188
102	Romania	2005	-0.013	136	Brazil	1997	-0.226

Continuation of Table 2.1.

Table 2.5: Determinants of the Happiness Gender Gap: Rights

	1	2	3	4
Regressors				
Women Economic Rights	0.01			
	(0.89)			
Women Political Rights		0.03		
		(1.65)		
Women Social Rights			0.00	
			(0.26)	
Women Rights (Average)				0.01
				(0.84)
constant	0.03	-0.05	0.04	0.01
	(0.89)	(-0.85)	(1.42)	(0.35)
R2	0.00	0.02	0.00	0.01
N	136	136	135	135

Note: Dependent variable: Happiness Gender Gap. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

Table 2.6: Determinants of the Happiness Gender Gap: Achievements

	1	2	3	4	5
Regressors					
Female Labor Force Part	-0.20				
	(-1.60)				
Women in Parliament		0.00**			
		(2.41)			
Educational Ratio			-0.15		
			(-1.26)		
Life Exp. Ratio				-0.63***	
				(-2.98)	
Fertility					0.01
					(1.53)
constant	0.13**	0.05***	0.20*	0.74***	0.02
	(2.50)	(5.50)	(1.68)	(3.18)	(1.30)
R2	0.02	0.01	0.01	0.06	0.02
N	134	135	136	135	136

Note: Dependent variable: Happiness Gender Gap. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

Table 2.7: Determinants of the Happiness Gender Gap: Beliefs

	1	2	3	4
Regressors				
Men more right to job	0.01			
	(0.23)			
Men better Pol Leader		0.04		
		(1.26)		
Univ more imp. boys			0.01	
			(0.52)	
Housew & job fulfilling				0.07**
				(2.22)
constant	0.03	-0.07	0.01	-0.15*
	(0.60)	(-0.76)	(0.15)	(-1.75)
R2	0.00	0.01	0.00	0.04
N	134	101	99	122

Note: Dependent variable: Happiness Gender Gap. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

Table 2.8: Effects of Economics Rights and Beliefs on the GAP

	1	2	3
Regressors			
Women Economic Rights	-0.01	0.00	-0.10**
	(-0.57)	(0.11)	(-2.29)
Developed Country	0.04**	0.04**	0.03*
	(2.13)	(2.41)	(1.85)
Men more right to job		-0.03	-0.13**
		(-0.82)	(-2.02)
Women Econ * Men More			0.05**
			(2.22)
constant	0.05*	0.09	0.31**
	(1.70)	(1.51)	(2.57)
R2	0.03	0.03	0.05
N	136	134	134

Note: Dependent variable: Happiness Gender Gap. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

Table 2.9: Effects of Economic Rights and Personality Traits on the GAP

	1	2	3
Regressors			
Women Economic Rights	-0.01	-0.01	-0.18**
	(-0.57)	(-0.57)	(-2.14)
Developed Country	0.04**	0.04**	0.04**
	(2.13)	(2.50)	(2.32)
Life Control		-0.00	-0.07*
		(-0.42)	(-1.97)
Women Econ * Life Control			0.03**
			(2.11)
constant	0.05*	0.07	0.49**
	(1.70)	(1.08)	(2.16)
R2	0.03	0.04	0.06
N	136	132	132

Note: Dependent variable: Happiness Gender Gap. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01.

Table 2.10: Effects of Political Rights and Beliefs on the GAP

	1	2	3
Regressors			
Women Political Rights	0.02	0.04*	-0.05
	(1.29)	(1.82)	(-0.19)
Developed Country	0.03*	0.02	0.02
	(1.68)	(1.29)	(1.28)
Housew & job fulfilling		0.08**	-0.02
		(2.25)	(-0.07)
Women Pol * Housew			0.03
			(0.32)
constant	-0.04	-0.29**	-0.01
	(-0.68)	(-2.34)	(-0.02)
R2	0.04	0.09	0.09
N	136	122	122

Note: Dependent variable: Happiness Gender Gap. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01.

Table 2.11: Effects of Political Achievements and Personality Traits on the GAP

	1	2	3
Regressors			
Women in Parliament	0.00	0.00	-0.03***
	(1.44)	(1.20)	(-4.45)
Developed Country	0.03*	0.04**	0.04**
	(1.76)	(2.15)	(2.19)
Life Control		-0.01	-0.01
		(-0.76)	(-0.89)
Women Pol * Life Control			0.00***
			(5.11)
constant	0.03***	0.08	0.09
	(2.92)	(1.23)	(1.35)
R2	0.03	0.04	0.04
N	135	131	131

Note: Dependent variable: Happiness Gender Gap. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01.

Table 2.12: Effects of Social Achievements and Personality Traits on the GAP

	1	2	3
Regressors			
Life Exp. Ratio	-0.60***	-0.67***	-0.93***
	(-2.74)	(-2.82)	(-3.60)
Developed Country	0.03*	0.04**	-1.33***
	(1.92)	(2.52)	(-2.73)
Life Control		-0.01	-0.01
		(-1.14)	(-0.80)
Life Exp * Developed			1.26***
			(2.83)
constant	0.69***	0.84***	1.10***
	(2.86)	(2.82)	(3.58)
R2	0.08	0.10	0.14
N	135	131	131

Note: Dependent variable: Happiness Gender Gap. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01.

Table 2.13: Effects of Social Achievements, Personality Traits an Relational Goods on the GAP

	1	2	3	4
Regressors				
Fertility	0.02***	0.02**	0.02***	0.02***
	(2.68)	(2.07)	(2.63)	(2.66)
Developed Country	0.06***	0.06***	0.06***	0.07***
	(3.40)	(3.57)	(3.02)	(3.52)
Female Labor Force Part		-0.20		
		(-1.47)		
Family/Friend Important			-0.03	
			(-0.44)	
Life Control				-0.01
				(-0.82)
constant	-0.03	0.06	0.06	0.02
	(-1.28)	(0.90)	(0.30)	(0.33)
R2	0.09	0.11	0.09	0.10
N	136	134	134	132

Note: Dependent variable: Happiness Gender Gap. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01.

Table 2.14: Effects of Economic Rights and Interaction effects on Life Satisfaction - Female Sample, pooled model

	1	2	3	4	5	6
Regressors						
Women Economic Rights	-0.12***	-0.27***	-0.12***	1.31***	-0.12***	0.00
	(-2.95)	(-4.23)	(-2.95)	(3.30)	(-2.95)	(0.09)
Life Control	0.16***	0.11***				
	(23.16)	(6.02)				(23.23)
Family/Friend Important			0.16***	0.16***		
			(15.27)	(15.46)		
Income					0.07***	0.14***
					(14.10)	(9.32)
Women Econ * Life Control		0.02***				
		(3.11)				
Women Econ * Fam/Friend				-0.40***		
				(-3.59)		
Women Econ * Income						-0.03***
						(-4.91)
R2	0.09	0.09	0.09	0.09	0.09	0.09
N	73150	73150	73150	73150	73150	73150

Note: Dependent variable: Life Satisfaction. Ordered Probit estimations. Cut points omitted. All regressions include the same baseline specification of column 3, table 2.3. Robust standard errors are clustered by country and year. z-statistics reported in brackets. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01.

Table 2.15: Effects of Economic Rights and Interaction effects on Life Satisfaction - Female Sample, pooled model

	1	2	3	4
Regressors				
Women Economic Rights	-0.13***	-0.06	-0.11***	-0.66**
	(-3.22)	(-0.28)	(-2.91)	(-2.03)
Men more right to job (c)	0.12	0.18		
	(1.38)	(0.91)		
Housew & job fulfilling (c)			0.01	-0.44*
			(0.09)	(-1.81)
Women Econ * Men More		-0.03		
		(-0.37)		
Women Econ * Housew				0.20*
				(1.72)
Pseudo R2	0.09	0.09	0.09	0.09
N	71907	71907	68160	68160

Note: Dependent variable: Life Satisfaction. Ordered Probit estimations. Cut points omitted. All regressions include the same baseline specification of column 3, table 2.3. Robust standard errors are clustered by country and year. (c) These variables refer to Beliefs at the aggregate level. z-statistics reported in brackets. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01.

References

[1] Alesina, A., Di Tella, R., MacCulloch, R. (2001), "Inequality and happiness: Are Europeans and Americans different?", NBER Working Paper n. 8198.

[2] Bavetta, S.; Navarra, P. (2011), "Economic Freedom and the Pursuit of Happiness", In: Miller, T., Holmes, K. R. (Eds.). *2011 Index of Economic Freedom*. The Heritage Foundation.

[3] Berger, E. M. (2009), "Maternal Employment and Happiness: The Effect of Non-Participation and Part-Time Employment on Mothers' Life Satisfaction", SOEP-papers 178, DIW Berlin.

[4] Bjornskov, C., Dreher, A., Fischer, A. V. J. (2007), "On Gender Inequality and Life Satisfaction: Does Discrimination Matter?", Economics Discussion Paper, n. 2007-07, University of St Gallen.

[5] Blanchower, D. G., Oswald, A. J. (2000), "Well-Being Over Time in Britain and the USA", NBERWorking Papers 7487.

[6] Blanchower, D. G., Oswald, A. (2004), "Well-Being Over Time in Britain and the USA", *Journal of Public Economics*, 88(7-8), 1359-1386.

[7] Blanchower, D. G. (2008), "International Evidence on Well-being", IZA Discussion Paper 3354.

[8] Blau, Francine D. (1998), "Trends in the Well-Being of American Women", *Journal of Economic Literature*, 36(1), 112-165.

[9] Bruni, L., Stanca, L. (2008), "Watching alone: Relational goods, television and happiness", *Journal of Economic Behavior & Organization*, 65(3-4), pp. 506-528.

[10] Cingranelli, D. L., Richards, D. L. (2008a), The Cingranelli-Richards (CIRI) Human Rights Data Project Coding Manual Version 2008.3.13, available at: $< http : ==ciri:binghamton:edu=documentation=ciricodingguide:pdf >$

[11] Cingranelli, D. L., Richards, D. L. (2008b), The Cingranelli-Richards Human Rights Project: Short Variable Descriptions for Indicators in the Cingranelli-

Richards (CIRI) Human Rights Dataset. $<$ http : ==www:humanrightsdata:org $>$

[12] Clark, A., Frijters, P., Shields, M.A. (2008), "A survey of the income happiness gradient", *Journal of Economic Literature*, 46(1), 95-144.

[13] Croson, R., Gneezy, U. (2009), "Gender Differences in Preferences", *Journal of Economic Literature*, 47(2), pp. 448-74.

[14] Di Tella, R., MacCulloch, R. (2006), "Some Uses of Happiness Data in Economics", *Journal of Economic Perspectives*, 20(1), pp. 25-46.

[15] Dolan, P., Peasgood, T., White, M.P. (2008), "Do We Really Know What Makes Us Happy? A Review of the Economic Literature on the Factors Associated with Subjective Wellbeing", *Journal of Economic Psychology*, 29, 94-122.

[16] Easterlin, R. A. (2003), "Happiness of Women and Men in Later Life: Nature, Determinants, and Prospects", in: Sirgy, M. J., Rahtz, D., Samli, A. C. (Eds.), *Advances in Quality-of-Life Theory and Research*, Dordrecht, The Netherlands: Kluwer Academic Publishers, 13-26.

[17] Easterlin, R. A. (2009), "Lost in Transition: Life Satisfaction in the Road to Capitalism", *Journal of Economic Behavior and Organization*, 71(1), pp. 130-145.

[18] Ferrer-i-Carbonell, A. and P. Frijters. 2004. "How Important is Methodology for the Estimates of the Determinants of Happiness?" *Economic Journal* 114, 641-659.

[19] Frey, B. S., Stutzer, A. (2000a), "Happiness, Economy and Institutions", *Economic Journal,* 110(466), pp. 918-938.

[20] Frey, B. S., Stutzer, A. (2000b), "Happiness Prospers in Democracy", *Journal of Happiness Studies*, 1(1), pp.79-102.

[21] Frey, B S.; Stutzer, A. (2002), "*Happiness and Economics: How the Economy and Institutions Affect Human Well-Being*", Princeton and Oxford: Princeton University Press.

[22] Frey, B S.; Stutzer, A. (2004), "Does marriage make people happy, or do happy people get married?", *The Journal of Socio-Economics*, 35, pp. 326-347.

[23] Gash, V., Mertens, A., Romeu Gordo, L. (2010), "Women between Part-Time and Full-Time Work: The Influence of Changing Hours of Work on Happiness and Life-Satisfaction", SOEPpapers 268, DIW Berlin.

[24] Gimenez-Nadal, J.I.; Sevilla-Sanz, A. (2011), "The Time-Crunch Paradox", *Social Indicators Research*, 102(2), pp. 181-196.

[25] Guven, C., Senik, C., Stichnoth, H. (2009), "You Can't Be Happier than Your Wife: Happiness Gaps and Divorce", IZA Discussion Papers 4599.

[26] Lalive, R., Stutzer, A., (2010). "Approval of equal rights and gender differences in well-being," *Journal of Population Economics*, 23(3), pp. 933-962.

[27] Inglehart, R. (2000), World Values Surveys and European Values Surveys, 1981-1984, 1990-1993, and 1995-1997, Ann Arbor, MI: Interuniversity Consortium for Political and Social Research.

[28] Hochschild, A., Machung, A. (1989), *The Second Shift*, New York: Viking.

[29] Margolis, R., Myrskyla, M. (2010), "A Global Perspective on Happiness and Fertility", Working Paper n. 2010-025, Max Planck Institute for Demographic Research.

[30] Nolen-Hoeksema, S., Rusting, C. L. (1999), "Gender Differences in Well-Being", In: Kahneman, D., Diener, E., Schwarz, N. (Eds.) (1999), *Well-Being: The Foundations of Hedonic Psychology*. New York: Russel Sage Foundation.

[31] Nussbaum, M.C., Sen. A. (1993), *The Quality of Life*, Oxford: Clarendon Press.

[32] Nussbaum, M.C. (1995),"Introduction", in: Nussbaum, M. C., Glover, J. (Eds.) (1995), *Women, Culture and Development: A Study of Human Capabilities*, Delhi: Oxford University Press.

[33] Nussbaum, M. C. (2000), *Woman and Human Development. The Capabilities Approach* (Italian translation: (2001), *Diventare persone. Donne e universalita dei diritti*, Bologna: Il Mulino).

[34] Nussbaum, M.C. (2001), *Upheavals of Though. The Intelligence of Emotions* (Italian translation: *L'intelligenza delle emozioni*, Bologna: Il Mulino).

[35] Nussbaum, M. (2003) "Capabilities as Fundamental Entitlements: Sen and Social Justice", *Feminist Economics*, 9(2-3), pp. 33-59.

[36] Nussbaum, M.C., Glover, J. (Eds.) (1995), *Women, Culture and Development: A Study of Human Capabilities*, Delhi: Oxford University Press.

[37] Nussbaum, M. C., Sen. A. (1993), *The Quality of Life*, Oxford: Clarendon Press.

[38] Pakaluk, C., Burke, J. (2010), "The New Battle of the Sexes: Understanding the Reversal of the Happiness Gender Gap", Working Papers 1004, Ave Maria University, Department of Economics.

[39] Plagnol, A., Easterlin, R. (2008), "Aspirations, Attainments, and Satisfaction: Life Cycle Di erences Between American Women and Men", *Journal of Happiness Studies*, 9, pp. 601-619.

[40] Poe, S. P., Carey, S. C., Vazquez, T.C. (2001). "How are these pictures Different? A quantitative comparison of the US State Department and Amnesty International human rights reports, 1976-1995", *Human Rights Quarterly*, 23(3), pp. 650-677.

[41] Sen, A. (1993), "Capability and Well-Being". In: Nussbaum, M. C., Sen. A. (1993), *The Quality of Life*, Oxford: Clarendon Press.

[42] Sen, A. (1995), "Gender Inequality and Theories of Justice," in Nussbaum, M., Glover, J. (eds.) *Women, Culture and Development*, Oxford: Clarendon Press.

[43] Sen, A. (1999), *Development as Freedom*, New York: Knopf.

[44] Stanca, L. (2012), "Suffer the Little Children: Measuring the Effects of Parenthood on Well-Being Worldwide", *Journal of Economic Behavior & Organization,* 81(3), pp 742-750.

[45] Stanca, L. (2010), "The Geography of Economics and Happiness: Spatial Patterns in the Effects of Economic Conditions on Well-being". *Social Indicators Research*, 99(1), pp. 115-133.

[46] Stevenson, B., Wolfers J. (2008), "Happiness inequality in United States", NBER Working Paper n. 14220.

[47] Stevenson, B., Wolfers. J. (2009), "The Paradox of Declining Female Happiness", *American Economic Journal: Economic Policy,* 1(2), pp. 190-225.

[48] Trzcinski, E., Holst, E. (2010), "Gender Differences in Subjective Well-Being in and out of Management Positions", SOEPpapers 299, DIW Berlin.

[49] Veenhoven, R. (2000), "Freedom and Happiness: A Comparative Study in Forty Four Nations in the Early 1990s", in: Diener, E., Suh, E. M. (Eds.), *Culture and Subjective Well Being*, Cambridge, MA: MIT Press.

[50] Wolfers, J. (2003), "Is Business Cycle Volatility Costly? Evidence from Surveys of Subjective Well-being", NBER Working Papers 9619.

