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Regulation of investments on transport infrastructures in Italy

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Abstract

The paper discusses the present regulatory framework in Italy concerning transport infrastructures financing and provides some policy indications. The Italian situation is characterised by non homogeneity among the transport modes and insufficient, or even perverse, incentives to efficiency. Also, the norms promote the tendency to overinvestment and “gold plating” because applied within a weak planning framework.

After a theoretical introduction to the financing mechanisms (public funding, PPP, price cap, etc.), the paper is structured by modes. For each infrastructure type (national roads, highways, railways, ports and airports), the most common funding practices are commented, underlining their characteristics, limits and implications. National roads and railways are financed by general budget on the basis of a planning activity usually carried by the agent itself. Conversely, highways, airports and ports are partially financed by fares under conditions of legal monopoly granted by concessions. However, the formulas for fares determination are questionable and sometimes provide incentives to overinvestment.

The last section will provide recommendations for a more efficient regulation.

Keywords

regulation, investment, infrastructure, airports, roads, highways, railroads, price cap, ports, concession.

1. Specific problems of investment in transport infrastructures

The financing of large transport investments in the regulated sectors (toll highways, railways, airports and ports, even if in the latter sector a proper regulation is not present in Italy) are based on different and basically non consistent approaches.

The range of the financial channels used goes from total public transfers, to total financing by the tariffs, within a frame that can be defined as “Hot Project Financing”. In between, there are several forms of Public Private Participation, with various degrees of intervention of public funds. Furthermore, this participation happens either within existing concessions or within dedicated competitive tenders for a single infrastructure (a more traditional Build Operate Transfer project financing scheme).

In general, it is worthwhile to remember that investments in transport infrastructures show some peculiar characteristic.

Firstly, commercial risk is seldom present and tends to be in fact a regulatory risk. In fact, the building of other competing infrastructures, gasoline taxation, often the regulation of the services using the infrastructure etc. are all public activities and are crucial for both the quantity and the willingness to pay of the users. Few actions of the operators can have a major impact compared with these public decisions, leaving a limited role to commercial capability.

Regulated transport infrastructures have in general large dimensions, a very long commercial life and are also legal monopolies (related to land use planning). These facts raise *capture* risks, in the sense that little role is left for any competitive pressure.

Furthermore, these investments are either “internal” at existing concessions, or made within a Project Financing scheme. Some of them are partially or entirely state-financed, since within the transport sector there are present both environmental problems, social objectives (regional development) and other market failures, the more relevant being congestion phenomena.

The main issue presented in the following theoretical part is: under which conditions are investments in regulated infrastructures increasing welfare, (either as “social” investments, or in the form of efficiency-increasing instruments, like in the case of those made by a private firm), or are “gold-plating”, i.e. represent a waste of resources, generating either private or public rents (the latter ones in form of consensus building etc.)? Under-investment is assumed as possible only if the regulatory system creates no proper incentives – for example, too much risk, or perverse ones. For example, they allow for increasing profits collecting tariffs only without investing, even in case of tariffs based on reimbursements of agreed-upon investments. Next parts will go in deep of single modes regulation in Italy.

2. A possible typology of infrastructure investments

We may stress four general cases of investments in transport infrastructures. The difference lays in the relationship between regulation and social profitability.

- a. Within a standard *price cap* scheme, investments are part of the instruments available to the regulated agent in order to gain temporary extra-profits due to either reduced costs and/or increased revenues, at a given tariff. In this way, the agent is incentivised to make

efficient investments, and only efficient ones, during the “regulatory lag”¹. By definition, these investments are profitable at the regulated tariff². We can define this type of investment *endogenous*, i.e. basically similar to a private one made within a market context, and generating surplus.

- b. A second case is that of an investment profitable only *rising* the tariff for the direct users. The result depend on the case: it may be socially desirable, but it can also generate a waste of resources. In this case it is in fact a form of *gold plating*, especially if the relevant demand is non elastic. The related example is quite obvious: an extra lane on a highway link can be financially viable with a higher toll, even if technically not needed, in case of the demand on that link is rigid enough, like is in general the case with highways with few real alternatives.
- c. A further case is that of an investment profitable only if the tariff increase is extended to other users of the network. Moreover it can be useless, especially in the case of an extended regulated network, generating only a limited unit toll increase. The case of an extra lane can be used as an example, but the problem can be present also in case of entirely new infrastructures, with limited “direct” demand, whose costs are paid by existing users on the rest of the network.
- d. Finally, there is the case when the investment needs also substantial state subsidies to be financially feasible. In this case the *gold plating* effect is even more transparent and an economic, not only a financial analysis, is specially needed.

In cases b, c, d, we can define the investments as *exogenous*, i.e. external to the price-cap rationale. They need public intervention on the tariff structure and level, on top of the standard definition of the X (related to efficiency) and the quality parameter after each regulatory lag.

