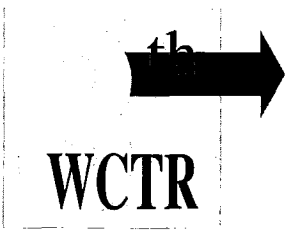

ON THE GROUND, OVERGROUND AND ALL AT SEA: A REVIEW OF ORGANISATIONAL REFORMS OF THE EUROPEAN TRANSPORT INDUSTRY

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Abstract

A review of the progress towards a single European transport market is provided. Based on over 200 interviews, trends in ownership and competition since 1980 for the four key transport sectors (air, rail, road and water) are analysed. Differences in the perceptions between the 15 European states studied concerning the balance between regulatory and market failure and the importance of externalities are identified. As a result, it is concluded that the structure of the European transport system is currently something of a patchwork quilt. Ways of improving the structure and hence the conduct and performance of each of the four transport sectors are suggested.

INTRODUCTION

This paper reports on work undertaken by the SORT-IT (Strategic Organisation and Regulation of Transport - Inter-Urban Travel) consortium for DGVII (Transport) of the European Commission as part of the Fourth Framework research programme. This work is based on two work programme tasks, referenced by the Commission as Strategic 1.4.23 and 1.4.24. The overall objectives of these tasks are respectively:

To develop policy measures addressing the organisation of the European transport system in order to improve the efficiency of the transport sector and thus enhance the implementation of the Common Transport Policy.

To design measures to promote inter operability and inter connection, economic efficiency and spatial co-ordination of pan European transport systems.

This work began in January 1996 and is due to be completed by March 1999. SORT-IT's work in the inter-urban field has been complemented by the work of the ISOTOPE (Improved Structure and Organisation for Urban Transport Operators for Passengers in Europe) consortium which has already reported (European Commission, 1997, Preston, 1998).

The outline of this paper is as follows. In the rest of this section, the SORT-IT project is outlined in some more detail and the three key concepts of interoperability, intermodality and interconnection are outlined. In the next section, the common transport policy and the European economic and regulatory frameworks are outlined. Next, a methodology for assessing the extent of changes in competition and ownership is outlined and results presented for countries covered in our study. Finally, we draw some tentative conclusions about how the changing regulatory structure of the European transport industries is likely to affect future conduct and performance.

The SORT-IT Approach

From the above, it should be clear that the SORT-IT project is studying the effects of the organisation and regulation of transport systems on their performance, with particular reference to the European Union's Common Transport Policy and the development of Trans-European networks. The project is considering all major inter-urban modes, for passenger and freight traffic i.e. road haulage, bus/coach public transport, railways, inland navigation, aviation, short-sea shipping and inter-modal transport. The dominant rationale of the project is to determine how changes to the ownership, organisation and regulation of transport sectors could affect the overall transport system, and then to propose measures to promote economic efficiency, interoperability and interconnection and spatial co-ordination of trans-European transport systems.

In order to address these issues, the project is taking an empirical, inductive approach. It is collecting data by means of interviews and desk research. Some 200 interviews have been completed. Preliminary results are given by Beaumont *et al* (1997) and final results by Arbault *et al* (1998). The project will then undertake modelling exercises to provide particular insights into the relationship between the transport system's structure and its performance. These models will focus on productivity and cost efficiency measurement, the impact of competition on producers and consumers and the impact of barriers on prices (see Edwards *et al*, 1997). From these particular insights a series of general conclusions and recommendations will be drawn.

Basic Concepts

The overall emphasis of SORT-IT is on economic efficiency, that is the impact of transport regulation and organisation on producers, consumers and society as a whole. This definition includes externalities such as congestion, environmental degradation and accidents. We are also concerned with equity issues in the way that changes in transport regulations and organisation may affect different producers, users and non-users and the regional distribution of these impacts and hence spatial co-ordination. This is an example of the typical neo-classical micro-economic framework that has dominated recent analysis of privatisation and deregulation (see, for example, Armstrong *et al*, 1994, Bishop *et al*, 1994, 1995, Button and Pitfield, 1991). However, much European research is concerned with what might be thought of as network externalities: namely interconnection, interoperability and intermodality. We define interconnection as the existence of physical connections between international, national, regional and local networks, both within and between modes. Interoperability is the ability of national and geographically defined transport networks to provide effective operations and services across national borders and across physical and technical barriers. Intermodality is the ability of an individual passenger or goods unit to travel from origin to destination using at least two different mechanised modes. A key issue is the policy emphasis that should be placed on obtaining these network externalities.

