

The Political Economy of Public Spending on Italian Rail Transport: A European View

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Abstract

The public expenditure on railways is largely unexplored in Europe. This is surprising because the size of government financial support to the industry is remarkable. Filling a dozen years of missing information, this paper rebuilds the total public spending on the Italian railway since 1992 making it comparable. This research complements a significant lack of information of public interest since these data have been published from 1966 until 2001; year of the last data release. From then the extent of public support to the industry has remained indefinite. Our results serve: scholars aimed at comparing such expenses with other countries, policy makers aimed at taking superior data-supported decisions when it comes to budgeting and industry professionals for intelligence purposes. Thus, reducing the long-lasting asymmetric information in this domain - a key threaten to the sector growth. Results of this paper enable a proper comparison of the government spending on railways among different countries such as Italy, France and Great Britain as an exercise.

Keywords: Public expenditure, railways, state aid, public administration, political economy, transport policy, transport economics

Jel classification: D78, H25, H50

1. Introduction

A major policy lesson stemming from the budgetary troubles of many countries within the European Union (EU) is the need to improve expenditure performance, i.e. the reinforced connection between funding decisions, policy priorities and outcomes (Di Foggia & Lazzarotti, 2013; Vandierendonck, 2014); no exception for railways. From a European perspective the railway sector is (still) significantly reliant on public subsidies, almost as much as its sales revenues. Although since as long ago as 1991 (Directive 91/440/EEC) covered three key areas, among which: restructuring deficits to put railway companies on a viable financial footing and maintain financial sustainability, at present, there are few signs as yet of a confidence-boosting solution to stabilize the sector. Therefore, in today's spending review environment, public expenditure should effectively target sustainable-growth enhancing policies while encouraging budgetary consolidation and limiting distortions of competition (Arrigo & Di Foggia, 2013a, 2013b). In Europe, data on railways funding suffer from some limitations. First, missing data for some years as a result of missing notifications from European Union member States (MS). Second, the published data do not disaggregate between different support to the network for financing new investments, for renewals and maintenance, for operating expenses and for public service obligations (PSO) that is a common mechanism to ensure that all consumers retain access to public services (Mirabel, Poudou, & Roland, 2009). This paper is designed to help overcome these problems providing a comprehensive figure of the public expenditure on the Italian railways over 22 years, i.e. between 1992, when the company was transformed from a public entity into a joint-stock company, and 2013 - further updates will be useful and completed in the future. The reason is over a decade of missing and incomplete information on public expenditure on railways or, eventually, when sporadically available data are issued from heterogeneous sources and for limited periods of time; situation which does not allow an extensive evaluation of such expenditure. This gap is even more evident now since the determinants and magnitude of subsidies to railways have triggered interest among policy-makers, academics, regulatory entities, professionals and European institutions

(Arrigo & Di Foggia, 2014). This paper gets bogged down in the analysis on Public expenditure on railways and does not cover the funding of the regional and sub-urban railways. This is due to the difficulties faced in identifying the correct sources for this period of time. While there is utter confidence about either the definition or the quantifiable support to the railway, since the beginning of the 2000s it has not been made a comprehensive quantification of the costs. This condition of non-information is even more serious in view of the sombre fiscal problems that Italy keeps coping with for several decades already; the high-level of the Italian public debt that back in 2014 ranked third in the world, and the notable difficulty in fulfilling the requirements listed in the Maastricht Treaty (EU, 2010). In fact, according to the Maastricht treaty the MS must demonstrate sound public finances and meet two criteria: their budget deficit must not exceed 3% and public debt must not exceed 60% of gross domestic product. In Italy, despite these important issues at stake, no public body is in charge to annually monitor and publish the costs related to the railway sector. In the last decade, no studies on the topic have been published, with the exception of our recent works (Arrigo & Di Foggia, 2013b). Based on reliable official data results of this paper fill a severe knowledge gap and support (i) policy makers when it comes to allocate public resources, (ii) competition authorities in their market assessment and (iii) scholars aimed at investigate this prominent topic. This paper is organized as follows: in the first section we provide an introduction to the theoretical and empirical research available. After that we describe the research approach and methodology. This is followed by a reconstruction of the public expenditure on railways until it was published. Afterward we present data aimed at filling the mentioned gap, next come the conclusions.