Further Readings

[1] Moller Okin, S. (1999), *Is Multiculturalism Bad for Women?* (Italian translation: (2007) *Diritti delle donne e multiculturalismo*, Milano: Raffaello Cortina).

[2] Nussbaum, M.C. (2000), *Duties of Justice, Duties of Material Aid. Cicero's Problematic Legacy*, (Italian translation: (2008), *Giustizia e aiuto materiale*, Bologna: Il Mulino).

[3] Nussbaum, M.C. (2002), *Giustizia sociale e dignita umana*, Bologna: Il Mulino.

[4] Sen, A. K. (1980), "Equality of What?" In: McMurrin, S. (Ed.), *Tanner Lectures on Human Values*, Cambridge: Cambridge University Press.

[5] Tran-Nguyen, A-N, Zampetti, A.B, (2004), Trade and Gender: Opportunities and Challenges for Developing Countries, UNCTAD, New York and Geneva.

Datasets

[1] Cingranelli, D. L., Richards, D. L. (2008), The Cingranelli-Richards Human Rights Dataset Version 2009.02.20, < http : ==www:humanrightsdata:org >

[2] EVS (2011). European Values Study, Longitudinal Data File 1981-2008 (EVS 1981-2008). GESIS Data Archive, Cologne. ZA4804 Data file Version 2.0.0, doi:10.4232/1.11005.

[3] World Bank. (2009), Data retrieved March 23, 2010, from World Development Indicators Online (WDI) database.

[4] WVS (2009). World Value Survey 1981-2008 official aggregate v.20090902, 2009. World Values Survey Association (www.worldvaluessurvey.org). Aggregate File Producer: ASEP/JDS Data Archive, Madrid, Spain.

Chapter 3
The Impact of Unemployment and Inflation on Subjective Well Being: the Case of Developing Countries

3.1 Introduction

The relations between unemployment, inflation and subjective well-being entered the research agenda of Economics of Happiness, giving empirical support to their inclusion as economic factors that could reduce well-being. Di Tella et al. (2001, 2003) discussed this issue, providing for the first time formal evidence for the macroeconomic assumption of a social welfare function to be defined on inflation and unemployment. In their work both indicators are discovered to play a negative impact on individuals' well-being, with unemployment providing the strongest effect. This means that in a trade-off between inflation and unemployment people would tend to prefer inflation over unemployment. Wolfers (2003) too finds results supporting the negative impact of these two variables on subjective well-being, and Blanchflower (2007) estimates the well-being trade-off between unemployment and inflation, finding results similar to Di Tella et al. (2001).

Against this background, we pose an original question, so far unaddressed: does this relation hold unconditionally worldwide and across time? Our starting hy-

pothesis is "no". In fact, among countries, developing nations have different experience of these two macroeconomic variables, with respect to developed ones; hence the first may perceive unemployment and inflation in peculiar manners. Moreover, in the literature there are several works devoted to the non-pecuniary or psychological costs of unemployment (Clark and Oswald, 1994; Oswald, 1997; Winkelmann and Winkelmann, 1998, are landmark references) while, on the contrary, those of inflation are marginally explored. In sum, the received wisdom seems to have accepted the idea that the well-being costs of inflation are less relevant with respect to unemployment, considering inflation a "simple" adjustment mechanism of the market and an expectable aspect of the business cycle.

On the contrary, we believe that specific evidence and further analyses should focus on the inflation side, since we have a strong suspicion that its negative consequences display strong specificities across countries and time. A main point is that, differently from developed countries, in developing ones phases of high inflation are much more common and persistent; also, in some extreme cases, dramatic episodes of hyperinflation have been suffered by large strata of the population, differently from unemployment, where the negative consequences are more limitedly spread; further, high inflation tends to generate very peculiar social interaction and contagion dynamics (for example, rushes to daily purchases or sudden generalized cash withdrawals), which are not present with unemployment. Hence, a specific appraisal of the (ma-

terial, psychological and social) costs of individuals exposed to long periods of high inflation and hyperinflation is needed.

A few suggestions for our educated guess can be found in scattered pieces of evidence from the most recent literature. Blanchflower (2007) finds that, for people who have experienced high levels of inflation during their life, this experience seems to yield a negative effect on well-being, which is persisting across time: this is a sort of negative "memory" effect, that adds to the negative effect of the inflation usually detected at the time of the (later) survey. This could be extended to suppose that the nationals of developing countries having experienced periods of high inflation may attribute a stronger negative effect to this macroeconomic variable, rather than to unemployment. Another evidence that supports our conjecture is provided by Gandelman and Hernandez-Murillo (2009). They amplify the range of nations considered in the estimation sample, although they do not perform an analysis specifically focused on developing countries. They find that the effects of unemployment cannot be consider different from that of inflation. This result is at odds with prior studies, and constitutes a first exception to the generalized focus of existing literature on developed countries.

Further, we need to add that developing countries are exposed to several macroeconomic shocks, coupled with wide social consequences and long-term institutional fragilities. Their economic history is permeated, for instance, by long periods of economic recessions, rising unemployment, restricted capacity of the internal mar-

ket and inefficient fiscal systems and bureaucracies; on the monetary and financial side, beside high inflation[71] and public debt (leading to high nominal interest rates and shrinking financial and stock markets), national institutions score low for independence and international credibility, and there is a high vulnerability to external shocks. As a consequence, most of these countries need to embark in stabilization plans, demanding external help (such as the IMF). Hence, the perceived negative effect of inflation on subjective well-being here may become much stronger, once accompanied by such difficult socio-economic and institutional conditions.

Hence, our hypothesis is that people who experienced high inflation tend to attribute to it a stronger negative effect, that can approximate or even overpass the negative cost of unemployment, in terms of individual well-being. To this end, we jointly use the WVS and EVS datasets, which supply individual level data for a maximum of 97 countries surveyed at fairly regular intervals, broadly spanning a period of 19 years; unfortunately, they do not provide a proper panel, but just repeated cross-sections. Additionally, we use the World Bank, Dreher's (2006) and Schneider's (2005) data to account for a set of macroeconomic variables, including data on the presence of foreign financial aid (IMF credit) and the size of the informal economy; finally, to increase the number of observations and the robustness of the estimates, we also embarked in a detailed datasets reconstruction, to fill the avoidable missing

---

[71] Latin American countries typically underwent many of these periods. Brazil, for example, reached a level of annual inflation close to 3000% in 1990, and experienced similar figures in the neighboring years. The Brazilian experience of high inflation was remarkably long, spanning more than a decade. A similar case is Argentina.

values. Proceeding in this manner, we keep up with the existing literature examining the differential costs of unemployment and inflation on subjective well-being, while extending the discussion to other factors capturing the specific characteristics and vulnerabilities of developing countries.

The next section provides a review of the relevant literature. Section 3 introduces the paper's empirical strategy. The data sources and descriptive statistics are discussed in section 4. Section 5 presents the results and section 6 concludes.

3.2 Literature Review

The macroeconomic profile of a country is commonly believed to be not the main issue to which normal people give attention. Nonetheless, its effects are intimately correlated with the circumstances of daily life and, for this simple reason, it can significantly contribute to determine individual and social well-being.

A clear example is unemployment. After economic growth, unemployment was the first macroeconomic factor to be explored in the Economics of Happiness literature for its intuitive connection with subjective well-being. Clark and Oswald (1994), acknowledging that unemployment was worryingly high in Western countries, reopen the hot debate on whether individuals choose to be unemployed, and investigate its individual consequences. Roughly speaking, the political right-wing position would claim that unemployment is predominantly voluntary, while those towards left-wing positions would say that it is mostly involuntary. As the authors

recall, the answer to this question is difficult to be given; among the reasons, there is also a methodological issue, since economists have traditionally been averse to the idea that utility would be measurable. Clark and Oswald take advantage of the long tradition in psychology making use of statistical analysis of subjective utility: in detail, the authors use psychological distress data obtained from the British Household Panel Study (BHPS) for 1991 (section General Health Questionnaire, GHQ), to assess whether unemployed people are or not unhappy. With ordered probit estimations, they find evidence that unemployment has a very large negative effect on individual subjective well-being. This effect is stronger for adults between 30 and 49 years old and higher than other negative events in life, such as divorce and marital separation. This study is important for two main reasons: 1) It finds, for the first time, that unemployment has indeed a large negative effect on well-being: this helps them to discuss the issues of the voluntariness of unemployment, rejecting it. 2) A second noticeable empirical evidence is their finding of a relative effect of unemployment, emerging with social comparisons. In other words, they find that the negative effect of unemployment is stronger for those who live in regions with lower rates of unemployment, as well as for those who have recently lost their job. These two issues, respectively, are further explored by Clark (2003, 2006).

Oswald's (1997) review makes a collections of findings from the Economics of Happiness since Easterlin (1974). His main focus is on the role of income, in- come growth, unemployment and also job satisfaction. His main finding is that un- em-

ployed people are very unhappy (being instead the self-employed, retired and those looking after the home, the happiest), so that he provocatively concludes saying that "economic growth should not be a government's primary concern" (p. 1828) since "unemployment appears to be the primary economic source of unhappiness" (ibidem). These statistical findings are based on scores of "mental distress", using BHPS data on GHQ scores in 1991 (as above), but are also based on data of "life satisfaction", from the Eurobarometer (from the 1970s to the 1990s). He also highlights that high unemployment may induce the number of people that decide to take their lives: so, also suicide data suggest that joblessness is a major source of distress.

Winkelmann and Winkelmann (1998) investigate the hypothesis of the non-pecuniary cost of unemployment. They start from a logit model using longitudinal data from 1984 to 1989 of the German Socio-Economic Panel (GSOEP), controlling for individual fixed effects, concentrating the analysis on working-age men in Germany. They use life satisfaction to measure subjective well-being, rescaling the original 10-scores variable into a binary response (satisfied with life or not). Again, it is shown that unemployment has a large prejudicial effect on life satisfaction. Importantly, they find that the non-pecuniary effect is much larger than the effect "loss of income".

So far, the measure of interest has been the individual "unemployed status". To correctly account for the total effect of unemployment, we ought to consider also its possible societal effect, since this threat might lower everyone's well-being - not

only for the ones presently unemployed: in other words, the unemployment rate could serve as a very rough proxy of one's probability of losing the job. This further step of the analysis (whether or not, within a certain society and with reference to its social values, its members remain indifferent or sensitive to overall unemployment) is taken by Di Tella et al. (2001, 2003). In their econometric specifications they add the countries' unemployment rate to that of the individual unemployment status, in order to calculate the total effect of unemployment on subjective well-being. This is a first contribution of Di Tella et al. (2001). A second contribution, even more relevant for our work, will be detailed further below.

Two other more recent works corroborate the findings of the societal effect of unemployment. In the first, Luechinger et al. (2010) investigate the importance of individual economic protection – namely, job security - considering the differences between the private and public institutions' job statuses (with the first typically guaranteeing a lower degree of protection). They use repeated cross-sections for the USA (with data from the General Social Survey, GSS, from 1976 to 2002) and for 13 European countries (data from Eurobarometer, 1989 to 1994), while individual panel data for Germany (with annual data from GSOEP, from 1984 to 2004). Their conclusion supports the previous studies, since the life satisfaction of the private sector employees is the most sensitive to fluctuations in the unemployment rate.

Lalive and Stutzer (2011) investigate how social insurance programs and regulations of the labor market are effective in protecting people from suffering welfare

loss. They use panel data for 13 European countries, from 1975 to 2007, combining data from the Eurobarometer and OECD; economic shocks are measured by changes in the unemployment rate and output, while labor market institutions include the generosity of unemployment benefits and employment protection legislation. Results show that economic shocks are associated with lower subjective well-being, especially for the unemployed. Labor market institutions present the following effects: a) unemployment benefits increase subjective well-being of unemployed people and reduces the negative effect of (the risk of) unemployment shock for employed people (thesis that agrees with Clark and Oswald 1994's rejection of the voluntariness of unemployment); b) for people who are likely to work under a permanent contract, regulations which make difficult dissolving the contract reduce individual subjective well-being; in contrast, for those likely to work under a temporary contract, similar tighter regulations are associated with higher subjective well-being.

So far, we have discussed contributions where unemployment is the only focus. Di Tella et al. (2001) instead, bring in the discussion the other macroeconomic issue of our interest, inflation. They use individual level cross-sectional life satisfaction data from the Eurobarometer (for 12 European countries, spanning the period 1975 to 1991), and happiness data from the GSS for the USA (1972 to 1994), in a two-stage regression ending with a panel of nations in the second step, where the dependent variable is the life satisfaction/happiness residuals from the first step OLS micro-level regressions. They present evidence that unemployment and infla-

tion both significantly determine subjective well-being, even after controlling for personal characteristics, country and year fixed effects, country-specific time trends and lagged dependent variables. Then, they calculate the costs of inflation in terms of unemployment (the relative trade-off), finding that one percentage point increase in the unemployment rate is equivalent to 1.66 percentage points increase in the inflation rate (hence, unemployment is relatively more welfare reducing than inflation); the two also enter the so-called "misery index", equal to $(W=(\pi+U))$.

With a similar focus but different methodology (one-step individual level estimation with standard error clustering), Blanchflower (2007) approaches the same issue working, for its micro-level analysis, on the repeated cross-sections of Eurobarometer (including a larger set of countries, 20, for a much longer period than Di Tella et al. (2001, 2003), spanning 1973 to 2006). His empirical strategy is conducted using both pooled OLS and pooled ordered logit regressions, adding country and year controls. A few main results stand out. First, it corroborates prior findings on the negative and sizable effects of unemployment and inflation on subjective well-being, with the first clearly outpacing the second; in particular, he calculates that the implicit trade-off between unemployment and inflation is equal to 1.62 (very similar to the 1.66 of Di Tella et al., 2001). Second, working on a subsample of observations/countries for which he is able to attribute the occurrence of an high inflation personal experience during the life-time, his results uncover that, for those who experienced periods of high inflation, the total negative effect of the price dynamics

on subjective well-being is increased by a small but statistically significant "memory" component. Finally, working on education subgroups, he finds that the least educated are more concerned about unemployment than inflation, while the reverse happens for the most educated: this is also another indirect sign of the job-seeking argument driving negative sentiments face to rising unemployment, with the latter being particularly fearful for the less educated individuals, since they are endowed with an inferior degree of skills adaptability and potential for job change (especially in developed countries).

Gandelman and Hernandez-Murillo (2009) use data from the Gallup World Poll for 2006, to investigate the well-being over 75 countries and 70.000 individuals. Concerning unemployment and inflation, they follow the line of Di Tella et al (2001). Additionally, they test for the so called "better than average effect" from cognitive psychology literature and for "personal and country optimism". Their results contribute to confirm that both unemployment and inflation impact on the subjective well-being function in a negative way. But, in contrast with Di Tella et al. (2001), Wolfers (2003) and Blanchflower (2007), they cannot confirm that the effect of unemployment is significantly different from that of inflation.

To conclude, since Easterlin's (1974) seminal paper, subjective well-being has been mostly correlated with income and economic growth, studying a great part of the countries around the world, and including both developed and developing country. However, the same attention and completeness of analysis has not been put on the

exam of other relevant macroeconomic variables and economic policy ingredients, such as unemployment and inflation. As we have just reviewed, studies addressing these themes are basically concentrated on US and European nations. The question that arises, therefore, is whether the findings showed by the studies reviewed above are also extensible to developing countries. Our hypothesis is that, in this different set of countries, the effect of inflation could be stronger than what has been found in the literature so far; in particular, we saw that the works of Blanchflower (2007) and Gandelman and Hernandez-Murillo (2009) provide us with preliminary evidence in favor of this conjecture.

Hence, the main "research policy" implication of this literature review is an urgent need to build and work on larger and representative samples of countries. As a matter of fact, this endeavor implies a preliminary and meticulous work of dataset construction (data collection, cleaning/verification, integration and interpolation, especially for the macro-economic variables of interest), since the existing and available public data sources - especially for "the least developed developing" countries, are substantially missing or in part unreliable. This work of dataset construction was our starting point, and enabled the following empirical analysis.

3.3 Methodology

In order to specify our model we have to consider that unemployment itself has a double effect on subjective well-being. On the one hand, the society as a whole fears

increases in unemployment: a growing jobless rate of the labour force is a threat to all, since the probability of losing the job increases. On the other hand, the subjective well-being of those who are already unemployed is also affected, due to various factors (negative expectations on finding a new job, on social policies sustainability, etc.); it is usually the lowest among the other employment statuses, as shown in the literature. Therefore, we must take into account the individual effect, in addition to the societal one, to analyze the total effect of unemployment. To do so, our aim is to estimate with a two-step strategy the following equations:

$$LS_{ijt} = \alpha + \beta_1 eco_{ijt} + \beta_2 soc_{ijt} + \beta_3 dem_{ijt} + \beta_4 pers_{ijt} + \phi_j + \omega_t + u_{ijt} \quad (3.1)$$

$$SWB_{jt} = \alpha + \beta_1 inflation_{jt} + \beta_2 unemployment_{jt} + \mu_{jt} + \varepsilon_{jt} \quad (3.2)$$

LS_{ijt}, the dependent variable of equation (3.1), measures the subjective evaluation of one's own life in a scale from 1 to 10, in an ascendant order of satisfaction, for individual i in country j in a given year t. Life satisfaction is defined on economic (eco) socio-demographic (soc, dem) variables, and on individual personality traits and beliefs ($pers$); these traits and beliefs, following a large body of the literature on the Economics of Happiness (for eg. Bruni and Stanca, 2008, Stanca, 2010), can serve to account for time-invariant, individual unobserved factors (at least partly), especially when longitudinal datasets and fixed-effect estimation methodolo-

gies (panel data) are not available, like in our case (for a specific treatment of this point, see Ferrer-i-Carbonel and Frijters, 2004). Finally, country (ϕ_j) and year (ω_t) dummies are included, to control for aggregate unobserved heterogeneity and capture punctual events happening in social, political and cultural domains, and u_{ijt} is the individual specific error term of the equation. In order to take into consideration the ordinality of the dependent variable, we use an ordered probit model to estimate equation (3.1).

