

Public subsidies and transfers to Italian transport sector. Elements for policies directions

Paolo BERIA¹, Marco PONTI²

Abstract

Public money flowing into or from the transport sector is among the most powerful drivers of its evolution. For this reason, it is important to know the amount of such flows and its impacts on patronage and behaviour of firms.

The paper aims at providing a comprehensive picture of how much Italian State and local administrations spend or receive from Italian transports, and the destinations of such money. Through the use of available resources, we will quantify the subsidies and the contractualised transfers spent to support the investments, the maintenance of the networks and the provision of transport service. At the same time, we will estimate the amount of the main taxes generated by the transport sector. This exercise is also contextualised historically.

It results that road mode is generating through taxes much more than what receives in form of free public roads (+32 billions € per year). To the contrary, the public transport (buses and rail) is receiving subsidies for approx 13 billions € per year, including new infrastructures. Other modes involve relatively lower resources, with air sector near to the equilibrium.

In the final part we discuss the tools available for a more conscious assessment of this expenditure, in particular socio-economic, by means of Cost Benefit Analysis. A comment on possible alternative scenarios of public expenditure and effects on patronage is also proposed, together with some concluding policy indications.

Keywords: transport, infrastructure, rail, public transport, public expenditure, taxes, cost benefit analysis.

1. Introduction

The current shape of Italian transport is the outcome of an historical process of formal or informal decisions. However, it cannot be defined as the outcome of a precise and rational picture and, more importantly, it appears as weakly responding to clearly stated goals (social, environmental, fiscal, geographical, etc.).

Public money available to the sector has been, and still is, among the most powerful drivers of its evolution. For this reason, it is important to know how much State and local administrations spend for Italian transports, and for what. In fact, while the road transport is a source of public money through fuel duties and other taxes, on the other side all other land modes receive relevant subsidies to keep infrastructures and services. Unfortunately, a comprehensive picture of the public money flows and its effects is not available and this lack influences the effectiveness of the policies.

Actually, the sector is huge and heterogeneous and a precise description of public transfers directed to it is a difficult exercise also for the Court of Auditors or the Ministry of Economy. Some reviews of public expenditure in transport sector are available and quoted in this work. Mainly, CNIT (2010) details the total public expenditure in the transport sector of State, Local Administrations

¹ Corresponding author: Politecnico di Milano – DiAP, via Bonardi 3, 20133 Milano, paolo.beria@polimi.it

² Politecnico di Milano – DiAP

and Public Companies, classifying it between capital and current expenditure and without considering revenues³. The point of view is that of the balance of the state. For this reason, the source is aggregate and includes more elements than direct transfers only. MIT (2011), instead, focuses on new infrastructures only, ignoring the cost of services. Moreover, it is not separating the share of public and private funds, that in some modes is relevant and would bias the policy indications. For example, the total investment in airports and highways is much larger than the public funds because reinvesting market revenues (whatever is the “perfection” of such markets). Finally, MEF (2011) adopts the same point of view of CNIT (2010) (actually it is the first hand source of accounting data), but provides some details on specific points.

As qualified and official accountings exist, the aim of this paper is different and aims at obtaining different results. Our first aim is to quantify the total amount of direct transfers of the State (and, where possible, of local administrations) for services, infrastructure maintenance and infrastructure investments, both in form of subsidies or contracts. In addition, we will quantify also the net revenues of the state from the transport sector that, actually, matches more or less with taxes on road transport. The reconstruction will show that public transport sector is among the most “resource-draining” of the public sector (but also resource generating, if looking at private transport). This means that, in a period of “spending reviews”, actions (cuts, but possibly also efficiency) in this sector can mobilise important resources.

Our further and final aim is related to policies: where is the State investing and from where the State earns money, in the transport sector? What is the effect of the present use of public money and which different configurations could be possible? What else could the State do with a general increase of efficiency in subsidised sectors?

The paper is structured as follows. In sections 2 and 3 we quantify transfers and revenues to and from the transport sector, using the existing heterogeneous resources. Where the amounts are not available or sources consulted are unreliable or incoherent, we will limit to clarify which institution is paying and a general indication of involved money and, where possible, making educated guesses. In section 4 we will outline the historical reasons of the present allocation and the effects of such expenditure in terms of patronage. Section 5 describe the tools that can be used to plan and evaluate coherent policies and public expenditure. Section 6 concludes and provides some policy indications, both in terms of spending review and transport policy.

2. Public subsidies and transfers to the infrastructures

It is commonly recognised that transport infrastructures have, in the majority of cases, the characteristics of natural monopoly. The traditional way to deal with natural monopoly conditions was the public procurement, i.e. the full financing with public sources collected through general or specific taxes. However, the growing scarcity of public funds and the loss of the possibility of increasing public debt, pushed the issue of infrastructure financing more and more in the market sector, at least in the wishes of decision makers.

Actually, transport infrastructure sector remains substantially dependent from state transfers, even if the possibility of private funding (or, at least, co-funding) is always at the top of political agendas. Italy is not an exception, as Table 1 illustrates. The early experiences of highway concessions, the

³ For example, Ferrovie dello Stato spent 6,525 M€ in 2009, but the net state subsidies are lower, thanks to the ticket revenues. The same is for public transport. Consequently, we will use that source only for unpriced situations (e.g. roads), when it is possible to assume that all current costs are covered by a subsidy or by a contract of service, and for capital costs, for which the coverage with tolls is always irrelevant.

only type of networks that has been capable of self funding in the past, have now come to an end: new segments are in general more and more marginal and attract less traffic (at least in comparison with the consolidated core network). At the same time, new roads cost more than in the past due to heavy urbanisation and geographical marginality of the regions served. The result is that new Italian highways are seldom financially viable without a participation of public money or without an increase in tolls on the whole network (Ragazzi, 2008; Beria and Ponti, 2009; Laurino et al., 2010). Similarly, only major ports and airports can, with tolls and fees, self-finance investments, expansions and modernisation. Secondary infrastructures often are not capable of paying back even ordinary running costs, as we will comment later.

The rest of the infrastructures, and in particular those related with public transport, are always totally subsidised. Ordinary road network is not tolled and obviously totally financed by public sector.

Table 1 - Structure of subsidies for infrastructures investments in Italy

Infrastructural investments	<i>Not subsidised</i>	<i>Partially subsidised</i>	<i>Always subsidised</i>
ROADS			
networks, non tolled			x
networks, tolled	(few)	x	
terminals		x	
LOCAL PUBLIC TRANSPORT			x
RAIL			x
WATERBORNE			x
AIRPORTS	(x)	x	
SEAPORTS	(x)	x	

Also infrastructural maintenance often requires public transfers, as reported in Table 2. Only tolled highways, major airports and seaports can cover operations with charges only. Smaller airports and ports often receive transfers from local administrations, as they have no sufficient revenues, or have balance losses.

Rail infrastructure is always financed through the contract program of RFI and of local networks, as train charges are not sufficient. Only High Speed (HS) network tolls (approximately 5 times higher than conventional network ones) are expected to cover costs and partially pay back loans (Beria et al., 2012b).

Table 2 - Structure of subsidies for infrastructures maintenance and operations in Italy

Infrastructural maintenance & operations	<i>Not subsidised</i>	<i>Partially subsidised</i>	<i>Always subsidised</i>
ROADS			
networks, non tolled			x
networks, tolled	x		
terminals		x	
LOCAL PUBLIC TRANSPORT			x
RAIL		(only HS)	x
WATERBORNE			x
AIRPORTS	x	(low traffic ones)	
SEAPORTS	x		

2.1 Road infrastructures

Road infrastructures in Italy are managed by numerous subjects (CNIT, 2009).

- Highway concessionaires: 6,661 km;
- National roads, managed by ANAS: 19,375 km;
- Regional roads, only in some cases directly managed and more often devolved to the Provinces;
- Provincial roads: 154,513 km (including regional roads);
- Municipal roads.

The quantification of public expenditure in the sector is highly complex due to the heterogeneity of subjects involved. Just to have an idea, even the extension of the municipal network is almost unknown.⁴

Highways under concessions do not receive any subsidy for operations; rather, users since 2006 pay also an extra-toll for the maintenance of national network⁵ (430.5 M€ in 2010 transferred to ANAS) (ANAS, 2010). These funds are directly used to reduce the transfers of the State to ANAS.⁶

ANAS is a public company, totally owned by the Ministry of Economy, but subject to the control of the Ministry of Transport. ANAS is in charge also of 905 km are toll highways returned to the State after the end of the concession. Excluding the fees and extra-tolls from highway concessionaires, that are assimilated to a market revenue, the direct transfers from the State are the Contract of Service of 205 M€ in 2010 (decreasing over time thanks to the increment of the fees), plus 2,329 M€ for new investments and extraordinary maintenance (MEF, 2011, p. 29). This last amount is rather constant over time and includes all funds (*PON Trasporti*, older programmes, *Legge Obiettivo*, Programme Contract 2007-2011).⁷

As far as local networks concern, we have no comprehensive information on the public expenditure (of the State and local administrations) for regional, provincial and local roads. CNIT (2010) reports the total current and capital expenditure of administrations and of public companies for the road sector:

- 1,905 M€ in 2009 from the State to the other administrations for road maintenance;
- 1,586 M€ in 2009 from the State for the capital expenditure on local roads;
- 382M€ + 495 M€ in 2009 for capital expenditure paid by Regions or transferred to the Provinces⁸.