2. Background

With the goal of creating single rail market, early EU legislation laid down the basic principles guiding the improvement of rail efficiency via progressive market opening, establishment of independent railway undertakings and infrastructure managers and separation of accounts between them. Since 2000, these principles have been progressively translated into reality, not least through the adoption of three successive packages of EU legislation (Nash, 2010). Nevertheless, results so far have remained modest, partly due to obstacles to market entry, integration of incumbent and information asymmetries due to the lack of complete financial transparency. No wonder that the European Commission, in its White Paper called "European transport policy for 2010: time to decide", has declared the development of the European railway system priority for achieving sustainable development in Europe with the goal, among others, of reducing subsidies to railways (Friebel, Ivaldi, & Vibes, 2010). Previous literature on public economics has often analysed relationships between the government, the society and the market, recurrently to evaluate the role of public organisations and the impact of public policies on the functioning of modern markets (Affuso, Angeriz, & Pollitt, 2004). A vast theoretical literature in economics has studied the relationship between ownership and performance with researchers making arguments both for and against state ownership. The traditional social choice approach states that public intervention is needed in the presence of social goals and/or of market failures (Ponti, 2011). This topic has widely been investigated especially since the eighties, for example the choice between public and private provision of goods and services is analysed and the differential ability of the government to intervene in the production activities of private and public firms highlighted (Sappington & Stiglitz, 1987). Historically, European railway operators were organized as a vertical integrated company which modus operandi has recently changed because of spread liberalisation processed across Europe (Beria, Quinet, de Rus, & Schulz, 2012). In fact, among key reasons that have prompted a thorough reform of railway regulation in Europe is the heavy financial burden of railways on public expenditures. It is estimated that railways subsidies are second only to expenses related to agricultural policy. The rationale for providing public support whether in the form of investment or state aids, is established in market failures or public service obligations (Arrigo & Di Foggia, 2015). These funds are also used to cover substantial investment costs, the private provision of which would not yield sufficient return on investment (Di Pietroantonio & Pelkmans, 2004) for operators. Such operators have generally benefitted of government support to carry out their mandate of general interest. Nevertheless because of increasing budgetary constraints and provided that the efficiency of the state-owned enterprises of MS varies widely, there is renewed interest and institutional needs to shed some more light on the financial mechanisms, government expenditure levels and compliance with European rules (specifically those related to state aid). EU fiscal rules have encouraged MS to adopt budgetary constraints taking their expenditure into account (Vandierendonck, 2014), thus, a number of questions have been raised by scholars and policy-makers and other stakeholders on the application of the EU rules, notably those on public support to services of economic and general interest (European Commission, 2013). These questions base on the fact that article 101, 102 and 106 of the TFEU specifically govern the functioning of the market in an effort to enforce competition. Every MS financially subsidise its national railway industry but Cipro and Malta because of no rail operators. The EU is aimed at provide a comparable figure of government support in different sector and a digest of such data is annually presented in the State Aid scoreboard. The State Aid Scoreboard comprises expenditure made by MS which falls under the scope of Article 107 of the TFEU (EC, 2015). Against this background in recent years, a number of empirical studies in the field of comparative political economy

have analysed the development and determinants of government subsidies granted to different sectors of the economy in advanced democracies nevertheless there is a critical gap in the field of public subsidisation of railways (Crössmann & Mause, 2014). Similar results are presented in a study aimed at assessing the public budget contributions on the financing of railway undertakings and rail infrastructure managers (NERA, 2004). Again, on one hand governments finance railways to provide services beyond those that a commercial firm would offer for example geographic coverage of the network, location of stations or frequency and speed of services (Perkins, 2005), but on the other hand the division of labour between the state and the markets in governing the railway sector has a long and controversial history. Firstly, the following question arise: whether and to what extent the railway sector could be governed by open competitive markets or whether it should alternatively be considered as a technical system with a centralized operator controlled by the State (Knieps, 2012). A recent article highlights that railway sector aid has risen significantly in recent years in several countries, and supports the need for further structural reforms in order to ease the burden for taxpayers. It is in this respect that still, much remains to be explored, for example, it would be important to get more and better data about governments' policies or to understand which and in what measure the operators receive public support and for which purposes (Mause & Schreeb, 2011) and the accountability that needs a sound revenue management (Di Foggia & Lazzarotti, 2014). More in detail other studies have focused on the implication of public expenditure on industrial organization. A long-standing result in industrial organization is the sub-optimality of firms' expenditures because of market failures. The presence of externalities creates a gap between private and social profitability of these activities and therefore firms spend less than is socially optimal (González & Pazó, 2008), highlighting that public expenditure aims at reducing this failure.

3. Research approach

Public expenditure on railways sector in Italy can be defined from a conceptual point of view and evaluated from an accounting perspective. First comes the delimitation of the term public expenditure that represents the provision of resources carried out by the State and other public entities in order to produce goods and services necessary to meet the public needs and the achievement of other specific objectives pursued by themselves. Second come the domains of expenditure related to the railway sector that are defined by public finance documents, primarily according to the Statement of Accounts of the Ministry of Economy and Finance (MEF). Moreover, coexist the yearly reports since 1966 regarding the income reported by the National Account for Infrastructure and Transportation (CNIT), the yearly reports regarding the transfers of public resources to the incumbent, the annual reports of the Court of Auditors, and specific sources identified in the EU rules applied to the industry. Third, the values regarding the cash flows appear in various sections of the state budget or of the public administration entities with responsibilities in this domain. In the case of the state budget, the information is included in the Statement of Account provided by the MEF. All that said the most appropriate approach to deal with our questions is a combination of sources from both industry accounting and corporate documents and Government statistics. More in details, case study research is the most appropriate procedure to get high accuracy. There are five public sources useful in the process of evaluating the level of public expenditure on railways: The State budget, the CNIT, the European scoreboard on state aid, incumbent budgets and annual reports of the Court of Auditors. The contextual usage of these sources of information guaranteed data triangulation, i.e. the practice of using multiple sources of data or multiple approaches to analysing data. Finally, it is worth noting that in this paper we provide both current and real series for comparison purposes. Data reported in current prices for each year are in the value of the currency for that particular year. Constant series show the data for each year in the value of a particular base year, i.e. 2014. If current values are influenced by the effect of inflation, constant series (i.e. real terms) allow measure the true growth of a series. In this paper, we obtain real terms using the coefficients of revaluation published by the national statistics institute (ISTAT). Finally, it is worth noting that in the light of the current budgetary constraints and the struggling of many MS in complying with Maastricht treaty's parameters, our research is aimed at helping stakeholders to answer some questions, for example: whether and to what extent shall the government expenditure on railways be reconsidered.