Given that our unit of analysis in equation (3.1) consists of individuals within countries surveyed in certain years, we correct the error term with its clustering by the time and country dimensions; the underlying hypothesis – rather common in this literature - is that, due to the sampling structure of the dataset and pooling estimations, the error terms of the individuals may possess fixed components by country and year, to be accounted for[72].

Turning to the second step (equation (3.2)), SWB_{jt} is the average life satisfaction (LS_{ijt}) in country j and year t, which is not explained by individual level variables: i.e., is the country-year average of the residuals from the individual level

---

[72]   Much has been discussed about the advantages and disadvantages of using clustering of standard errors (Moulton, 1986, 1991, Wooldridge, 2003; Peterson, 2009; Cameron et al. 2011). From a statistical point of view, this debate provides us with some best practices: so, clustering the standard errors when the number of observations is low is not advised, as well as when their number is very high (as their implicit heterogeneity). Moreover, adding many clustering groups can be another trap, reducing drastically the significance of the explanatory variables. Further, there should be good economic reasons to perform it, reflecting the likely patterns of variability of the dependent variable under study. Given our sample structure and empirical strategy, due to the patent persistence of happiness at the country and year level, we do opt for clustering by country and year.

equation (3.1). SWB_{jt} is believed to be explained by inflation, unemployment and a set of other macroeconomic variables (μ_{jt}), while ε_{jt} is the error term.

Beside the effects of the annual inflation rate and annual unemployment rate (see β_1 and β_2 in equation (3.2)), we are interested in investigating the effect of other macroeconomic variables used in the development literature, but so far neglected in the Economics of Happiness. First, differently from Di Tella et al. (2001), we control for per capita GDP (in PPP) but, on the contrary, we depart from the reference literature (for eg. Blanchflower, 2007) choosing not to include the interest rate which, in our dataset (given its cross-sectional nature and the frequent occurrence of periods of hyperinflation), would introduce severe estimation biases[73]. Second, a couple of new original variables are here considered.

A first important choice is to consider measures of the extent of what is usually called the informal, or black, or underground or shadow economy/market (for an early taxonomy and conceptualization, see Frey and Schneider, 2001): in fact, most of the economic activities happening in the informal market have a clear value added potential, thereby generating income and employing labour force - facts usually not recorded in official statistics[74]. According to the Schneider's (2005) estimates, using

---

[73]   We thank the PhD examination committee for suggesting this point. In fact, both choices (nominal and real rate) would be inadequate, for different reasons. With the first, the inflation adjustment lag of the nominal interest rate is not compatible with our cross sectional dataset. With the second, using an ex-post version of the real interest rate (computed as nominal minus realized inflation), a bias would be introduced, since the same information (the price dynamics) is contained in two regressors.

[74]   Only for the most recent period, starting from OECD countries, some national institutes of statistics have elaborated new statistical methodologies to provide estimates of the informal economy, for its inclusion in the official macroeconomic aggregates.

a prudent[75] definition of the above concept, the relative size of the informal economy (measured as a proportion of official GDP) can be substantial, especially for developing countries: for example, for the period 1999-2000 is was estimated to be equal to 41%, while for OECD countries was just 17%; moreover, the same author detects a rather generalized expansionary trends of the presence of this phenomenon. Taking into account this, we need to acknowledge that also the (official) unemployment rate may be badly measured, since a shadow share of the unemployed labour force does not register, and another fraction may be de facto informally employed - again, particularly in the least developed countries. So, the inclusion of this variable in our second step equation should somehow control for this likely bias, and provides alternative estimates for our inflation-unemployment trade-off.

Second, another macroeconomic feature of many developing countries are their internal budget and economic policy constraints, due to tight debit conditions and obligations contracted with foreign creditors and last resort lenders (such as the IMF) during periods of high macro-economic instability and financial crises. The ensuing loan conditions and obligations, and the accompanying austerity plans, are believed to impact severely on subjective well-being of the concerned borrower' populations; therefore, the active presence of an IMF credit programme in the country is another important control to be added in the second step. Finally, SWB_{jt} is estimated by OLS.

---

[75] In fact, it excludes illegal activities (burglary, robbery, etc.) and the informal household economy (services and production); nor it explores fully the complex topics of tax evasion and compliance.

Considering equation (3.2), we state the following hypotheses:

$$H_1 : \beta_1 < 0$$

$$H_2 : \beta_2 < 0$$

$$H_3 : |\beta_1| > |\beta_2|$$

The logical basis for the hypotheses H_1 and H_2 stems from our reference literature (Di Tella et al. 2001, 2003, Wolfers, 2003, Blanchflower, 2007, among others). With H_3, instead, we formalize our original hypothesis that, for developing countries, the effect of inflation is higher than the effect of unemployment, as discussed in the previous sections.

The expected sign of the informal market variable on subjective well-being, in principle, may be positive or negative, depending on the net trade-off between two opposite effects. Principally, a robust and flourishing informal economy might be a worrying signal for the ongoing disruption of the socio-economic and institutional order of a nation, dynamically undermining the financing and provision of public infrastructures and essential services, putting at risk the social cohesion, public order and regularity of people's relational life and daily activities. In this respect, the first expected impact on subjective well-being would be negative – especially in the medium run. However, this view principally reflects the Western debate on the fi-

nancing of the welfare state and its sustainability, while does not comprehensively

takes into account the social and institutional specificities of the development path

followed by backward, developing and late-industrialization countries, as depicted

in the economic history, development, comparative and institutional economics lit-

eratures (for pioneer and classical contributions, see Gerschenkron, 1962; 1968; and

North 1990; 1995). According to these perspectives, the forms of production and

supporting institutions greatly vary across countries and evolve during the develop-

ment path, so that we should consider that, in selected cases, informal economic

activities are part of the socio-cultural background of a developing country, and are

rooted on the established customs and productive practices (including, for example,

the practice of barter) of local (ethnic) communities. Additionally, we should not

forget that, particularly for developing countries, one main determinant of the size of

the informal economy is the burden of the state regulation (Schneider, 2005), beside

the total tax weight (also common to the other countries). In this respect, in devel-

oping countries, entry into the informal market might also configure an unavoidable

necessity (i.e., a survival strategy), when a minimal welfare state's support lacks and

people are facing high barriers to entry into the formal economy (due to complex ad-

ministrative procedures, high labour market standards, etc.): this, for instance, is the

typical case of those people willing to embark in informal self-employed small-scale

entrepreneurial activities (craftsmanship, small retail commerce), or those looking

for "easy" employed jobs (tourism-related and seasonal): hence, especially for the

unemployed, the expected impact of the share of the informal market on subjective well-being might turn to be positive.

Similarly, regarding the effect of the IMF credit on subjective well-being, we conjecture two possible mutual exclusive effects, one positive and one negative. In fact, this relation is linked to that existing between IMF credit and economic growth, which remains in its-self very controversial, despite the fairly large body of literature accumulated so far[76].

On the one hand, the IMF credit can be a precious resource for a country with severe financial difficulties or likely to default on debts: this money can alleviate the capital shortages and pressures of the internal market and, proactively, enable the country to invest in crucial areas which, otherwise, would remain without financial support: education, health care, infrastructural investments, etc. In other words, IMF funds may be used to sustain the internal demand. Obviously, this positive effect (called "catalytic", in the development literature) is likely to require time to unfold. Following the same logic, we may think that the usage of IMF credit, in due time may ignite a positive effect on subjective well-being.

However, at the same time the literature (for eg: Boockmann and Dreher, 2003) has also uncovered the risk that the IMF-financed State/Government gains degrees of freedom to act discretionarily and delay necessary structural reforms, and to embark

---

[76] For a synthetic overview, see Dreher (2006; table 2).When one considers all the possible empirical approaches of analysis, the highest occurrence is the finding "no effect" of IMF on growth, and then a negative effect. Concentrating on regression-based methods (the most recent approach, taking into account the country-endogeneity of IMF-related variables), the most frequent finding is a negative effect, and then "no effect".

on competing socio-political (or even electoral) priorities; or, in other contributions, the moral hazard phenomena is analyzed, which means that the country backed by IMF protection may decide to relax the commitment to sound economic policy. Also in this case, the resulting effects on economic growth and subjective well-being are uncertain.

On the other hand, and more fundamentally, the first expectable outcome documented in the literature and arising from enforced compliance to the IMF conditions is an austerity effect; this, differently from a potential longer-term positive effect on economic growth, is likely to happen very soon for a majority share of the population (especially for the less advantaged social classes): in fact, injections of IMF credit generally come with substantial social pain and costs, since IMF loans are disbursed pro-rata according to a step-by-step reform agenda, monitoring the degree of achievement of the conditions[77]. Beside social costs, these requests may also be perceived as a country's lack of autonomy and democracy, and increased global uncertainty: all this may further depresses subjective well-being. Therefore, the final net effect of IMF credit may be either positive or negative.

---

[77] Obviously, compliance with IMF conditionality is also a sensitive political matter, so that some countries at the end get fully financed, despite their disappointing compliance scores. Moreover, compliance is a multi-faceted target, difficult to measure (see Dreher, 2006). These factors add further degrees of uncertainty on the resulting net effect of IPF credit on growth and subjective well-being.

3.4 Data

Measures of subjective well-being have been usually proxied by answers of individual perception of own level of happiness or life satisfaction. The exact questions used to assess this subjective evaluation vary according to the institutions which perform the survey, but are fairly similar in the wording. In this study we use joined data from the World Values Survey (WVS) and the European Values Studies (EVS). Both of them use the same question: "All things considered, how satisfied are you with your life as a whole these days?". The respondents are shown a ten point scale from which they have to choose, where 1 stands for dissatisfied, and 10 satisfied at the maximal degree. Hence, the basis for our subjective well-being measure is the answer to the above question, i.e. the individual evaluation of one's own life satisfaction.

The WVS and EVS have been chosen as our source of subjective well-being data because, being the two geographically complementary, they jointly provide micro evidence for a great number of countries (97): from this set, we selected all the developing countries available. Despite their similarities, WVS and EVS were born as two separate pieces of evidence, using their own variable definitions and measurement scales: although most of the waves are provided harmonized by the promoting institutions, the unified dataset (currently spanning 1981-2002) contains less countries and years. Hence, we decided to follow a tougher but more promising data collection strategy, with the aim of increasing observations: basically, we did the separate download and manual harmonization of the two datasets, extending the uni-

fied dataset to the latest waves[78]. The final merged dataset includes four homogenous cross-sectional waves, from 1990 to 2008 (basically corresponding to the II-IV WVS survey waves).

The WVS and EVS provide a rich choice of individual level variables that we need in order to control for several dimensions. They include variables on gender, age, education, marital status, employment status, income and personality traits and beliefs (for the latter, see further below). Regarding age, we adopt a quadratic form, since subjective well-being is shown in the literature to be U-shaped in age (Blanchflower and Oswald, 2008). Education is divided into lower, middle and upper. There are originally five marital status: married, single, widowed; divorced and separated were grouped in the same category. Employment is differentiated in six statuses: salaried (employed full and part-time), self-employed, unemployed, retired, student, and those staying at home or housewives. The income variable quantifies the ordinal position of one's income in a scale from 1 to 10, being 1 the bottom of the nation's income distribution, and 10 the top. In this scale, there is no monetary value associated to each decile: it represents a subjective perception of one's income considered across the whole national income distribution – which allows cross-countries comparisons, as it is expressed in relative terms. In order to control for distinguishing personality traits and beliefs, able to influence the individuals' answers, we use the best options provided by our datasets. Typically, most socio-economic datasets

---

[78] In the future a supporting syntax to ease the matching procedure might be available (see plans on the WVS web site). For the moment being, matching needs to be performed following the painstaking manual procedure we underwent.

do not provide data on personality traits such as optimism, which instead is an important factor tested in the psychological literature (see chapter 1). From this literature it emerges that other variables might be correlated with a positive stance on life: relational abilities and sociability are a good example. As a proxy, we use the sense of trust in others (trust)[79] and personal feelings of freedom and perceived control over the own life (life control)[80], both available in the WVS-EVS questionnaire. Concerning the latter variable, while it has been occasionally used for its indirect socio-political meaning[81], nevertheless we believe that its most direct and original informative content mostly concerns the feelings of personal autonomy and life empowerment perceived by the interviewed person. After all, it is known from the psychological literature (among the possible examples, we cite the Self Determination theory[82] and the Learned Helplessness theory[83]) that autonomy or perceived life control are a main fundamental need (together with competence and relatedness) for individual growth and subjective well-being (see, for example, Reis et al, 2000; Weinstein et al, 2012; or Seligman, 1975). All in all, our basic hypothesis is that the

---

[79] The dichotomous variable trust comes from the first part of the question: "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?".

[80] The question is: "Some people feel they have completely free choice and control over their lives, while other people feel that what they do has no real effect on what happens to them. Please use this scale where 1 means "none at all" and 10 means "a great deal" to indicate how much freedom of choice and control you feel you have over the way your life turns out."

[81] For example, it has been used for proxying the level of interference a person feels from the Government/State in her life, or as a subjective indicator of the quality of democracy believed to exist in a country.

[82] For an illustration of it, and its relation with subjective well-being, see http://www.selfdeterminationtheory.org/.

[83] For an illustration of it, and its relation with depression and subjective well-being, see http://www.ppc.sas.upenn.edu/.

greater are trust in others and perceived life control, the happier one should be. Further, relational goods, i.e., non-market (hence non-instrumental) interactions (such as friendship, volunteering, attending social gatherings or other collective events) have also been discovered to have a positive causal impact on subjective well-being, both directly and indirectly (Becchetti et al. 2008; Bartolini and Bilancini 2010; Stanca and Gui, 2010); also our dataset contains a few variables that could be used as potential descriptors of relational goods; unfortunately, their missing values would imply a large drop in observations for our dataset so that, in the present paper, we decided to include just marriage, in addition to using those personality traits most directly connected with sociability (see above): doing this, we believe that the misspecification bias should be minimized.

Finally, from WVS-EVS we also take a variable of religious beliefs, called God importance, rather than available alternatives such as religious practice[84]. This is motivated by the fact that, in this chapter[85], we are more interested on what the person believes and perceives in her mind, rather than on her factual religious actions and associated group dynamics and behaviours: in fact, broad-sense religiosity needs not necessarily translate into strictly defined religious practice (attendance to services, religious club memberships or other type of sociality and observance), even if certainly it correlates to a system of values and beliefs that influences behaviour and

---

[84]   Whose question is: "would you say you are a religious person".

[85]   Moreover, adding dummies for religion denomination here would have implied a large drop of country-year observations, undesirable for our analysis. Instead, a different WVS-EVS variable on religion is employed in chapter 2, where we look at the socio-cultural and institutional correlates of religious beliefs and related behaviours

decision-making processes. This WVS-EVS variable, differently from others capturing religious practice and related social activities, whose positive impact on subjective well-being has been long studied and verified (see Frey and Stutzer, 2002; Dolan et al 2008), so far did not enjoy the same popularity. In this respect, we believe that this variable is better fitted to capture mind phenomena such as those investigated by Newberg et al. (2002), finding that the neurophysiological mechanisms associated with religious and spiritual experiences (including meditation) can originate positive subjective well-being outcomes, through deafferentation[86].

Going to the second step, we selected our main macroeconomic data from the World Development Indicators (WDI) dataset (World Bank), which provides data for 209 countries. For the informal market and IMF credit, we use respectively, the Schneider's (2005) data on the weight of informal markets on GDP and the Dreher's (2006) data on selected IMF programs used for a country in a given year. We choose to use these data instead of the variable "use of IMF credit" available at the WDI mainly because the informative content of the latter is not clear: whether the credit was really used, or if it was only potentially available for the country, or the like. Instead, the Dreher's data, beside being widely used in the development literature, point to four specific IMF programs that were (= 1) or not (= 0) in effect (and not simply agreed) for at least five months within a year, covering 159 countries[87]: on

---

[86] This technical term defines the neurophysiological process of "cutting off" of external incoming information into the brain, that initiates a phase of self-cognition of the brain capabilities. The most profound deafferentation stage of the mind corresponds to what is traditionally called a mystical ecstasy.

[87] Dreher provides a dummy variable for each of the following four programs: IMF Standby Arrange-

the basis of these four variables, we constructed one dummy that assumes value 1 if, in that country in the specific year, there was at least one of the mentioned IMF programs.

The variable inflation refers to the consumer price index, and expresses the annual percentage change of the cost of acquiring a certain basked of goods and services for the average consumer, calculated usually with the Laspeyres formula. Unemployment is defined as the percentage of the total labour force that is without work but is available and seeking a job.

