

The European Transport Policy- A case study on its main issues

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1. Foreword

The paper assumes a highly selective approach, focusing on a limited number of European transport policy issues, that nevertheless are probably the most relevant ones. Given the fact both of the extreme complexity of the transport sector (several competing modes, infrastructure and services, public and private players, efficiency and equity objectives, etc.), and the articulated impact of the European policy on different countries and in different time periods, this is probably the only possible practical choice for a paper.

The selected issues are:

- the more relevant basic principles;
- the planning and promotion of new infrastructure;
- the competition and regulation policy;
- the environment policy.

After a short summary of the most relevant European documents, and of the main literature, each policy issue will be outlined, looking critically both at the objectives, at the instruments used, and at the actual outcomes. A tentative explanation of successes and failures will be given, mainly based on broad political economy considerations. At the end, a general evaluation will be attempted, with some recommendations, and hints for further research.

2. Main E.U. documents and critical literature

Transport is one of the European Union's (EU) foremost common policies. It is governed by Title VI (Articles 90 to 100) of the Treaty on the Functioning of the European Union. The Treaty is mainly concerned with fixing what the European Parliament, the Council and the Commission are supposed to do as for 1) "the rules applicable to international transport to or from the territory of a Member State or passing across the territory of one or more Member States" (art. 91); 2) the prevention of discriminations of "carriers of other Member States as compared with carriers who are nationals of that State" (art. 92); 3) the limitation of subsidies to the reimbursement of public service obligations (art. 93, 96); 4) the progressive reduction of "charges or dues in respect of the crossing of frontiers which are charged by a carrier in addition to the transport rates" (art. 97). In short, the Treaty makes clear that in transport as in any other sector the main focus should be on removing border charges, duties and discriminations between Member States and by so doing on contributing to the free movement of individuals, enterprises and goods.

As the opening section of the 2001 White Paper ("European transport policy for 2010: time to decide") states explicitly "for a long time, the European Community was unable, or unwilling, to implement the common transport policy provided for by the Treaty of Rome [...] Later on, the Treaty of Maastricht reinforced the political, institutional and budgetary foundations for transport policy. [...] Moreover, the Maastricht Treaty included the concept of the trans-European network, which made it possible to come up with a plan for transport infrastructure at European level with the help of Community funding" (EC, 2001, p. 6).

The first White Paper on the future of the common transport policy was issued in the same year of the Treaty of Maastricht (1992). The guiding principle of that document was the opening-up of transport market along the lines traced in the famous 1985 White Paper "Completing the internal market". When the 2001 White paper was drafted the Commission reckoned that the market opening objective was generally achieved except in the rail sector (*ibidem*). Despite these alleged successes the Commission admitted "distortions of competitions resulting from lack of fiscal and social harmonisation" (EC, 2001, p. 7), unequal growth in different modes of transport, "congestion on the main roads and rail routes, in towns and at airports" and "harmful effects on the environment and public health, and of course the heavy toll of road accidents" (*ibidem*).

In the 2001 White Paper the Commission proposed no less than 60 measures aimed at developing a transport system capable of shifting the balance between modes of transport, revitalizing the railways (whose share – in terms of ton-km - of the goods market fell from 21% to 8,4% between 1970 and 1998) mainly through liberalization and technical harmonization measures, promoting transport by sea and inland waterway and controlling the growth in air transport.

In 2000 road accidents killed over 40,000 people in the European Union. On road safety, the Commission proposed:

- a new road safety action program covering the period 2002-2010 to halve the number of deaths on the roads, harmonization of penalties, road signs and blood-alcohol levels,
- development of new technologies such as electronic driving licenses, speed limits for cars and intelligent transport systems.

On fuel tax, the Commission proposed:

- separating fuel taxes for private and commercial uses,
- establishing harmonized taxation of fuel used for commercial purposes.

The review of the White Paper ("Keep Europe moving: a transport policy for sustainable mobility), released in 2006, outlines the orientation of the European Commission for the future transport policy. Next to actions foreseen in the 2001 White Paper, such as boosting rail and maritime connections for long distance freight transport, additional instruments were said to be needed to achieve these objectives. They include a freight logistics action plan; intelligent transport systems to make mobility greener and more efficient; promoting a debate on how to change mobility of people in urban areas; an action plan to boost inland waterways and a program for green powering of trucks and cars.

In March 2011 the European Commission presented the White Paper "Roadmap to a Single European Transport Area. Towards a competitive and resource efficient transport system". 40 initiatives are singled out in order to preserve mobility, remove major barriers in key areas, fuel growth and employment, cut carbon emissions in transport by 60% by 2050 and lower Europe's dependence on imported oil. A profound modal shift is advocated both for passengers and freight transport, along with the development and deployment of new fuels and propulsion systems, a better use of information systems and market based incentives (such as the application of "user pays" and "polluter pays" principles). Conventionally fuelled cars and trucks should be phased out from cities; road traffic death should be halved by 2020 and near-zero casualties should be achieved in road transport by 2050.

In air transport, the initiatives include the completion of the Single European Sky, the deployment of the future European air traffic management system (SESAR), as well as revising the Slot Regulation to make more efficient use of airport capacity. In rail transport, the initiatives include the development of a Single European Railway Area, opening the domestic rail passengers market to competition, and establishing an integrated approach to freight corridor management. In maritime transport, the European Maritime Transport Space without Barriers should be further

developed into a “Blue Belt” of free maritime movement both in and around Europe, with waterborne transport being used to its full potential.

The Commission therefore proposes a regulatory framework for innovative transport, including standards for CO₂ emissions of vehicles in all transport modes and vehicle standards for noise emission levels. One of the White Paper's top priorities is still to complete the trans-European transport network already envisaged back in 1992: the so called TEN-T.

3. The inspiring principles

The main principles that are explicitly stated for the European transport policy conform to the social-market economy model which is typical of (continental) Europe.

The first principle is linked with the one of the pillars of the Union itself: the tenet that competition, and a wider market, are essential conditions both for efficiency and for faster technical progress (and therefore competitiveness). Nevertheless, this principle is mitigated by the objective of social protection of the possibly affected workers and citizens.