The issues are basically similar within in a periodic competitive tendering, or a Project Financing scheme: the tendered contract has to define carefully the typology of investments involved, and, in case of exogenous ones, has to check the real economic rationale of them.

3. Highways

Italian highway system consists of approximately 6.500 km, the majority of which is franchised. The concessions are 25, usually privately owned or mixed public-private. The largest concession is “Autostrade”, founded by in 1950 by the state agency IRI and still the first motorway group in Italy and Europe. It was considered as an operative agency whose aims were to build the Italian network without making any profit. However, during the years, the Italian economy and the traffic increased dramatically. At the same time, the tariffs never decreased, even if the initial investments got repaid. For these reasons, Autostrade gave to IRI and to the Italian state enormous profits, which, due to the public property, may be properly defined as taxes.

Until the end of the Nineties, all the concessions were automatically renewed at the same conditions and without any tender. The renewal was formally justified with the promise of further investments, which needed to be remunerated.

¹ The issue becomes slightly more complicated for investments with a longer technical life, but the principle is clear cut.

² But still in particular cases they can be inefficient due to deadweight losses, externalities, etc.

In 1999, the Government upon the request of EU, decided to privatise Autostrade. The hidden rationale of such privatisation was in reality to earn resources in a period of financial constraints. In the meantime, the still public Autostrade obtained the renewal of the concession for further 40 years, up to 2038, just before the privatisation. This fact opened the way, between 1999 and 2000, to the extension of the concessions for the other franchisees, despite the European rules forbidding automatic renewals without tendering.

In fact, as fixed by the decree 283/1998, the renewal periods would have been very limited for all the concessions (1 to 7 years. Ragazzi, 2008). However, the franchisees succeeded in having a *further* concession period of 6 to 27 years³ in order to repay *new* investment plans.

As already stated, the most important (and hidden) driver of the political choice was, according to many authors (Boitani, 2004; Coco and Ponti, 2006), to maximise firm value. This has been done by:

- applying a weak *price-cap* regulation on efficiency and, especially, on investments;
- extending for many decades the concession without any tender.

The mix of these two conditions made the company extremely profitable for the investor and increased noteworthy its value. Boitani (2004) quotes some documents of that time evidencing the fact that the expected profits were largely superior to the official ones, due to the particularly favourable regulatory framework. Even if both the Italian Court of Auditors and the EC tried to make the process clearer, in 1999, the private society *Schemaventotto*, gained the control of Autostrade.

The operation confirmed ex-post to be very profitable. The value of the shares remained steady until 2003, when the favourable *price-cap* rules were finally approved. Then, in three years only, the value started to increase and reached an exceptional level, three times higher the (already high) price paid for the privatisation.

3.1 Price-cap and investment recovery

Since 2000 a new regulatory regime (defined in 1996) is applied. It is based on a *price cap* formula, but the model is still far from the theoretical one (Coco and Ponti, 2006).

The principle determining fares is that of uniformity across parts of the network and tariffs are, in fact, defined only to recover investment costs. No efficiency criterion is applied (Boitani, 2004), in order to efficiently allocate the demand. This background is heavily affecting the strategy of the franchisees and of the State. Franchisees are in charge of the commercial risks (even if this is completely neutralised by the low forecasted demand), but their infrastructural investments are fully guaranteed by the *price cap*. Moreover, these investments are assessed by the concessionaire and not by the regulator, whose control on the methodology and the unit costs tends to be weak and not transparent, and the Italian assessment framework refers to single investments and not to a plan.

The core of these issues is the *price cap* formula, as defined with law 498/1992, as described by CIPE⁴ decree 319/1996 and as deeply revised by CIPE decree 1/2007. This formulation included: the inflation rate, a parameter representing the productivity variation defined at the beginning of the concession and a coefficient defined to recover the investments of the previous

³ With two shorter exceptions only.

⁴ The body responsible for economy planning and public investments, including fares regulation, by means of the sub-group NARS.

year. Without entering in detail of the rationale of the formula and the general problems related (like the absence of *claw-back* and other severe issues), one must underline two aspects directly related with investment regulation:

- a. investments are explicitly remunerated in the tariff *automatically* via the K parameter;
- b. the formula defines only the *variation* of the tariffs, not the *initial* one that is set to the “historical” level, including already recovered investments⁵.

In 2008 a new “price-cap formula” has been introduced, substituting the previous approach and completely removing any appearance of price-cap principles (L.101/2008 and related classified documents). In this formula, it is accorded to the concessionaire an *automatic increase* of the previous year’s fares of 70% of actual inflation, plus the full remuneration of investments included in the periodic financial plans. This means that the fare is no more dependent on the reached or targeted efficiency level (no decrease is possible, for instance), but only on the pure remuneration of investments. The Italian Antitrust authority, in absence of an independent Regulatory Authority, suddenly criticised the new normative framework (July 4th, 2008), but it remains fully applied.