Based on the standard definition of developing countries (those which are classified as low- and middle-income by the World Bank in 2009), we merged the WDI, the Schneider's (2005) and Dreher's (2006) macro-level data with the original set of 97 countries featured in our WVS-EVS micro-level compilation; in this way, we form our final sample featuring 55 countries. Unfortunately, not all the micro-level variables were answered by all the individuals, nor complete macro data were available for all the selected countries and years. Hence, with the aim of alleviating the second problem, we embarked in a meticulous work of data reconstruction, manually 'filling the gaps' by resorting to similar sources such as the IFS (International Financial Statistics of the IMF) and, where not available, to interpolations of neighboring years in the concerned datasets[88]. After this reconstruction, our estimating sample

---

ment, IMF Extended Fund Facility Arrangement, IMF Structural Adjustment Facility Arrangement, and IMF Poverty Reduction and Growth Facility Arrangement. For further information on the "IMF credit", see Dreher (2006).

[88] Substantial efforts were made to fill the highest number of gaps due to missing (macro) data. For this purpose, the following modifications were done. A) for one unique case we have used data

is finally composed by 106,090 individuals, 45 countries[89], 15 years (from 1990 to 2008), yielding 82 country-year observations, net of patent outliers[90].

All the percentage variables were transformed in decimals. In order to render the macro variables' impacts comparable with each other for policy purposes, before using them in the regressions, we standardized them where relevant (hence obtaining variables with mean 0, and standard deviation 1).

3.4.1   Descriptive Statistics

As show in table 3.1, our sample of respondents is on average sufficiently satisfied with life: the subjective well-being variable has a mean of 6.15 (with a small standard deviation of 2.65). It is roughly balanced between genders, and the average age is around 39 years old. 44% has median education, against 20% with upper and 36% with lower. A great part is married (65%), followed by 24% of singles, while the

---

from the Pen World Tables (7.0 and 7.1) on GDP per capita, for Zimbabwe (2001). B) Missing data on unemployment rate were filled retrieving from the International Financial Statistics source, when available: Albania (1998, 2002), Armenia (1997), Azerbaijan (1997), Belarus (1996, 2000, 2008), Brazil (2006), Bulgaria (1990), China (2007), Egypt (2008), Georgia (2008), Malaysia (2006), Moldova (2006), Pakistan (2001), Peru (2008), Vietnam (2006). C) Lacking the above possibility, to fill other gaps, from our main source of data (WDI) an average value was calculated using data of the years immediately contiguous to the specific year of interest (otherwise, the immediate closest year was used), for the following countries: Bangladesh (2002), Ethiopia (2007), Guatemala (2005), India (2001, 2006), Mali (2007), Zimbabwe (2001). Similarly, concerning Schneider's data on the informal market, when country-year combinations we unavailable, we performed data trend extrapolations for the few missing values of the relevant sample.

[89]   Albania, Algeria, Argentina, Armenia, Bangladesh, Belarus, Brazil, Bulgaria, Chile, China, Colombia, Dominican Republic, Egypt, El Salvador, Ethiopia, Georgia, Guatemala, India, Indonesia, Iran, Iraq, Jordan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Malaysia, Mali, Mexico, Moldova, Morocco, Pakistan, Peru, Philippines, Romania, Russia, South Africa, Tanzania Thailand, Turkey, Ukraine, Uruguay, Venezuela, Vietnam, Zimbabwe.

[90]   We dropped from the regression sample two country-year combinations, being patent outliers for inflation (Brazil, 1991 and Bulgaria, 1997). Their values were, respectively, 432.8% and 1,058.4% (per year).

presence of widowed, divorced or separated is very low (11%). The salaried workers amount to 41%, whereas the unemployed ones to 11%. This rate is equal to the rate of the retired and is slightly lower than the rate of the self-employed (12%). The number of the housekeepers or those staying at home and the number of students sum to a quarter of the sample. Regarding income distribution, our sample belongs to its inferior half, subjectively stated: within a scale from 1 to 10, on average it stands on the fourth decile (4.36). Only a minority of the sample (22%) has a feeling of trust in others (indeed, a remarkable fact), whereas the sense of control over one's own life and the importance of God in life are respectively, significant and high (6.60 and 8.37, in a scale from 1 to 10); in particular, the latter feature of our sample closely match existing evidences that see religiosity being high in developing and low in develop countries, and typically following a negative trend with respect to the process of economic development (for a recent cross-country analysis , see Diener et al. 2011).

Table 3.2 provides a picture of the macro-level variables relative to the (restricted) regressions sample, containing those individuals having complete individual answers and macroeconomic data for our variables of interest. It shows that the average annual rate of inflation is 19%, and its distribution is rather dispersed, going from a slight deflation to a rate of nearly 200%. In turn, the annual rate of unemployment is almost half of the former[91]. Concerning the average share of the informal

---

[91] It is curious that, just by hazard, it coincides with the amount of unemployed people in the sample: 11%.

market on GDP, our developing countries sample closely mirrors the characteristics of Schneider's (2005) sample (39% versus 41%), in addition to having a low standard deviation. In what regards the credit obtained from the IMF, around half of the countries in our sample has been granted and used it. Lastly, the average GDP per capita in the sample is fairly high, close to $6,000 costant international dollars at 2005 values (at purchasing power parity), but with a considerable variability; this level roughly falls into the "upper middle income" class of the World Bank definition.

In order to check the similarity of the restricted with the unrestricted macroeconomic sample (an universe of maximum 132 country-year observations), we present also the latter's dataset (table 3.3), constructed for the whole period for which we have individual life satisfaction data, i.e from 1981 to 2008. It is valuable to notice that, even if the number of observations from table 3.3 is almost double with respect to table 3.2, the main statistics of the two samples do not differ so much; the only exception is inflation, whose average rate almost doubles, due to the presence of a few patent outliers, excluded in the restricted sample.

Table 3.4 presents the correlations between the main macro variables (second stage). Inflation is negatively and significantly correlated with subjective well-being, as are the unemployment rate, the informal market and the use of IMF credit; in all the cases, the size of the correlation coefficient is rather low. GDP per capita is the only variable positively correlated with the SWB indicator. It is interesting to notice that the size of the correlation coefficient between inflation and SWB (-0.35) is

significantly negative, while that between SWB and unemployment is not significant. This could be a first preliminary confirmation for our assumption that a different unemployment-inflation trade-off could be uncovered, when moving to a sample of developing countries. Lastly, the low size and insignificance of cross-correlations between regressors is reassuring, since do not let to envisage any multicollinearity problem.

3.5 Results

3.5.1 Main Results

The hypothesis we want to test is our conjecture that, for developing countries, inflation rather than unemployment has a bigger effect on individual subjective well-being. In order to answer this question we focus on, first, performing individual level regressions, including a large set of individual characteristics. Our interests in this first step are on: a) identifying the effect of the individual unemployment status, and b) producing the dependent variable used in the second step - namely, the part of subjective well-being that is not explained by the individual level variables. As explained above, we will use the ordered probit estimation, beside calculating also its marginal effects and presenting the OLS estimates as a further check[92]. Table 3.5 begins showing the first step estimation, presenting the individual level characteristics in detail,

---

[92]   We recall that, while in OLS the estimated coefficients are marginal effects, in ordered probit a further transformation of the estimated coefficients is needed.

with their estimated effects on subjective well-being; all the macroeconomic variables are not included in this step. On overall, the coefficients of the individual characteristics come to have the expected signs and significance, in analogy with previous literature (for a recent comprehensive review, see Dolan et al. 2008)[93]. In particular, the personal status of being unemployed has a sizable and strongly significant negative effect (-0.18). Moreover, the estimated coefficient of this dummy also confirms what has been found in previous studies, that its negative impact on subjective well-being is significantly higher than that of other adverse life events, such as widowhood (which in not significant in our study) and marital divorce/separation (that presents a coefficient of -0.10, strongly significant). The expected positive signs are also found for income (0.08) and marriage (0.12) - both highly significant. Females are on average slightly happier (0.02): this fact is in contrast with the results of Stevenson and Wolfers (2009), found on a smaller sample of developed countries, but is in line with other studies (reviewed in chapter 2). The coefficients of age and age squared confirm the non linear effect of the life-time variable on subjective well-being, depicting the same U-shaped relation uncovered by many works across different countries (for a leading and recent systematization, see Blanchflower and Oswald, 2008). It is also verified a sizable positive effect of the variables on personality traits and beliefs (0.09

---

[93]   We want to underline that the bulk of previous literature refers to mixed pools of countries: many contributions are focused on developed countries, while just a few include both developed and developing ones. Instead, our results stem from a set of only developing countries, possibly having different socio-economic and cultural styles of life, consumption and pleasure. As a consequence, in principle, our individual level estimates need not to confirm all the previous evidences on the effect of personal level characteristics.

for trust, 0.13 for life control and 0.03 for God's importance). In particular, we notice that the effect of God's importance confirms for our developing countries sample the literature findings with respect to various proxies of religious beliefs, practices and social activities, thereby strengthening our understanding of the complex phenomena involved in the human quest for transcendentalism (for an historical excursus, see chapter 1). Finally, we notice that the same conclusions hold for all the three variants of the micro-level analysis presented in Table 3.5 (ordered probit, marginal effects and OLS estimates).

Table 3.6 starts to present the second step results (macroeconomic variables). It presents first the single and the joint effects of inflation and unemployment (columns 1-3); then, in the following specifications (columns 4-6), the per capita GDP control is added. Table 3.7, instead, introduces the controls of the size of the informal market and the access to the IMF credit, starting from the baseline specification (that of column 6 of table 3.6).

The results show remarkable regularities. Across tables 3.6 and 3.7, we see first that the effect of inflation is negative, significant and sizable (from -0.42 to -0.48), and remains stable when unemployment and the macroeconomic controls are added: so, we can affirm that its effect on subjective well-being remains consistently negative across specifications. Unemployment's effect is also negative (from -0.07 to -0.18), and considerably lower than the effect of inflation; but is never significant[94].

---

[94] We believe that the fact that this variable, with respect to inflation, is measured more imperfectly, especially in developing countries, may account for a sizable part of the noise that undermines its sta-

Anticipating what follows, we can say that the negative effect of inflation and the negative but not significant effect of unemployment are the most stable results of our study.

Concerning the controls, we notice first that the positive role of per capita GDP matches the established literature findings (with a large and highly significant coefficient, ranging from 0.52 to 0.56). Second, in specifications 1-2, table 3.7, the inclusion of the informal sector should account for its effect on the overall economy and the labour market; in fact, as explained in section 3.3, the informal sector is a distinguishing feature of the least developed countries. Concerning its coefficient, we notice first that its direct effect on subjective well-being is negative, but its initial significance does not hold when the IMF control is added. Hence, in our sample, the net effect of the informal market seems to be dominated by its negative consequences, while its potential role as employment and income buffer does not appear sufficient to counteract the country's macroeconomic malaise. Finally, concerning the bias of the underestimation of the unemployment rate in developing countries, we notice that the inclusion of the informal market does not seem to provoke any appreciable difference in the unemployment coefficient, ceteris paribus (see also the considerations put the end of this section)[95].

---

tistical significance in our sample. Concerning the related problem of its systematic underestimation in official statistics, see the concluding remark in this section.

[95] For example, comparing specification 6 in table 3.6 with specification 1 in table 3.7, the unemployment coefficient decreases in module from 0.18 to 0.15, while remaining statistically insignificant.

Last, we control for the presence of IMF credit (presence of a set of loans and programs in the same year, for at least five months - see Dreher 2006), on columns 2 and 3 of table 3.7. We briefly recall that its inclusion should control for two possible counteracting effects: on one side, the IMF intervention could ease the macroeconomic unbalances and the credit shortage existing in developing countries, providing qualified expertise, financing large projects of investments or simply providing rescue funds to repay overdue public debt (positive catalytic effect on growth, benefiting also subjective well-being). On the other side, since the IMF-backed state needs to abide by a series of obligations and restraints, and loses significant degrees of control in deciding its economic policies and welfare system (pensions, education, health care, etc.), there are significant socio-economic costs (negative austerity effect), likely to affect especially the disadvantaged classes and to be prevalent during the short term period, closely following the first stages of the stabilization process of the economy. The latter seems to be the case of our cross-sectional sample, where it emerges a sizable negative impact (from -0.43 to -0.45), partly significant when appearing jointly with the informal market (column 2), but fully when adding it to our baseline specification (column 3); we also notice that the magnitude of the IMF effect is stronger than those of the informal economy and unemployment, while is similar to that of inflation. Despite the cautions imposed by the empirical setting used for the IMF variable[96], we believe that our original evidence marks a first noticeable step

---

[96] We said in sections 3.4 and 3.5 that our measurement choice marks a significant improvement over existing alternatives, which do not capture the real usage of the IMF credit obtained. Nonetheless,

forward for the extension of the existing knowledge on the macroeconomics of happiness, documenting signs of a net austerity effect connected to IMF credit, similar to the same negative effect often uncovered with regard to economic growth.

The original results we have uncovered so far, depicting a trade-off between inflation and unemployment where the first weighs more than the latter, are appealing. Moreover, they can be strengthened and confirmed introducing a few robustness checks. A first one is to restrict the first step analysis to the cross-country subsample of individuals who are unemployed at the time of the surveys (11% of the total sample). This enables a more focused and refined test of the trade-off between inflation and (social) unemployment, tailored on those who have a direct personal experience of the second: in particular, in the second step, we expect a bigger negative coefficient for the unemployment rate, due to the fact that the jobless person's subjective well-being should be more depressed by it, with respect to the whole sample of individuals. These unemployed sample specifications are presented in tables 3.8 (baseline) and 3.9 (with full controls). Unsurprisingly, the estimates confirm our intuitive conjecture, in a reinforced way. In fact, across specifications, the coefficient of unemployment results to be systematically higher than in the whole sample (the range now is from -0.16 to -0.25, while before was from -0.7 to -0.18); complementarily, here the coefficient of inflation, while remaining significant and superior to that of unem-

---

the size and effect of the IMF intervention remain complex to disentangle, due to various facts: the multidimensionality of the IMF intervention, that of compliance to conditionality, the heterogeneity of the implementation and bargaining processes and the time lags involved before its effects can be fully appreciated. Some of these aspects might not be comprehensively captured by our synthetic cumulative dummy and our cross-sectional dataset.

ployment, decreases in all the specifications, signaling that the subjective well-being of the unemployed people is less affected by it (with respect to the whole sample – again, this is plausible, since there are less wealth allocations, wage indexing and transactions to be adjusted). Interestingly, in the unemployed sample the importance of the GDP per capita decreases (probably because its benefits are unevenly shared across the population), while that of the informal market remains negative but decreases and looses any significance (probably indicating that here its role of supply of informal jobs for the unemployed counteracts its predominantly negative society-wide effects). Finally, in the unemployed sample also the austerity effects of the IMF credit become more accentuated (although becoming barely significant): coherently, under strictly enforced conditionality and harsher economic policies, the subjective well-being of the jobless population is the most affected.

We now proceed to illustrate and replicate the methodology of calculation of the MRS used in the reference literature, starting with the baseline specification (column 3 of table 3.6). We recall that, while the individual subjective well-being loss from being unemployed is captured by the coefficient of the unemployed dummy (-0.1833, rounded off in column 1 of table 3.5), the total societal effect of a one percentage point increase in the unemployment rate (standardized version) encompasses two parts: (i) the well-being loss of the one percentage point increase in the number of those who fall unemployed (-0.1833*0.01); and (ii) the general social effect, -0.1372 (column 3, table 3.6). This means that the overall well-being cost of

unemployment sums up to -0.1390. Consequently, -0.4348 and -0.1390 will be the effects on subjective well-being of one percentage point increase respectively in inflation and unemployment rates. Using these effects, it is straightforward to calculate the marginal rate of substitution between inflation and unemployment for the main specifications of interest, as detailed in table 3.10 (see row "Our MRS inflation and unemployment"). For ease of comparison we first calculate the same version of the marginal rate of substitution between inflation and unemployment used by previous literature, defined as: $\text{MRS}_{infl/unemp}$= overall unemployment effect/inflation effect. Then, for handier interpretation, we also present at the bottom of the same table the inverse version, the $\text{MRS}_{unemp/infl}$.

Finally, we compare our results with the calculations of Di Tella et al. (2001) and Blanchflower (2007), in table 3.10. Unfortunately, Di Tella et al. and Blanchflower use a much shorter set of controls, so that the comparability is limited to column 1 of table 3.10 (corresponding to the baseline specification). Here (column 1), we obtain a MRS equal to 0.33 (last calculation, with OLS), against the 1.66 of Di Tella et al. and the 1.62 of Blanchflower. In other words, we find that, for developing countries, a percentage point increase in the unemployment rate would be traded with a tiny fraction (0.33) of an extra point of inflation. Put more explicitly (using the inverse version of the MRS), the social burden of an extra percentage point of inflation is equivalent to that of 3.08 extra points of unemployment. Moreover, our results are logically consistent and robust to different specifications (see tables 3.6

and 3.7): the standard version of our MRS ranges between values always inferior to the threshold 1, while those of the benchmark literature surpass it (see columns 2 to 5 of table 3.10). In other words, for our sample the social cost of inflation always outpaces that of unemployment, even when we consider the total cost of the latter: the personal component of being unemployed and the social cost of living in a jobless society. This is a further and reinforced qualification of our results, adding stronger policy implications. Before introducing the latter, a methodological caveat is needed, and a further results disaggregation will be performed.