4. The available information

We begin this section highlighting that public expenditure shall be analysed in in the light of the policy it is supposed to fund and the end-user it is meant to serve ultimately. Consequently, two approaches exist: a strategic one and a tactical one. The strategic dimension is aimed at questioning the relevance of public funding for a specific policy objective, the depth of the involvement of public authorities and consequently the relevant public level/body in charge, while the tactical dimension is aimed at analysing the efficiency of money spent by optimizing the relationship between expenditure level and impact (Vandierendonck, 2014).

Focusing on the strategic dimension, we outline the official sources related to the amount of public expenditure directed to the railway sector in Italy. Until 2001 there are many similarities between the Italian case and other major European countries such as Great Britain and France, see annex 1 for an example of the level of detail in Italy, annex 2 for an overview of the French situation and annex 3 for the British. Starting from 2002, this important source of information starts to lack its comprehensive features, and as the responsibilities on regional rail are moved to the regions, the budget values are referring only to the costs covered by the State, without including those assigned to the regions. Though, the amount of public expenditure on railways can be easily reconstructed based on the available data regarding the payments made by the state for different categories of expenditure, which are annually published by the Ministry of Infrastructure and Transport (MIT) as table 1 summarizes.

Table 1: Public expenditure on the national railway system in Italy from 1992 to 2001 (payments)

year	Operating grant	Capital grant	Total	Operating grant	Capital grant	Total
	<i>Billions of EUR (current)</i>			<i>Billions of EUR (real terms)</i>		
1992	3.25	2.06	5.31	5.45	3.46	8.91
1993	6.15	2.79	8.94	9.92	4.49	14.41
1994	5.27	2.59	7.86	8.17	4.02	12.19
1995	5.42	1.89	7.31	7.99	2.78	10.76
1996	5.08	4.79	9.87	7.20	6.79	13.99
1997	5.44	6.13	11.56	7.57	8.53	16.09
1998	6.58	9.85	16.43	9.00	13.47	22.47
1999	5.17	6.64	11.81	6.97	8.94	15.91
2000	6.11	5.64	11.75	8.02	7.41	15.42
2001	5.89	7.44	13.34	7.54	9.52	17.06
Total	54.36	49.81	104.17	77.81	69.41	147.21
Average	5.44	4.98	10.42	7.78	6.94	14.72

Source: National Account for Infrastructure and Transport (MIT, 1993)

It emerges that the total public expenditure in the decade totals €104.2bn in current prices or €147.2bn in real terms. Taking into consideration the limitation coming from the fact that these values depend on the cash payments and therefore are subject to fluctuations often caused by the need for public finances, it is appropriate to examine the previous data separately, based on the type of spending and the category of recipient. At the same time, within the category of the payments for the Italian railway incumbent (FS), a distinction should be done between the cause and the specific aim pursued. A first important distinction is between:

- Payments that finance the operating costs during the specific year (such as for PSO and contributions for the infrastructure);
- Contributions to finance capital investments;
- Transfers financing previously generated burdens of operating activities.

There are important distinctions between the three categories. Table 2 includes the data of public expenditure on the railways sector as source of income mentioned in the budget for transportation, already included in aggregate form in the table 1. However, the data is classified according to the purpose, as stated in the header of each chapter of the state budget, instead of classification regarding the typology. The details of the budget for Transportation do not take into account the changes regarding these expenses, which occurred as a result of past debt, established by the Budget Law for the year 1997. In fact, until 1996 the State transferred annually to FS funds needed to support both the interest payments for repayment of the maturing debt.