A further concept has been strengthened with the new legal framework. It is that of the “takeover compensation”, i.e. the possibility of taking over the concession at the end of the period under the payment of the residual value to the former concessionaire. The implications of this fact are commented at the end of the next paragraph.

3.2 Regulation or incentive to gold-plating?

The given description stresses that the Italian regulatory framework concerning highways investments is critical, especially after the recent modifications that nullified the 2007 corrections. It is not only a matter of weakness and normative inadequacy. Rather, some contents of the regulation are distorting the sector and inducing opportunistic behaviours of the agents. Their resistance has been until now capable of reducing the effectiveness of the regulation.

Some problems can be evidenced.

- a. The way initial tariffs are set, i.e. the “historical” ones, determines an unregulated monopolistic rent. In fact, part or all the past investments were already repaid in the previous concession period. The effect has been a dramatic increase in concessions values.
- b. In all “price cap”-like formulas used, the new investments are automatically remunerated without applying any efficiency criterion and in a scarcely transparent way. In other words, any kind of investment is allowed if included in the periodic plan issued by the concessionaire. These increases are spread on the whole network even if benefits (e.g. a new section) are limited to some users only (Boitani, 2004). Moreover, investments actually promoting efficiency or stimulating new demand are paid *twice*: one when reducing costs/increasing revenues and the other one with an increase of tariff.
- c. The extension period of the existing concessions depends on the financing of new investments. These new investments are included also in the K parameter of the *price-cap* formula. If the regulation is not strict in reducing K (as happened in the past) after

⁵ Two further major problems were corrected CIPE decree 1/2007. Before, in many cases investments were declared and promptly paid by users after regulator’s approval, but actually never built. Secondly, the amount of the investment to be remunerated was updated at the end on the basis of the declared ex-post costs. This did not give any incentive to correctly forecast the investment cost and opened the way to large and incontrollable overruns.

payback, also new investments are paid *twice* (Ragazzi, 2008). This is, clearly, an extra-profit.

- d. Price-cap, if correctly applied, is adequate for existing networks. However, in case of new investments, this may result in a double regulation. Rather, a correct project financing scheme, or a traditional procurement scheme, would be more efficient and prevent *gold plating*.
- e. New investments are proposed by the franchisee, which actually acts as a planner and is remunerated twice. A distinction between investments promoted by the concessionaire (to be paid by new demand or cost reduction) and by the authority/planner (to be paid in tariff or by a tender) is necessary.
- f. Especially since 2008, new concessions explicitly foresee the need for a takeover compensation at the end of concession. A judgement on this mechanism should consider that it is always used together with two other principles: a formula that easily allows tariff increases to repay the new investments and the generalised use of general contractors for construction. The effect of this framework seems to be a powerful promoter of *gold plating* practices: there is no incentive to keep investment costs low because the tariff and the takeover compensation will guarantee the financial sustainability anyway. Moreover, the general contractor does not have the limits of public administrations in outsourcing practices. This makes highway construction a very profitable business for both concessionaire, general contractor and, especially, large construction companies. Moreover, in some cases the three subjects are actually the same⁶.

The consequences of this regulatory framework are important. Privatisation and regulation aimed at maximising the value of the public companies to be privatised and not to obtain efficiency. Presently, concessionaires are benefiting, with no exceptions, of extraordinary extra-profits (Ragazzi, 2008). Also the transparency of such profits is scarce. Furthermore, no productive and allocative efficiency is promoted.

Finally, a perverse incentive to overinvestment is given, known as *Averch-Johnson effect*, both in quantity (new and unnecessary investments) and in unitary prices (no control on cost overruns and inefficient engineering situations, defined as *gold plating*). Obtaining the approval of monumental and unjustified investment plans, even if longer than the concession period, is easy. If the subject that will build such infrastructure is “linked” with the one that is in charge of the concession and its financial soundness, the risk of improper cost overruns is high. This behaviour gives *immediately* extra-profits, especially to the construction firms, at no risk. Moreover, the socio-economic rationale of these investments is weakly verified by the authority. ANAS, in fact, approved investments plans without any priority verification, stressing that investments are not publicly funded.

⁶ For example: BRE.BE.MI is the concessionaire of a new highway project between Milan and Brescia, in Northern Italy. Among BRE.BE.MI shareholders, there are (3,1% each) Pizzarotti and CCC, that are also part of the consortium “Consorzio Bbm”, chosen to be the general contractor in charge of building the infrastructure. Moreover, both companies are among the largest Italian construction firms, specialized in infrastructures, and will build approximately the 70% of the road. It is worth noticing that in two years (2007 – 2009) the forecasted cost rose from 920 to 1.200 Millions of Euros.