A first possible criticism of our results is that the estimates and the MRS would suffer from a systematic underestimation of the unemployment rate implicit in the official statistics of developing countries. This conjecture builds on a series of considerations. First, since the welfare state of the developing world typically does not provide unemployment benefits or similar support, a substantial part of the unemployed people neither register for claiming them. Together, it is also likely that a certain part of the registered unemployed labour force may hold an informal occupation, and for this reason we included the control for the informal economy. In this case, we saw that its correction effects are plausible, but small in size; after all, no better proxy is available, since the calculations of the informal economy mostly focus on estimating the shadow product/value added, rather than the shadow employment[97]. Obviously, on the most interesting part of the story – the share of the

---

[97] Hence, it may be possible that the informal employment/informal GDP ratio diverges across countries, and this would introduce other biases.

informal employment that did not officially register – we do not have any reliable measure. Summing up, one can affirm that the inflation variable, in most developing countries, should be measured better than unemployment, and consequently deduct that our standard MRS (inflation/unemployment) remains somehow underestimated. On the other side, there is another perspective to consider. We need to bear in mind that also official figures on monetary and financial aggregates, especially during periods of high inflation and particularly in rural areas (much more relevant in most developing countries), are likely to contain more inaccuracies and a systematic underestimation bias, due to various reasons (methodological backwardness of statistical measurement networks, lack of truly representative nationwide consumption baskets, Government's necessity to calm down social expectations or other vested agendas, unfeasibility of full indexing, etc.): for instance, Argentina has recently provided a scandalous case of fake inflation statistics, while in Brazil a long debate invested the two main alternative methodologies available for measuring inflation[98]. Taking into account the two perspectives, it is fair to conclude that, in a developing countries sample, the likely size of the resulting bias in the MRS measurement remains inevitably a open question.

---

[98] For the Argentinean case, see Forero (2009) and The Economist (2010). In Brazil, the inflation index IPCA of the public statistical institute IBGE is sensibly lower that the alternative option IGPM, developed by the research institute FGV.

3.5.2 Further Results

Given the high variability of the sample inflation rate, showing pronounced upper peaks (cfr. tables 3.2), the assumption of a simple linear relation for this variable could be too strong: when a macroeconomic variable presents such accentuated dynamics, introducing strong uncertainty into the system, emotional feelings, cognitive routines and behaviours of economic agents are likely to change according to where the variable lies along the range; first, because of increasing bounded rationality, and more specifically due to the well-known framing and set point effects postulated by the "prospect theory" of Kahneman and Tversky (1979) (see chapter 1). Further, one could imagine differentiated individual and social behaviours emerging from phases of "normal inflation" and phases of "high inflation" and, at the limit, hyperinflation, due to the fact that, as documented by non mainstream inflation theories (see for example, Heymann and Leijonhufvud, 1995), under these conditions institutions experience disruptive changes: inter-temporal markets shrink and eventually disappear, while people may revert to non-domestic currencies, focus on real assets (commodities, gold, real estate) or even start bartering. Hence, high and persistent dynamics in prices can bring about structural changes in the working of the whole economy, stimulating experience, coping and learning effects[99].

---

[99] On a very different domain, we mention the labour economics literature analyzing the social correlates of hysteresis in unemployment.

Tables 3.11 and 3.12 show the results of a quadratic specification of equation (3.2) on inflation[100]: as we can see, in 6 out of 7 specifications the quadratic relation is confirmed. The implied U-shape pattern has the minimum point of subjective well-being achieved at 0.93, with reference to specification 3 (table 3.11), or at 1.03 (specification 2 of table 3.12): the minimum values of the remaining specifications fall in between[101].These implicit minimum points refer to the standardized inflation variable; hence, calculating back[102] the un-standardized minimum point, we find a corresponding range of annual inflation rates of 51%-54% (roughly equivalent to monthly rates of 3,5%-3.7%).

What considerations can be made on the realism of these numbers and the implied behavioural trends, and how they compare with the findings from the most credited literature on the social costs of inflation? Heymann and Leijonhufvud (1995: p.1), for example, define moderate inflation the context in which people continue to quote its rate per year; instead, high inflation would initiate when economic agents start to compute the rate of price increases at monthly rates, considering annual figures only for historical purposes. Hyperinflation, in its turn, would refer to the scenario where the effective horizon for price forecasting and transactions would be inferior to one month. Practically, the same authors, building on pioneer stud-

---

[100] A quadratic test for unemployment was also performed. As for the unemployment coefficient in the linear specifications, the quadratic relation between unemployment and life satisfaction was also non significant (i.e., none of the coefficients were significant).

[101] On average, across specifications, the minimum point is 0.99.

[102] Obviously, for this computation we use the mean and the standard deviation of the un-standardized inflation rate, from table 3.2.

ies (like Cagan, 1956[103]), provide upper and lower boundaries for "high inflation", whose range should be between 5% and 50% per month while, from 50% upwards, it should be considered "hyperinflation". Capitalizing these rates, we obtain a corresponding range of 79.6% - 12,875% per year; hence, our annual value of 51-54% (or, likewise, 3.5-3.7% per month), found as the implicit minimum of the estimated U-shaped curve, should be considered a moderate rate of inflation, after which subjective well-being in our sample experiences a increasing trend. How can be explained this apparently counter-intuitive evidence, that at higher rates the social costs of inflation seem to decrease?

To disentangle this evidence, we need to delve deeper into the nature of the costs of inflation. A landmark contribution is that of Fischer and Modigliani (1978), who distinguish among different types: a) transaction costs due to "shoe-leather" and "menu" costs (unavoidable even under perfect wages and prices indexation), b) transaction costs due to setting up and running of bodies aimed at dealing with inflation, c) transaction costs due to imperfect indexation of contracts, d) costs due to uncertainty about future inflation (transaction costs, resources hoarding, investment hold up costs), e) policy-making costs (from unemployment and recession costs stemming from restrictive monetary and fiscal policies, to price and welfare distortions caused by the direct intervention of the Government to lower inflation). A main result of

---

[103] Cagan (1956) gives a punctual definition of hyperinflation (starting from 50% per month); instead, Heymann and Leijonhufvud (1995) mostly emphasize a behavioural criterion (short planning horizons), despite the fact that they partly agree with Cagan when they affirm that his conceptualization coincides with the upper bound of the hyperinflation range, according to their definition.

standard empirical works assessing the welfare costs of inflation (for a recent exam-
ple, see Attanasio et al. 2002) is that these are rather marginal and do not justify
the high political emphasis nor the strong policy efforts conventionally attached to
its fight. On the other side, other works have uncovered that normal people dislike
inflation much more than economists would justify (Shiller, 1997), and there is no
consensus on what may explain the wide discrepancy among mainstream predictions
and surveyed people attitudes. In this respect, we agree with Frey and Stutzer (2002;
chp. 6) that happiness literature here has much to offer in terms of new knowledge,
for several reasons. First, as argued by them, specific surveys on macroeconomic
variables present methodological shortcomings and respondent biases, while hap-
piness data are independently collected and later matched with macro aggregates.
Second, we think that a even more basic criticism to be made towards mainstream
empirical works assessing the welfare costs of inflation is that they are designed to
capture only a minority set of the Fischer and Modigliani's costs list (mostly, those
reflected by the demand-for-money curve and concerned with the opportunity costs
of holding cash versus interest-bearing assets). On the same vein, we add that even
the Fischer and Modigliani's list is fairly comprehensive but not complete: while it
encompasses the real costs originating from incomplete indexation of contracts (of-
ten neglected in mainstream empirical analyses), it does not take into account other
types of individual and social costs stemming from less-than-perfect rationality and
cognitive traps, that instead are better captured by measures of subjective well-being

used in happiness studies. As a matter of fact, in our estimates we find a trail of clues pointing to these cognitive and behavioral deviations from the mainstream simplistic neutrality attached to the "veil of money" approach.

To this end, we introduce a further specification setting an inflation threshold between low (normal) and high inflation, aimed at strengthening the previous search for non-linearities in the relation between inflation and subjective well being. However, as previously detailed, in the literature there is not univocal value to define such a threshold, but rather a interval of possible values, likely to reflect the variety of national experiences. Accordingly, looking at the distribution of inflation rates in our sample, we preliminarily selected a "reasonable" cut-off point for the concept of normal inflation (fixing it at an annual inflation rate of 25%[104], corresponding to a monthly-compound rate of 1.88%) for which present in detail all the specifications and results (see tables 3.13-3.14)[105]. Beside this, to fully explore the space of the results and appreciate their robustness, we carried out a simple sensitivity analysis exercise (OFAT type, one-factor-at-a-time) on the variability of the estimated coefficients of inflation to a large set of values of the high inflation threshold (table 3.15)[106].

---

[104] This value cumulates 85% of the distribution in our sample (82 country-year inflation values), besides being roughly half of the implicit minimum point of the quadratic specification.

[105] Performed using STATA "mkspline" command. Consequently, the two estimated coefficients are directly interpreted, independently from one another: the coefficient of "Inflation Lower 0.25" reflects the effect of the inflation rates below 25% on SWB; the coefficient of "Inflation Above 0.25" reflects the effect of the inflation rates above this threshold. The idea is that each variable is an interaction from the inflation variable cut at 25%, and a dummy which assumes the value of 1 if inflation is below (above) this value, and zero otherwise.

[106] Due to the distribution of our sample, it is meaningful to allow the spline threshold to vary between 15% and 80% (lower boundary of Heymann and Leijonhufvud's , 1995 definition). However, approaching the 80% threshold, the number of observations located on the right tail of the distribution

Tables 3.13 and 3.14 present the coefficients estimated with the inflation rate threshold set to 25% per year; again, the sequence of presentation of the results follows the same logic as before (tables 3.6 to 3.7). In table 3.13 only GDP per capita is added as control; in table 3.14, informal market and IMF credit are introduced. On overall, the results are stable and meaningful. Both inflation coefficients (below and above the threshold) are negative and significant, while unemployment remains negative and insignificant; in particular, with the final specification (column 6, table 3.13), the R2 signals levels of explanatory power similar to the final specifications of table 3.7. Further, two noticeable regularities are that: 1) both inflation coefficients (below and above) are confirmed to be bigger than unemployment and 2) the first coefficient (below) is systematically larger that the second (above the threshold). Moreover, looking at table 3.15, the same patterns are confirmed for a large range of variability of the spline threshold; in this case, we also notice that the significance of the estimated coefficients ameliorate going up along the threshold range (from 20% upwards).

Hence, the previous evidences depicting the presence of a sort of memory or adjustment process finds another interesting confirmation in the spline specification and the associated sensitivity analysis, according to which growing rates of inflation would be met by stronger coping capabilities emerging across the sample population, since they have a less than proportional impact on subjective well-being; moreover,

---

and available for estimating the high inflation coefficient becomes too small to guarantee statistical significance.

this phenomenon is rather widespread and robust, since it clearly appears moving from the lower bound of the sensitivity analysis range, with annual rates of inflation that are considered not "high inflation" in the reference literature, but rather "moderate". As a consequence, our study first detects evidences on the social costs of inflation and the associated coping effects for a range of inflation values that has not been specifically studied before, being the literature mostly concentrated on single episodes of hyperinflation, or high inflation cases (like Cagan's, 1956 study of the post-war Germany case, or the Latin American countries of Heymann and Leijonhufvud , 1995).

Then, an interesting question would be to explore what kinds of memory or adjustment underpin these evidences. Unfortunately, the non-longitudinal nature of our dataset and the usable econometric tools are too blunt to disentangle them, especially when dealing a wide and heterogeneous cross-section of countries and periods like ours, spanning different continents and decades. However, despite this unavoidable indeterminacy, we may formulate some conjectures, based on the literature. Reasonably, we may think at two broad types of adjustment processes taking place, according to the intensity of uncertainty and price variability. During periods of moderate inflation, that may persist for a long time (hence becomes more and more predictable), transactional behaviours, life conditions and contract indexing institutions can gradually evolve and adapt so that, adjustment and coping effects unfold mainly within the existing institutional framework. Instead, during more turbulent

and unpredictable periods (with inflation rates being calculated on a monthly or even more frequent basis), which usually last shorter periods (typically, a few months), coping and adjustment effects imply sudden structural changes, including the abandonment of the domestic currency, the emergence of other units of account (dollarization, etc) and rush to refuge assets, or even reversal to barter; in other words, also in this case individual and social adjustment happens (for example, when people is forced by hyperinflation to spend any amount of money possessed by the end of the day), but brings a much higher charge of distress. In the second case, due to the seriousness of economic chaos and ensuing high disruption of the socio-institutional order, we may expect that learning, coping and set-point dynamics gradually vanish – or they do not materialize at all; from an econometric point of view, this would imply that, once surpassed a certain threshold of high inflation, the previously negative trend between subjective well-being is reverted (as preliminary suggested by the significance of the quadratic specification, see tables 3.11 and 3.12). Unfortunately, while our dataset provide sufficient observations to estimate relations for the case of moderate-high inflation, it is not adequate to prove what really happens in the case of high inflation and hyperinflation[107].

---

[107] The percentage of observations in the sample being above the high inflation lower boundary is merely 7.3%.

3.6 Conclusion

The literature exploring the macroeconomics of happiness found negative and significant effects of both unemployment and inflation on subjective well-being; along with this, it has proved the existence of a "misery index" (Di Tella et al., 2001). Moreover, the negative effect of social unemployment on subjective well-being (as expressed by the estimated coefficient of the unemployment rate) was generally found to be higher than that of inflation, thereby justifying the fact that the first macroeconomic unbalance has often received bigger political attention and economic policy efforts[108].

Our point of departure was that, in developing nations, these evidences are challenged by daily life experiences and common sense: in fact, for ordinary people exposed to frequent periods of high price turbulence, the individual and collective costs of facing such macroeconomic unbalances (affecting income distribution and real wages, and distorting daily decisions on consumption/savings and investment/production) may well outpace the psychological distress and worries for the future arising from being informed by the mass media of rising unemployment, for those having a job. In other words, inflation directly affects all the population (even the wealthier), while unemployment mostly concerns the jobless labour force and those lacking alternative means. A further fact spurred our research agenda: previous studies were massively concentrated on Europe, United States or subsets of OECD

---

[108] Beside this, the macroeconomics of happiness found both phenomena to damage subjective well-being to an extent which is bigger than that conventionally uncovered by mainstream contributions, viewing both as temporary and minor out-of-equilibrium deviations from the steady-state path of the economy.

countries (Di Tella et al., 2001 and 2003; Wolfers, 2003; Blanchflower, 2007), for which exist ready-to use datasets; however, no study specifically addressed the same issue for developing countries, for which empirical evidence is scattered and inadequate.

On the basis of these considerations, we framed the alternative hypothesis that, for developing countries, the trade-off between unemployment and inflation might be inverted, i.e., that the negative effect of inflation could be greater than that of social unemployment; potentially, even greater than the total cost of unemployment (social plus individual, for the person actually unemployed).

As a preliminary step, we had to work hard to build an adequate dataset, containing representative evidence on developing countries. This involved two phases: the first, the micro-level one, was to standardize, match, and merge all the available waves of WVS and EVS, to get the widest possible set of individual-level data (finally covering 4 homogenous cross-sectional waves, from 1990 to 2008). The second step required us to build a comprehensive set of country-level macroeconomic variables, matching different datasets and filling their gaps. After this painstaking work, we ended up with the largest and most representative dataset on developing countries so far available, to our knowledge: it provides a micro-level sample of repeated cross sections from 45 developing countries spanning 19 years, including more than 100.000 individuals; and, for the same countries, it provides macro-level variables and controls. At the individual level (first step), we performed pooled regression

analyses using an ordered probit model[109], to better account for the ordinality of the subjective well-being variable (life satisfaction); at the macro-level (second step), we used pooled OLS, explaining the country-year averaged residuals of the first step with macroeconomic variables.

Thanks to the large sample size, results are robust and stable across the many specifications used: this marks a significant step forward with respect to existing works: these are based on smaller sets of countries (mainly developed ones), and mostly focus on the couple inflation-unemployment, using fewer controls (sometimes, even contentious ones, like the interest rate). Our results, concerning the micro-level correlates of subjective well-being, closely mirror those of the established literature, while, in the second step, radically challenge existing evidence. Concerning the micro-level, for example, the individual status of being unemployed has a sizable and significantly negative effect, higher than other adverse life events; equally, individual income and marriage are significantly positive, while age displays the usual U-shaped effect. Personality traits and beliefs related to sociability and spirituality are also confirmed to yield significantly positive effects.

Coming to the macro-level analysis, instead, truly original results emerge. First, the absolute sizes of the estimated coefficients of inflation and unemployment on subjective well-being result inverted, with respect to previous literature: here, the negative effect of inflation is considerably greater, in absolute value, than that of un-

---

[109] OLS was performed as an useful benchmark, especially for the calculation of MRS.

employment (-0.42/-0.48 versus -0.07/-0.18), and is always fully significant across specifications. Instead, the unemployment rate's coefficient, although remaining negative, is never significant. A reasonable interpretation of these results is that social unemployment may exert some negative impact on subjective well-being, in addition to the negative and fully significant effect of the personal status of being unemployed, and after controlling for a long series of individual characteristics. However, this impact is not robust across the whole sample of countries/years, and anyway should be considered inferior in size to that played by inflation.