Table 2: Public expenditure on the railways sector (Billions EUR)

	A	B	A+B	C	D	C+D	E	F	G	G+G	H	Total
Current												
1992	0.93	0.58	1.51		0.03	0.03	1.54	2.32	1.45	3.77	0.96	6.26

1993	3.65	0.97	4.62		0.22	0.22	4.84	2.5	1.6	4.1	0.83	9.76
1994	1.32	1.89	3.2		0.43	0.43	3.64	2.06	2.15	4.22	0.93	8.78
1995	1.42	1.59	3.01	0.77		0.77	3.78	2.41	1.07	3.48	0.79	8.05
1996	1.45	1.97	3.42	1.52	0.51	2.03	5.44	1.66	2.67	4.33	0.78	10.55
1997				2.63		2.63	2.63	1.87	3.43	5.3	3.56	11.5
1998	2.74		2.74	4.13	0.07	4.2	6.94	1.26	5.58	6.84	2.58	16.36
1999	2.29		2.29	3.82	0.02	3.84	6.13	0.82	2.73	3.55	2.07	11.75
2000	2.94		2.94	3.18		3.18	6.12	0.64	2.46	3.1	2.47	11.68
2001	1.34	1.32	2.66	1.34	1.34	2.68	5.35	1.34	3.83	5.17	2.58	13.1
Real terms												
1992	1.55	0.98	2.53		0.05	0.05	2.58	3.9	2.43	6.32	1.6	10.51
1993	5.89	1.56	7.45		0.35	0.35	7.8	4.03	2.57	6.6	1.33	15.73
1994	2.04	2.93	4.97		0.67	0.67	5.64	3.2	3.34	6.54	1.44	13.62
1995	2.1	2.34	4.44	1.13		1.13	5.57	3.55	1.58	5.12	1.16	11.85
1996	2.05	2.79	4.84	2.15	0.73	2.87	7.71	2.36	3.78	6.14	1.1	14.95
1997			0	3.67		3.67	3.67	2.6	4.77	7.38	4.96	16
1998	3.75		3.75	5.65	0.1	5.75	9.49	1.72	7.64	9.36	3.53	22.38
1999	3.08		3.08	5.15	0.03	5.18	8.26	1.1	3.68	4.78	2.78	15.82
2000	3.86		3.86	4.17		4.17	8.03	0.84	3.23	4.07	3.24	15.34
2001	1.72	1.69	3.41	1.72	1.72	3.43	6.84	1.72	4.9	6.61	3.3	16.75

Source: National Account for Infrastructure and Transport (MIT, 1993). Note: A: PSO, B: Infrastructure management, C: Capital injections, D: Other capital grant contributions, E: Management and investments, F: Service on debt, G: Share capital debt, H: Contributions on pension fund

It is worth noting that table 2 shows the State contribution for covering the deficit of the pension fund for the FS employees, administered directly by the incumbent until 2000, and successively by the national security and welfare institute (INPS). However, the CNIT considers these items only since 1997. The total amount for this purpose during the period amounted to €17.5bn, a value that brings the total public expenditure on railways to €107.8bn in current prices. After 2001 the total public expenditure on the railways sector was no longer officially calculated – in this regard it is important to highlight that unlike in the area of industrial subsidies, there is no clear downward trend of railway support throughout Europe since the early eighties (Mause & Schreeb, 2011). In order to reconstruct it accurately, maintaining the methodology used until 2001 for the budget of MIT, one should look for every year into the budget of the MEF, together with those for the individual regional administrations. This procedure is complex, since data have not been published or made available through individual statements except in the most recent years. Consequently, it is necessary to use more comprehensive public sources. A suitable procedure is to check the previous spending of the Italian Regions for local rail transport is through looking into their budget. This shall be done at the level of their revenue as reflected in the budgets of the FS, with the caveat that it is preferable to refer to the financial statements rather than to the consolidated budgets of the incumbent. The same balance can be referenced in relation to fees for public service contracts awarded by the State. An even easier way is by using directly the annual reports of the Court of Auditors. Both sources, FS budgets and reports of the Court of Auditors, however, do not allow full coverage of the Italian public expenditure according to the EU rules in the railway sector but only that part that takes the form of transfers of financial resources, whether as remuneration for services rendered or contributions to support investment. That said there is about two categories: public expenditure from FS debt management through the two measures contained in the budget laws for 1997 and for 2007 and the state contribution to the deficit of the pension fund of workers of FS, managed by INPS. For these sources, there is no alternative option than to report them through the balance sheet items included in the annual financial statement of the MEF. Since the distinction between the two categories is important, it was considered preferable to evaluate them automatically, compensating the lack of publicly available data on public expenditure on the national railway system since 1992. The next section is devoted to the complete reconstruction of public expenditure.