Even the trans-European transport network dream can be traced to the first principle: the TEN-T network is allegedly aimed at making intra-European transport faster and, consequently, transport costs lower and competition more effective. In this case the first principle is also reconciled with the “golden rule” of public finance, according to which deficit spending is to be accepted as far as it is limited to investment aimed at increasing the social capital bequeathed to future generations. It cannot be maintained that the trans-European transport network policy has a Keynesian inspiration as it is conceived as a long run supply-side policy with limited possibilities for short run fine-tuning or cycle-smoothing.

The second principle relevant for transport, is related to the pricing of infrastructure, and is the Social-Marginal-Cost-Pricing (SMCP) principle, that states that economic efficiency requires that users pay all but only those costs that they generate directly to the society using the infrastructure, i.e. a pricing that maximizes social surplus, leaving long-term costs (i.e. investments and fixed costs) to be paid for by the public purse. This attitude seems to be short-lived, for the reasons already seen: the growing fiscal constraints of many European states apparently has compelled the E.U. to a less stringent approach, so the SMCP principle seems to be gradually substituted by the need that the users pay also for a substantial part of the investment and fixed costs (Social Average Cost Pricing, SACP), i.e. for something that was before paid by general taxation (this is not the case with railway investments promoted by the EU). This shift can be supported by distributive issues (“benefiters pay”), but also by conflicting theoretical approaches (that can be formally expressed stating a “positive marginal opportunity cost of public funds”).

The fourth European principle relevant for transport is related to the environmental impact of this sector. This principle is known as the “polluters pay”. It means that also the social costs have to be paid by the users, not only the economic ones, in order to maximize social surplus. The polluters pay principle is the one principle underlying both Pigouvian taxes and tradable permits as economic policy tools aimed at the reduction of environmental externalities. Behind the “polluters pay principle”, i.e. Pigouvian taxes and tradable permits there is a clear cut distributive choice: property rights are allocated to citizens affected by pollution not to polluting firms or polluting car or truck owners or polluting air or sea shipping companies¹. Someone advocates that the revenues from Pigouvian taxes or tradable permits should accrue to the damaged groups, at least as far as

¹ An allocation of property rights to polluters would lead to subsidize them in order to reduce their emissions. Pigouvian taxes, subsidies and tradable permits lead to the same outcome in terms of emission abatement and have exactly the same cost efficiency. They only differ as for their distributive effects.

this is technically feasible. It should anyway be noticed that, except for CO₂ emissions, there is a large overlapping between damaging and damaged groups and this makes compensations far more complicated to implement and at the same time less relevant as a distributive issue.

In the previous section we shortly listed the official aims and stated results of the European transport policy; in this section we tried to distil the principles. However, in practice, the story looks rather different and different, far less explicit “principles” can be seen at work, as we shall argue in what follows.

4. The planning and the promotion of new infrastructure

By far the more important European action here is the definition at the 1994 Essen European Council of the Trans European Networks for Transport (TEN-T). These networks, for roads and railways, were planned as extremely long “corridors” (thousand of kilometers); the only apparent rationale was their more or less linear shape. This, independently from the served traffic and from the already existing infrastructure, and from any economic or financial analysis.

The story of the first phase of this cyclopean plan is rather dismal: since being included in these networks was a pre-condition for getting some European money, but above all an “external” legitimization of politically favored projects, every country or group of countries began to promote a growing list of “corridors”.

The corridors grew not physically (not much happened), but for sure on the European maps, and spectacularly so: from the initial 14 they became about 30. But that was not enough: the European parliament passed a norm stating that “every infrastructure feeding a corridor will be considered a functional part of it”. Practically, not a single major European road or rail line was excluded from this endless “shopping list”, based on the political preferences of each member state. Although a well designed TEN-T network may play the role of providing an explicit ranking criterion for different national infrastructures within an accepted European framework, the way the TEN-T policy was actually implemented is widely held to be unsatisfactory.

Hopes for a change towards a more consistent plan, based on sound comparisons and ranking of priorities, were betrayed. During 2011, a new set of corridors was presented, with an identical approach of “almost straight lines on a map”, reduced in number to 10, and basically limited to railways links. No traffic data was considered, nor any economic or financial evaluation was presented to support the plan. The cumbersome methodology proposed was based on complex but purely geographic-geometric considerations (not even easy to understand and appreciate). Again, the feeling of a list of “desired” national project was confirmed (for example, one corridor passing through the south of Italy excluded the Messina bridged and Sicily; after a local political protest, in few weeks the Commission bifurcated the corridor in two, restating the branch passing through Sicily, beside the one passing through Brindisi in Apulia region).

Besides, the choice of selecting only railways links is legitimate, but should be supported by a careful analysis of economic and environmental impacts, given that it is well known the extremely high burden that the rail mode is imposing on public budgets (at the contrary of toll highways). This choice seems really peculiar in a period of growing pressure on the national debts and deficits. However, it is apparently coherent with the modal shift target stressed times and again in the 2011 White Paper. The question then becomes: is a modal shift of the size purported by the 2011 White Paper a sensible and attainable objective? And if the extent of the modal shift which is attained is far lower than target how large will the environmental benefits be?

Modal shift policies of the past have been unable to change the share of the modes. A comparison among the main countries of the EU, France, Germany, Italy and EU shows that the present modal

split between private car and public transport is quite homogeneous. Passenger cars share is on average about 85%: the lowest figure is for Italy (81,8%) and the highest for the UK (87,1%) (Author's own calculation with data from European Commission, 2011).

In Italy the share of road public transport (bus and coaches) is much higher than other European countries while the rail share is lower: such a difference in the modal split may be due to the stronger competition which is allowed in Italy between the long distance services by coaches and railways (the French law forbids coach lines parallel to railways).

From 1970 to 2000 passengers car share in Europe (EU15) increased from 75% in 1970 and to 83% in 2000 and remained at this level in the last decade. The modal split for land based freight is quite similar to that of passengers: between 1995 and 2009 railway's share decreased from 23% to 17% (Author's own calculation with data from European Commission, 2011).