These figures are however broader than pure infrastructural investments⁹. However, as we lack of better resources, we refer to these figures, considering that probably further money is added by cities.¹⁰

2.2 Rail infrastructures

The consistency of Italian rail network is of approx. 20,000 km, 16,686 of which is managed by RFI and the rest by 25 regional railways. All networks are conceded and publicly owned. In particular, RFI concession lasts 60 years until 2050 and is part of the public holding FSI.

⁴ The extension of the roads of the provincial capital cities only is 68,495 km (CNIT, 2009). Previous editions of the book reported an estimation of more than 700,000 km overall.

⁵ 0.3€cent per km (smaller vehicles) and 0.9€cent per km (bigger vehicles, L102/2009, article 19), plus a fee of 1.008% on tolls.

⁶ Actually it is a cross subsidy, exactly like the revenues of the rail operator reducing the need of subsidies. The peculiarity is that payers and benefiter are different, being the first the highway users and the second the ANAS network users.

⁷ Legambiente (2010) reports a value much higher for roads and highways, 35558 M€ between 2002 and 2010, i.e. an average of 4445 M€/year. However, probably this includes also the part financed by concessionaires with future toll revenues.

⁸ Legambiente (2011) reports an average expenditure of Regions for the period 2002 – 2011 of 631 M€/year.

⁹ The capital expenditure includes fixed investments, stocks and financial transfers. Fixed investments include also mobile goods and not only infrastructural expenditure (Montanaro, 2011).

¹⁰ We do not know if part of the above listed money goes to ANAS for the national networks (and is thus double counted in the figures above). However, local administrations (cities, in particular) add further own money and borrow loans (e.g. in 2009 they borrowed 1,448 M€ overall for investments in roads and transports).

For the *conceded railways* there is no separation between tracks and services. So, figures included in the following Section 3.3 include also track maintenance. In addition, specific investments may be funded either by the State with specific laws or by Regional Governments. According to Legambiente (2011), Italian regions spent in the period 2003-2011 a total of 3,146 M€ of own resources for the regional rail infrastructures¹¹, i.e. an average of 350 M€/year, but this figure includes also co-funding of RFI network (see below). To the contrary, we do not have details on State expenditure for investments in secondary network.¹²

The *main network* is conceded to RFI, which has the following sources of revenues:

- a) Track charges from railway undertakings (Trenitalia and the private operators);
- b) Contract of Service with the State (“*Contratto di Programma per la gestione dei servizi*”) for the operation of the network;
- c) Contract Programme with the State (“*Contratto di Programma per la gestione degli investimenti*”) for the development of the network (extraordinary maintenance and new investments);
- d) Other investments, not included in the Contract Programme and funded by specific laws.

Resources relative to points c) and d) should be pure transfers¹³, as RFI commits itself to realise with State resources the planned investments. Actually, RFI in 2010 used 1,100 M€ of the Contract Programme to cover cash needs (and thus no capital expenditure), postponing the planned investments instead of having a balance in red.

State transfers are not constant over time. The Contract Programme presently active refers to the period 2007-2011, but is revised yearly. The situation for year 2010¹⁴ is summarised in Table 3.

Table 3 - State transfers to RFI. Source: RFI balance 2010.

<i>Source</i>	<i>2010 (M€)</i>	<i>notes</i>
Contract of Service	1,267	
Contract Programme	2,385	of which 1,102 used for ordinary expenditure
Other investments	103	conventional network
	500	conclusion of high speed network TO-NA
Total	4,255	

With respect to previous years, investments are decreasing because the Turin-Salerno HS project (before around 2,000 M€/year) is finally concluded. Rolling stock is discussed in 3.3.

2.3 Local Public Transport

The sector of public transport is even more fragmented than the rail one, with the State, the Regions and the municipalities contributing to infrastructural investments. Moreover, investments often refer to single schemes and are less constant.

Some assumptions on MIT (2011) allow us to estimate¹⁵ the total available public resources for new urban transport systems at the end of 2011 in 14,022 M€ (out of a total planned expenses of 24,197 M€), with a mean of 1,558 M€/year.

¹¹ The figure includes also investments in the underground of Regione Campania, not separable and financed with a specific project.

¹² Legambiente (2011) reports a total of 10,384 M€ of investment in rail for the period 2002-2011 (an average of 1,100 M€/year approx.). However this figure includes also RFI but is underestimated as probably does not include the ordinary investments included in the Contract Programme of RFI. See below.

¹³ The amount actually spent by FS is slightly different from transfers due to different timing and some self-funding. 2009 and 2010 expenditure is 3,175 M€ (RFI balance 2010) and 3,792 M€ (RFI balance 2009) respectively.

¹⁴ Other sources available are not fully comparable: CNIT (2010) reports 5,090 M€ of total capital expenditure (and not only infrastructures) in 2009 for FS (5,453 M€ for the entire rail sector); EEA (2007) reported 5,126 M€ for the Italian railway infrastructure in 2006, but probably it includes also network maintenance.

¹⁵ MIT (2011) lists all the projects for urban transport systems involving the State, that are nearly the totality. However, the source reports the total cost of the scheme and does not specify how much is paid by the state and how much by the local authorities, usually through loans. We assume that almost nothing is financed through traffic revenues or shadow tolls. What is more, the source reports the expected total cost and the available resources. It is not known, however, how much of the available resources is already spent

The maintenance of infrastructures is, instead, included in the Contracts of Service, discussed in the next section 3.4.

2.4 Airports

For airports the consulted resources give no comprehensive values. MIT (2011) lists only the “strategic infrastructures” and here no airports are included (only some ground connections). CNIT (2010) reports 30 M€ for 2009 for air infrastructures. It is true that some investments, especially in main airports, have been done by airport concessionaires using airport fares. However, extensive public funding or co-funding exist, especially in southern airports where specific national funds for development exist (*Fondi FAS*). We do not know the list of works, the costs and the actual spending. So we make a conservative guess of 30 M€/year, as for the above mentioned source, but it is likely to be an underestimation.¹⁶

2.5 Ports and inland waterways

The estimation of ports and inland waterways investments has the same problems already described for airports: investments are sparse and partially done by concessionaires (shipping companies, in this case). We use the figure of MIT (2010) that reports 114 M€ and 105 M€ (2009) respectively for ports and inland waterways.

2.6 Total infrastructural expenditure

The following Table 4 summarises the above discussed estimations. Figures refer to different years and heterogeneous sources, and are thus only partially useful for a comparison. Moreover, some estimations are probably significantly over and underestimated, as explained in the text. However, the dimension of the state effort in the field of infrastructure building and maintenance is clear.

Table 4 - Summary of estimated infrastructure expenditure in Italy. Various years. Totals are indicative values