5. Filling the gap and comparing

In this section, we evaluate the amount of total public expenditure on railways since 1992 until 2013. This exercise aims to update and complete public data available up to 2001, previously analysed. Firstly, one should therefore begin by introducing the PSO and network management since the charges for operating expenses paid from State to FS currently fall into the category of contributions to support the operating of the network and fees related to transport services, for PSO. As anticipated, railway sector is currently undergoing a significant change process with regulatory reforms. These reforms are aimed at allowing greater competition moving the industry away from monopoly toward more open market. However, with free entry and exit, unprofitable markets tend to lose service. As a result, governments often include in regulatory reforms programs to ensure that all consumers retain access to public services. A common mechanism is to prescribe a public service obligation to one firm, the public service provider, and to financially compensate the service provider (Mirabel et al., 2009). Operating grants to the infrastructure have always been defined periodically, for a multi-year period, by the program contract between the State and the incumbent. Transfers for service obligations have also been paid by the central government until 2000, while since 2001 by the regions exception made for special services for specific regions. These sources are classified as public expenditure, and, as a result, the only possible uncertainty about their quantification is whether it is appropriate to consider them in terms of the amount allocated in the public budget for competence or just as cash payments. More problems arise when considering sources not related to those specifically provided for by the European rules, such as the entries for the use of restructuring funds, set up by special laws aimed to facilitate the process of restructuring following the transformation in a joint stock company. Those aspects have in common the advantage to compensate the income statement sources regarding the cost, and hence to improve the operating results, and can be considered forms of public support, of the legislative kind with implications over the budget. However, they are also classified as public expenditure only on condition of being financially fuelled by transfers through the public finance sector. This condition must be established for each category, being immediately and undoubtedly deduced from the category used to classify the specific source. The first of these funds is established following the provisions of the law 538/1993, allowing FS to reduce the impact of the income statement following the significant depreciation of the infrastructure. The text of the law does not suggest that the fund is fed through transfers of public money, but rather the opposite emerges from reading the notes to the financial statements of FS in 1993: fund for maintenance of the network efficiency. It is a fund with contributions from the state aimed at sustaining the costs of maintenance and depreciation of the infrastructure. The reports of the Court of Auditors on the budget qualify FS also to use this fund as part of state transfers, adding it to the other sources previously analysed. For these reasons, this paper considers the values relating to it as public expenditure. The Law 448/1998 established the second fund with a purpose similar to the previous one and in this case, we found no evidence that has been fed with public transfers. The amounts related to its use are not considered public expenditure in this paper. The last case concerns the "Industrial Restructuring", which was also established in 1993 and used over the years to support early retirement costs of redundant staff, always based on the 1993 financial statements of FS, funds directed according to the terms set in the contract program. As a result, the use of this fund is considered public expenditure.

Table 3: Fees and contributions (operating grants) from 1992 to 2013 (Billions EUR)

Year	Operating grants to the infrastructure	Transfers for PSO and fees			Usage of fund for pre-retirement	Other operating grants	Total operating grants
		From central State	From Regions	Total			
1992	1.81	2.22		2.22		0.03	4.06
1993	2.52	1.22		1.22	1.05	0.00	4.79
1994	2.52	1.32		1.32	0.09	0.44	4.37
1995	2.44	1.43		1.43	0.47	0.10	4.44
1996	2.52	1.45		1.45	0.09	0.00	4.07
1997	0.39	1.44		1.44	0.10	0.01	1.93
1998	1.69	1.51		1.51	0.02	0.01	3.23
1999	1.43	1.51		1.51	0.10	0.02	3.06
2000	1.45	1.61		1.61	0.09	0.12	3.28
2001	1.48	0.53	1.27	1.80		0.07	3.34
2002	1.45	0.48	1.27	1.76		0.03	3.24
2003	0.38	0.48	1.30	1.78		0.02	2.18

2004	1.30	0.48	1.31	1.79	0.04	0.02	3.16
2005	1.29	0.48	1.33	1.81	0.10	0.06	3.25
2006	0.90	0.37	1.35	1.72	0.07	0.07	2.75
2007	1.15	0.57	1.64	2.20		0.04	3.40
2008	1.04	0.60	1.71	2.31		0.12	3.48
2009	0.85	0.53	1.85	2.39			3.24
2010	0.98	0.54	1.55	2.09			3.07
2011	0.98	0.54	1.51	2.05			3.03
2012	1.11	0.51	1.51	2.02			3.13
2013	1.05	0.49	1.53	2.02			3.07
Total 1992-2013							73.56
Average							3.34

Source: Court of Auditors (1996-2013) and FS (1992-1995)

Once clarified the cases related to the use of capital funds, the values for each source are summarized by type, at current value, in the table 3. As it can be observed, the fees for the provision of transport services and network management for the 22 years in question, together with minor amounts of contribution to income reached €73.6bn in current prices. The total value corresponds to a yearly average of over €3.3bn, which shows significant differences, if analysed for distinct sub-periods. For example, in the first four years of the transformation in joint stock company, the period 1992-95, there was an annual public contribution of an average of €4.4bn, while in the last four-years period, 2010-2013, the average annual contribution is reduced to just under €3.1bn (-30%) in nominal terms and therefore more marked in real terms. As can be observed in table 4, in real terms, the total public expenditure in the current account for the railway transport services and non-market services for network management, together with some minor contributions, were as high as €94.8bn, with an amount of €4.3bn on average for every year. Much larger than the nominal drop is the decline in real terms between the amount at beginning of the period considered and that in the most recent years.