The addition of other macroeconomic controls ameliorates the explanatory potential of the second-step model. Beside per capita GDP, whose impact on subjective well-being results to be high (0.52/0.56) and significantly positive, we included two previously unexploited variables - the size (on GDP) of the informal market and an original proxy of the presence in the developing country of an active IMF credit programme. In the first case, a main raison is to control for alternative (informal) sources of wages, and a potential underestimation of the unemployment variable, due to the larger importance that the shadow economy plays in developing countries. In the second case, the control for the IMF lending activity should capture a series of phenomena and specificities affecting developing countries, of uncertain net effect (catalytic versus austerity effects of foreign intervention), extensively examined in the development literature but neglected in the Economics of Happiness one. For the informal economy, results are mixed: while its stand alone effect is significantly negative, it

completely fades away when the control for the IMF is included, despite remaining negative; moreover, its inclusion does not impact sizably on the unemployment coefficient. Instead, the IMF seems to have a more robust explanatory power: its negative effect (-0.45) is three times that of unemployment and similar, in modulus, to that of inflation; thereby, it signals the prevalence, at least in the short run (due to the pooled cross-sectional nature of the estimation), of the happiness costs of austerity, mirroring those negative effects on growth and income extensively detected in the development literature.

As a further check, we replicated the same micro-level analysis on the unemployed sample, and then tested on its averaged residuals the impact of the same battery of macro variables. Results are very stable and remarkably encouraging, despite the relevant diversity of the new estimation sample (now equal to just 11% of the former's size). First, the conjecture that those who experience unemployment suffer a higher negative impact from the unemployment rate is confirmed; complementarily, the negative impacts of inflation and the informal market become inferior, as that of the per capita GDP, with respect to the whole sample.

Then, we calculated the implied marginal rate of substitution between inflation and unemployment, and compared it to those found before: again, differently from Di Tella et. (2001) and Blanchflower (2007), we always uncover values below the unity, meaning that inflation is not only more costly than social unemployment, but also more painful than the overall cost of unemployment (individual plus social).

Finally, we tested other specifications, both as robustness checks and to better examine the cases of higher inflation. First, the quadratic specification on inflation significantly confirmed a U-shaped relation between subjective well-being and price dynamics, pointing to possible framing and set-point effects, as postulated by the prospect theory. This also spurred a further exam of the behavioural and cognitive implications of regimes of high inflation and hyperinflation. Using the spline specification, and carrying out a sensitivity analysis of the estimated coefficient of inflation with respect to varying definition of the "high inflation" threshold, we found strong regularities. Both inflation coefficients ("below" and "above the threshold") show up: 1) negative and significant, 2) systematically larger than the unemployment coefficient. Further, 3) the "below threshold" coefficient is always larger than the "above" coefficient, thereby supporting the previous clues for the presence of a sort of memory or adjustment process going on. In other words, people would develop adaptive learning and coping capabilities face to growing rates of inflation; furthermore, these adjustment effects emerge already for a range of inflation rates that we called "moderately high".

A related question is how we explain that such different effects of inflation and unemployment materialize in developing countries, rather than elsewhere. This point is even more complex to investigate, and would deserve a separate paper. However, a few preliminary considerations can be spelled out. As explained in section 3.3, developing countries undergo highly specific processes of evolution, remarkably

different from those of the US and European cases (in terms of colonial legacy, indus-
trialization paths, dependence on foreign credit, trade accounts deficits), institutions
(structure and agenda of the banking system, state-owned enterprises, stakeholders'
associations, etc.); during this evolution, they also experience different mixes of eco-
nomic policies and macroeconomic scoreboards. These socio-economic and institu-
tional differences can influence the effectiveness of broad public governance and the
Government's capacity of reaction to the first signs of an incoming macroeconomic
shock; consequently, also their population's experience of the impact of inflation and
unemployment may differ from developed countries. As a main example, we cite the
case of Brazil which, after a prosperous economic period, in late 1980's, right after
the advent of the democratic regime, suddenly entered a dramatic period of high in-
flation: this phase of high uncertainty lasted more than a decade, despite a number of
stabilization plans and institutional reforms (including several consecutive currency
changes) which, for a long time, did not yield any anti-inflationary result.

To conclude, this paper unleashes a series of original and relevant policy impli-
cations. First, it adds to the literature on the macroeconomics of happiness suggesting
that, in developing countries, since the social well-being costs of inflation appear to
outpace those of unemployment, a main priority for the economic policy should be
to care more about inflation and its negative effects. Saying this, we do not intend
to uncritically advocate those standardized ("one-size-fits-all") and neoliberal anti-
inflationary economic policies typically dictated by the fundamentalist interpretation

of the "Washington consensus"; in fact, the latter in the recent past has shown many limitations, either in Asia or Latin America, both in terms of unsustainable social costs and scarce macroeconomic effectiveness[110] (Argentina being a leading example of failure). Rather, the required policy mix should certainly encompass macroeconomic stabilization instruments, but equally emphasize other areas often neglected, such as the need to invest on institutions, public infrastructures, unbiased public governance and equitable and balanced fiscal policies, with the aim to reinforce social cohesion and public trust – resources that prove very scarce in most developing countries experiencing high inflation.

Second, our results are particularly interesting because, due to the usage of independent data sources and the two-stage methodology, they are less likely to register those cognitive biases and myopic behaviors affecting other empirical works directly surveying attitudes towards inflation (as in Shiller, 1997); in other words, the usage of happiness methodologies in this topic makes a substantial heuristic difference, uncovering "real" subjective well-being impacts of the macroeconomic aggregates, rather than simply registering mere preferences or biased judgments.

Finally, concerning the research agenda, our original results call for further research and extensions. Unfortunately, a main limitation of our dataset is that it does not include a sufficient number of truly "high inflation" experiences (as defined in Cagan, 1956 or Heymann and Leijonhufvud, 1995), nor it account for cases of

---

[110] For a comprehensive critique of the fundamentalist (neoliberal) implementations of the Washington consensus, see Stiglitz (2002).

hyperinflation. While in the second case there is an insuperable limitation (just a few cases exist and are documented in the most recent history of mankind), in the first case the main obstacle is documental, since developing countries provide very incomplete time-series for most of the macro-aggregates we use; for example, our dataset, despite our painstaking reconstruction work, is not able to register any of the peaks of high inflation experienced by Argentina and Brazil during the 1980's and 1990's. Consequently, further data collection and harmonization endeavours are needed (mostly, by progresses in the economic history literature), in order to extend the analysis over a larger variation range of the inflation and unemployment rates, and for a wider time period.

Table 3.1: Descriptive statistics, individual-level

Variable	Mean	Std. Dev.	Min.	Max.	N
Life Satisfaction	6.15	2.65	1	10	106090
Female	0.51	0.5	0	1	106090
Age	39.34	15.24	15	99	106090
Age Squared	1779.76	1369.06	225	9801	106090
Lower Education	0.36	0.48	0	1	106090
Middle Education	0.44	0.5	0	1	106090
Upper Education	0.2	0.4	0	1	106090
Married	0.65	0.48	0	1	106090
Divorced/Separated	0.05	0.21	0	1	106090
Widowed	0.06	0.24	0	1	106090
Single	0.24	0.43	0	1	106090
Employed	0.41	0.49	0	1	106090
Self-employed	0.12	0.33	0	1	106090
At Home	0.18	0.38	0	1	106090
Student	0.08	0.27	0	1	106090
Retired	0.11	0.31	0	1	106090
Unemployed	0.11	0.31	0	1	106090
Income	4.36	2.36	1	10	106090
Trust	0.22	0.41	0	1	106090
Life Control	6.60	2.63	1	10	106090
God Importance	8.37	2.62	1	10	106090

Table 3.2: Descriptive statistics, aggregate-level - regressions' sample

Variable	Mean	Std. Dev.	Min.	Max.	N
Inflation	0.19	0.34	-0.01	1.97	82
Unemployment	0.11	0.07	0.01	0.39	82
Informal Market	0.39	0.14	0.16	0.79	78
IMF Credit	0.49	0.5	0	1	82
GDP per capita	6001.41	3450.21	331.61	12797.23	82

Table 3.3: Descriptive statistics, aggregate-level - 1981 to 2008

Variable	Mean	Std. Dev.	Min.	Max.	N
Inflation	0.39	1.17	-0.02	10.58	132
Unemployment	0.1	0.07	0.01	0.39	117
Informal Market	0.39	0.13	0.16	0.79	80
IMF Credit	0.42	0.49	0	1	132
GDP per capita	6193.98	3806.48	331.61	17466.79	132

Table 3.4: Cross-correlations

Variables	SWB	Inflation	Unemployment	GDP/capita	Informal Market	IMF Credit
SWB	1					
Inflation	-0.35**	1				
Unemployment	-0.06	-0.14	1			
GDP/capita	0.43**	0.06	0.06	1		
Informal Market	-0.26**	0.11	-0.16	-0.13	1	
IMF Credit	-0.21	-0.07	0.06	0.02	0.16	1

Note: SWB variable is the dependent variable of the second step estimation, i.e: country-year averaged residuals of the first stage equation (presented in table 3.5). ** indicates significance at the 5% level.

Table 3.5: Microeconomic Determinants of SWB

	OP	Mg Effects	OLS
Regressors			
Female	0.02*	0.00*	0.05*
	(1.84)	(1.80)	(1.87)
Age	-0.02***	-0.00***	-0.05***
	(-11.97)	(-9.88)	(-11.70)
Age Squared	0.00***	0.00***	0.00***
	(10.81)	(9.20)	(10.53)
Middle Education	0.00	0.00	0.02
	(0.12)	(0.12)	(0.55)
Upper Education	0.02	0.00	0.08*
	(0.93)	(0.92)	(1.85)
Married	0.12***	0.02***	0.25***
	(8.32)	(8.41)	(8.34)
Divorced/Separated	-0.10***	-0.02***	-0.24***
	(-5.35)	(-5.38)	(-5.44)
Widowed	-0.03	-0.00	-0.06
	(-1.34)	(-1.36)	(-1.32)
Self-employed	0.00	0.00	0.01
	(0.16)	(0.16)	(0.15)
At Home	0.10***	0.02***	0.21***
	(3.61)	(3.28)	(3.45)
Student	0.01	0.00	0.05
	(0.84)	(0.84)	(1.32)
Retired	-0.06***	-0.01***	-0.13***
	(-2.96)	(-3.04)	(-3.08)
Unemployed	-0.18***	-0.03***	-0.41***
	(-8.46)	(-7.79)	(-8.12)
Income	0.08***	0.01***	0.18***
	(9.97)	(8.91)	(10.76)
Trust	0.09***	0.01***	0.20***
	(5.10)	(4.74)	(5.41)
Freedom	0.13***	0.02***	0.27***
	(10.08)	(12.87)	(12.19)
God Importance	0.03***	0.01***	0.07***
	(7.85)	(7.19)	(7.67)
Country dummies	yes		yes
Year dummies	yes		yes
Pseudo R2 (R2)	0.08	0.08	0.30
N	106090	106090	106090

Note: Dependent variable: Life Satisfaction. Estimator: Ordered Probit (column 1), OLS (column 3). The marginal effects (column 2) were calculated at the mean for the highest outcome (completely satisfied). The standard errors are clustered by the country-year cell. Z (t) - statistics reported in brackets. Reference categories are: male, lower education, single, employed. Cut points from 1 to 9 are, respectively: -0.81, -0.47, -0.11, 0.18, 0.75, 1.07, 1.46, 1.95, 2.34. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01.

Table 3.6: Macroeconomic Determinants of SWB

	1	2	3	4	5	6
Regressors						
Inflation	-0.42***		-0.43***	-0.45***		-0.48***
	(-4.27)		(-4.26)	(-5.54)		(-5.66)
Unemployment		-0.07	-0.14		-0.11	-0.18
		(-0.61)	(-1.18)		(-0.81)	(-1.33)
GDP per capita				0.54***	0.52***	0.55***
				(5.17)	(4.56)	(5.09)
constant	6.00***	6.02***	5.99***	5.99***	6.01***	5.97***
	(47.57)	(45.37)	(47.85)	(54.11)	(49.45)	(53.95)
R2	0.12	0.00	0.13	0.33	0.19	0.35
N	82	82	82	82	82	82

Note: This is a second stage estimation, where country-year averaged residuals of the first stage equation (presented in table 3.5) are used as dependent variable. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

Table 3.7: Macroeconomic Determinants of SWB

	1	2	3
Regressors			
Inflation	-0.44***	-0.43***	-0.46***
	(-5.42)	(-5.19)	(-5.30)
Unemployment	-0.15	-0.14	-0.16
	(-1.04)	(-1.08)	(-1.33)
GDP per capita	0.53***	0.53***	0.56***
	(5.14)	(5.08)	(5.11)
Informal Market	-0.22**	-0.18	
	(-2.10)	(-1.64)	
IMF Credit		-0.43*	-0.45**
		(-1.92)	(-2.05)
constant	5.99***	6.19***	6.20***
	(52.48)	(42.04)	(42.45)
R2	0.38	0.41	0.38
N	78	78	82

Note: This is a second stage estimation, where country-year averaged residuals of the first stage equation (presented in table 3.5) are used as dependent variable. Macro variables are standardized. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

Table 3.8: Macroeconomic Determinants of SWB - Unemployed Sample

	1	2	3	4	5	6
Regressors						
Inflation	-0.36***		-0.39***	-0.38***		-0.42***
	(-3.25)		(-3.51)	(-3.51)		(-3.93)
Unemployment		-0.16	-0.21		-0.18	-0.25
		(-1.15)	(-1.54)		(-1.20)	(-1.57)
GDP per capita				0.39***	0.38***	0.41***
				(3.14)	(2.84)	(3.15)
constant	5.42***	5.43***	5.40***	5.41***	5.42***	5.39***
	(38.50)	(37.52)	(38.88)	(40.22)	(38.56)	(40.32)
R2	0.07	0.01	0.10	0.16	0.10	0.20
N	82	82	82	82	82	82

Note: This is a second stage estimation, where country-year averaged residuals of the first stage equation are used as dependent variable. Macro variables are standardized. Sample based only on unemployed individuals. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01.

Table 3.9: Macroeconomic Determinants of SWB - Unemployed Sample

	1	2	3
Regressors			
Inflation	-0.39***	-0.37***	-0.40***
	(-3.63)	(-3.67)	(-3.90)
Unemployment	-0.22	-0.22	-0.23
	(-1.20)	(-1.24)	(-1.55)
GDP per capita	0.39***	0.40***	0.41***
	(3.06)	(3.06)	(3.18)
Informal Market	-0.11	-0.07	
	(-0.89)	(-0.52)	
IMF Credit		-0.49*	-0.45
		(-1.70)	(-1.63)
constant	5.39***	5.62***	5.61***
	(37.79)	(29.54)	(30.91)
R2	0.20	0.23	0.22
N	78	78	82

Note: This is a second stage estimation, where country-year averaged residuals of the first stage equation are used as dependent variable. Macro variables are standardized. Sample based only on unemployed individuals. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates p<0.10, ** indicates p<0.05, *** indicates p<0.01.

Table 3.10: Marginal Rates of Substitution inflation/unemployment

	1	2	3	4	5
Inflation	-0.43***	-0.48***	-0.44***	-0.43***	-0.46***
Unemployment	-0.14	-0.18	-0.15	-0.14	-0.16
GDP per capita	-	0.55***	0.53***	0.53***	0.56***
Informal Market	-	-	-0.22**	-0.18	-
IMF	-	-	-	-0.43*	-0.45**
Di Tella et al. (2001) MRS infl/unemp	1.66				
Blanchflower (2007) MRS infl/unemp	1.62				
Calculated with OP unemployed coefficient					
Our MRS infl/unemp	0.32	0.38	0.34	0.34	0.36
Our MRSunemp/infl	3.13	2.60	2.93	2.92	2.75
Calculated with OP Marginal Effect Being Unemployed					
Our MRS infl/unemp	0.32	0.38	0.34	0.34	0.36
Our MRSunemp/infl	3.16	2.62	2.96	2.95	2.77
Calculated with OLS unemployed coefficient					
Our MRS infl/unemp	0.33	0.39	0.35	0.35	0.37
Our MRSunemp/infl	3.08	2.57	2.89	2.87	2.71

Note: Respectively, the coefficients of columns 1 and 2 are from regressions 3 and 6 of tables 3.5; those of columns 3, 4 and 5 are from regressions 1, 2 and 3 of table 3.6. The values for the unemployed dummy used to calculate the MRS are those from table 3.4. * indicates $p < 0.10$, ** indicates $p < 0.05$, *** indicates $p < 0.01$.