In economic terms, the share of railway transport is even lower than that in physical measures: in Italy the expenses for road freight transport are about 98% of the expenses for all land freight transport (CONFETRA, 2002).

Which European principle looks in play here? Social cost-benefit analysis, even if it has a definitely neo-classical basis, can well include Keynesian contents (in the form of proper shadow prices of the factors of production), the environmental costs, and the assumed pricing rule. So it seems to be a solid evaluation tool, at least for infrastructure, consistent with the above described principles. But no comparative analysis of this nature has been ever presented in order to justify any European selection for priorities and subsequent financing of the TEN-T projects, neither in the first nor in the second phase. What political explanation is possible for this? We advance that principles are too easily forgotten, when national "pet" projects are at stake. "logrolling" is the technical name for this behavior: a hidden general agreement based on reciprocity. No national project has to be damaged (cancelled or postponed) by any independent economic evaluation.

Furthermore, the present political pressure for relaxing the financial constraints on public expenditure (the "golden rule", and the project of emitting "Eurobonds" guaranteed by European financial institutions, on which we cannot enter into technical details here) formally is aimed at promoting infrastructure investments. Eurobonds can be a welcome innovation as they may contribute to overcome the present stalemate in infrastructure building in Europe. The obvious drawback is that Eurobonds may make easier the realization of many national projects, lacking any serious and independent evaluation, will have dubious real growth or positive environmental effects, but may well increase the popularity and the political success of local promoters.

5. The competition and regulation policy

Trucking industry

Competition and economic regulation are just two aspects of the same issue. In fact, economic regulation is aimed at incentivizing efficiency in situations where the market pressures cannot operate, either for technical reasons (natural monopolies), or for political choices (legal monopolies). Both these cases are largely present within the transport sector: infrastructure are an obvious example for the first case, and public transport (in several forms) for the second one.

European competition policies obviously concerns only services, i.e. what at least potentially can be opened to competition.

Let us start with the services that are assumed to have no major social motivation justifying restrictions to competition: the trucking and the air industries. The trucking industry has been fairly liberalized long time ago in Europe; the Union has improved on the existing situation defining a set of rules for vehicle standards, has partially (largely?) opened up competition in cabotage, and has forbidden anti-competitive behaviour from single countries (like setting

minimum tariffs: Italy has again done it after a short period of liberalization namely to get higher levels of safety but legislation in force is now under scrutiny by the EU)). Further liberalization is expected in cabotage soon, and with this action probably the sector can be considered completely liberalized. This success probably is linked with two factors: the dominant role for the European industrial producers of this type of transport (sometimes vertically integrated in the logistics chain), and the fact that the industry in question is entirely private. In some European countries (such as Italy) the highly fractionated trucking industry is subsidized under the permanent threat of road blocks (however subsidy represents a small share of taxes paid and, as a percentage of turnover, is smaller than the one accruing to rail). This not only explains why liberalization in Italy has been a stop and go process, but also may lend support to the view that the new package of liberalizations will meet many obstacles.

Air transport

Air transport had been traditionally a highly regulated industry, dominated by national flag carriers and state-owned airports.

In the summer of 1978, a statement on “International Air Transport Negotiation” was signed by US President, Jimmy Carter. This stated that the US’ aim was to provide “maximum consumer benefits...through the preservation and extension of competition between airlines that was to be achieved through negotiation or renegotiation of bilateral air services agreements (elimination of restrictions on capacity, frequency, multiple designation of US airlines, liberalization of charter flights) and deregulation within the US. After the 1978 agreement with the Netherlands the US concluded liberal agreements with Belgium, Germany, Luxembourg and other countries. (Doganis 2005)

Open market agreements still contained some minor designation and pricing restrictions. Moreover, they didn’t include provisions which would enable code-sharing between European and American airlines. In 1992 US government introduced the “Open skies” agreements with provision of unlimited multiple designation, unlimited 5th freedom rights, free pricing and code-sharing.

In the early 80’s many European bilateral agreements were renegotiated too and at the turn of the 90’s the EU liberalized its air transport sector in three stages.

The first “package” of measures adopted in 1987 started to relax the established rules. For intra-EU traffic, it limited the right of governments to object to the introduction of new fares and gave some flexibility to airlines concerning seat capacity sharing. The second “package” in 1990 opened up the market further, allowing greater flexibility over the setting of fares and capacity-sharing. It also gave all EU carriers the right to carry an unlimited number of passengers or cargo between their home country and another EU country. The following stage of the liberalisation of air transport in the EU was the subject of a “third package” of measures, which applied as from January 1993. This package introduced the freedom to provide services within the EU and, in April 1997, the freedom to provide “cabotage”: the right for an airline of one Member State to operate a route within another Member State.

EU also pushed for replacing bilateral agreements between its member states and non-EU countries with multilateral open skies agreements which allow nondiscriminatory access to U.S. – EU markets for any EU carrier. Renegotiation of these agreements was effectively forced by a 2002 European Court of Justice decision invalidating substantial portions of bilateral agreements. A first-stage agreement that moves partway toward these goal was approved in 2007, with implementation effective in the spring of 2008.

On both sides of the Atlantic the main, spectacular success of the gradual liberalization process has been the “no frills” or “low cost” model of air service. The Texas-based SouthWest air company was the pioneer of this innovative and successful model (based mainly on identical planes, no overnight time for the crew, web ticketing, no seat booking, low-cost airports, quick turnover time of the planes at the airports).

Applied with hindsight at the new moderate opening of the European market, this model, beside becoming an outstanding commercial success, compelled also all the large and former public companies to lower their fares, with overall savings for the European travelers estimated in the order of 30%. Preemption actions by largest companies hampered competition on many routes (Boitani and Cambini, 2007). The main obstacle to the opening of the air market has been the slot allocation mechanism which remained based mainly on the “grandfather’s right” principle, i.e. on maintaining the slots at disposal of the incumbent companies, with no “scarcity charging” (see point... on SMCP, a rule quickly forgotten in order to protect incumbents from the aggressive new entrants). The European Commission before taking a final decision on this issue, made a survey among the different states, that expressed themselves strongly in favor of keeping the “grandfather’s right” system, i.e. protecting the incumbent companies, mostly national and state controlled. It was almost like asking a monopolist its views on free competition, and a first signal of the difficulties of liberalizing state-controlled industries, difficulties that resulted higher than those incurred in liberalizing private sectors.