4. National roads

The Italian national road system consists of approx. 21.500 km, plus 15.000 recently devolved to Regions. Also Provinces and Municipalities build and manage their road networks. The whole national system is managed by a concessionaire, named ANAS and 100% owned by the Treasury. The concession will expire in 2030⁷. Italian national roads are completely free. The ANAS network is also made of some 4 lanes roads and of approx. 1.200 km of highways or roads with characteristics of highways.

Due to historical reasons, ANAS is not only the network manager, but also the authority for franchised highways⁸. Under this function, it manages the bids and regulates the fares of the various concessions. Since ANAS is now in charge also of some toll concessions and aims to introduce tolls on many trunk roads, the double function is capable of distorting the relationships and the independence of the authority.

ANAS is now a stock company, state owned, but its financial autonomy is still very scarce and depends mainly on earmarked state transfers. The company recently issued an ambitious plan of restructuring, mainly aiming at becoming an independent subject, independently promoting development plans, increasing revenues, introducing tolls and increasing debt expositions. However, the ambiguous status of public company and of authority, in contradiction with the new role of market agent, was never put into discussion. Such plan is presently frozen.

4.1 Traditional investment mechanism

Investments come always from the state or by local authorities. For this reason, ANAS investments concur to national debt, constrained by European agreements. No remuneration of investments is supposed to come, since the network is nowadays completely free.

In 2007 ANAS received 444.2 M€ for network maintenance. The amount of such transfers varied considerably in the last years, from 360 M€ in 2005 to 255 M€ in 2006. In reality, also the “name” of these transfers changed over time: from being a pure transfer footing the bill, to the payment for the availability of the network under a contract. The result of the past balance sheets has always been negative.

Aside to maintenance transfers, the largest part of national expenditure is for new investments. The year 2006 was an anomaly, with “only” 100M€ spent. For example, in 2007 the total amount available was 1.120M€ (ANAS, 2006). The new 13 new road projects approved during 2006, sum up to a total cost of 1.431 M€

The availability of these funds is subject to considerable fluctuations, due to state budget constraints and political choices. This volatility is a threat for proper building phasing and determined in many cases enormous delays (also of decades), scarce quality and huge cost overruns due to increase of costs and changes in design.

Concerning the selection of projects, it is supposed to come from central planning. However, the historical role of “agency” and not of “concessionaire” makes this separation less strict. In particular, the construction of brand new trunks comes from political choices, but the needs of expansion and modernisation of the network are driven by internal planning, simply accepted by

⁷ Unless renewed until 2050 as requested by the agency itself

⁸ Recently, two regional highways providers/regulators have been set: CAL in Lombardia (2007) and CAP in Piedmont (2008). In both cases ANAS is 50% shareholder with the regional government. Similarly as for ANAS, in both cases the conflict of interest remains unsolved: the two are both conceding and managing some new regional highways.

the Treasury. The risk of capture and *gold plating* is present, both rising unitary costs, due to lack of regulation, and allocating resources out of an efficiency-based framework.

4.2 Recent modifications and new directions for the future

Recently, the “*Legge Finanziaria 2007*”⁹ introduced a new source of revenues, even if not specifically dedicated to new investments. The highways franchisees must pay to ANAS part of the surcharge they apply on their tolls. It is supposed to cover ordinary and extraordinary maintenance of free feeder roads to the toll highway system, but also for the “improvement of non-toll roads”.

In 2007 a new industrial plan has been issued (Beria, 2009). It is proposing radical modifications on the status, the role and the autonomy of ANAS. The plan has not been approved at the moment of writing and remains frozen. The key issues are listed below, because symptomatic of the approach of the regulator/concessionaire to the issue of investments. All of them are heavily affecting the way Italian roads will be financed in the future, if approved.

- Introduction of shadow tolls and real tolls on some roads (now free), instead of state transfers.
- Acquisition of the network of some highway concessions under expiration, with the consequent revenues and profits;
- Some new roads are financed by ANAS budget (obviously larger than now) instead of direct state transfers.
- State transfers remain for the “non commercial” network, that will be the large majority. Which roads are “non commercial” are however self referentially defined;

All these measures have the primary purpose to “deconsolidate” ANAS from the Italian public debt. Also, the public ownership, the status of legal monopoly and the lack of any regulation makes ANAS potentially very attractive for loans, improving its exposition capacity, and for private investors.

However, at the same time, the selection of new investments (in other words, the planning of national network) will move from ministry and public agency to a private-like company, whose goal is profit. Moreover, the monopoly is not regulated and the ambiguity of ANAS as franchisee and franchisee at the same time is not solved at all.