Table 4: Contributions and operating grants (billions EUR, real terms)

Year	Infrastructure management	Transport services	Other contributions	Total
1992	3.04	3.73	0.05	6.82
1993	4.05	1.96	1.70	7.72
1994	3.91	2.05	0.81	6.78
1995	3.59	2.11	0.84	6.53
1996	3.58	2.06	0.13	5.77
1997	0.54	2.00	0.15	2.69
1998	2.31	2.07	0.03	4.41
1999	1.93	2.04	0.16	4.12
2000	1.90	2.12	0.28	4.30
2001	1.89	2.30	0.08	4.28
2002	1.81	2.19	0.04	4.04
2003	0.47	2.17	0.03	2.66
2004	1.56	2.14	0.07	3.77
2005	1.52	2.13	0.18	3.82
2006	1.04	1.98	0.16	3.17
2007	1.31	2.50	0.05	3.85
2008	1.14	2.54	0.14	3.81
2009	0.93	2.60		3.52
2010	1.05	2.24		3.29

2011	1.02	2.14	3.16
2012	1.13	2.05	3.17
2013	1.05	2.03	3.08
Total			94.77
Average			4.31

Source: Court of Auditors (1996-2013) and FS (1992-1995)

It is necessary to remember that the overall figure we calculated as €73.6bn does not cover all disbursements in current account made by the public sector to the national railways. Therefore, they are not considered here included into the category of public transfers to FS made in the period 1992-96 compared to the interest on the loans purchased as a result of regulatory authorization by the law, with guarantee of reimbursement and as state expense. At this point, it is appropriate to review the investments. The State has provided the incumbent with resources to support investment, as agreed in the program contracts set up over time in different ways. Before the transformation into a joint company in 1992 and then again for the five years between 1992-96 the type of support used was authorized to FS, granted according to the law to contract loans guaranteed by the State with interest rates borne by public finance. From 1997 to 2005, the government funded investments primarily through contributions to the share capital of the company FS, subscribed by the sole shareholder, the Treasury. From 2006 onwards, the State has financed investments by providing direct contributions in investment account. This modality, as in the previous case, differs from the first to the fact that the burden to public finance one-off occurs simultaneously with the realization of the investment projects and not diminished during the period of the loan repayment. A second difference is that the burden of interest rate resulting from the financing of the debt of these two modes of investment support appears exclusively in the state budget and we do not find evidence, unlike in the first case, in the balance sheet of FS. A digest of what above mentioned is presented in table 5 that quantifies the public support for the FS investments, as agreed in the program contracts.

Table 5: Public support to investments (Billions EUR)

Year	Injections in capital	Contributions for plants	Other contributions	Total capital grants
1992			0.04	0.04
1993			0.27	0.27
1994	0.85		0.06	0.91
1995	0.77		0.11	0.88
1996	1.52		0.42	1.94
1997	2.63			2.63
1998	4.13			4.13
1999	3.82			3.82
2000	3.18			3.18
2001	3.62			3.62
2002	4.08			4.08
2003	3.93		0.12	4.05
2004	2.67		0.35	3.01
2005	3.01		0.53	3.54
2006		4.48	0.42	4.89
2007		5.96	0.38	6.34
2008		3.02	0.43	3.44
2009		4.77	0.43	5.20
2010		2.20	0.13	2.33
2011		3.08	0.09	3.17
2012		4.05	0.26	4.31
2013		3.94	0.24	4.18
Total				69.97

Source: Court of Auditors (1996-2013) and FS (1992-1995)

To come to the substance of the issue, the remaining sections summarize the whole providing reliable, objective data in addition to some implications. Summing up the public support for FS investments with payments for the provision of transport services and management of the network, the total public expenditure amounts to €143.5bn in current value over the analysed period. Table 6 comprehensively tabulates the total support including both operating and capital grants.

Table 6: Total transfers to the FS group from 1992 to 2013

year	Total operating grants	Total capital grants	Transfers to FS	Total operating grants	Total capital grants	Transfers to FS
	Billions of EUR (current)			Billions of EUR (real terms)		
1992	4.06	0.04	4.10	6.82	0.06	6.88
1993	4.79	0.27	5.06	7.72	0.44	8.16
1994	4.37	0.91	5.28	6.78	1.41	8.19
1995	4.44	0.88	5.32	6.53	1.29	7.83
1996	4.07	1.94	6.00	5.77	2.74	8.51
1997	1.93	2.63	4.57	2.69	3.67	6.35
1998	3.23	4.13	7.36	4.41	5.65	10.06
1999	3.06	3.82	6.88	4.12	5.15	9.27
2000	3.28	3.18	6.46	4.30	4.17	8.48
2001	3.34	3.62	6.96	4.28	4.62	8.90
2002	3.24	4.08	7.32	4.04	5.09	9.13
2003	2.18	4.05	6.23	2.66	4.93	7.59
2004	3.16	3.01	6.17	3.77	3.60	7.37
2005	3.25	3.54	6.79	3.82	4.16	7.98
2006	2.75	4.89	7.65	3.17	5.64	8.81
2007	3.40	6.34	9.75	3.85	7.18	11.03
2008	3.48	3.44	6.92	3.81	3.78	7.59
2009	3.24	5.20	8.44	3.52	5.67	9.19
2010	3.07	2.33	5.40	3.29	2.50	5.79
2011	3.03	3.17	6.20	3.16	3.31	6.47
2012	3.13	4.31	7.44	3.17	4.37	7.54
2013	3.07	4.18	7.26	3.08	4.19	7.27
Total	73.56	69.97	143.53	94.77	83.61	178.38
Average	3.34	3.18	6.52	4.31	3.80	8.11

Source: own elaboration and Court of Auditors (1996-2013) and FS (1992-1995)

An important feature of the results presented here is that these data are homogeneous and therefore can be compared directly with other countries as shown in table 7 also in terms of percentage change over time as reported in Figure 1.