And actually, after the consolidated success of the low-cost companies, the incumbent ones continued to attempt to curtail, via court actions, the role of their aggressive competitors, but with limited results.

The Airport package adopted on 1st December 2011 contains some proposals which could improve slot utilization and enhance competition.

Two measures have been identified in order to improve primary allocations:

- annual withdrawing and auctioning of a share of slots. Consists of withdrawing a percentage of historical slots at highly congested airports where new entry is severely restricted. Withdrawn slots are then auctioned.
- modify the definition of a new entrant by increasing the number of slots that a carrier may hold at an airport while still being considered a new entrant

Airlines would be allowed to trade slots with each other at airports anywhere in the EU. The threshold necessary to retain a slot series above the current 80% and increase the minimum series length above the current 5. The same package also contains a legislative proposal on ground handling which asks for full opening of the self-handling market and increase in the minimum number of service providers to three at large airports and mutual recognition of national approvals of operators with harmonized requirements. These provisions should enhance competition but the proposal also contains a number of requirements mainly related to the approval process for ground handlers and to the selection procedure for companies wishing to offer a service at airports with a capped number of providers that may actually increase barriers to entry and thereby lead to the opposite effect.

Railways

Compared to the air sector, the rail sector was, and still is, by far more “public”: both infrastructure and services were publicly owned and operated across Europe at the beginning of the liberalization process, i.e. in the early nineties. Almost contemporaneously, and for sure without a major role of European actions, two countries began opening up the rail market in Europe (after Japan started a few years before a reform based on the regionalization of the system). In Sweden, regional services are procured by regional authorities on gross cost contracts;

unprofitable long distance services by national government on net cost contracts. By 2005, the government-owned operator (SJ) had lost around half of regional services to several new operators, whilst it retained 87% of long distance services; no competition is permitted in unsubsidized markets (Nash, 2008). In the UK the reform was much more radical, with the complete privatization of the system, including the infrastructure (brought back under public ownership in 2002), the tendering of services, and the creation of a secondary market for rolling stock, but the result were not very satisfactory.

In the UK, from 1952 to 1992, the number of railway passengers-km fluctuated between 30 and 35 billions; after the reform it steadily grew up to 50 billion; in Sweden passengers-km grew by 60% after liberalization (in the same period rail passengers traffic increased by about 25-30% in France and Germany and remained unchanged in Italy).

What about labour productivity (measured as Train km/train operating staff)? Pre reform the annual average rate of growth of the ratio train-km / train operating staff was near zero (-0,55 in the UK and + 0,45 in Sweden); in the period directly following liberalization productivity grew by 3,96% per year in the UK and by 10,15% in Sweden (Nash, 2008)

Both in the UK and in Sweden unit subsidies for tendered services were lowered by about 20% (ECMT, 2005). In the UK total subsidies for services in 2007 were estimated² about 588 billion £ against 716 in 1997 notwithstanding the large increase of train-km supplied.

The European Commission started early, in 1992, but in a rather shy way: the societal separation of infrastructure from services, and the very gradual opening up of these, starting from freight. But the separation asked for was mainly formal: governments can, and did, remain owners of both the incumbent services operator and of the infrastructure operator. Vertical separation is advocated in order to mitigate the hold-up problem that may well arise under vertical integration. However vertical integration may be compatible with competition in the downstream market provided a powerful and independent agency is in charge of regulating access charges and track use conditions, besides being in charge of allocating tracks with no constraint of "grandfather's rights". Cross subsidies and predatory prices were a very realistic perspective, even in cases where some entrance was technically feasible.

An obvious consequence of the extreme weakness of the liberalization process in the railways sector can be judged by the sheer numbers, even without recurring to concentration indexes (such as the Herfindhal index): after two decades from the first European actions, in continental Europe about 90% of the sales revenues of the sector accrues to the national public incumbents, both in freight and in passenger services.

Is this per se a bad thing? Apparently yes, given the relative declining role of the sector, notwithstanding the heavy subsidies paid by the states, both for infrastructure and for services.

A more competitive situation, with real possibilities for new entrants to compete either "in" the market or "for" the market (at regional level, where services are almost everywhere subsidized), would lead perhaps to more efficient services (better quality and lower overall costs for society). It might be argued that more efficient rail services would impact on the modal split in very densely populated metropolitan areas. However there are reasonable doubts that such improvements in the rail service quality/price ratio would have major impacts on the overall modal split. This, due to structural reasons, both for freight (high-value, dispersed production, modern logistics, etc.), and for passengers (urban sprawl, labour and housing markets, commercial distribution, leisure models etc.). Details should be deferred to further research.

On pricing rules both for rails and toll roads infrastructure we can see perhaps the more evident deviation from the theoretic principles. Basically, for rail infrastructure Europe accepts (and

² Nash, Nilsson, Link (2011), p.9.

actually favor) a SMCP policy, i.e. that only operating costs are charged for (and sometime not even these), while for toll roads in general also investment costs are charged for, even if not always 100%. Given the existing wide differences among European models of road-toll and rail tracks access charging one may well conclude that The European Commission has no power and may be no will to pursue further harmonization.