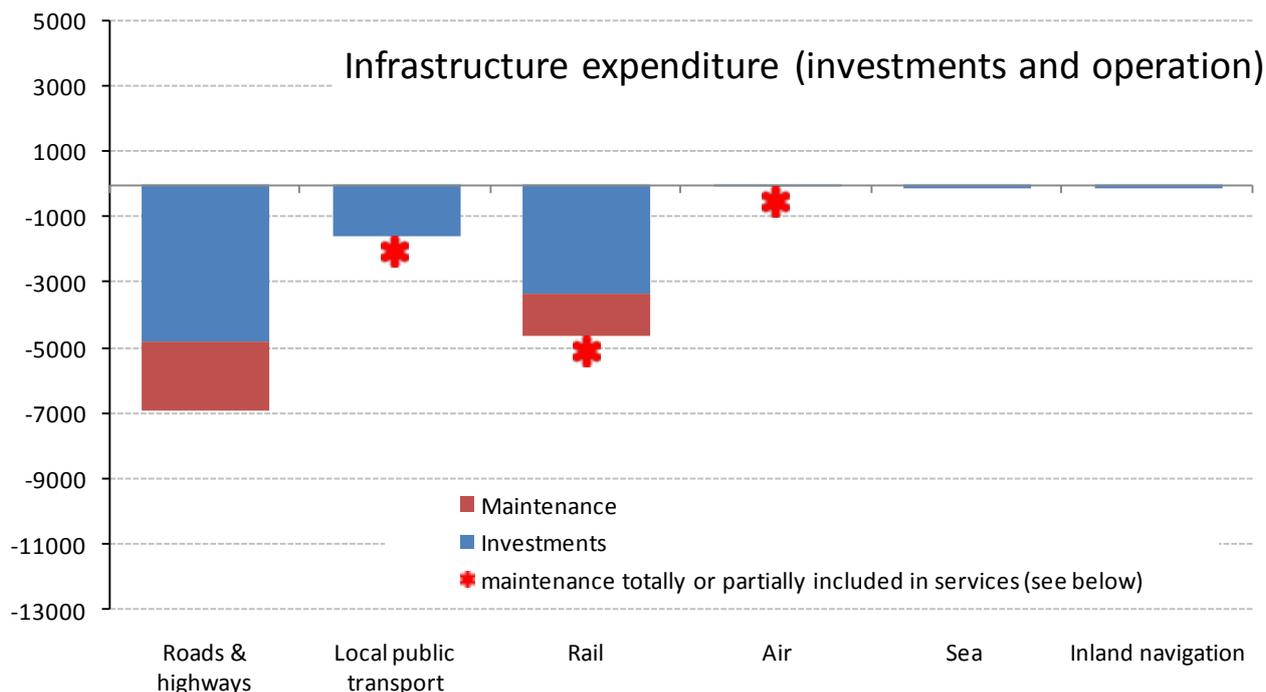
[M€]	→ FROM the state/local administrations				
	Investments		Contracts of Service		Total
	State	Loc. Admin.	State	Loc. Admin.	
Roads & Highways	< 3,915 (2010)	> 877 (2009)	205 (2010)	> 1,905 (2009)	6,902
Local public transport	< 1,558 (average)		Included in services		1,558
Ferrovie dello Stato	2,988 (2010)		1,267 (2010)	n.a.	
Conceded railways	n.a.	350 (average)	0	Included in services	4,605
Air	~ > 30 (2009)	0	Included in services		30
Sea	~ 114 (2009)	0	0	0	114
Inland navigation	~ 105 (2009)	0	0	0	105
Total	~ 9,937		1,472	1,905	~ 13,300

Road investments are dominant and are probably underestimated, considering local networks. Rail, after a period of large investments for the high speed, is reducing the effort around 3,000 M€/year, plus maintenance. However, the extension and the modal share of the two systems are absolutely not comparable: rail has a modal share of only 8.3% of total freight and 5.2% of total passengers, vs. 62% and 92% of road transport, respectively. Local public transport investments should be more limited (to our best knowledge less than 1,500 M€), but the main public cost is related to services (see below). The other transport modes are negligible in comparison to land transport.

and in which year. This means that we cannot provide an estimation of yearly expenditure, but just the average “available resources” as if all were already spent at the end of the period 2002-2011. This is actually false and our estimation results overestimated.

¹⁶ Just to make an example, the airport of Bari received 82 M€ of public money in the period 2009 – 2012 for airport expansion.

Figure 1 - Infrastructure expenditure. Various years and sources, see main text.



3. Public subsidies and transfers to the transport services

Excluding self-production (typically, private cars or firm-owned trucks), in the transport sector there is a sharp difference among services produced under market conditions, like the air transport, and services supported by some forms of public transfer.

The next paragraphs list, with the highest detail possible in a complex and partially unknown context, the amount of subsidies to the various segments of transport services. For road transport we will also quantify the total taxes going in the opposite direction: from the users to the State.

Table 5 - Structure of subsidies for transport services in Italy

Transport services	Not subsidised	Subsidised/State	Subsidised/Local admin.
ROAD			
private road transport	x		
private freight transport	x		
public transport, long distance coach	x		
LOCAL PUBLIC TRANSPORT (excl. rail)			x
RAIL			
long distance	x	x + cross subsidies	
regional		(x)	x
freight	x	x	
INLAND LINES			x
SEA LINES			x
AIR SERVICES			(x)

It is worth mentioning that Public Service Obligations (hereinafter “PSO”) are allowed in almost all modes also by European norms. However, the imposition of a PSO is the only allowed form of subsidisation for all long distance services and freight transport that are normally supposed to be mainly market driven. PSOs must then be justified for social or “geographical continuity” reasons

(Ponti, 2011). European norms establish PSOs in the transport sector but not specifically for one mode (Cambini et al., 2009). Italy is among the few EU countries in which so many PSOs exist (rail freight PSO, for example, is almost an *unicum*).

3.1 Private road transport (passengers and freight)

Road transport does not receive any significant direct subsidy, except some forms of exemptions. Rather, fuel duties and other ownership taxes are an important source of State revenues.

The main revenue from the sector is taxation of oil products. Examples of 2010 and 2012 unit duties are in the following Table 6. It is worth noticing that the same fuels (except natural gas), if not used in the transport sector, pay lower or no taxes. The figures for 2012 include the recent increase of taxation introduced to face the financial crisis.

Table 6 - Unitary taxes on fuels

	<i>Tax 2010</i>	<i>Tax 2012</i>	<i>VAT (2010)</i>	<i>VAT (2012)</i>
Gasoline	571.30 €/1000 litres	704.20 €/1000 litres	20%	21%
Diesel	430.30 €/1000 litres	593.20 €/1000 litres	20%	21%
LPG	125.27 €/1000 litres	267.77 €/1000 kg	20%	21%
Natural gas	0.00291 €/m ³	0.00331 €/m ³	20%	21%

Source: Agenzia delle Dogane and D.L.06/12/2011 n. 201 Art 15, co. 1.

The estimation of fuel duties revenues from the sector is rather complex. We elaborate official data (Unione Petrolifera, 2011) on fuel consumption in the transport sector, estimating a total of 12,419 M€¹⁷ from cars and motorbikes and 7,032 M€¹⁸ from trucks in 2010.¹⁹

VAT and other taxes must be added to fuel duties. The estimation of VAT is impossible here, because depending on everyday price. However, the same source (Unione Petrolifera, 2011) estimates total revenues of approx 11,000 M€/2010 (including any kind of road vehicle). Also, other purchase and ownership taxes apply for approx 9,000 M€/2009 (again including any kind of road vehicle), as in Table 7.

Table 7 – Other taxes on road vehicles

<i>tax</i>	<i>M€/2010</i>
Registration tax (“PRA”)	1,180
Insurance tax	1,982
Ownership taxes	1,393
Other taxes on cars	4,455
Total	9,010

As already said, the sector has no subsidies, apart the fact that roads are free. Only some punctual forms of public support exist (minor if compared to paid taxes) or were used in the past.²⁰

¹⁷ 7,268 M€ from gasoline and 5,151 M€ from diesel vehicles.

¹⁸ Actually, this figure is lower. This value is the revenue “as if” trucks pay the same fuel taxes of private cars, without discounts. See below for details.

¹⁹ Our elaborations refer to cars and trucks only (in the next paragraph), excluding rail, buses, boats, etc. This explain the small difference with the value calculated by the original source: 7,400 M€ of gasoline and 13,750 M€ of diesel for the entire oil products volumes. Taxes on LPG and natural gas are excluded from our calculations.

²⁰ The following forms of support should be considered:

- Cars: discounts on gasoline for residents in some border provinces to prevent the practice of cross-boundary refuelling, and in some regions as a form of “compensation”. In both cases the impact on the total fuel tax revenues is marginal.
- Trucks: reduction of the above mentioned fuel duties. In 2010 discount was approx. 20€/1000 litres of fuel; since the end of 2011 the reduction took away the totality of new duties added (D.L. 201, 6 December 2011) and amounts to approx. 190€/1000 litres out of 593€/1000 litres of total duty on diesel (Agenzia delle Dogane, 2012). Using the 2010 consumptions, the exemption amounts to 443 M€. 2012 discount is much larger, as the increase in fuel duty applied to diesel (+37%) is totally exempted.

In conclusion, the road sector, excluding public transport, is a huge source of revenues for the State. In 2010 collected taxes were more approx 40,000 M€, including VAT²¹. Also considering the expenditure for the construction and maintenance of non-toll road network, that we estimated in paragraph 2.1 being approx. 7,000 M€, the balance remains firmly positive.

3.2 Long distance coach transport

Italian coach transport is by far not central in public policies. In reality, the industry is lively and almost totally private. The sector is legally structured as follows:

- Interregional services connecting more than 2 regions;
- Services connecting 2 regions or internal to one region;
- Charter services.

Interregional services connecting more than two regions are competence of the State, while services connecting only two regions are part of the regional public transport (see section 3.4).

Official statistics for the *interregional services* are not available; however, our recent estimations quantify the supply in more than 90 million vehicle-kilometres of national services in 2010. Passengers carried should be, as an indicative value, about 3,000 million passenger-kilometres in 2010 (Beria et al. 2012a).²²

The sector has been liberalised since 2007, and is currently moving from exclusive *concessions* to non-exclusive *authorisations*.