5. Railways

Italian railways are divided among the National Railways (Ferrovie dello Stato S.p.A.) and numerous concessions for local networks. The main operator, FS, was formerly an integrated public company in charge of the network and with the legal monopoly on services. After the introduction of liberalisation principles, the group has been divided into a service company (Trenitalia) and a network manager (RFI), plus some smaller specific societies¹⁰. The national network consists of approx. 16.000 km, plus some 3.500km of conceded railways.

The financial soundness of FS S.p.A. is scarce. The budget of the company, including state subsidies, performed negative operative results and reached the balance only in 2008. Equity is more than double of comparable European national networks, such as DB or SNCF, while debt is

⁹ art. 1, c. 1021.

¹⁰ In charge, for example, of commercial revitalisation of major stations (“Grandistazioni”) or of estates development (“FS Real Estate”).

considerably lower even if increasing. The ratio Debt/Equity is 0.25. The consequence is a null ROI, given the totality of state transfers (FS, 2007).

In reality, the analysis of FS a single year of balance is not giving a true picture of the company. While the costs (6.747 M€ in 2005; 6.791 M€ in 2008) and the fares revenues (approx. 3.200 M€ in 2005; 3.800 M€ in 2008) can be representative, the other revenues are largely misleading. In fact, the two other main sources of revenues of the group are state transfers in form of subsidies to track operator (1.349 M€ in 2005; 1.041 M€ in 2008) and to service branch (1.205 M€ from Regions for regional trains and 490 M€ from State to long distance trains in 2005; a total of 2.325 M€ in 2008). In this case, the amounts are nearly completely unlinked with the market conditions. Rather, transfers and consequently net results depend on the money available year by year in Treasury. In conclusion, the negative results until 2007 depend partially by inefficient management, but also on “stochastic” state transfers and demand reduction (FS, 2005 and FS, 2008).

The liberalisation process in Italy is aligned with Europe, with some specificities. National railways have been unbundled, but tracks and services are still under the same state owned holding. Tracks are a legal monopoly managed by one single company and not regulated. No discussion on the minimal efficient dimension of the network took place and the concession is one for the whole country. On goods sector, there is a penetration of new-entrants for approx. 13% in terms of tonn·km (2008). For passengers, Trenitalia is still the monopolist both for long distance and regional services, even if, formally, both markets are opened (some new rail companies are nearly ready to enter in the market of high speed and some regions performed bids, always won by Trenitalia or by consortia including it). FS group is absent in logistics.

5.1 Traditional public procurement

Historically and presently, all new investments, especially those involving infrastructures, are fully state financed. Sometimes there is an intervention of local authorities, but the extent of this is very limited. No private or self financing investments are at stake. In general, investment costs are transferred from public purse to RFI that spends it. Just to give a hint on the quantity of investments, the high speed network alone cost 24 billions€ along 20 years, but the plan is not yet completed.

At the same time, the new infrastructures (or new equipments) are never supposed to remunerate the investment¹¹. As already said, RFI is in charge of tracks and “sells” the slots to the service branch, which is almost only Trenitalia. The train access charges are calculated by a formula according to the type of the line or node. Such charges are decided by the Ministry of Transport, but all the relevant data on costs are provided by RFI itself, who seems to remain capable to influence decisions.

The fare system used is different according to the type of line. The conventional network applies a short run average cost principle, while new high speed lines TACs are calculated on the basis of operating costs plus debt amortising. Despite the fact that the price is higher than marginal cost, the tariff is not actually remunerating even part of the investment on conventional lines. In fact, there is no link between the residual payback (for old lines) or a financial plan (for new lines) and the fares. Moreover, given the quasi-monopoly and the large subsidies of Trenitalia, the toll it pays to RFI is a simple transfer internal to the holding.

¹¹ An exception is supposed to be the high speed network. Please refer to next paragraph.

The scheme used for Italian railways subsidies covers at the same time investments, fixed infrastructure costs and operations, while rolling stock can be financed (usually via capital increase or by specific transfers from Regions) but this has not been done until 2009¹². Literature suggests avoiding *triple till* funding (Ponti, 2005). If the infrastructure is not financially profitable even excluding the investment cost (i.e. paid by the State anyway), the subsidies to operation should be provided directly or to the infrastructure operator (“*double till*” schemes). In the first case the service operator is paying the full operating costs (fixed and variable ones) to the infrastructure operator, but among its revenues there are also the subsidies. In the second case, the infrastructure operator is keeping access prices lower because subsidised, and the service operator is not subsidised. In both cases distortions are minimised, but transparency in access to infrastructures is better guaranteed in the second case (Beria, 2008).

5.2 The case of high speed lines

The Italian high speed network is under construction since the 90s¹³ and will consist until 2010 in the line Turin – Milan – Rome – Naples – Salerno, plus some doublings between Milan and Venice. The HS program is the largest public investment in Italy nowadays, absorbing the 70% of all resources destined to railways.