Local Public Transport

Also in local public transport the European policy had a lower than expected impact. Two regulations were issued (1191/69 and 1893/91) mainly concerning public service obligations in transport by rail, road and inland waterway. Regulation (EC) 1370/2007 moves one step forward by setting the rules for awarding public service contracts and “in particular the circumstances in which they should be the subject of competitive tendering”. According to Regulation 1370/2007 public tendering of service contracts is not mandatory: “Subject to the relevant provisions of national law, any local authority may choose to provide its own public passenger transport services in the area it administers or to entrust them to an internal operator without competitive tendering”. However, the Regulation sets the trade-off local administrations should face: in-house providers should be prohibited from taking part in competitive tendering procedure outside the territory of their administration. Public tendering, on the other hand, “shall be open to all operators, shall be fair and shall observe the principles of transparency and non-discrimination”. Negotiated procedures are permitted, provided that such procedures are in accordance with the above mentioned principles. Provisions of less than 300,000 kilometers (or worth less than € 1,000,000) of road or tramways public transport services may be awarded directly, i.e. skipping the tendering procedure. As for local transports by rail, competent authorities may decide to make direct awards of public service contracts irrespective of the value or the kilometers of transport services. National laws, however, may prohibit such direct awarding and make competitive tendering mandatory. The Regulation makes it explicit that “it is immaterial from the viewpoint of Community law whether public transport services are operated by public or private undertakings”, in accordance with article 295 of the Treaty.

Some member states (France, Sweden, The Netherlands) introduced competitive tendering procedures in the assignment of franchised monopolies in local public transport well before Regulation 1370. The UK is the sole European country where “competition in the market” has been experienced in urban transports, except in London where competitive tendering is adopted for bus services (the underground is directly managed by Transport for London). In Italy some competitive tendering (for the market) took place after 1998. However, large cities were not affected by the tendering process, but for one fifth of the bus services in Rome, since 2001.

Many analyses of the European LPT industry have focused on the impact of alternative contract schemes at the regional or national level, observing a choice between fixed-price contracts and cost-plus ones and relating it to efficiency. Empirical evidence confirms the theoretical prediction that firms operating under a high-powered incentive scheme, such as a fixed-price contract, are more efficient than firms operating under a low-powered incentive scheme, such as a cost-plus contract. However, this evidence is country specific³. By using a cross-country data set light can be shed on the role that both the selection mechanism and ownership have on local public transport firms in Europe (Boitani, Nicolini, Scarpa, 2013). An econometric exercise shows that firms selected through public tendering present higher levels of productivity (as defined by TFP). Moreover, ownership matters: public firms are generally less productive than private firms. The

³ See for national evidence *European Transport* (2006), n. 33, special issue on Competition in Public Transport. See also Gagnepain and Ivaldi, 2002; Roy and Yvrande-Billon, 2007; Piacenza, 2006.

same holds true for mixed ownership firms. However, a large heterogeneity characterizes mixed ownership firms, with mainly public firms (those with a public share over 85%) less productive than other mixed firms with a lower public share⁴.

Caution is needed when drawing policy implications from the above mentioned results. However, there is a mild indication that in the European countries under exam competitive processes have been able to select more efficient firms than negotiated procedures. This may well depend on the poor quality of the local bodies in charge at negotiating the contracts, or on other causes which are beyond the scope of the present paper. Whatever the reason, policy proposals advocating a limitation of competitive procedures in the European institutional context would need to provide very strong evidence that negotiations yield better results.

As for ownership, the results above show no ambiguity: firms in public hands are less productive than private ones. However, the policy implications are less clear cut, as they would depend on what explains the result. The higher productivity of private firms may have at least two drivers. The first is that private shareholders simply have stronger incentives to make sure that the firm is efficient. The second one is that during the privatization process of the last few years more productive and profitable firms have been sold to private shareholders, so that only less productive undertakings have now remained in public hands. Understanding which explanation is preferable would require further analysis. However, it is apparent that privatization could be a solution only if the power of incentives is the dominant driver of private firms' higher productivity. Otherwise the path to efficiency is far more complex. If privatization is to be chosen, it seems preferable to go all the way (or most of the way) to private ownership. However, as already mentioned the European Treaty is neutral with respect to property. Incentives for privatization of local transport firms are thus unlikely to come from Community law. A final warning is appropriate: both competition and privatization are no panacea: indeed, they may have different effects in different set-ups, failing to deliver the expected benefits in some circumstances. In particular, it has to be highlighted that a careful contractual design is crucial in providing the proper incentives to efficiency, either with or without competitive tendering, either with privately or publicly owned firms.

Ports

On the port and maritime sector here we can only provide a very synthetic analysis, given the limited role played up to now by the Commission, and the special characteristics of the sector. We limit ourselves at few points on the port policy, given also the dominant role of the extra-European market for the maritime sector.

At the infrastructure level, the ports of European interest have been in some way selected as terminals of the TEN-T corridors. But, given the limited impact and success of these corridors (related also to the weak economic background on which they have been selected), this list of ports seems to have also a limited practical content.

By far the main attempt of the Commission is related to the proposal of two policy "packages", aimed at setting common rules on:

1. State aids, also in terms of infrastructure funding, in order to increase a level-field competition among ports
2. Competition in granting overall and/or partial port concessions
3. Competition in single port services, related both on the seaside and on the landside

⁴ It is interesting to notice that available indicators of city characteristics rarely affect local public transport firms' TFP, except for possible negative congestion effects on ground transport services in large cities.

Both packages have been rejected by the European parliament, basically under pressure from the labor unions, that are in general powerful ones in this sector. Remembering that ports in Europe are mainly under public control, we can only observe that also in this sector, like in the railways, public ownership seem to render any liberalization process more difficult.

A new “package”, with similar content, will be presented by the Commission in 2013, probably more conservative, given the preceding negative experiences.

A particular point of the regulatory issues on the table, concerns the pricing principle: the Commission is consistent in recommending a Social Marginal Cost Pricing approach, notoriously both efficient and pro-competition. But given the different financial situations both of the ports and the countries where they are located, this approach, that assumes a 100% funding of the investments by the public purse, faces very special difficulties to be flatly accepted by the whole system.