EUROPEAN COMMUNITY TRANSPORT POLICY

The basis for the European Community was the 1957 Treaty of Rome, articles 74-79 of which provided for a Common Transport Policy (CTP). However, progress was slow until 1985 when the European Court of Justice declared that the inland transport of passengers and freight should be open to all Community firms, without discrimination as to nationality or place of establishment. In the same year, the Commission's White Paper on the completion of the intemal market (and the subsequent 1986 Single European Market Act) placed transport at the forefront of moves towards the completion of the single market.

In 1992 the Commission published a White Paper on the CTP (European Commission, 1992), which was adopted by the Transport Council in June 1993. The White Paper marked an important change in emphasis for the CTP. Previously the CTP had been aimed at the completion of the internal market by the elimination of artificial regulatory barriers. It now provides a more comprehensive policy designed to ensure the proper functioning of the Community's transport systems, with any remaining restrictions or distortions to be eliminated as quickly as possible. It also addresses new challenges confronting transport policy post 1992, one of which is the integration of environmental objectives as laid down in the Maastricht Treaty (which was finally ratified in 1993).

The approach proposed in the CTP is summarised '*as the pursuit of sustainable mobility*'. Interestingly, the crucial distinction between accessibility (the ease of reaching) and mobility (the ease of moving) is not made. The CTP calls for:

1. the continued reinforcement and proper functioning of the internal market;
2. a move from the elimination of artificial regulatory barriers towards the adoption of the right balance of policies favouring the development of coherent, integrated transport systems, using the best available technology;
3. the strengthening of economic and social cohesion by the development of transport infrastructure to reduce disparities between regions, including central and peripheral regions;
4. measures to ensure that the development of transport systems contributes to a sustainable pattern of development;

5. actions to promote safety; and
6. measures in the social field.

The main policy tools are seen to be economic and regulatory frameworks, technical harmonisation, research and development and network development (through the promotion of Trans European Networks). In addition, there are measures to promote safety and provide environmental and social protection.

The CTP recognises that the transport sector, because of its economic and technical characteristics, poses particular problems in the application of community rules on competition in support of the Single Market. Transport systems based on single networks tend to monopoly or oligopoly organisation. Integrated systems, particularly intermodal transport, may require agreements between different operators which could be in conflict with competition rules. Service obligations in the public interest tend to involve the granting of special or exclusive rights and frequently rely on public subsidy, some of which may not be compatible with the functioning of the internal market. The CTP concludes that despite these problems, the application of competition rules in the transport sector is of fundamental importance for the efficiency of the sector but, at the same time, it must continue to take into account specific characteristics.

The CTP anticipates structural changes to the transport sector as it progressively opens up to greater competition, and it anticipates that national and regional authorities may wish to assist the process with, among other measures, financial aid. The CTP wishes to ensure that the process of adoption of one single market takes place under conditions which avoid market distortions. In the rest of this section, recent reforms at the European level in the road, rail, water and air sectors will be briefly reviewed. In so doing we will draw on the work of Arbault *et al* (1998) and Done (1996).

Road Sector

The Community measures have had one objective defined since 1957: to create the right conditions for instituting fair competition and ensuring minimum disturbance to the market. These regulations were adopted and modified in 1988 (following a Court of Justice ruling) to apply to the international carriage of goods by road for hire or reward. In January 1991, fixed tariffs were replaced by competitive pricing. Since January 1993, for carriage between member states, access to the market is governed exclusively by qualitative criteria which have to be met by haulage firms through an application for a Community road haulier licence. The Community defines and details the qualitative criteria, but the Union licence is issued by the relevant authorities of the Member State. In the event of a crisis, a Community safeguard mechanism exists. The Member State concerned supplies to DGVII all information. The Commission may then take measures designed to prevent any further increase in haulage capacity on the affected market.

The European Community's provisions for inland cabotage were also laid down by the 1957 Treaty. Only those Community carriers authorised to operate international road-haulage services will be allowed to operate domestic-haulage services in other Member States. Cabotage operations will be subject to the law, regulations and administrative provisions in force in the host Member State. The date on which the system of cabotage enters into force is July 1998. This has been preceded by a period of progressive introduction since 1994, based on quotas, starting initially at 30,000 but rising at 30% per annum thereafter.

The taxation of the carriage of goods by road is probably the most important problem of European harmonisation (see Krausz, 1998). The European Community hopes to harmonise the levy system (vehicle taxes, excise duties on fuel, users' charges, etc) but there are obvious issues about whether charges should be harmonised at the lowest level, the highest level or somewhere in between. Transit countries, in particular Switzerland, are especially problematic.