The whole sector is market driven and receives no subsidies from the State, in any form (vehicle subsidies, etc.). The only form of “subsidy” is the same reduction on fuel duties applied to trucks.

Using the estimation of fuel consumptions of (all) bus and coach sector, fuel duties revenues were 621M€ in 2010, minus 39M€ of fuel duty discount.

3.3 Rail services

CNIT (2010) estimates a total of current expenditure of the rail sector for 2009 of 6,520 M€ by Ferrovie dello Stato and 1,282 M€ by the other railways. However, this is not the public expenditure as part is covered by tickets. Also, the value includes part of the maintenance of the network.

We try to estimate here the *net cost* for the State and for other Local Administrations to support rail services. This estimation is a complex task.²³ Usually, the contractual form backing public transfers to rail is the Contract of Service. Up to 2012 only in three cases the Contract of Service is the outcome of a competitive tender²⁴, but the winner of the tenders (and often the only participant) was Trenitalia or an association of Trenitalia with a local railway undertaking (Mercurio et al., 2011). At present, Trenitalia (or the association of enterprises that it has with local operators, like *Trenord* in Lombardia) has a Contract of Service with all the 15 ordinary regions, plus Friuli Venezia Giulia, Province of Trento and Province of Bolzano. In addition, a Contract of Service exists with the

c. Cars and trucks: scrappage programs for old vehicles. This form of support to car industry was applied for the last time in 2009, in the form of a discount for older car substitution variable according to the efficiency of the new vehicle. Today only subsidies for alternative vehicles (e.g. electric ones) exist.

²¹ The figures for 2011 and 2012 increased despite the contraction of consumption. In 2011 the total revenues from fuel taxes were 24,000 M€, plus 13,250 M€ of VAT (whole transport sector), plus other taxes that probably declined slightly due to less purchases.

²² For a comparison, overall, the whole long distance rail accounts for 20,637 million passenger-kilometres, of which 7,012 are “universal service” (Trenitalia, Balance Sheet 2010).

²³ On one side, all rail businesses are subsidised, (differently from other EU countries: Beria et al. 2012b): regional passengers, long distance passengers and freight. Subsidies to the network operator have already been discussed in Section 2.2. On the other side, transfers to rail transport are often integrated with public transport in general, at least for the regional scale. Moreover, there is a range of firms receiving such transfers, with Trenitalia being the main one and the local rail networks (formerly known as “conceded railways”) the others. Finally, the sector underwent between 2010 and 2012 a complex transition phase, not yet fully concluded, characterised by important cuts. These cuts were only formal, however, as we will show.

²⁴ To date one lot in Lombardia, the entire Emilia Romagna and a large part of Veneto.

Ministry of Transport²⁵ for the period 2009-2014 for the Medium-Long Distance Universal Service and for the Freight Universal Service. Finally, the Ministry of Transport temporarily continues to be the counterpart for the remaining special regions: Sicilia, Sardegna and Valle d'Aosta (Camera dei Deputati, 2011).

Concerning the Contract of Service for the Freight Universal Service 2009-2014 subsidies are 111 M€ for 2009 and 128 M€ per year for 2010 and 2011 (Camera dei Deputati, 2011).²⁶

For the Medium-Long Distance Universal Service the State paid 239 M€ for 2009, 252 M€ for 2010 and 242 M€ for 2011 (Camera dei Deputati, 2011). For this money Trenitalia produced 182 trains/day for 29.9 Mtrain·km until 2011 (Camera dei Deputati, 2010).²⁷

The resources for Regional Services are much more articulated. During 2011 a phase of cuts took place.²⁸ The situation of the period 2010-2012 is summarised in Table 8.

Table 8 - Public transfers to regional rail transport services, in M€. Our elaborations on: Stagni, 2012; Camera dei Deputati, 2010; Camera dei Deputati, 2011 and quoted laws. In *italic* our estimations from heterogeneous sources.

<i>Source^a</i>	<i>Fund</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>	<i>earmarked^b</i>
S	State transfers (L338/2000)	41	41	41	Trenitalia
S	State transfers (L9/2009)	430	430	0	Trenitalia
S	Contract of Services for Special Regions	299	299	299	(Trenitalia)
S2R	Public transport fund	1,181	1,197	1,200	(Trenitalia)
S2R	Agreement 21/12/2011 - State	0	0	400	no
R	Agreement 21/12/2011 - Regions	0	0	148	no
R	Regional fuel duties L244/2007	671	671	671	conceded railways
R	Regional resources to Trenitalia	213	284 ^c	n.a.	no
R	Regional resources to others	131	131	131	no
		2,966	3,053	> 2,890	

^a S: State resources directly paid to the railway undertaking; S2R: State resources transferred to the Regions to finance the contracts of services; R: Regional resources.

^b If the law specifically earmarks resources to one specific undertaking. In brackets if the earmarking is not explicit, but no other options are at stake.

^c Ordinary regions regional transfers: 230 M€ (estimation).

As one can see, the resources did not decrease despite the declarations. However, some radical modifications were introduced in 2011 (invisible under the label of “Public transport fund”). The most relevant ones relate a) to the end earmarking of the funds of the Law 9/2009 to Trenitalia (now: “Agreement 21/12/2011”), and b) to the fact that the “Public transport fund” is explicitly finalised to tenders, to be done at the end of the existing contracts. Both modifications go in the direction of allowing competition for the market.

Finally, Regions co-finance rolling stock for the regional services by means of specific laws. According to Legambiente (2010), Italian regions spent a total of 2,869 M€ for the period 2002-2010, that is 359 M€/year on average. However, this expenditure is not homogeneous among regions, with Lombardia alone spending the 43% of the total and some regions spending nearly zero.

²⁵ Such contract is not available to the public.

²⁶ The contract for the following period is not yet signed, but it is likely to expect that resources will be the same, in change of less services.

²⁷ Later on, without a new contract, Trenitalia claimed that resources were not sufficient as revenues decreased. For this reason, since September 2011 planned to decrease the production for 2012 to 26.9 Mtrain·km. The current level of production is not known, still changing and probably even lower.

²⁸ It is impossible to comment here all the events occurred: for details on the ordinary regions, please refer to Stagni (2012).

In conclusion, the total amount of net public money transferred in 2011 to the railway services is 3,782 M€ (2010 and 2012 are slightly different). Of this, 653 were directly given by the central State to Trenitalia in force of existing laws, 1,684 M€ are paid by the central state in force of some Contracts of Service (the regions, plus the national contract for medium long distance and for freight), 1,086 M€ come from regional budgets for services and 359 for the rolling stock renewal (average value). Of these, Trenitalia receives 2,621 M€/2011 of resources for services and the other operators 802 M€/2011. The rest is for rolling stock. In addition, the State pays 23 M€ (CNIT, 2010) for the Rail Safety Authority.

3.4 Local public transport

Local public transport in Italy is an extremely fragmented sector. The competencies are shared between municipalities (for urban services or for services between main cities and their hinterlands), provinces (for the extra-urban networks) and regions (for some regional services and as intermediate administrative level for State transfers to public transport) (OECD, 2009).

Moreover, the number of firms is huge (approx. 200 only among the public ones) and there is no homogeneous and constant monitoring activity.²⁹

We estimate a cost of about 3,400 M€ from the sole State³⁰. However local administrations add further resources for the required services to cover the increase of costs and the new services, plus some rolling stock.³¹

CNIT (2010) provides a higher value of 4,149 M€ of regional transfers in 2009 to the bus companies. It is not clear if it includes also the resources added by municipalities and provinces. However, it appears as the best available estimation.

Moreover, it is worth noticing that local administrations tend to attribute to their local transport firms (for which they are both owners and regulators. OECD, 2009) ancillary revenues to integrate the transfers, like the management of park pricing. These are not subsidies *strictu sensu*, but represent amounts of money theoretically public that indirectly subsidise local transport firms.

3.5 Air transport

Air transport is, since EU deregulation, almost totally market driven. The only exception is the possibility to finance PSOs on certain routes.

To our knowledge, few cases at national level exist in Italy: in 2011 the services between Sardinia and the mainland (tenders not subsidised), some services to the airports of Crotona, Reggio Calabria, Elba. We do not know the subsidy for such services. The most interesting case is that of Regione Puglia, that since 2007 financed 22-26 national and international connections for 18M€ for three years. Also in 2012 there is an explicit financing for some low cost connections. Other regional funds to attract airlines are for sure present in 2009 in Sardinia³², Sicily and Calabria. Without a comprehensive estimation³³, we estimate for 2009 at least 30 M€ of PSO subsidies.