Evaluation

Notwithstanding these limited successes, the liberalizing pressure of the European policy deserves a definitive positive evaluation. The pace has been slow, but the direction is correct, and now it seems somehow unstoppable. This, also thanks to a wide range of experience gained at European level in protecting the workers and the firms more severely affected by the liberalization process, even at the cost sometime of slowing it down. But in some cases (railways) this resulted in a near paralysis. And actually the main slowing factor has been, much more than the social concern for the affected workers, the residual resistance of the countries defending some “national champion” from foreign competition, a point that can be perhaps understood where strategic technology is involved, but far less so in service activities, dominant in the transport sector. Here, “capture” mechanisms (exchange of votes etc.), seem a much more effective explanation. Sometimes large state owned enterprises act as if they were the majority shareholders of governments. Sometimes both national and local politicians use state owned enterprises as if they were their own departments. Either way frictions are added to any liberalization process. However it is only fair to add that the benefits (lower prices and quality improvement) accruing from liberalization strongly depend on the liberalized industries benefiting from high demand growth and/or speedy technical progress. Except for the dramatic increase in the demand for air transport, demand for other modes of transport cannot be expected to grow at a pace resembling that of the second half of the twentieth century. Nor technical progress can be expected to match the one we had in the telecommunication industry. Hence the benefits to be expected from liberalization are far less spectacular than those obtained in air transport and telecommunications.

6. The environment policy

Transport generates several types of environmental impacts: Green House Gases (GHG), noise, accidents, health damaging emissions (NO_x, SO_x, particulates, CO). This, mainly in the road and air sectors, but also in maritime transport, and in general for infrastructure building these are far from negligible.

Nevertheless, these impacts are relatively less severe than generally assumed: for example CO₂ emissions are in the order of 25% of the total, but the IPCC assumes that a reasonable target for abatement of only 10% of the total, given the relatively high costs of abatement per unit in this sector.

As already mentioned, the standard approach to environmental policy is the so-called “Pigouvian taxation” (which accords to the “polluters pay” principle). A carbon tax is the obvious

consequential tool for dealing with GHG emissions, and similar general taxation strategies for other external costs.

But this is not the line of action followed by Europe. A completely different approach prevailed, i.e. that of setting technical standards for vehicles, with growing constraints on safety, emissions, noise etc. The main example has been the Euro standards for road vehicles (known by successive numbers: Euro 1, 2, 3, etc.). Each one of them is the product of long negotiations, sometime harsh, with the automotive industry. The results seem rather favorable.

According to the WHO (1999), “PM₁₀ is an excellent indicator of the health-relevant air pollution mixture” and “in several recent European studies black smoke was found to be “at least as predictive of negative health outcomes as PM₁₀ and PM_{2.5}” (WHO, 2003, p.12).

Long term evolution of black smoke in European urban areas shows a large improvement. For example

- in Paris the winter mean concentration of black smoke between 1956 and 1992 decreased from 180 µg/m³ to 35 µg/m³ (AIRPARIF, 1999)
- in London the annual mean concentration of black smoke between 1958 and 1971 decreased from 536 µg/m³ to 59 µg/m³ (Academie des Sciences, 1999).

In Great Britain, total emissions of PM₁₀ fell by 69% from 1970 to 2006 (DEFRA, 2007a): emissions from road transport increased by 50% from 1970 to 1990 and then has fallen to 17% below the 1970 level; the present share of road transport emissions is about 20%.

In British urban areas, since 1992 (start of monitoring) PM₁₀ annual mean concentration decreased by about 30% from 38 to 26 µg/m³. The evolution is about the same in all European cities.

Previous data show that the leading factor in shaping the air quality has been and will be technological improvement of vehicles: NO_x and particulates per km of 2010’s vehicles are about 95% lower than those of 1970’s vehicles.

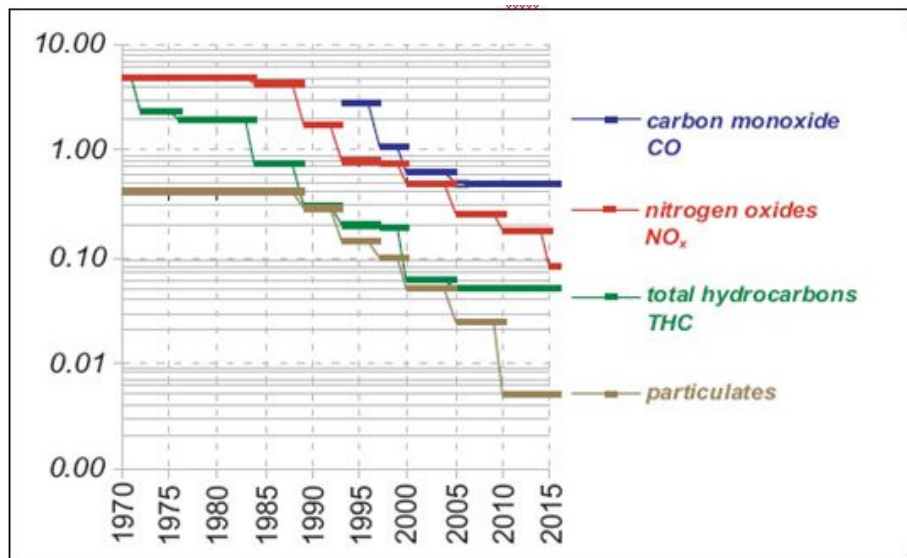


Figure 1 – Diesel car unit emissions [g/km]

There’s no “counterfactual” prove that a flat and simple Pigouvian taxation on fuels would have produced better results.

We can only observe that a simple carbon tax has been strongly opposed by the industrial sectors, even for a modest amount, in the order of 30€ per CO₂ emitted ton (far lower than the value of recent estimates of the social opportunity cost of these emissions, now in the order of 100€ and more).

The arguments of the industry are well-known: international competition and the following risk of a severe loss of jobs. Instead, setting mandatory physical standards for end-products accelerate the rate of substitution of these products in the market. So this strategy, to the contrary of a generalized Pigouvian taxation, is putting the weight of environmental policy in transport much more on the final consumers and far less on the producers: the latter actors will probably compensate the negative effects of more expensive vehicles on their demand, with an accelerated rate of fleet renewal. Local constraints on the circulation of older vehicles also help making this acceleration almost mandatory.