The Community regulations ensure that international road passenger transport services are freely provided on journeys within the Union. Cabotage for regular services is planned for June 1999, although cabotage for domestic non regular bus and coach services (occasional and shuttle services) was introduced in 1996, following the liberalisation of tour packages in 1992.

Rail Sector

Three important Council Directives have been adopted since 1991. They will facilitate the adjustment of the Community's railways to the needs of the Single Market and improve the rail transport sector's competitiveness.

The first measure is Directive 91/440. This grants the right of access to railway infrastructure to undertakings wishing to provide international combined services and to associations of railway undertakings wishing to offer international services between the countries in which they are established. The directive also made provisions for the separation of infrastructure management and transport operations.

The second measure is Directive 95/18 which ensures the application of common conditions for entry into the Community rail market, given the new access rights under directive 91/440. Railways companies must meet requirements relating to good reputation, financial fitness, professional competence and cover for civil liability. The licensing authority may regularly review a licence at least every five years and may suspend, revoke or amend the operating licence under certain circumstances.

The third measure is Directive 95/19 which covers the allocation of railway infrastructure capacity and the charging of infrastructure fees. This directive creates a system which guarantees to new undertakings operating following the implementation of 91/440 transparency and non-discrimination in the allocation of infrastructure capacity and payment by users in full of the real costs of the facilities that they use.

In addition, a White Paper has been produced (European Commission, 1996) which advocates open access for freight and long distance passenger services and some form of franchising for other passenger services. Whilst this is a long way off, change is accelerating with organisational separation of infrastructure and ownership almost complete (even in France), and some open access for freight services and franchising/tendering for passenger services (principally in Great Britain but also in Germany and Sweden).

Water Sector

With respect to inland waterways, cabotage was introduced to this sector in January 1993 (Council regulation no.1356/96). This regulation is completed by two Council directives. The first promotes access to the industry and the effective exercise of carriers' right of establishment. The second institutes the reciprocal recognition of national boat masters' certificates for inland waterway navigation. These regulations are not on their own sufficient in the liberalisation context, particularly given historic over capacity. In particular, DGVII encourages structural improvements (Council regulation no. 1101/89) such as the scrapping of vessels and by providing supporting measures, whilst in the Benelux countries and France regulation through queuing ('tour de role') remains in force, although this is scheduled to be removed by EU Directive 96/75.

With respect to maritime transport, four Council regulations organise freedom to supply services, competition, unfair pricing practices and free access to ocean trade, namely; Council regulations

4055/86, 4056/86, 4057/86, and 4058/86. These are known collectively as the Common Shipping Policy. The Council regulation adopted in 1992 applied the principle of freedom to provide maritime transport services within Member States (cabotage). As with road carriage, some safeguard measures were taken by the Commission. The maritime services between Member States were liberalised in 1993 but five States (France, Italy, Greece, Portugal and Spain) obtained a specific timetable. This sector will be completely liberalised in 2004 (with Greece being the last State). A key problem is the role of the deep sea shipping conferences which are protected by a block exemption rule although global economic forces are reducing the power of these cartels. A Common Ports Policy does not exist despite calls for one (Goss, 1998). The European Commission has undertaken a financial study of ports in order to achieve greater transparency of financial relations between ports and public authorities.

Air Sector

Air transport was the first mode to become fully liberalised at a European level with the completion of the third package of reforms in April 1997. The formal distinction between scheduled airlines and charter airlines, for long a complicating issue in the European air market, has ended. The Community has adopted a series of regulations about the implementation of competition rules, following the celebrated 'Nouvelles Frontieres' case. The various measures apply to all international air transport between Community airports, including transport within a Member State. They concern the allocation of seat capacity and the co-ordination of timetables, consultations on tariffs, agreements on joint operation of new services, slot allocation in airports and computer reservation systems. Key issues include the inter-relationships between the European and International air markets, many of which remain regulated, the emergence of strategic alliances and the role of state aid to flag carrying airlines (e.g. Air France, Iberia, Al Italia).