According to public declarations, the Line Turin – Milan – Naples was initially supposed to cover the 60% of total investments with revenues from fares. Ten years later the line, not yet completed, is costing much more than expected and only 5,1 billions€ out of 24 are financed by equity, all the rest by public transfers (Ponti and Beria, 2007). It is worth noticing that the tolls covering part of the costs are paid mainly by Trenitalia itself. This is a fundamental guarantee on the future level of traffic, even if first results for the lines Milan – Turin and Rome – Naples are below expectations. Moreover, FS was the protagonist of an enormous and unjustified state transfer to cover all of the investments previously classified as “private”: in 2006 the State paid back the totality of the debt contracted by RFI – TAV, 13 billions of € with *Infrastrutture S.p.A.*, another public company created to finance investments out of state budget.

The unit costs of the construction are among the highest ever in Europe. According to a classified document by FS¹⁴, existing Italian lines cost on average 32 M€/km. Lines in construction or planned in 2008 are supposed to cost on average 45 M€/km (including perfectly plain lines like Milan – Verona). French and Spanish lines cost/will cost, on average, 10/13 and 9/15 M€/km, respectively. The huge differences are explained by FS as follows, arguing that these justifications contribute to explain more than half of the cost difference. Unfortunately, the remaining difference remains unexplained.

- Procurement mode: the lines are built by a general contractor and not by RFI. The general contractor is a private subject and is allowed to skip usual public tendering procedures. FS admits that this introduced a cost overrun of 14-20%.
- Design choices: lines are designed for freight trains, too, and part of the land is subject to earthquakes.
- Environmental prescriptions.
- Higher costs due to land occupation and land prices.
- Technological innovation.

¹² In 2009 an enormous bid has been casted, totally financed by State, via a recapitalization, and Regional transfers.

¹³ With the exclusion of the Florence – Rome direct line dating back to the 80s.

¹⁴ “RETE AV/AC Analisi dei costi. Audizione dell’Ing. Moretti”, Marzo 2007.

Clearly, despite justifications, the way lines were decided, built and financed perfectly explains the incredible unit cost compared to foreign cases. The use of a general contractor, not responsible of the final cost and always involved in the construction, is a powerful source of cost increase. In fact, they are rather interested to pay the highest prices instead of the lowest, being all of them involved in construction enterprises and railway infrastructure installation suppliers that actually built the lines.

Also the “environmental prescriptions” are not neutral. In some cases these choices are absurd. For example, the Milan – Turin line was chosen to be built aside to an existing (and obsolete) highway. The cost of the rail line include also the enormous cost of rebuilding the highway. In our opinion it is not irrelevant that the highway concessionaire is owned by the *general contractor* of the rail line...

6. Airports

The majority of Italian airports is managed by franchisees, with the exception of some minor airports managed directly by the Civil Aviation Authority (ENAC). Concessions are 40 years long. Often airports concessionaires are public companies owned by local authorities. Few exceptions exist of private airports, especially among the larger ones. In particular, Rome and Naples airport systems have been privatised and the discussion about Milan one is frequently at stake.

Until 2007 (CIPE decree 86/2000) the regulation was quite simple and based on the basic pillars of separate bookkeeping, transparency, cost based fares, productivity increase. The regulator is ENAC, despite its scarce independence and despite the fact that is also owner of some airports. The airside fares were defined by a *price-cap* rule. This regulatory framework was modified in 2007¹⁵, but current rules still present some incoherencies with theory and facilitate the rise of monopolistic profits. Moreover, both directives are nearly unapplied concerning transparency and cost based fares (Sebastiani, 2007). A further development is currently promoted by European regulation directive 2009/12/CE, but it is not yet entered in the national legislation.

In general, the fares regulation starts always from the costs historically paid by the concessionaire and is then a cost-based regulation rather an incentive-based regulation (Niemeier, 2009). The Italian airport fares structure is summarised in Table 1.

¹⁵ The new regulation, finally approved in 2008, is still based on price-cap method. The new price-cap formula includes productivity parameters, new investments remuneration and the reaching of some environmental parameters.

Table 1. Italian airport regulation

<i>Fare element</i>	<i>Normative reference</i>	<i>Market structure</i>	<i>Fares</i>
1 Security fare	DL.9/1992; DM.85/1999; DLgs.203/2005 and L.248/2005	Concession to the airport operator and consequent remuneration	Determined by Ministry + price-cap (2005)
2 Other security aspects			In the market
3 Handling	96/67/CE and DLgs.18/1999	Liberalised	In the market. If only one operator exist, its fares are automatically approved by Ministry
4 Centralised facilities	DLgs.18/1999	Considered as natural monopolies	Proposed by ENAC and approved by the Ministry. It must be verified only the cost coverage and the risk&capital remuneration.
5 Boarding taxes		Are not actually “taxes” because left to the concessionaire	Determined by Ministry
6 Airport fares (passengers and aircraft)	L.324/1976; DLgs.203/2005 and L.248/2005	Concession to the airport operator	Determined by Ministry + price-cap (2005)
7 Landside royalties	G.U. 20 Sett. 2007 No.221	50% Unregulated, 50% regulated	Royalties decided by concessionaires. Only 50% of landside profits is included in the calculation of the other fares. Before 2007, 100% completely unregulated.