A carbon tax furthermore would have created some political difficulty. Actually, gasoline taxation has a history that can be summarized as follows: at the beginning, with low motorization level, it was considered a very progressive tax, hitting the rich; with mass motorization, it became an efficient tax for collecting large revenues due to the rigidity of gasoline demand (the "Ramsey rule"). When an environmental conscience emerged, a general carbon tax would mean a reduction of gasoline taxation (now in the order of 300€ per ton of CO₂ emitted, while the proposed carbon tax was in the order of 30€ per ton, as we have seen). This would have required a general rearrangement of all the fiscal structure, on the base both of the relative rigidity of the demand in the different sectors, and on the environmental effectiveness of the taxation. But for the same reason that taxing gasoline is efficient for minimizing deadweight losses due to its rigidity, it is inefficient for environmental goals: here the more elastic is the demand, the more efficient (and effective) is the taxation.

It is evident that this overall fiscal review was politically unfeasible, so rational economic principles were easily forgotten, and gasoline taxation remained a powerful tool for extracting revenues, with the help of the environmental growing conscience, that minimized the resistance from the taxed social groups (An example of the difficulties of taxing firms can be derived by the fact that a heavy polluting sector, agriculture, is explicitly subsidized by the EU).

Within this picture, the objective of reaching any reduction of environmental costs via a large modal change seems rather unrealistic, and also not so easy to understand.

The rail mode is heavily subsidized and the road mode heavily taxed since several decades, with limited, when not negligible, results both in terms of the environment and of road congestion alleviation. The same rigidity of gasoline demand that we have observed quoting the Ramsey rule, expresses implicitly also an extremely high utility of the road mode, compared to the subsidized rail mode, but the economic consequences of this rather obvious observation looks totally neglected at the European level. Furthermore, this is also a very expensive choice for the public purses: more railway traffic and less road traffic means more subsidies and less fiscal revenues (set aside the dismal environmental results of this policy up to now).

It is possible to develop more efficient and effective policy tools.

7. The safety policy

From 1970 to 2010 road fatalities in EU15 decreased by 77.831 to 21.247 (-73%). In the same period passengers-km increased by 157% therefore the fatality rate decreased by 89%. As for the environmental impact of transport, these data seem to show that any reduction of road casualties achievable by a modal shift from private cars to public transport through subsidization of the latter would be minuscule if compared to the results achieved as a result of technology (improvement of car safety) and an effective national road safety policy (there are still large gaps between

countries: the average fatality rate for the UE27 is 64 fatalities per 10 billion passenger-km with a minimum for Sweden equal to 27 and a maximum for Romania equal to 303).

Table 1 - Road Fatalities Country Rankings (UE27 – year 2010)

FATALITIES

						2009	
per million inhabitants		per 10 billion pkm		per million passenger cars			
UK	38	UK	34	UK	80		
SE	39	SE	36	SE	83		
NL	39	FI	43	NL	85		
DE	51	NL	43	MT	90		
MT	51	DE	46	DE	100		
FI	52	IE	49	FI	102		
IE	54	IT	54	IT	117		
DK	55	DK	57	ES	123		
ES	59	FR	58	IE	124		
FR	68	SI	68	FR	137		
IT	70	LU	69	LU	142		
EU-27	70	EU-27	71	DK	144		
SK	71	ES	75	AT	146		
EE	73	BE	85	EU-27	148		
AT	76	AT	86	CY	157		
PT	79	EE	92	SI	163		
HU	82	MT	93	EE	179		
SI	84	PT	96	BE	185		
CZ	86	LT	101	PT	190		
BE	88	CY	116	CZ	203		
CY	89	CZ	119	LT	220		
LU	94	EL	136	SK	245		
LT	111	SK	142	HU	271		
LV	113	LV	148	LV	277		
BG	119	PL	158	PL	281		
PL	120	BG	191	EL	286		
EL	129	HU	194	BG	370		
RO	130	RO	358	RO	676		

8. Conclusions and further research

Compared with other economic sectors, transport is an extremely complex one: it has both services and infrastructure, services in turn are provided both for freight and passengers, it has important environmental externalities, it sees both state and private suppliers, it is sometime highly monopolistic (both of the natural and the legal type of monopoly), but services are sometime fully open to competition, it has different technologies (modes), with some mode heavily taxed while some other heavily subsidized, and eventually it has social and geographic distributive contents. This complexity renders on overall picture of the European policy far from simple, but anyhow necessary in order to grasp its basic content, and possible consistency.

The aims and goals of this policy looks sound and consistent (opening up the European market via better transport infrastructure and services, the latter made more competitive, to the benefit both of efficiency and distributive goals), even overcoming strong resistance of vested interests and nationalistic egoisms.

The results, nevertheless, looks unbalanced, and this in a rather unexpected way: the public actors, themselves promoters of the European union, are far less ready to open up to competition the sectors that they control, while these actors are more able to force in that direction the private sectors (that sometime where openly hostile to liberalization).

As infrastructures are concerned, the overall European strategy looks poorly planned and left open to nationalistic pressures, and probably for that reason heavily unbalanced in favor of the more public and resource-consuming mode, railways, that remains the less efficient, monopolistic transport mode. The more outstanding example is the list of the new TEN-T corridors: a “shopping list” of rail-only infrastructure, void of every demand, economic or financial analysis, in a period when financial constraints are absolutely dominant at the European scale.

On the environment side, the picture looks more successful, but not as a direct consequence of the main European strategy: modal change. This actually has not changed much, notwithstanding the economic and financial costs related to this policy. The success is related instead with the emission standards made mandatory for road vehicles (Euro successive numbers: 1,2,3, etc). And this looks a result just following common sense: aiming at the primary target (reducing damaging emissions) is obvious more simple and direct than trying to achieve the same result in a tortuous way, i.e. via and “induced” change of behavior of the economic actors. The present level of fuel taxation is much higher than the one required to internalize externalities related to CO₂ emissions: a possible further increase to internalize this environmental cost would have very little impact on total cost if road transport and therefore on the demand. Road safety (a high social cost) has also improved dramatically, but this fact seems more related to plain technical progress of the vehicles. Road congestion has suffered for the high priority given to railways, since the modal split change, expected with this policy, never occurred. Investments in roads has remained relatively limited, notwithstanding an increasing demand for this mode of transport, and its fiscal contribution to the public budget. Nevertheless, the average travel time of road transport has remained fairly stable in the last thirty years notwithstanding an increase of the average length; and the modal shift from slower mode of transport lead to a decrease of the average travel time for all the modes. Congestion costs represent a low share (a few percents) of the utility of road transport and the best strategy to deal with this problem seems to be a combination of pricing and new road infrastructures (expecially underground).