The liberalisation measure have been introduced gradually to avoid disruption in the air transport sector. For example, the third package began to be implemented in 1992. Council regulation 2408/92 organises the access for Community air carriers to intra-Community air routes. The exercising of traffic rights is now subject to Community, national or regional rules concerning environment, safety and slot allocation. With respect to the latter, a specific regulation was adopted in 1993. It lays down neutral, transparent and non discriminatory rules for the allocation of slots at congested airports. A key issue for airports (and indeed for ferries) is the proposed abolition of duty free for intra European Union trips in July 1999. With respect to Air Traffic Control, a Council resolution in 1995 discussed those problems arising from the congestion of air traffic in Europe. A series of short term measures were proposed, in particular concerning overloading, flight planning and capacity management. A White Paper in the same year proposed a series of longer term measures.

ANALYSIS OF ORGANISATIONAL CHANGE

Methodology

It has been shown above that within the European Union both international transport and transport by non-domestic carriers (cabotage) have been gradually liberalised in the 1980s and 1990s. However, there is an important interface between these transport sectors and purely domestic transport sectors. Hansen *et al* (1997) refer to this as an international spillover effect and point out that in terms of regulatory domestic monopolies there may be a prisoner's dilemma problem. Although the welfare efficient solution may be for these domestic monopolies to be regulated, any one domestic monopoly that is unregulated may have advantages in international competitiveness.

As a result, it is likely that many countries will be tempted to leave such monopolies unregulated. This may have been a factor in the airline industry but has been tempered by international competition and cabotage. It should be noted that for those sectors which do not have international spillovers, the principal of subsidiarity applies.

In this section we review the impact of organisational and regulatory change in the 15 countries covered by the SORT-IT project (the EU 15 minus Greece and Italy plus Norway and Switzerland). In this paper there is not space to detail the changes in each of the 15 countries studied (see Beaumont e*t al*, 1996, and Arbault *et al*, 1997, for such details). What is needed is some broad summary measures. After Hartley *et al* (1991), one way of examining organisational charge is by constructing a capital market-product market matrix and noting the location of firms or industries in that matrix, at two or more dates. We have undertaken such a matrix analysis for the European countries in our study, by sector, for the years 1980 and 1997.

We consider the product market (or competition) to consist of five types with the following weights:
1. Perfect Competition - many firms, substantial competition
2. Monopolistic Competition - many firms (more than 10) - some competition but some monopoly in terms of time and space
3. Oligopoly - a few firms (three to, say, 10) - some competition
4. Duopoly - two firms - some competition
5. Monopoly - one firm - no competition

For each sector, we have distinguished between infrastructure, freight operations and passenger operations. In reality, for many sectors, a further sub-sector, that of ancillary services, might also be considered. Again space constraints preclude the analysis of this sub-sector. We then identified the dominant form of competition in each of the three sub-sectors studied. This required some subjective judgement particularly where sub-sectors can be decomposed into a number of separate markets.

We consider the capital market (or ownership) to consist of six types with the following weights:
1. Private - manager owned. Capital assets are 100% owned by private individuals but shares not traded on the Stock Exchange. Examples include family owned firms, Management Buy-Outs (MBOs) and Employee Share Ownership Programmes (ESOPs).
2. Private - Stock Exchange listed. Capital assets are 100% owned by private sector bodies and shares exchanged in the Stock Market (e.g. public limited company (plc) in UK).
3. Mixed Ownership - capital assets owned jointly by public and private sector bodies.
4. Public Sector Company - publicly owned but independently controlled, with little interference by politicians.
5. Government Agency - publicly owned but only indirectly controlled by politicians.
6. Government Department - publicly owned and under the direct control of the politicians.

For sectors where there is more than one firm, there is also likely to be more than one ownership type. We took the ownership type of the dominant firm or firms for each sector. For example, where a public sector company has a 75% share of the sub-sector market and a number of private sector manager owned companies control the balance, we would describe this sub-sector as being typified by a public sector company (4) rather than mixed ownership (3). If some of the public sector company's shares were sold to the private sector, then we would describe the sub-sector as being in mixed ownership. Again some subjective judgement was used.

For the components of each sub sector we calculate the appropriate location in the matrix for the year end 1980 and 1997. We then calculate the mean score for each sub sector and the change in score for each sub sector between 1980 and 1997. The mean scores in 1980 and 1997 for the total transport system and the change in mean scores are also calculated.

In this analysis, a totally free market would have a score of one (or possibly two), whilst a totally regulated market would have a score of thirty. A measure of the degree to which a market is regulated might be obtained by deflating the actual score for a particular sector by the totally regulated score of thirty.