Table 3.11: Macroeconomic Determinants of SWB

	1	2	3	4	5	6
Regressors						
Inflation	-0.83**		-0.87**	-0.84***		-0.89***
	(-2.58)		(-2.63)	(-3.55)		(-3.70)
Inflation Squared	0.44		0.47*	0.42**		0.45**
	(1.66)		(1.72)	(2.05)		(2.20)
Unemployment		-0.07	-0.15		-0.11	-0.19
		(-0.61)	(-1.27)		(-0.81)	(-1.39)
GDP per capita				0.54***	0.52***	0.55***
				(5.17)	(4.56)	(5.07)
constant	5.98***	6.02***	5.97***	5.97***	6.01***	5.96***
	(46.47)	(45.37)	(46.51)	(54.10)	(49.45)	(53.55)
R2	0.14	0.00	0.15	0.34	0.19	0.37
N	82	82	82	82	82	82

Note: This is a second stage estimation, where country-year averaged residuals of the first stage equation (presented in table 3.5) are used as dependent variable. Macro variables are standardized. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

Table 3.12: Macroeconomic Determinants of SWB

	1	2	3
Regressors			
Inflation	-0.82***	-0.79***	-0.86***
	(-3.47)	(-3.19)	(-3.45)
Inflation Squared	0.41**	0.38*	0.44**
	(2.01)	(1.92)	(2.15)
Unemployment	-0.15	-0.15	-0.18
	(-1.07)	(-1.11)	(-1.40)
GDP per capita	0.53***	0.53***	0.55***
	(5.12)	(5.07)	(5.09)
Informal Market	-0.21**	-0.18	
	(-2.04)	(-1.60)	
IMF Credit		-0.42*	-0.45**
		(-1.88)	(-2.04)
constant	5.97***	6.17***	6.18***
	(52.10)	(41.94)	(42.27)
R2	0.39	0.42	0.40
N	78	78	82

Note: This is a second stage estimation, where country-year averaged residuals of the first stage equation (presented in table 3.5) are used as dependent variable. Macro variables are standardized. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

Table 3.13: Macroeconomic Determinants of SWB

	1	2	3
Regressors			
Inflation Lower 0.25	-1.09*	-0.99*	-1.15**
	(-1.90)	(-1.71)	(-2.20)
Inflation Above 0.25	-0.31***	-0.32***	-0.32***
	(-2.93)	(-3.04)	(-3.14)
Unemployment	-0.14	-0.14	-0.17
	(-1.01)	(-1.05)	(-1.35)
GDP per capita	0.53***	0.53***	0.55***
	(5.13)	(5.07)	(5.05)
Informal Market	-0.21**	-0.18	
	(-2.00)	(-1.58)	
IMF Credit		-0.41*	-0.44**
		(-1.82)	(-2.01)
constant	5.73***	5.96***	5.92***
	(22.19)	(21.12)	(22.32)
R2	0.39	0.42	0.40
N	78	78	82

Note: This is a second stage estimation, where country-year averaged residuals of the first stage equation (presented in table 3.5) are used as dependent variable. Macro variables are standardized. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

Table 3.14: Macroeconomic Determinants of SWB

	1	2	3	4	5	6
Regressors						
Inflation Lower 0.25	-1.25*		-1.29*	-1.15**		-1.21**
	(-1.89)		(-1.94)	(-2.20)		(-2.31)
Inflation Above 0.25	-0.25*		-0.26**	-0.30***		-0.33***
	(-1.96)		(-2.03)	(-2.97)		(-3.18)
Unemployment		-0.07	-0.14		-0.11	-0.19
		(-0.61)	(-1.24)		(-0.81)	(-1.36)
GDP per capita				0.53***	0.52***	0.55***
				(5.14)	(4.56)	(5.04)
constant	5.67***	6.02***	5.65***	5.71***	6.01***	5.69***
	(18.65)	(45.37)	(18.34)	(23.96)	(49.45)	(23.33)
R2	0.14	0.00	0.15	0.34	0.19	0.36
N	82	82	82	82	82	82

Note: This is a second stage estimation, where country-year averaged residuals of the first stage equation (presented in table 3.5) are used as dependent variable. Macro variables are standardized. t-statistics reported in brackets. Heteroskedasticity-robust standard errors. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

Table 3.15: Sensitivity Analysis of the High Inflation Threshold

Normal/High Inflation Boundary	0.15	0.20	0.25	0.30	0.35	0.40	0.45
SWB Estimated Effect - Below	-1.14*	-1.16**	-1.15**	-1.04**	-1.02***	-1.00***	-0.96***
SWB Estimated Effect - Above	-0.37***	-0.33***	-0.32***	-0.27**	-0.24**	-0.20*	-0.17*

Normal/High Inflation Boundary	0.50	0.55	0.60	0.65	0.70	0.75	0.80
SWB Estimated Effect - Below	-0.92***	-0.88***	-0.84***	-0.81***	-0.77***	-0.72***	-0.69***
SWB Estimated Effect - Above	-0.14	-0.12	-0.1	-0.09	-0.08	-0.08	-0.08

Note: The boundaries refer to annual inflation rates. The SWB estimated effects refer to the inflation coefficients of the specification of column 3, table 14. * indicates $p<0.10$, ** indicates $p<0.05$, *** indicates $p<0.01$.

References

[1] Attanasio, O., Guiso, L., Jappelli, T. (2002), "The Demand for Money, Financial Innovation, and the Welfare Cost of Inflation: An analysis with Household Data", *Journal of Political Economy,* 110(2), 317-351.

[2] Bartolini, S., Bilancini, E. (2010), "If not Only GDP, What Else? Using Relational Goods to Predict the Trends of Subjective Well-Being", *International Review of Economics*, 57 (2), 199-213.

[3] Becchetti, L., Pelloni, A., Rossetti, F. (2008), "Relational Goods, Sociability, and Happiness", *Kyklos*, 61 (3), pp. 343-363.

[4] Blanchflower, D.G. (2007), "Is Unemployment More Costly than Inflation?", NBER Working Paper n. 13505.

[5] Blanchflower, D.G., Oswald, A.J. (2008), "Is Well-Being U-shaped over the Life Cycle?", *Social Science & Medicine*, 66 (8), pp. 1733-1749.

[6] Boockmann, B., Dreher, A. (2003), "The Contribution of the IMF and the World Bank to Economic Freedom," *European Journal of Political Economy*, 19 (3), pp. 633-649.

[7] Bruni, L. Stanca, L. (2008), "Watching Alone. Happiness, Relational Goods and Television", *Journal of Economic Behavior and Organization*, 65 (3-4), pp. 506-528

[8] Cagan, P. (1956), "The Monetary Dynamics of Hyperinflation", in: Friedman, M. (ed.), *Studies in the Quantity Theory of Money*, Chicago: University of Chicago Press.

[9] Cameron, A.C., Gelbach, J.B., Miller, D.L. (2011), "Robust Inference With Multiway Clustering", *Journal of Business & Economic Statistics*, 29 (2), pp. 238-249.

[10] Clark, A.E., Oswald, A. J. (1994), "Unhappiness and Unemployment", *Economic Journal*, 104 (424), pp. 648-659.

[11] Clark, A.E. (2003), "Unemployment as a Social Norm: Psychological Evidence from Panel Data", *Journal of Labor Economics*, 21, pp. 323-351.

[12] Clark, A.E. (2006), "A Note on Unhappiness and Unemployment Duration", *Applied Economics Quarterly*, 52 (4), pp. 291-308.

[13] Diener, E., Tay, L., Myers, D.G. (2011), "The Religion Paradox: If Religion Makes People Happy, Why Are so Many Dropping Out?" *Journal of Personality and Social Psychology*, 101, pp. 1278-1290.

[14] Di Tella, R., MacCulloch, R.J., Oswald, A.J. (2001), "Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness", *American Economic Review*, 91 (1), pp. 335-341.

[15] Di Tella, R., MacCulloch, R., Oswald, A.J. (2003), "The Macroeconomics of Happiness". *Review of Economics and Statistics*, 85 (4), pp. 809-827.

[16] Dolan, P., Peasgood, T., White, M.P. (2008), "Do We Really Know What Makes Us Happy? A Review of the Economic Literature on the Factors Associated with Subjective Wellbeing", *Journal of Economic Psychology*, 29, 94-122.

[17] Dreher, A. (2006), "IMF and Economic Growth: The Effects of Programs, Loans, and Compliance with Conditionality", *World Development*, 34 (5), pp. 769-788.

[18] Easterlin, R. (1974), "Does Economic Growth Improve the Human Lot? Some Empirical Evidence", in: David, P. Reder, M. (Eds.), *Nations and Households in Economic Growth: Essays in Honor of Moses Abramowitz*, New York: Academic Press.

[19] Ferrer-i-Carbonell, A., Frijters, P. (2004), "How Important is Methodology for the Estimates of the Determinants of Happiness?," *Economic Journal*, 114 (497), pp. 641-659.

[20] Fischer, S., Modigliani, F. (1978), "Towards an Understanding of the Real Effects and Costs of Inflation," *Review of World Economics (Weltwirtschaftliches Archiv)*, 114 (4), pp. 810-833.

[21] Forero, J. (2009) "Doctored Data Cast Doubt on Argentina", The Washington Post, 16 August.

[22] Frey, B.S., Schneider, F. (2001), "Informal and Underground Economy", in: Ashenfelter O.C., International Encyclopedia of Social and Behavioral Science, Bd. 12 Economics, Amsterdam: Elsevier.

[23] Gandelman, N., Hernandez-Murillo, R. (2009), "The Impact of Inflation and Unemployment on Subjective Personal and Country Evaluations", Federal Reserve Bank of St. Louis Review, 91 (3), pp. 107-26.

[24] Gerschenkron, A. (1962), "Economic Backwardness", in: *Historical Perspective, a Book of Essays*, Cambridge (MA): Belknap Press of Harvard University Press.

[25] Gerschenkron, A. (1968), *Continuity in History, and Other Essays*, Cambridge (MA): Belknap Press of Harvard University Press.

[26] Heymann, D., Leijonhufvud, A. (1995), *High Inflation*. Oxford: Oxford University Press.

[27] Kahneman, D., Tversky, A. (1979), "Prospect Theory: An Analysis of Decision under Risk", *Econometrica*, 47 (2), pp. 263–292.

[28] Lalive, R., Stutzer, A. (2011), "Economic Shocks, Labor Market Institutions, and Workers' Well-Being". Presented at IZA Conference. Available at: http://www.iza.org/conference_files/ReDisWeBe2010/lalive_r518.pdf.

[29] Luechinger, S., Meier, S., Stutzer, A. (2010), "Why Does Unemployment Hurt the Employed? Evidence from the Life Satisfaction Gap between the Public and the Private Sector", *Journal of Human Resources*, 45 (4), pp. 998-1045.

[30] Moulton, B.R. (1986), "Random group effects and the precision of regression estimates", *Journal of Econometrics*, 32, pp. 385-397.

[31] Moulton, B.R. (1991), "A illustration of a pitfall in estimating the effects of aggregate variables on micro units", *Review of Economics and Statistics*, 72, pp. 334-8.

[32] Newberg, A.B., d'Aquili, E.G.; Rause, V. (2002), *Why God Won't Go Away: Brain Science and the Biology of Belief*, New York: Ballantine Books.

[33] North, D.C. (1990). *Institutions, Institutional Change and Economic Performance,* Cambridge: Cambridge University Press.

[34] North, D.C. (1995). "The New Institutional Economics and Third World Development," in Harriss, J. Hunter, J. Lewis, C. M. (Eds.), *The New Institutional Economics and Third World Development,* London: Routledge.

[35] Oswald, A. J. (1997), "Happiness and Economic Performance", *The Economic Journal*,107 (445), pp. 1815-1831.

[36] Peterson, M. A. (2009), "Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches", *The Review of Financial Studies*, 22 (1).

[37] Reis, H.T., Sheldon, K.M., Gable, S.L., Roscoe, J., Ryan, R.M. (2000), "Daily Well-Being: The Role of Autonomy, Competence, and Relatedness", *Personality and Social Psychology Bulletin*, 26, pp. 419-435.

[38] Schneider, F., (2005), "Shadow Economies Around the World: What Do We Really Know?," *European Journal of Political Economy*, 21(3), pp. 598-642.

[39] Seligman, M.E.P. (1975). *Helplessness: On Depression, Development, and Death*. San Francisco: W. H. Freeman.

[40] Shiller, R. J. (1997), "Why Do People Dislike Inflation?" in: Romer C.D., Romer, D. H. (Eds.), *Reducing Inflation: Motivation and Strategy*, Chicago: University of Chicago Press.

[41] Stanca, L. (2010), "The Geography of Economics and Happiness: Spatial Patterns in the Effects of Economic Conditions on Well-Being", *Social Indicators Research*, 99(1), 115-133.

[42] Stanca, L. Gui, B. (2010), "Happiness and Relational Goods: Well-being and Interpersonal Relations in the Economic Sphere", *International Review of Economics*, 57 (2), 105-118.

[43] Stiglitz, J.E. (2002), *Globalization and its Discontents*, New York: W.W. Norton.

[44] The Economist, (2012), "Official Statistics: Don't Lie to Me, Argentina", The Economist, 25 February.

[45] Weinstein, N., Przybylski, A. K., Ryan, R. M. (2012), "The Index of Autonomous Functioning: Development of a Scale of Human Autonomy", J*ournal of Research in Personality*, 46, pp. 397–413.

[46] Winkelmann, R., Winkelmann, L. (1998), "Why Are the Unemployed so Un-happy?", *Economica*, 65 (257), pp. 1-15.

[47] Wolfers, J. (2003), "Is Business Cycle Volatility Costly? Evidence from Surveys of Subjective Well-being". *International Finance*, 6 (1), pp. 1-26.

[48] Wooldridge, J. M. (2003), "Cluster-Sample Methods in Applied Econometrics", *American Economic Review*, 93 (2), pp. 133-138.

Datasets

[1] Dreher, A. (2006). Data are downloadable at: http://www.uniheidelberg.de//fakultaeten/wiso/awi/professuren/intwipol/datasets_en.html.

[2] EVS (2011). European Values Study, Longitudinal Data File 1981-2008 (EVS 1981-2008). GESIS Data Archive, Cologne. ZA4804 Data file Version 2.0.0, doi:10.4232/1.11005.

[3] International Monetary Fund (2012): International Financial Statistics (17/December/2012). Mimas, University of Manchester.

DOI: http://dx.doi.org/10.5257/imf/ifs/2012-12.

[4] PWT 7.1, Alan Heston, Robert Summers and Bettina Aten, Penn World Table Version 7.1, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, Nov 2012.

[5] WDI (2009). World Development Indicators, available at: Catini, Giulia, Ugo Panizza and Carol Saade (2010), "Macro Data 4 Stata",

http://graduateinstitute.ch/md4stata.

[6] WVS (2009). World Value Survey 1981-2008 official aggregate v.20090902, 2009. World Values Survey Association (www.worldvaluessurvey.org). Aggregate File Producer: ASEP/JDS Data Archive, Madrid, Spain.

Final Conclusions

The pursuit of happiness is considered in general, by common people as well as by scholars of several disciplines, one of the most essential concerns of the humankind. Well before the recent rediscovery of the issue made by economics after more than two centuries of neglect (for an account of economic thought history, see chapter 1), philosophy, sociology, psychology, neurosciences and genetics (to mention the most relevant) had all touched upon the theme in varying degrees; their contribution, recently enriched by revolutionary neuroscience discoveries (such as the mirror neurons, constituting the neural basis for human sociability and mutual understanding), now provides economists with a broader basis for continuing the investigation of the happiness causes with their own research tools.

In this thesis, we aimed to contribute to the exam of happiness paths across gender and countries, and their possible determinants, using the economics' point of view and methodology, but remaining open to hypotheses, constructs and hints coming from other social sciences. To do so, as a first target (chapter 1), we presented the insertion of the Economics of Happiness in the broad history of economic thought, emphasizing the original contaminations and the reasons of the early detachment between economics and psychology, while highlighting the happiness' multidisciplinary essence, and its methodological specificities. In the sequence we adopted an empirical approach to investigate two distinct topics: the happiness gender gap across countries

and time (chapter 2), and the subjective well-being trade-off between unemployment and inflation across developing countries (chapter 3).

Chapter 1, by conducting a multidisciplinary review of the main concepts and toolboxes featured in the happiness literature, prepared the stage.

In chapter 2, we investigated the causes of a possible happiness differential existing among men and women, worldwide. Not only, we aimed to quest it within an encompassing view, that goes beyond a focus on single traditional instances of women's life, like the job-fertility choices, the parental care decisions, etc, extensively analyzed in previous gender and happiness literatures. Our intuition for this analysis came from the fact that women have passed through landmark changes – especially during the second half of the last century - as comprehensively described in gender studies, in development economics (let's think at the revolutionary implications of the microcredit diffusion in traditional societies) and in theories such as the "capability approach" of A. Sen and M. Nussbaum. These changes shaped new original gender roles: new rights and achievements in multiple domains (socio-economic, political, institutional) were obtained by women worldwide (starting from developed countries), even at the cost of conflicts and fights, in such a way that they should have been impacted on the happiness gender gap, benefiting women.

A close literature antecedent was the paradox of declining female happiness: according to some scholars, in fact, the paradoxical side of the story is that this process of socio-economic and institutional emancipation did not show up to benefit women, at least looking at conventional happiness figures. For example, Stevenson and Wolfers (2009) provide evidences showing shifts in the happiness gender gap working against women in absolute and relative terms, while Plagnol and Easterlin (2008) found it to dampen women subjective well-being later in their life cycle.