Competition has improved in the air sector rather unexpectedly: a shy European liberalizing action has set in motion the entry in Europe of a particular Texan “model” (the “no-frills” or “low cost” service), that has compelled also the still protected and often public national companies (see the “grandfather’s rights” in the slot allocation), to lower their fares and change management attitudes, to the large benefit of the users.

Road freight transport, totally private, was already rather open to competition, and the European policy has just encouraged the trend, and the process is still going on on minor aspects, like cabotage.

More blurry looks the picture for local passenger transport. There are some forms of competition, but highly discretionary: here it seems that the national political will to open up the internal market plays a role far more important than the shy European actions.

Railways infrastructure and services remain basically public and monopolistic, with limited exceptions. This in part is linked to the technical nature of this mode, that presents a high indivisibility, and economies of scale and scope (in this it is really different from the other modes). But in part it is linked to its historical public nature, with high subsidies and very strong trade unions, with “vote of exchange” embedded mechanisms.

The same can be said for ports, while the maritime service sector is basically competitive and private since long time.

Social protection of workers (especially the weakest ones), that is a fully legitimate objective of the European policy, suffers from the above-mentioned unbalances: workers in the public sectors remain disproportionately more protected than the ones in the private sectors, that are even originally in a worse position, both in terms of job security and level of wages.

the real impact of different transport policies on:

The present Euro crisis, that in some form is linked to insufficient economic integration of the different states, paradoxically may generate a positive result, in term of a general acceptance of reduced national roles, that means of course a reduced possibility of egoistic behaviors by the states.

If this is the main source of problems and constraints in the European transport policy up to now, and the European objectives are accepted as sound and equitable ones, the result may be that of an acceleration of competitive policies, and a reduction of waste of public scarce resources in “show-off” infrastructure projects with limited or negative economic results.

Nevertheless, further research is needed, especially in terms of

- the impact of different European policies on the competitiveness of the European industry
- the costs and benefits (including the external ones) of investments in the different modes
- the real environmental impact of the present policy of modal change
- the possible strategies for a more equitable of labor protection
- the relation of micro and macro variables in the pricing policies for financing investments (i.e. marginal versus average cost pricing, within a context of scarce public resources)
- the employment impact, per Euro spent, of large and small investments, and its time profile

9. Bibliography

Académie des sciences - Cadas, (1999), Pollution atmosphérique due aux transports et santé publique, Editions Tec & Doc, Paris.

AIRPARIF (1999), Les tendances de la pollution atmosphérique en Ile-de-France. Airparif actualité, n° 7, Paris.

Bergantino, A (2002), The European Commission Approach To Port Policy: Some Open Issues, *International Journal of Transport Economics*, Rome, 2002

Boitani A., Cambini C. (2007), "La difficile liberalizzazione dei cieli: turbolenze sulla rotta", in Pammolli F. *et al.*, Politiche di liberalizzazione e concorrenza in Italia. Proposte di riforma e linee di intervento settoriali, Il Mulino, Bologna.

Boitani, A., Nicolini, M. (2013), "Do competition and ownership matter? Evidence from the local public transport in Europe", *Applied Economics*, 45, 1419-1434.

CONFETRA (2002), La fattura Italia dei servizi logistici e del trasporto merci, Quaderno n. 98/2 – Luglio

Commission of the European Communities (2001), White paper. European transport policy for 2010: time to decide, Bruxelles

ECMT (2005), Railway reform and charges for the use of infrastructure, Paris.

European Commission - Directorate-General for Energy and Transport (2006), Keep Europe moving. Sustainable mobility for our continent, Bruxelles

European Commission - Directorate-General for Mobility and Transport (2011), White paper. Roadmap to a single European transport area - Towards a competitive and RESOURCE-EFFICIENT transport system, Bruxelles

European Commission (2011), EU Transport in figures, Bruxelles.

European Transport (2006), Special issue on Competition in Public Transport, 11 (33), 1-82.

Doganis R. (2005), *The Airline Business*, 2nd Edition, Routledge

Gagnepain, P. and Ivaldi, M. (2002) Incentive regulatory policies: the case of public transit systems in France, *RAND Journal of Economics*, 33, 605-629.

Nash C. (2008), Passenger railway reform in the last 20 years – European experience reconsidered, "Research in Transportation Economics" 22, p. 61–70.

Nash C., Nilsson J-E, Link H. (2011), Comparing three models for the introduction of competition into railways - is Big Wolf so bad after all?, Centre for Transport Studies, WP 2011:19, Stockholm.

Piacenza, M. (2006), Regulatory contracts and cost efficiency: stochastic frontier evidence from the Italian local public transport, *Journal of Productivity Analysis*, 25, 257--277.

Roy, W. and Yvrande-Billon, A. (2007), Ownership, contractual practices and technical efficiency: the case of urban public transport in France, *Journal of Transport Economics and Policy*, 41, 257--282.

Verhoeven, P. (2009), "European ports policy: meeting contemporary governance challenges", in *Maritime Policy & Management*, Volume 36, pages 79-101 Issue 1

WHO - Regional Office for Europe (1999), Health costs due to road traffic-related air pollution. An impact assessment project of Austria, France and Switzerland, Federal Department of Environment, Transport, Energy and Communications, Bureau for Transport Studies, Bern, Switzerland.

WHO - Regional Office for Europe (2003), Health Aspects of Air Pollution with Particulate Matter, Ozone and nitrogen Dioxide,