Before 2007 Italian airport regulation could be defined as “*half dual-till*”, since it is not a pure “*single-till*”, nor a “*dual-till*”¹⁶. In fact, air fares were defined as in a *dual-till* scheme, but without any form of regulation on landside revenues (parking, shops, etc.). Clearly, the scheme was extremely favourable for concessionaires, since regulates only the smaller part of the revenues and allowing extra-profits on the other.

Since 2007, even if still unapplied in the practice (2009), 50% of the landside unregulated profits are supposed to enter in the formula determining the airside regulated fares. In this sense, the scheme evolved towards something that can be defined as a *mixed single-till* scheme.

6.1 Remuneration of new investments

In both in 2000 and 2007 regulation frameworks, the topic of efficiency is not managed in a satisfying way, due to the fragmentation of sources of revenues for the airport concessionaires and for the permanence of unregulated or weakly regulated ones.

Another critical point is that of investments. Exactly as for any other regulated sector, investments that improve efficiency and give temporary extra profits to the concessionaires should not be remunerated directly, but through efficiency gains. The franchisee will decide independently whether it is worth doing that investment or not. In *price-cap* terms, it is repaid by the gain of efficiency included in the “X” parameter. Only when an investment gives a net social surplus, but not a financial benefit for the concessionaire, it could be publicly financed or, in this case, allowed to be paid by users through a tariff increase.

¹⁶ *Single-till* schemes regulate concessionaires’ revenues on airside and landside as a whole, preventing the rise of long term monopolistic rents. *Dual-till* schemes impose a regulation on airside fares and, separately, define royalties for landside profits. The first scheme is favourable for airlines, the second not.

However, the international practice and literature face often the question whether price-cap regulation and cost based regulation induce underinvestment or overinvestment (Niemeier, 2009). This is particularly important in the airport sector, where both regulatory approaches are applied worldwide and with many variants. In general, *price-cap* is associated with underinvestment, but this phenomenon is not generalised and price-cap can lead to excessive investment (Forsyth, 2008) as we will discuss in the present case.

In Italy, a form of *price-cap* is used, but the efficiency incentivising component is far to be demonstrated. An explicit remuneration of investments is possible via a “K” parameter. Within this scheme, a problem arises when *any* investment becomes financially feasible at a given increase of tariff, once approved. This is the situation of Italian airports, where ENAC, that is called to approve investments and consequent tariff increase, does not perform any kind of transparent analysis. The procedure usually used is the approval of a “*contratto di programma*” (a contract) that may include various new investments, without an explicit evaluation of their effect on demand, efficiency and profits. In other words, there is no distinction between financially feasible investments (decreasing the costs or rising new demand) and socially desirable ones.

However, the picture is not exhaustive. Some national literature (together with all airport operators) claims that in Italy airport fares are too low and too unsure, to allow an appropriate level of investments. Such statement is demonstrated empirically by the fact that the average of Italian investments is declining from 4 to 2,6 €/passenger from 2005 to 2007, while in the same period the EU average increases from 8,6 to 12 €/passenger (ICCSAI, 2008).

The two issues, i.e. a mechanism theoretically incentivising overinvestment and an actual level of investments very low compared to other countries, appear as contrasting. However, two facts must be kept in mind:

- The regulated fares, considered as too low, are the airside ones only. To the contrary, a large part of airport revenues is not effectively regulated in Italian normative (landside royalties) and at the same time not used by airport operators for investments. The consequence is the presence of significant unregulated profits despite the scarce efficiency achieved by operators together with dangerous potential underinvestment in the airside or in landside equipment.
- The above mentioned problem of project selection remains actual because of the fares definition formula: one can have overinvestment also with a very low level of absolute investments.

Going back to the self financing capability of airports, it can be verified that it is large in major ones. This is due to monopolistic positions, to the scarce regulation power and to inelastic demand. For example, Malpensa 2000 project could have been fully paid by franchisee budget, without any public subsidy.

Exactly as the case of highways previously described, the fact that every investment gives a certain increase of tariffs sufficient to pay it back, is a strong incentive to overinvestment i.e. promotes *gold plating* conditions. Also when the regulation is not applied on fares, but by fixing a threshold on maximum profits, the expansion of the total of assets through new (and maybe inefficient) investments maximises absolute profits (*Averch-Johnson* effect).