Unfortunately, “explicit” PSOs are not the only subsidies existing in the sector. Some hidden subsidies also exist and are almost impossible to quantify. It is the case of co-marketing practices

²⁹ Between 2002 and 2004 the *Corte dei Conti* (Court of Auditors) made a survey on the sector, but results are not complete and obsolete.

³⁰ ISFORT (2008) quantifies the total state expenditure of the State for local transports in 6,445 M€ in 2007. Excluding the resources directly transferred to Trenitalia (26,3%), that are coherent with our previous estimates and the regional funds that go to other railways, it remains approx. 3,400 M€ for 2007. ASSTRA (the association of public firms) website reports the total value of production: 8,200 M€ for 1,600 Mbus*km. ASSTRA associates 95% of urban firms and 75% of extra-urban firms and subsidies are about 61% of costs (OECD, 2009). So, the total public expenditure for the sector should be around 5,500 M€/2008. However, this includes also part of rail services and is a too rough estimation.

³¹ Also the financial law of 2007 created a fund of 100 M€/year until 2009. We have no further details for the following years.

³² For the period 2010 – 2013, the Regional Government planned an expense of 135 M€ to support the market sector (Linkiesta, 2012).

³³ CNIT (2010) reports 10 M€ spent by Regions and 9M€ by State, but no details are provided on what is included in this figure.

(airports finance flights through marketing practices that benefit airlines) and of discounts for the use of airport structures. These actions are “invisible” outside of the balance of the airport manager, but usually become a loss for the (publicly owned) airports. The financial results of Italian airports are summarised in Table 9. Major airports (and some minor ones, as well) distribute dividends to the shareholders, including public ones. 23 airports, instead, are constantly in losses and require periodic injections of equity. The overall balance is positive, but the losses are often due to the artificial (and seldom successful) attempts to maintain alive airports without any actual and potential demand.

Table 9 - Summary of financial results of Italian airports in 2009 (our elaborations on ENAC, 2009).

<i>[M€/2009]</i>	<i>Losing airports</i>	<i>Profitable airports</i>
Number of airports	23	14
Net result	-57,2 M€	+132,5 M€
Net result for public shareholders	-48,5 M€	+85,2 M€
Explicit subsidies to routes	> -30 M€ ~	

Air sector also pays taxes, even if limited. Recently, EU introduced a tax of 0.25 €cent/passenger for the Emission Trading Scheme. This generates roughly 37 M€ applying the 2012 tax to the 2011 Italian traffic. Moreover, VAT must be added, but a quantification is not possible here.

Finally, one must not forget the cost of the Alitalia bankruptcy. Even if not a structural cost (and thus not included in our tables), the Italian State spent more than 4,000 M€ of recapitalisations and extraordinary loans between 1996 and 2009 (Beria et al. 2011a). The privatisation generated 1,052 M€, but all of them were necessary to cover debts. In addition, the redundancy fund subsequent to Alitalia bankruptcy is going to cost at least 220 M€/year for the next 7 years (Scarpa, 2008).

In conclusion, some local governments spent in the last years roughly more than 30 M€ to subsidise single air routes. In addition, the owners of the airports, usually public, had to recapitalise frequently the losses of some secondary airports. According to our estimations, this amounts to 48.5 M€ in 2009 (ENAC, 2009 and confirmed by Linkiesta, 2012) and is due to the insufficient traffic and/or inefficient airport management. On the other side, airports in positive generated 85.2 M€ of net results to public shareholders. The net result is 37 M€.

3.6 Sea and inland transport

The State³⁴ directly produced sea services to/from main islands by means of Tirrenia, before its failure and privatisation (2011).³⁵ In 2009 the regional branches of Tirrenia were sold to the interested regions. So, today, these are the only public companies in the sector. The privatisation of Tirrenia, still under the attention of the European antitrust, and the separation of the regional branches did only reduce the subsidies to the services, that remain granted to the new owner without any tendering procedure.

Subsidies for national services amounted to 110 M€/year until 2009 (185 M€/year regional services included³⁶), while the new Tirrenia is supposed to receive 76 M€/year for the next 8 years (Giuricin, 2011). Regional sea services receive 112.2.³⁷

Inland services are limited to those of Gestione Navigazione Laghi, that operates in the northern lakes. It is currently owned by Ministry of Transport, but Regione Lombardia is considering the

³⁴ In addition, the State spends 569.7 M€ (CNIT, 2011) for the Coast Guard (“*Capitaneria di Porto*”) and 110 M€ for the Naval Registry. Both are controlled by the Ministry of Transport and thus included in the national accounting. However, these values are not included in our account because of different nature.

³⁵ The connections with smaller islands are considered regional and are planned and subsidised by Regions.

³⁶ Source: Accordo di Programma tra Governo e Regione Sardegna. 3 novembre 2009.

³⁷ Saremar receives 13.6 M€/year from the State through the Region; Siremar 55.7 M€/year, Toremar 13 M€/year, Caremar 29.9 M€/year (Source: the 4 “Accordo di Programma” between the Government and the Regions. 3 novembre 2009).

option to take it over. Until 2011 it received 26 M€/year, plus 5 M€ of VAT exemption. Since 2012 the total State subsidy is going to be reduced to 13 M€.

3.7 Balance of services

The following Table 10 summarises the above explained estimations. Figures refer to different years and sources, and are thus only partially comparable. Reliability of estimations is also variable (incorrect estimations are possible, and probably some costs are missing and some are double-counted). However, the overall dimension of the expenditures of the state in the transport sector and the corresponding revenues from duties, VAT and taxes is clear.

Table 10 - Summary of estimated expenditure and revenues in Italian transport services. Various years and sources, see main text. Totals are indicative values. VAT is included only for private road transport.

[M€]	→ FROM the state/local admins.			Balance of public companies	TO the state →		Total balance for the State
	Direct subsidies	Contracts of service	Exemptions and other subsidies		Fuel taxes	Other fiscal revenues	
Private cars and 2-wheels	0	0	~0	0	12,419 (2010)	Other: 9,010 (2009) + VAT: <11,000 (2010)	~ + 39,000
Trucks	0	0	443 (2010)	0	7,032 (2010)		
Intercity coaches	0	0	39 (2010)	0	621 (2010)	n.a.	- 3,550
Local public transport	> 4,149 (2010)			n.a.			
Regional rail	653 (2011)	2,400 (2011) ^a	359 (average)	+44 (2009) ^b	~0	~0	~ - 3,410
Long distance and freight rail	0	370 (2011)	~0		~0	~0	~ - 350
Air	0	>~ 30	0	+37 (2009) ^c	0	37 (2012)	~ + 40
Sea	188 (2011)		0	0	0	0	- 188
Inland navigation	26 (2011)	0	5 (2011)	~0	0	0	- 31
Total	> 7,816		846	+81	20,072	< 20,047	~ + 31,000

Source: our estimations on sources quoted in the text.

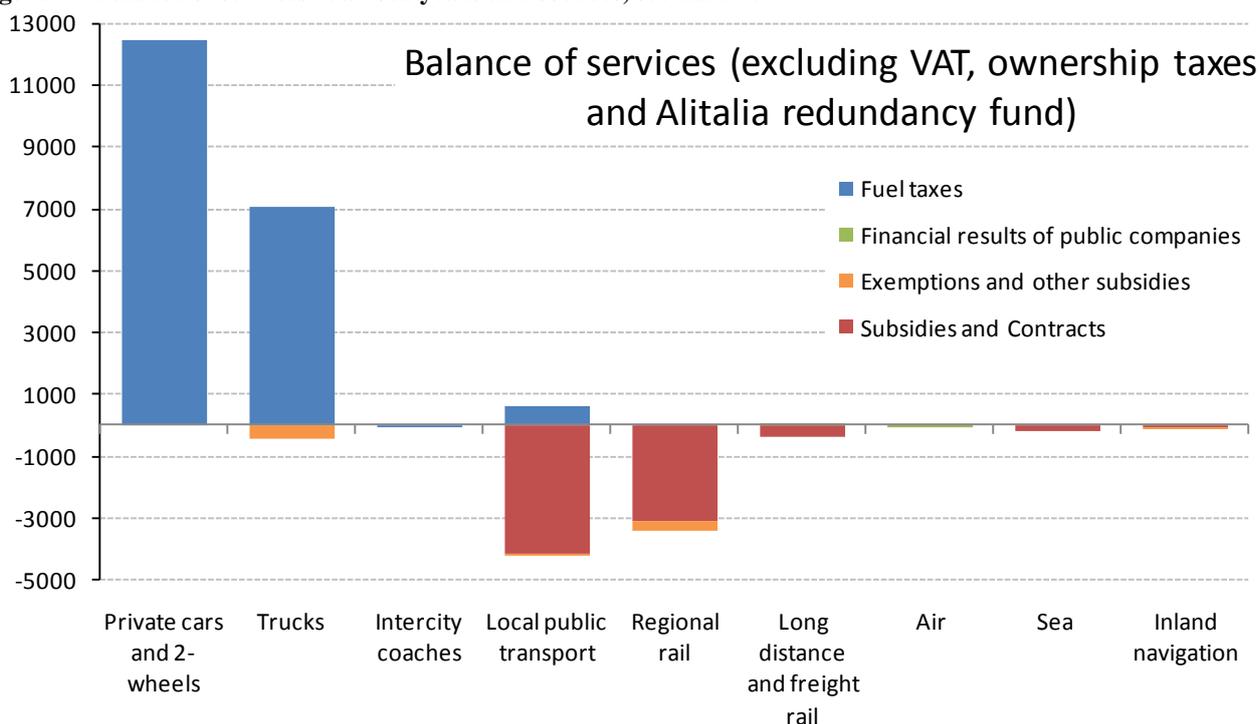
^a 1,314 M€ from the State and 1,086 M€ from the Regions. Very few are the outcome of a fully competitive tender.