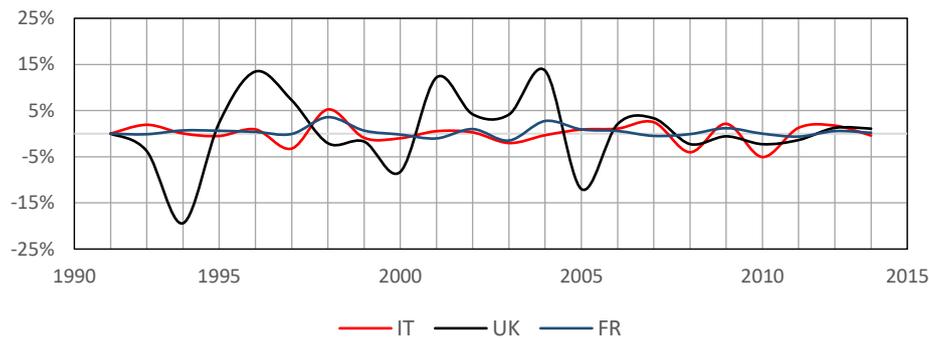
Table 7: Public expenditure on railways (Millions EUR)

year	IT	UK	FR
1992	6.879	3.355	4.528
1993	8.157	2.467	4.482
1994	8.188	0.542	4.756
1995	7.827	0.63	5.016
1996	8.508	1.501	5.183
1997	6.354	2.554	5.153

1998	10.064	2.173	6.998
1999	9.27	1.906	7.425
2000	8.475	1.02	7.302
2001	8.9	2.372	6.664
2002	9.129	3.285	7.273
2003	7.59	4.594	6.369
2004	7.371	14.511	8.102
2005	7.982	4.594	8.8
2006	8.809	5.477	9.279
2007	11.033	7.298	8.877
2008	7.589	5.973	8.8
2009	9.188	5.681	9.801
2010	5.789	4.666	9.805
2011	6.469	4.157	9.256
2012	7.54	4.616	9.742
2013	7.27	5.06	9.908

Source: based on table 6, annex 2 and annex 3

Figure 1: Public expenditure annual change



Source: own elaboration

Also our results allow for Further implications. Besides bridging the data gap, by combining our data with industrial output and information such as the length of the network, the length of the track and the passengers transported, one can do benchmarking exercises, in fact it is widely known that normalizing is required when comparing data for benchmarking purposes. Industrial data and characteristics shall be used to create an indicator of the size of the different national rail sectors i.e. an index of the size of the rail sector isr . The index corresponds to the simple average of the relative indices calculated for each country e.g. (as said network and tracks length, passengers/km). Subsequently by setting a country's public support to 100 it is possible to have other countries compared. Finally, it is possible to estimate the public support ps that would be granted in country $_{(j)}$ adopting country $_{(i)}$ criteria, obtained as a ratio between support granted in that country and the specific SISR.

$$\frac{ps_{j,i}}{isr_j} = \frac{ps_i}{isr_i} \quad \text{Eq. (1)}$$

With straightforward manipulations of equation (1) it is possible to derive the theoretical subsidy PS as described in the equation (2).

$$ps_{j,i} = ps_i \left(\frac{isr_j}{isr_i} \right) \quad \text{Eq. (2)}$$

The theoretical subsidies expected in the country $_{(j)}$ with the criteria of the country $_{(i)}$ stem from the actual subsidies granted in country $_{(i)}$ times the ratio between the isr of country $_{(j)}$ and that of country $_{(i)}$. These exercise help identifying any discrepancies of which stakeholders (especially policy makers and competition authorities) were unaware so that they could understand the source of any problems that may occur from a comparative perspective.

6. Concluding remarks

Governments face a number of choices in determining the level of public support they provide for railways, they are more and more facing budgeting constraints and EU rules compliance requirements, so, sound budgeting requires efficiency in expenditure allocation. In turn, to allocate expenditure properly, decision takers need precise information and this is the reason why this paper traces the sources of total public expenditure on railways since 1992, the year when the Italian rail company turned into a joint stock company; at the time of this writing this is the unique complete reference. Actually the research supplements a significant lack of information of public interest due to the fact that the total public expenditure on railways has been annually calculated and published in the CNIT from 1966 only until 2001, as a consequence, the total amount of the expenditure from then on has been unknown. This work also updates the results of our previous analysis (Arrigo & Di Foggia, 2013b) and put the basis for an international comparison which is a prominent need Europe wide. Therefore, a first suggestion for further research emerges i.e. modelling and encompassing regional financing mechanisms as well as the amount in order to see clear, comparable and non-discriminatory tenders for rail transport in Europe. This is a key element since Europe is at last beginning to glimpse that single railway market, but which has still not been achieved. In this regard this paper has policy implications too since in most EU member States, public payments have increased substantially, while the growth in traffic has been more moderate (Di Foggia & Arrigo, 2015). Substantial public sector investment, particularly in the newer EU members where subsidy payments more than doubled in six years, has not in itself secured equivalent increases in rail demand. This is partly due to an inability to curb operational inefficiencies caused by a lack of appropriate competitive incentives. Yet in some countries, public expenditure is awarded directly without competitive tender and this leads to a second field for future research i.e. measurement of efficiency gains that are necessary to create sustainable growth and for the benefit of the public purse.