In conclusion, also in airport sector the *price-cap* as it is, i.e. without sound economic analyses of proposed investments, seems not to be the right regulation tool for new investments. Linking the

remuneration of investments through fares increase to sound and public evaluation is necessary to cut the extra-profits at present common in Italy.

7. Ports

Italian ports are not regulated as other infrastructures are. The authority responsible for tariff regulation in Italy, the NARS, is not competent on ports. Moreover, for the ports there are not general concessionaires in charge. The entities in charge of ports operations and decisions in the so called *Autorità portuali* (“port authorities”), whose task is not limited in time, is not regulated and no subject to periodic renovation. The port authorities can franchise part of the ports (for example a pier) or the totality of it, to private operators, like large logistic groups.

Exactly as there is no regulation on fares, consequently very high and not efficiency driven, also investments do not follow a regulation framework. In particular, large investments are paid for directly by the state, generally without socio-economic feasibility check. Minor ones are sometime financed by the concessionaires of part of the port premises (“*autonomie funzionali*”), within the concession contract.

The rationale of this framework is clearly doubtful: ports are unregulated monopolies, there are no efficiency driven fares, investments can be arbitrarily decided by authorities and paid by the state or by privates. Since private operators will do only financially profitable investments, leaving larger and weaker ones to the state, the possibility of cross-subsidies from the state to private operators is more than a risk. Also, there is no control of *gold plating* phenomenon, very common in practice.

8. Conclusions and policy indications

The answer to the initial question on the efficiency of the regulated transport investments seems to be generally unfavourable in Italy. It can be stressed a widespread convergence of objectives of the political decision makers and the regulated firms, at least in the sense of the maximization of any type of investment, without paying much attention to the relation of social costs and benefits. A possible explanation can be found in the fact that large public works are one of the few sectors where the State can transfer resources, directly or via tariff regulation, to national firms, given the European constraints of state subsidies in other sectors. The evidence is in fact that in this sector the competition is limited (and not only in Italy), due to the “non-foot-loose” nature of construction activity (the winner of the bids are in general both national firms, and in general within a “rotation” context with a limited number of players). Another possible factor explaining the limited interest for incentivising efficient investments is related to the dominant “*pork-barrel policy*”, i.e. the tendency of allocating public resources on a geographical basis, or, even worse, on “geography-plus-party” basis.

Concerning the main transport modes, the basic goal of maximizing investments seems to be articulated in function of the willingness to pay of the users: since railways users are unwilling to pay for the infrastructures (in fact, not even for the services, subsidised independently), consensus is the dominant objective of railways investments, and the environment a useful “lip service” added in order to show a vague justification even for some very far from passing any cost-benefit test.

Since, at the opposite, highways and airports users show a high “willingness to pay”, financing investments for these modes can pass through tariff increases even for projects of dubious utility, with no problems with the European budget constraints and a weak resistance from the (uninformed) users. Anyway, due to the same high willingness to pay, the overall inefficiency of this type of investments is probably in average less severe, compared to the railways sector.

Ports are a special case: there is no efficiency oriented regulation. Investments are either paid by the State or within long-term contracts with private operators. The dominant feeling is that no real cost-benefit analysis is at play in this picture.

The main conclusion emerging is that there is no political interest for allocative (no cost-benefit binding mechanism for exogenous investments) nor productive efficiency (no visible endogenous investments). A perverse incentive to overinvestment is given, known as *Averch-Johnson effect*, both in quantity (new and unnecessary investments) and in unitary prices (no control on cost overruns and inefficient engineering situations).

Common wisdom stresses that *gold plating* is promoted as an egoistic objective by the regulated actor, in order to amplify transfers, assets and profits. However the Italian case presented points out that *gold plating* is an objective also of regulator, since it is clear that it has no incentives in setting a proper control on investments.

Some provisional recommendations seem to emerge as evident enough.

- Ex-ante, a clear distinction is needed between exogenous (mainly social) and endogenous investments, according to the scheme presented in section 2.
- In general, commercial risks cannot be passed on to the investors: it may be both technically impossible (the investors will ask for hidden guarantees), and inefficient (the investors will be bound to ask for tariffs/subsidies high enough to hedge them from any real risk). Commercial risk is, in fact, by far a “regulatory” one in this sector.
- Tariffs optimizing financial results are in general not efficient in allocative terms (given a large set of external costs and benefits). Therefore, the relevant risks that remain “on the table” are mainly industrial ones, both for construction and operations. It is worthwhile to manage jointly these risks only if they are strongly linked, due to technical reasons (a net increase of “life-cycle efficiency”).
- The different transport modes present a wide range of different technical content, and related issues. Within a consistent general frame, a “case by case” approach is mandatory.
- An independent Authority is needed also for investments, notwithstanding the fact that many investments are mainly “social”, i.e. the exogenous ones following the previous definitions.

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