^b recently balances are more stable and slightly positive. However, in 2006, the losses of Trenitalia alone were 1,989 M€.

^c Net result of Italian airports, as calculated in the main text. Airlines are all private since 2009. Figures do not include the redundancy fund of Alitalia, for about 220 M€/year for the period 2009 – 2016.

Road sector is generating resources for about 40,000 M€/year incl. VAT. Subsidies for it are irrelevant and limited to exemptions of part of trucks fuel duties. Local public transport is instead needing approx 4,000 M€ of subsidies per year, plus those granted to regional rail, approx 3,300 M€. Intercity transport is showing the same relationships among road (not receiving subsidies) and rail (receiving 250 M€/year until now). Finally, air subsidies are concentrated on some routes as PSOs (> 30 M€), but probably other hidden subsidies exist and reflect into the losses of secondary airports (48 M€). To the contrary, major airports generate 85 M€ of profits to the public sector. Sea and lakes transport subsidies cost around 200 M€.

Figure 2 - Balance of services. Various years and sources, see main text.



4. Historical motivations and current effects on patronage of taxes and subsidies

One can wonder which is the ratio of this configuration of subsidies. Actually, the origin is essentially historical and no cross-modal comparison has never been made by Ministries. The only changes to the *status quo* are always caused from a change in the existing subsidies, but without assuming that some services could be done with a mode different than the historical one. Also, it is never considered the hypothesis that some subsidies could be removed because unjustified. Moreover, no new services can be introduced, at the expenses of others. In other words, the present situation is a slow evolution of the past, that has lost part of its adherence to reality.

4.1 Historical context

The policy of subsidies to public transport and heavy taxation on road transport (mainly via gasoline taxes) after WWII was based obviously on income distribution concerns, and gasoline taxation represented a limited total share of total fiscal revenues. Nevertheless, it may be added that public transport companies, above all state railways, were a relevant source of employment and of votes, while no “electoral damage” was coming nor from the taxed road users, given the extremely high willingness to pay emerging (steadily increase of demand). No negative consequence derived obviously for the Italian heavy protected and oligopolistic automotive industry. Actually, this industry promoted the construction of the backbone of the toll highway system (especially the “Autostrada del Sole” from Milan to Naples), built in few years by the State, but rapidly repaid by the users (again a high willingness to pay emerged). Heavy gasoline taxation, given this rigidity of the demand, was a very efficient fiscal Ramsey-principled policy, but the underlying very high utility of this transport mode should have been taken into consideration for future policies.

In few decades nevertheless mass individual motorization extended the taxation to a broader basis. Consequently, the income-distribution factor lost its consensus-building capability. At the same time, railways and local public transport lost patronage (in relative and absolute terms), but not the

capacity of generating employment and “oriented” votes. Revenues and votes required that the situation had to be kept in fact unvaried, notwithstanding the changing conditions of the context.

At the end of the nineties emerged the environmental issue, that quickly became a very powerful argument for keeping the high taxation on gasoline, even in presence of a taxation heavier than those of the other polluting sectors. In the same period the monopoly of the Italian automotive industry disappeared, due to the European market integration, and in general the level of possible public transfers to the Italian industry declined sharply.

The civil work sector remained one of the few available to fund (indirectly) national industry, since still permitted by the EU and this being not a “footloose” sector (a large share of the inputs have to be procured locally). However highway building was blocked by the green party (and by the left more in general)³⁸. So, railways became the main destination of such expenditure. Toward the end of the past century, two center-left governments made a rather timid attempt of putting some general rationale in the transport sector, by designing two national transport plans (PGTs – *Piano Generale dei Trasporti*), but with limited practical result.

At the beginning of the present century, a center-right government ended definitively any overall rationale, with a much media-advertised list of *Grandi Opere* (“megaprojects”) without any significant opposition from the left. This tendency continued until recent days. The only major policy action remained infrastructure-centered: extremely expensive high-speed network (with unit costs three times higher than similar infrastructure abroad) paid by public purse, urban metro lines growing at a very moderate pace, non-toll roads suffering from lack of public funds, a limited number of new highways paid for by the users (some partially, some totally).

CBA was never used to select priorities (Beria and Grimaldi, 2011), often even without of any explicit quantitative analysis. This opacity seems related to the need of allowing the transfer of enormous amounts of public money to Italian companies, without any real competition (AVCP, 2007; Corte dei Conti, 2009). The EU is apparently collaborating with this scheme, that in fact seems present, with minor variations, in several countries.

On the side of the transport services, liberalization process started with some innovative laws (for local transport services). However, with the exception of the air sector, no real impact occurred for a decade, given the opposition both by the left and the right parties. Public budget constraints in turn in this period were not a perceived menace, and the amount and localisation of historical subsidised services were never put into discussion.

4.2 *The effect of taxes and subsidies*

The consequence of such process can be summarised in the introduction of a general bias in favour of public transport. Of course this bias is not a problem in itself: subsidies exist to promote some behaviours with respect to others. The problem is that such configuration has never been designed, planned, decided and consequently implemented. In other words, it is not based on rational choices of the public sector, but on the stratification of historical occurring.

In general one can say that, among land transport, 8.3% of total ton·km and 5.2% of total passengers·km use rail and enjoy a subsidy of some 3,700 M€ plus investments, while 62% of ton·km and 92% of passengers·km pay nearly 40 billion € of taxes for their road trips. Similarly, those moving by coach do not receive any subsidy, while those travelling by train often do, even if travelling in the same regions and having the same income. A similar dichotomy exist insides modes: 13 billions of long distance passengers·km by train pay for the running costs they generate (but usually not for the infrastructure they use), while the remaining 7 billions pay fares lower than the running costs. The discrimination among the users is done, usually, only trough the lower (and unjustified) quality of subsidised services.

Obviously, the problem is not that some users are subsidised (many reasons actually exist for such subsidisation: income redistribution, environment, congestion reduction, network effects,

³⁸ The willingness to pay for new cars and trucks was such to sustain the level of sales for the industry without problems.

accessibility, social inclusion etc.), but that the existing taxes and subsidies are not based on the costs and the externalities generated. This suggests that tools to assess PSOs (and services in general) should be at the basis of transport planning, even before those used for infrastructures.

5. On the assessment of public subsidies

Assessment tools are well developed in many countries. Transport planning at every scale is nearly always based on the use of simulation models capable of forecasting the current and future behaviour of the users after the implementation of new projects and modifications of the existing networks.

In addition to transport models, the use of Cost Benefit Analysis is spread all over the world (HEATCO, 2005; OECD, ECMT, 2005; Hayashi and Morisugi, 2000) to assess infrastructural investments and, somewhere, also transport policies. The point of view in this case is not only the effectiveness of the change (“how many users?”), but the efficiency of the expenditure. Possibly, also distributional analyses can be made to check who gets the benefits and who pays the costs of a policy; however these tools are less developed, especially those based on CBA (Morisugi and Ohno, 1995; Krutilla, 2005). Some more common are simpler indicator-based approaches.

5.1 Infrastructural investments

Here, the use of formalised assessment tools is widespread. Economic assessment through Cost Benefit Analysis and Environmental Impact Assessment are the backbone of public decisions in many European countries, sometimes embedded into a participative process. In some countries (Beria et al. 2012c), CBA is used at the planning stage to preliminary select which investments should be included into plans and then proceed to the design phase. This phase is generally carried centrally in Ministries or independent planning agencies. In other countries, like Italy, CBA is left to the final phase of the design and assesses a defined project. This approach requires independence in the assessment and the existence of detailed guidelines to avoid opportunistic behaviours of proponents.