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Annexes

Annex 1: Detailed direct expenses and contributions borne by the State for Transport: 2001 (Billions of EUR)

Reference			Operating			Capital			Total
Sector	Ministry	Purpose	Direct	Contribute	Total	Direct	Contribute	Total	Total
Total			1,0279	8,5284	9,5563	259,0020	13,0901	13,3491	22,9054
Tot. Section 1			0,5474	8,5101	9,0575	232,8820	13,0596	13,2924	22,3500
		Tot division 1	0,0007	6,5241	6,5247		8,0070	8,0070	14,5317
FS	MIT	Network upgrading and station re-design					0,0005	0,0005	0,0005
	MEF	Burden for service on FS debt up December 31 1995	0,0006	0,0000	0,0006				0,0006
		Support to pension fund deficit to FS personnel		2,5823	0,5823				2,5823
		Payment to public and program service		1,3411	1,3411				1,3411
		Payment to FS for obligations and operation of the infrastructure		1,3227	1,3227				1,3226
		Share of public for service on debt of Municipalities that build new sub-urban trains capacity		0,0662	66,1740				66,1740
		Interests for mortgage of FS		0,5813	0,5813				581,2780
		Public injection in FS social capital for infrastructure development					3,6152	3,6152	3,6152
		Capital shares included in the mortgage amortisation of FS					3,8276	3,8276	3,8276
Total FS			0,0006	5,8934	5,8930		7,4436	0,7436	13,3376

Annex 2: Public transfer in France (million EUR)

year	Public transfer to SNCF			Public transfer to RFF			Total
	Operating grants	Capital grants	Total	Operating grants	Capital grants	Total	
1992			4.528				4.528
1993			4.482				4.482
1994			4.756				4.756
1995			5.016				5.016
1996			5.183				5.183
1997			5.153				5.153
1998	2.607	1.052	3.354	1.799	1.844	3.644	6.998
1999	2.648	976	3.583	1.646	2.196	3.842	7.425
2000	2.648	919	3.567	1.631	2.104	3.735	7.302
2001	2.604	1.040	3.644	1.606	1.414	3.020	6.664
2002	2.827	1.275	4.102	1.406	1.765	3.171	7.273
2003	2.901	1.282	4.183	1.385	800	2.186	6.369
2004	3.251	1.249	4.500	1.765	1.837	3.602	8.102

2005	3.404	1.662	5.066	1.938	1.796	3.734	8.800
2006	3.527	1.979	5.506	1.949	1.824	3.773	9.279
2007	3.710	1.459	5.169	1.813	1.895	3.708	8.877
2008	3.960	1.348	5.308	1.463	2.029	3.492	8.800
2009	4.141	1.132	5.273	2.326	2.202	4.528	9.801
2010	4.260	0.915	5.175	2.400	2.230	4.630	9.805
2011	4.712	0.547	5.259	2.289	1.707	3.997	9.256
2012	4.940	0.689	5.629	2.190	1.923	4.113	9.742
2013	4.925	0.919	5.844	2.052	2.012	4.064	9.908

Source: (CGDD, 1993)

Annex 3: Government support to British rail industry (million Pounds)

Year	Central government grants	PTE grants	Direct rail support	Other elements of government support	Total
1991-92	1.421	0.189		0.888	3.355
1992-93	1.845	0.165		1.345	2.467
1993-94	1.404	0.252		0.811	0.542
1994-95	2.718	0.518		-0.695	630
1995-96	2.501	0.529		-2.401	1.501
1996-97	2.572	0.414		-1.484	2.554
1997-98	1.996	0.524		0.035	2.173
1998-99	1.639	0.462		0.073	1.906
1999-00	1.385	0.419		0.101	1.020
2000-01	1.131	0.378		0.112	2.372
2001-02	0950	0.397	0.889	0.136	3.285
2002-03	1.187	0.388	1.480	0.032	4.594
2003-04	1.092	0.516	2.080	0.223	14.511
2004-05	1064	0.471	2.872	0.187	4.594
2005-06	1.046	0.395	4.007	0.029	5.477
2006-07	1.685	0.362	5.163	0.088	7.298
2007-08	1.267	0.350	4.145	0.211	5.973
2008-09	0.260	0.348	4.082	0.391	5.681
2009-10	0.481	0.338	3.807	0.041	4.666
2010-11	0.053	0.215	3.625	0.350	4.157
2011-12	-0.133	0.218	3.811	0.721	4.616
2012-13	-0.420	0.164	3.780	1.536	5.060

Source: House of Commons Briefing papers (Keep, 2014). Real terms in 2012/2013 prices