With this background, we started considering that, since it was women's life that in the last decades suffered major changes and challenges, we need to find reliable measures of these aspects, to include them in an original empirical account of the gender happiness gap. Our basic operative hypothesis was that there is a list of potential predictors of the happiness gap between women and men, and that these variables involve multiple domains: economic, socio-demographic, political and institutional. Moreover, there is an useful way of classifying them, suggested by the capability approach of A. Sen and M. Nussbaum, that considers the role of fundamental entitlements (individual capabilities, opportunities and broad rights, leading to human functionings – beings and doings) for attaining human flourishing. Although with differences due to the diversity of the underlying happiness approaches (hedonic versus eudemonic traditions), we may take their basic concepts to inform our hypothesis that human rights, institutions (and their policies) and social beliefs (incorporating

social norms) greatly impact on people's ability to improve their subjective well-being. In particular, we chose measures of rights as external enablers of capabilities and functionings; then, we also acknowledged that rights might not manage to become fully implemented in society, when existing institutions, social beliefs and norms are not conducive. Finally, a representative number of gender-related achievements was considered (from maternity to external work, from Parliamentary representation to education), meant as realized functionings and assuming that they can be the first-best predictors of gender subjective well-being paths. Beside social norms, however, also personality traits, values and other individual characteristics and activities (relational goods) may be important conditioning factors - as the bulk of the psychological approaches to happiness have long demonstrated (from the "Big 5" to "learned helplessness" as predictors of psychological well-being), since they act as cognitive modulators of external events. To this end, we gathered individual and macro evidences on these dimensions, depicting three broad classes of indicators: objective (GDP, employment status, rights, achievements, etc.) subjective (psychological traits) and also a third type of predictors, having a hybrid nature (so we called them in the Plan of the thesis; see Introduction): quantifiable (like economic indicators) but also subjective, being reflecting people's values (like subjective judgments on gender-related issues).

Our resulting dataset, combining data from three sources (WVS-EVS, CIRI Human Rights and WDI), spans the most recent period of the purported manifestation

of the paradox of female declining happiness (precisely, we have data from 1981 to 2009); both developed and developing countries are almost equally represented. Unfortunately, it provides only repeated waves of individual information, but not a proper panel of subjects; hence, while it cannot support a longitudinal test of the paradox, at least this dataset can provide a static explanation of the cross-country gender gap. Building on the two-step methodology of Stanca (2010), we first estimated at the individual level, separately, the happiness gender gap for each available country-year cell; in the second stage we passed to uncover its country-year level determinants. Moreover, a further robustness check was done employing a traditional individual-level-only estimating equation, where individual, macro and mixed interaction determinants of women subjective well-being are jointly tested.

While the first-step results were fully meaningful and matching the established literature, the second step macro results were at first somehow puzzling; further dataset improvements and large-scale specification testing gradually uncovered original results, interesting particularly for their rather unconventional policy implications.

First, the stand-alone effect of women rights, achievements and social beliefs was discovered to have a low direct explicative power on the gender gap, yielding insignificant and sometimes counter-intuitive coefficients. A first improvements was to consider the development dummy, which turned immediately significantly and positive, thereby confirming the cross-sectional gender happiness advantage of women

from the developed world, ceteris paribus. Second, we tested two main batteries of specifications: rights and achievements, each time controlling for beliefs, personality traits and relational goods. A few noticeable results stood up:

- Women economic rights display a fully positive and significant effect on the gender gap only when they are interacted with pro-women socials beliefs.

- A similar positive and significant joint effect also manifests when economic rights are complemented by conducive personality traits (eg., life control), as measured at the aggregate level.

- The significance of a positive effect of political rights alone is less pronounced, as well as that on the complementary effect between them and social beliefs of women self-determination. Rather, the presence of the latter alone seems more important for increasing the gender gap. We explained all these facts.

- Turning to the effect of political achievements, a similar complementary relation between realized functionings and personality traits emerges. Hence, the latter' role of cognitive modulator – extensively detected in the psychological literature – here receives a more robust confirmation, being the estimated macro relation less affected by endogeneity concerns, with respect to previous micro studies.

- Material social achievements, like those regarding gender relative life expectancy, exert sizable effects on the gender gap, but are significant and positive only

in developed countries. Following M. Nussbaum, this probably means that only in the latter the net balance between social emancipation costs and benefits is positive.

- Hence, summing up, we found that also realized achievements need complementary conditions to significantly impact on the gender gap: this result unleashes important policy implications, also for a feminist-like agenda, since it poses at the centre of the emancipation campaigning the priority of attaining further improvements in these complementary conditions for happiness.

- Concerning the cross-effects between different women achievements (fertility, female labour force participation, educational attainment), between them and personality traits, and relational goods, result were less clear-cut, prevailing stand alone effects (respectively, positive for fertility and negative for labour force participation). Since a proper estimation of these relationships involve capturing individual-level displacement and inter-temporal substitution effects, likely to compensate in an aggregate-level analysis, our test cannot be considered final, especially when only loose proxies are available (for eg., our relational goods variables).

- For sure, the negative stand-alone effect uncovered for labour force participation, which mirrors similar results of Lalive and Stutzer (2010) and Vendrik and Cörvers (2009), calls into question the real happiness benefits of a simplistic gender emancipation agenda seeking to render women's rights and opportunities identical to men's, without further concerns of guaranteeing that complementary conditions and

institutions (such as part-time contracts, fiscal benefits, kindergartens, etc., beside basic investment in gender-friendly education and culture) are in place to assist women in facing the many personal and social challenges they encounter after emancipation.

- While our work did not strictly prove the "second shift" hypothesis and the relational crowding-out effects, especially at the macro-level, it provided robust evidence on the need of complementary factors for women subjective well-being. Further, in the one-step model our focus on women economic rights let to uncover interesting support for original complementarity effects unfolding with personality traits, relational goods and income.

All these results, taken together, lead to frame a more critical and multi-faceted agenda of women emancipation, structured on more levels of intervention: from the central State intervention, through local institutions (voluntary associations, municipalities) and to society bodies' at large; from strict economic policies to broader investments in gender-friendly cultures and policies (working hours, maternity leaves, etc.). On a more philosophical stance, recalling the Aristotelian principle of the Law which predicts that equals should be treated equally and unequals unequally (Aristotle, 2009; bk. V, chap. VI), we may conclude that both genders should be equal in terms of rights and opportunities to well-being and flourishing, but they are different in terms of needs and conditions requested for this to happen. If these complementary (internal and external) conditions in some societies do not materialize, true and

meaningful gender equality will not be attained there, whatever the formal rights and proclaims will be.

From a research policy perspective, our study first pooled a representative sample of developed and developing countries. Put directly, if this choice on the one side implies that, with respect to studies dealing with single nations or smaller subsets of countries, our variables are less detailed and some results potentially less clear-cut (since we proceed to estimate the same coefficient for a set of potentially heterogeneous countries), on the other side, if significant results emerge, like in our case, they qualify as more robust and general. Hence, the generalization power of our findings is larger, also with respect to policy implications. In this respect, our study stands as a significant contribution and one of the very few empirical tests of the capability approach.

On chapter 3 we aimed at checking the relative effect of unemployment and inflation on the subjective well-being of individuals living in developing countries. Our hypothesis for this idea was that developing and developed countries experience very different socio-economic and development paths, that can influence the perception of these two relevant macroeconomic conditions and the corresponding coping strategies, generating two different impacts on subjective well-being. The main hypothesis we formed was that the impact of inflation is stronger than that of unemployment, differently from what has been found in the previous literature, focused on developed

nations. This hypothesis is based on a fundamental premise (that inflation directly affects all the population, while unemployment mainly the jobless labour force) and two distinct observations: that background conditions (including institutions and the welfare state) and individuals' coping abilities widely differ between developing and developed countries, also with respect to experiences and social remedies for inflationary and jobless periods.

Several considerations support our reasoning. First, periods of high inflation generate pervasive uncertainty, additional transaction costs and disruption of established routines, thereby affecting directly fundamental decisions and social interactions: most daily transactions, or consumption/saving and production/investment decisions are fundamentally altered. In particular, the individual cognitive routines, the established practices and the social dynamics are challenged in such periods, across all the population (even for the wealthier share). For instance, even the frequency and right timing for the most trivial decisions, such as shopping for groceries, have to be submitted to an accurate financial analysis. Obviously, far more emphasis needs to be attached to decision-making concerning the future and yielding long-term effects (from children education, to health care, or familiar wealth management and pensions plans).

Indeed, one may think at the real and psychological costs of decision-making differentially faced by a middle class individual from a developing country during infla-

tionary periods while deciding in domains like private education and health insurance, since these public services are typically unsatisfactorily there: these costs stand as an extra-burden, compared to an individual living in a developed country, who may suffer inflation but has the education and health care services basically paid out or at least guaranteed by the State; indeed, they work as a shock cushion or public safety net. In short, our basic hypothesis was that these optimization and behavioral challenges come to be exacerbated in developing countries, due to the distinct socio-economic and institutional conditions faced by this particular set of countries, so far largely unexplored in the happiness literature.

Second, the diversity of their macroeconomic scoreboards, economic policies and welfare state may also influence the labour participation rates, the employment decisions and the unemployment figures. Safe, law-protected employment is relatively less frequent in developing countries, where people had always searched for alternatives to this lower job status. In addition, unemployment benefits barely exist, so that an unemployed individual cannot rely on them to provide subsistence to his family. Within this background, in developing countries, more than in developed ones, the informal economy and the shadow employment (in all forms) are a frequent escape choice, also because of the higher bureaucratic burdens dampening entrepreneurial spirits. This status of facts generates many unofficial nodes of economic activity, that

work as a parallel shadow economy, contributing to neutralize or at least diminish the negative effect of potential unemployment on one's subjective well-being.

For these reasons, we wanted to control for the informal market presence, that may lead to a structural underestimation of the official unemployment figures. To this end, we resorted to Schneider's (2005) data proxying the share of the informal market with respect to the official GDP. Moreover, since developing countries experienced different economic histories, paths of development, types of macro-economic shocks and policies, we wanted to include variables capturing their diversity. Beside the usual control for per capita GDP, a main choice was to include a very distinctive indicator, the access to IMF credit, extensively analyzed in the development literature but so far neglected in the macroeconomics of happiness. The main rationale was that IMF intervention usually brings gods and bads, and not only impacts on economic growth, but also on individual and social well-being, and these effects are likely to spread unequally across the population and across countries. However, since the findings of the development literature on the effects of IMF intervention on economic growth are rather indeterminate (due to the complex mix of catalytic and austerity effects that may arise), similarly we did not have a clear-cut starting hypothesis of its expected sign in our sample.

To have as many developing countries as possible, we built a matched WVS-EVS dataset including homogenous cross-sectional waves (from 1990 to 2008), fea-

turing individual level variables on life satisfaction and its typical determinants. Then, we constructed a country-year dataset of macroeconomic data from the WDI-World Bank, and integrated it with the Schneider's (2005) and Dreher's (2006) data on the informal market and IMF credit. In the first stage, we found confirmation for established literature results. Then, in the second stage, the unexplained country-year averages of life satisfaction were regressed over inflation, unemployment and the other set of macro variables. In this further step, we found results that, while showing clear regularities, are also original and remarkable.

First, the negative effect of inflation and the negative but not significant effect of unemployment on subjective well-being were the most stable result. Concerning the controls, per capita GDP registered a positive role while the inclusion of the informal sector displayed a negative but not so significant effect on subjective well-being; hence, in our sample, the net effect of the informal market seems to be dominated by its negative consequences –i.e., its positive role as employment and income buffer does not appear sufficient to counteract its shadow side-effects. Similarly, its correction effect for the unemployment underestimation does not seem relevant. Then, the control for the presence of IMF credit yielded a sizable negative impact (from -0.43 to -0.45), fully significant in the final specification; further, the magnitude of this effect was stronger than those of the informal economy and unemployment, while similar to that of inflation. Despite the methodological cautions we spelled out, we believe

that our original evidence marks a first noticeable step forward for the extension of the existing knowledge on the macroeconomics of happiness, documenting signs of a net austerity effect connected to IMF intervention in developing countries, similar to the same negative effect often uncovered with regard to economic growth.

Moreover, the evidence on the inverted trade-off between inflation and unemployment was strengthened and confirmed introducing a few robustness checks. A first verification was that of replicating the same analysis on the cross-country subsample of individuals who were unemployed at the time of the surveys. This enabled a more focused test of the trade-off for those who suffered the most from the second problem. Again, mutatis mutandis, results meaningfully replicated the expected changes. As a result, using the methodology of Di Tella et al. (2001) and Blanchflower (2007), we obtained a marginal rate of substitution between inflation and unemployment equal to 0.33, against the 1.66 of Di Tella et al. and the 1.62 of Blanchflower. In other words, in our sample the social cost of inflation always and considerably outpaces the total cost (individual plus social) of unemployment. Relatedly, we discussed the issue of whether and how much our results may be driven by the systematic underestimation of the unemployment rate, to conclude that, although a certain bias might remain even after controlling for the informal market, this bias should not be the main effect, and that a real phenomenon of higher social costs is instead present in developing countries experiencing regimes of high inflation.

Concerning the latter, we introduced further qualifications and controls. First, a quadratic relation on inflation was tested and confirmed. Then, we introduced a further specification setting an inflation threshold between low (normal) and high inflation, aimed at strengthening the previous search for non-linearities in the relation between inflation and subjective well being. Again, robust evidences about the presence of a systematic memory or adjustment effect (with the coefficient for high inflation resulting significantly negative but lower than that of normal inflation) stood up. Moreover, a further comprehensive sensitivity analysis confirmed that these adjustment patterns hold for a large range of alternative "moderate to high" inflation definitions (sticking to that of Heymann and Leijonhufvud, 1995).

As a result, the most plausible interpretation we advance is that, when the reference macroeconomic variable (being it a numeraire) presents such accentuated dynamics, it introduces so much uncertainty into the system that emotional feelings, cognitive routines and behaviours of economic agents are likely to change according to where the variable lies along the range; first, because of increasing bounded rationality, and more specifically due to the well-known framing and set point effects postulated by the "prospect theory" of Kahneman and Tversky (1979) (see chapter 1). Then, because changing individual behaviors translate into different social patterns of macro-level interaction, high inflation can bring about structural changes of different degrees in the working of the whole economy: from the more gradual adaptations during long per-

sistence, to the most radical changes (dollarization of the economy or return to barter) for shorter periods: in the most perverse cases (hyperinflation), not included in our sample, adjustment capabilities may easily break down and lead the way to revolutionary changes in the socio-economic and institutional order. That is where economics typically reencounters political science and sociology (as in the Weimer Republic experience).

On overall, this chapter contributes to revising and extending the literature on the macroeconomics of happiness, pointing out that a certain share of its established findings, being based mostly on US, European or developed nations, may not be extensible worldwide. Besides, and more indirectly, our evidences also challenge the conventional account of the social costs of high inflation stemming from mainstream macroeconomic theories, estimating a usually marginal negative welfare cost of inflation, that would not justify the high political emphasis nor the strong policy efforts conventionally attached to its fight. Finally, we agree with Frey and Stutzer (2002; chp. 6) when they affirm that happiness literature in this topic has much to offer in terms of new knowledge, both for its superior empirical methodology in detecting the real costs of inflation and its comprehensive theoretical framework that offers a more encompassing description of the bounded rationality and complexity of human behavior.

References

[1] Aristotle, (2009), The Nicomachean Ethics, (translated by Ross, D. W., revised by Brown, L.) New York: Oxford World's Classics.

[2] Blachflower, D. G. (2007), "Is unemployment more costly than inflation?", NBER Working Paper n. 13505.

[3] Clark, A.E., Etilé, F. (2011), "Happy house: Spousal weight and individual well-being", Journal of Health Economics, 30(5), pp. 1124-1136.

[4] Di Tella, R., MacCulloch, R. J., Oswald, A. J. (2001), "Preferences over Inflation and Unemployment: Evidence from Surveys of Happiness", American Economic Review, 91 (1), pp. 335-341.

[5] Dreher, A. (2006), "IMF and Economic Growth: The Effects of Programs, Loans, and Compliance with Conditionality", *World Development*, 34 (5), pp. 769-788.

[6] Easterlin, R. (1974). "Does economic growth improve the human lot? Some empirical evidence", in: David, P., Reder, M. (Eds.), *Nations and Households in Economic Growth: Essays in Honour of Moses Abramowitz*. New York: Academic Press.

[7] Easterlin, R. (2001), "Income and Happiness: Towards a Unified Theory", *The Economic Journal*, 111, pp. 465-484.

[8] Frey, B S.; Stutzer, A. (2002), "*Happiness and Economics: How the Economy and Institutions Affect Human Well-Being*", Princeton and Oxford: Princeton University Press.

[9] Heymann, D., Leijonhufvud, A. (1995), *High Inflation*. Oxford: Oxford University Press.

[10] Kahneman, D., Tversky, A. (1979), "Prospect Theory: An Analysis of Decision under Risk", *Econometrica*, 47(2), pp. 263–292.

[11] Lalive, R., Stutzer, A. (2010), "Approval of equal rights and gender differences in well-being", Journal of Population Economics, 23(3), pp. 933-962.

[12] Plagnol, A., Easterlin, R. (2008), "Aspirations, Attainments, and Satisfaction: Life Cycle Differences Between American Women and Men", Journal of Happiness Studies, 9, pp. 601-619.

[13] Stanca, L. (2010), "The Geography of Economics and Happiness: Spatial Patterns in the Effects of Economic Conditions on Well-Being", Social Indicators Research, 99(1), 115-133.

[14] Schneider, F., (2005), "Shadow Economies Around the World: What Do We Really Know?," *European Journal of Political Economy*, 21(3), pp. 598-642.

[15] Stevenson, B., Wolfers. J. (2009), "The Paradox of Declining Female Happiness", *American Economic Journal: Economic Policy,* 1(2), pp. 190-225.