Table 11 - Characteristics of CBA for infrastructural investments

<i>Necessary characteristics of CBA</i>	<i>Other characteristics of a “good” CBA</i>
<ul style="list-style-type: none"> ▪ Methodologically solid and correct ▪ Independent or based on non-arbitrary methodology and data ▪ Transparent and possible to reproduce by third parties ▪ Coherent with the planning process 	<ul style="list-style-type: none"> ▪ Embedded into a participative process ▪ Methodologically advanced ▪ Simplified at the early planning stages, detailed after the design stage

Unfortunately, none of these conditions is present in Italy and the CBAs tend to be biased and to simply confirm the need of that projects already decided.

- Italy has no official guidelines. The only one dates back to 2001 (NUVV, 2001), is neither mandatory nor detailed. It only enounces principles and basic requirements, but not how to practically perform the correct calculations. For example, it is not explained how to calculate the benefits associated to new users, despite it is an element very complex and potentially biasing results.
- Italy has not a full dataset for CBA inputs (external costs, discount rate, residual value, marginal opportunity cost of public funds, shadow values) or of rules to calculate them. Some official sources exist, for examples for VOT, but are not mandatory (PON, 2008) and usually not used.
- Italy does not have a national multimodal simulation model, capable of simulating the effect of a project on the rest of the network. This introduces also a problem of confrontability: each project is simulated alone, by different consultants, with different inputs and softwares.

- CBAs are often not public or it is public only in form of summary. This makes impossible their control by independent parties.

An example is the recent CBA of the Turin – Lyon line. It has been done using the French guidelines (quite controversial, too, in some points) and inputs from various resources, some internationally recognised, some less. The simulation model has been created ad hoc and is not comparable with the model of other new international lines (e.g. the Brenner line). The final CBA is public only in form of summary (LTF, 2012), with no details on calculations: 11 pages for a scheme costing more than 10 billion€. ³⁹

The few independent CBAs issued in Italy (Brambilla and Erba, 2003; Brambilla and Erba, 2004; Grimaldi and Ponti, 2008; Mapelli and Ponti, 2011; Beria et al. 2011b; Beria and Grimaldi, 2011; Grimaldi, 2012), always done with limited access to information, tend to contradict or correct official evaluations. The absence of a shared, reliable and authoritative methodology and inputs leaves any attempt to evaluate, especially the official ones, totally arbitrary and self referential. In some cases official evaluations are not simply biased, but contain also evident errors (as shown for example by Grimaldi and Ponti, 2008).

5.2 Services and policies

The evaluation of policies and of subsidies to transport services is more complex, also because fewer examples exist. Academic literature and national norms usually concentrate on the evaluation of public expenditure at the moment of investments, but not on the current expenses.

However, also subsidies are a cost for the public purse (and very significant, as we have shown) and have to be assessed with some explicit criteria:

- i. is the subsidy *effective* in reaching the stated goals?
- ii. is the subsidy *efficient*, i.e. generates more public benefits than public costs, and this ratio is the best among alternative options?
- iii. what is the distribution of costs and benefits? Is the *equity* of the subsidy responding to some predefined criteria (e.g. to the poor ones, to the farther, to the disadvantaged, etc.)?

Practically, alas, this exercise is at least as complex as evaluating an infrastructure project.

Firstly, if the alternative policies involve different areas of the country and different modes, a multimodal transport model is required to quantify the effect of measures, in terms of patronage and generalised costs.

Secondly, and most important, it must be defined which services are to be considered as “social” and which as “market”. In other words, the criteria defining what is PSO must be decided (Ponti, 2011). Usually, regional transport is considered a social service in Europe, while long distance transport is not. This is not the only possible choice. A state may decide following different distributive objectives (income based, geographically based, mode based, etc.). Any choice is theoretically feasible, but it must be done in a transparent way by the decision maker.

Finally, once that a tool for measuring the effects exist (i.e. a transport model) and that the goals are defined, the decision maker can proceed with the assessment of the alternatives. The same tools mentioned above can be used. CBA assesses the efficiency of subsidies, or cost-effectiveness analysis finds which subsidies are less expensive in order to obtain a certain goal. Also environmental and distributive effects can be assessed by means of the corresponding analysis. The level of the established PSO can work as a constraint, that translate into a cost in CBA: what is the social cost that collectiveness is willing to pay, to guarantee a certain amount of PSO?

An independent quantification of such effect is almost impossible at an aggregate level here. However, some comments can be drawn on the current Italian situation.

³⁹ The full CBA, included in the project document PP2-ECO-LTF-0010-0, is apparently no more available on internet (14/06/2012). By the way, the project has been, in the meantime, reduced by the Government.

1. The long distance PSO contract with the rail incumbent FSI has not been made public, and there are no clear rules to decide which services must be subsidised (and how much) (Cambini et al., 2009). On the other side, we cannot exclude that some socially useful services today do not exist (or does not have a social price), because not “in the list”.
2. At present, cross subsidies internal to the long distance rail sector burden the incumbent, but probably should not be transferred to the new entrants, in order to foster competition, given the large advantages already enjoyed by the incumbent. Moreover, it should not be accepted that some social services are paid with taxes and other by users of different lines. Making explicit the existence of losing services among “market” segment for approx 80 M€ today (Beria et al, 2012a) and tendering them to the best provider is a cost for the State (today paid by other user), but would probably reduce the total amount and increase quality, without considering that it would make much more fair the competition for the market services. Moreover, some of them could be cut, having negligible patronage.
3. Except few sea and air routes, rail is today the only mode where on long distance PSO rules apply. Coaches are not considered for subsidies, neither a more extensive use of air. However, part of the 250 M€ of the actual subsidies to rail could support a significant new supply of long distance services, if applied to those cheaper modes (Beria et al. 2012a).
4. An efficiency gain of 10% on local public transport and regional rail (a realistic goal indeed) can lower fuel taxes of approx. 5% for *all Italian cars* (or 3,5% including *all Italian trucks*). This trade-off has been never considered, but should be in a period of economic crisis.
5. Saving 10% of investment costs in all Italian new infrastructures (avoiding the cost overruns that often rise during works) would save up an amount of money sufficient to increase more than 30% all regional rail subsidies.

Many other considerations can be done, especially knowing the demand and its elasticity. It will be a challenging work, but it would be worth an effort, especially in a period of extreme scarcity of public funds, in which the *status quo* should be accurately reconsidered.

6. Conclusions and policy indications

In the paper we estimated the total amount of public support to Italian transport system and the taxes that it generates. It results that road mode is generating through taxes much more than what receives in form of free public roads (at least 32 billions € per year: 39 from taxes vs. less than 7 for road maintenance and construction). On the other side, public transport (buses and rail) is receiving subsidies for approx 13 billions € per year (more than 7 for supporting services, the rest for new infrastructure). Other modes involve relatively lower resources, with air sector near to the equilibrium but with very opaque forms of subsidisation.

This framework has profound consequences on the users and on the “social” content of subsidised services. While it is obvious and natural that public transport is subsidised, it appears that some incoherencies exist, especially among long distance services or part of freight market. Moreover, the figures show that a relative gain of efficiency of public transport sector in general may allow, for example, a perceivable decrease of fuel duties.

The future picture looks contradictory. The persisting financial crisis will keep both a high taxation of road transport (among the highest in Europe) and the scarcity of public funds for the sector. The latter factor will push toward a more efficient use of the resources. On the other side, political and social pressure toward Keynesian job creation goes in the opposite direction.

Nevertheless, for both these attitudes, the present policy looks indefensible. Some indications can be suggested for *services*:

- a. Subsidies to inefficient and ineffective transport services have to be cut: the same amount of money should, at least, be spent to produce more or better services, if we want to preserve the present level of employment.
- b. Competition is obviously the most relevant tool available to increase efficiency.

- c. Subsidies must be moved from the supply side to the demand side: social transport for the “new poors” can be pursued much more effectively at the same cost. Empty trains and buses are not “social” in any conceivable aspect.
- d. The willingness to pay of the users, i.e. the involved utility, is a useful criterion for planning the services, of course taking into account externalities and redistributive objectives.

On the *investment* side:

- e. CBA must be used extensively and correctly. Some foreign countries offer excellent examples: Sweden for centralised planning or UK for project-based planning. France is a good example for participative processes. CBA allows to take into full account both the environment and employment objectives, on top of the traditional efficiency impacts.
- f. Labour-intensity has to become a dominant criterion: maintenance and investments in technology are by far more labour-intensive than large public works.
- g. Something that CBA lacks is for sure the “value” of the natural and man-made landscape, and this is a severe limit for the Italian context. But for sure privileging maintenance, technology and small, local works will be far better also from this point of view, than large, and often devastating, concrete works.

In conclusions, figures of the sector and current problems push decision makers to widely reconsider the current supply and the rules of the transport sector. In a perspective of spending review, there is significant room for maintaining the current supply of services, but at a public purse cost sharply reduced. This can be obtained both with a different modal mix and with more efficiency thanks to effective competition. In a perspective of transport improvement, these recipes could instead allow the same resources to be spent more effectively and efficiently, guaranteeing both more quantity and quality.

For sure, the keeping of the *status quo* seems no more acceptable. Even for consensus reasons.

7. Bibliographical references

Agenzia delle Dogane (2012). *Agevolazioni sul gasolio per uso autotrazione utilizzato nel settore del trasporto. Rimborso [...]*. Nota 771. 4 gennaio 2012.

ANAS (2010). *Bilancio di Esercizio e Consolidato 2010*. ANAS, Roma (Italy).

AVCP (2007). *Risoluzione del Consiglio. Da AV ad AV/AC. Indagine relativa agli interventi gestiti da TAV S.p.A.* Autorità per la vigilanza sui contratti pubblici di lavori servizi e forniture, 24/12/2007, Roma (Italy).

Beria P., Grimaldi R. (2011). *An Early Evaluation of Italian High Speed Projects*. TeMA. Journal of Land Use, Mobility and Environment, Vol 4, No.3, 15- 28.

Beria P., Ponti M. (2009), *Regulation of investments on transport infrastructures in Italy*, 2nd Annual Conference of Competition and Regulation in Network Industries, Brussels, Belgium, November 20, 2009.

Beria P., Niemeier H.-M., Fröhlich K. (2011a). “Alitalia – The failure of a national carrier”, *Journal of Air Transport Management*, No. 17(2009), 215-220. doi: 10.1016/j.jairtraman.2011.02.007

Beria P., Borlini A., Maja R. (2011b). Il nuovo tram di Bergamo. Una valutazione ex-post. *Territorio*. Vol 59/2011, 30- 37

Beria P., Grimaldi R. e Laurino A. (2012a, forthcoming), *Il trasporto passeggeri su autobus per le lunghe distanze. Confronto modale, benefici e prospettive future*. Final Report. ANAV, Roma (Italy).

Beria P., Quinet, E., de Rus, G., Schulz, C. (2012b). A comparison of rail liberalisation levels across four European countries. *Research in Transportation Economics*. **In press**. Doi:10.1016/j.retrec.2012.03.014

Beria P., Giove M., Miele M.F. (2012c), Economic assessment of transport investments. A comparative analysis of approaches from six European countries. *International Journal of Transport Economics*. Vol. Xxxix, No. 2: 185-217. **In press**.

Brambilla M., Erba S. (2003), *La valutazione preliminare economico-finanziaria dei progetti*. Convegno "Legge Obiettivo e valutazione dei progetti", 2003.

- Brambilla M., Erba S. (2004), *Cost - benefit analysis of strategical transport infrastructures in Italy*. WCTR Istanbul (Turkey), 2004.
- Camera dei Deputati (2010). *Interrogazione alla Camera dei Deputati. Risposta del sottosegretario per le Infrastrutture e i Trasporti, Bartolomeo Giachino, all'interrogazione del deputato Mario Lovelli (PD) in Commissione Trasporti (IX Commissione) - Giovedì 9 dicembre*.
- Camera dei Deputati (2011). *Indagine conoscitiva sul settore del trasporto ferroviario di passeggeri e merci*. IX Commissione (Trasporti, poste e telecomunicazioni). XVI Legislatura. Seduta del 3 novembre 2011
- Cambini C., Catalano G., Savoldi A. (2009). L'intervento pubblico nel trasporto ferroviario. Prospettive di liberalizzazione e esigenze di servizio pubblico. *Mercato Concorrenza Regole*. No. 2/2009: 249-282.
- CNIT (2010). *Conto nazionale delle infrastrutture e dei trasporti. Anni 2009-2010*. Ministero delle Infrastrutture e dei Trasporti, Roma (Italy).
- Corte dei Conti (2009). *Relazione sul risultato del controllo eseguito sulla gestione finanziaria di Rete Ferroviaria Italiana (R.F.I.) S.p.A. per l'esercizio 2007*. Corte dei Conti. Delibera 44/2009.
- EEA (2007). *Size, structure and distribution of transport subsidies in Europe*. EEA Technical report, No. 3/2007. European Environment Agency, Copenhagen (DK).
- Giuricin A. (2011). *Tirrenia: una privatizzazione all'italiana*. IBL Focus 192. 19 ottobre 2011.
- Grimaldi R., Ponti M. (2008), "E sulla Milano-Venezia i conti non tornano", *LaVoce.info*, 10.12.2008
- Grimaldi R. (2012, a cura di), *C'è luce in fondo al tunnel? Analisi e spunti sulle politiche infrastrutturali ferroviarie alpine*, Maggioli Editore.
- Hayashi Y., Morisugi H. (2000). International comparison of background concept and methodology of transportation project appraisal. *Transport Policy*, 7 (2000), 73-88.
- HEATCO (2005). *Developing Harmonised European Approaches for Transport Costing and Project Assessment*. Deliverable 1: current practice in project appraisal in Europe.
- ISFORT (2008). *Così è se vi pare. 5° Rapporto sulla mobilità urbana in Italia*. ASSTRA, Roma (Italy).
- Krutilla K (2005). Using the Kaldor-Hicks Tableau format for the teaching and practice of project appraisal and policy analysis. *Journal of Policy Analysis and Management* 24(4): 864-875
- Laurino A., Grimaldi R., Beria P., (2010), Financing transport infrastructure projects in Italy: a critical analysis of the main approaches, General Proceedings of the 12th WCTR Conference, Lisbon (PT).
- Legambiente (2010). *Rapporto Pendolaria 2010. La situazione e gli scenari del trasporto ferroviario pendolare in Italia*. Legambiente, Roma (Italy).
- Legambiente (2010). *Rapporto Pendolaria 2011. La situazione e gli scenari del trasporto ferroviario pendolare in Italia*. Legambiente, Roma (Italy).
- Linkiesta (2012). *La guerra degli aeroporti costa 60 milioni l'anno che paghiamo noi*. Alberto Crepaldi, 31 gennaio 2012.
- LTF (2012), *Quaderno 8. Analisi Costi-Benefici Analisi globale e ricadute sul territorio*, Osservatorio per il collegamento ferroviario Torino-Lione.
- Mapelli A., Ponti M. (2011), "Sulla Napoli-Bari corre le perdita", *LaVoce.info*, 11.03.2011
- MEF (2011). *Relazione generale sulla situazione economica del paese 2010*. 23 Dicembre 2011. Ministero Economia e Finanze, Roma (Italy).
- Mercurio R., Martinez M., Pezzillo Iacono M. (2011), *Cambiamento e crisi delle ferrovie regionali in Italia*. Editoriale Scientifica, Napoli (Italy).
- MIT (2011). *Programma Infrastrutture Strategiche. 9° Allegato Infrastrutture*. Ministero delle Infrastrutture e dei Trasporti, Roma (Italy).

Montanaro P. (2011). *La spesa per infrastrutture in Italia: dinamica recente, confronto internazionale e divari regionali*. In Banca d'Italia (2011). *Le infrastrutture in Italia: dotazione, programmazione, realizzazione*. Banca d'Italia, Roma (Italy).

Morisugi H, Ohno E (1995) Proposal of a benefit incidence matrix for urban development projects. *Regional science and urban economics* (25): 431–481

NUVV (2001), *Studi di fattibilità delle opere pubbliche. Guida per la certificazione da parte dei Nuclei regionali di valutazione e verifica degli investimenti pubblici (NUVV)*, Conferenza dei presidenti delle regioni e delle province autonome, Roma (Italy)

OECD, ECMT (2005), *National systems of transport infrastructures planning*. ECMT Round Table 128, Paris, 26-27 February 2004.

OECD (2009). *OECD Reviews of Regulatory Reform - Italy: Better Regulation to Strengthen Market Dynamics*. OECD.

PON (2008). *Linee guida per la misura dei Costi Esterni nell'ambito del PON Trasporti 2000 - 2006*. Quaderni del PON Trasporti. Ministero dei Trasporti

Ponti M. (2011). *Competition, Regulation and Public Service Obligations*. In De Palma A., Lindsey R., Quinet E., Vickerman R. (2011). *A Handbook Of Transport Economics*. Edward Elgar Publishing: 661 – 682.

Ragazzi, G. (2008). *I signori delle autostrade*. Il Mulino, Bologna (Italy).

Scarpa C. (2008). *Quanto costa chiudere Alitalia*. www.lavoce.info, 16.09.2008

Stagni, G. (2012). *Finanziamenti alle ferrovie: il 2012 e una panoramica sul decennio scorso*. Source: <http://www.miol.it/stagniweb/> (consulted April 2012).

Unione Petrolifera (2011). *Statistiche economiche energetiche e petrolifere*. Unione Petrolifera, Roma (Italy).