Results

The results of this analysis are summarised by Table 1. The following results are apparent, First, it is evident that in both 1980 and 1997 the sectors with the greatest degree of state intervention in terms of both the product and capital markets are rail, air, road and water in that order. Secondly, all sectors have seen some liberalisation with the greatest absolute changes being in the rail and air sectors and the greatest relative change being in the air sector. Thirdly, in 1980 the Table suggests that the least liberalised transport market was in Finland and the most liberalised in France. The latter result is mainly due to the relatively low involvement of the state in the road sector. By 1997, there had been some significant changes. Luxembourg emerges as the least liberal transport market and the United Kingdom as the most liberal. The most liberal countries appear to be large (UK, Germany, France) or with a progressive tradition (the Netherlands, Sweden). The least liberal are small countries (Luxembourg, Austria, Switzerland, Belgium, Finland) where protection of the domestic transport sector may be a factor. Fourthly, between 1980 and 1997 all states examined exhibited some liberalisation trends, with the greatest absolute change being in the United Kingdom (by some distance) followed by Germany. The least absolute change was in Luxembourg followed by France. Table 1 suggests that there is little support for the hypothesis that, in terms of competition and ownership, there is a polarisation between Northern and Southern Europe (although note that our analysis has not included Greece or Italy). The UK does appear as an outlier and this suggests that if there is a dichotomy it is between Anglo-American and continental European traditions (see, for example, Hibbs, 1985).

Considering infrastructure, it was found that the changes introduced by the European liberalisation directives are more effective as far as ownership is concerned; in particular due to the clarification of the role of the public authority in the management of infrastructure. The public entities concerned became more autonomous under the status of new governmental agency or public and mixed companies. Concerning the competition assessment, the situation was found to be stable (monopoly or monopolistic competition situations for short-sea terminals). There are two important exceptions to this general picture concerning infrastructure. First, the UK situation where rail infrastructure has been shifted to private stock exchange listed ownership, as have seaports and airports. Secondly, the French situation where the road infrastructure sector has been characterised by a concessioned motorway network faced with oligopolistic competition. Higher levels of public funding to motorway companies encountering financial difficulties and also an adjustment mechanism for regional planning mean that the state's role in this sector has increased recently.

Considering the different transport operation sectors, the effect of liberalisation and deregulation principles promoted by the European Directives, was found to have pulled the different countries towards more competitive outcomes, particularly in air markets where the monopoly of the flag carriers has been broken. This trend may be expected to continue (Forsyth, 1998). However, as with infrastructure, the dominant change was in ownership, particularly for the rail and sea sectors. One key feature of transport operations is that there are a number of sub-sectors, principally road freight and inland waterways operations that have approximated to the perfectly competitive ideal throughout the period studied, at least in parts of Europe. In terms of competition in other transport sectors, important case studies are provided by Britain and Sweden where the road passenger transport sector has been deregulated and there has been some (limited) on-track competition in the rail freight market and (rather more substantial) off-track competition in the rail passenger market.

Table 1 Summary of National Matrix Analysis - by Sector

Country	Rail Sector 1980	1997	Change	Road Sector 1980	1997	Change	Air Sector 1980	1997	Change	Water Sector 1980	1997	Change	Average All Sectors 1980	1997	Change
Austria	25.0	20.0	-5.0	15.5	15.5	0.0	19.0	16.3	-2.7	15.5	15.5	0.0	18.8	16.8	-2.0
Belgium	23.3	20.0	-3.3	15.5	15.5	0.0	16.3	11.0	-5.3	15.5	15.5	0.0	17.7	15.5	-2.2
Denmark	30.0	21.7	-8.3	9.0	7.7	-1.3	20.0	15.0	-5.0	11.8	11.8	0.0	17.7	14.0	-3.7
Finland	30.0	21.7	-8.3	12.3	10.0	-2.3	22.5	20.0	-2.5	17.5	10.3	-7.3	20.6	15.5	-5.1
France	20.0	20.0	0.0	5.0	6.0	1.0	15.0	13.0	-2.0	11.6	10.0	-1.6	12.9	12.3	-0.6
Germany	25.0	12.0	-13.0	18.7	13.0	-5.7	16.8	13.3	-3.5	11.8	11.8	0.0	18.1	12.5	-5.6
Ireland	20.0	20.0	0.0	23.0	14.3	-8.7	20.0	16.0	-4.0	15.0	6.7	-8.3	19.5	14.3	-5.2
Luxembourg	20.0	25.0	+5.0	15.5	15.5	0.0	16.3	11.0	-4.3	-	-	-	17.3	17.2	-0.1
Netherlands	20.0	20.0	0.0	15.5	15.5	0.0	14.7	10.7	-4.0	9.8	9.8	0.0	14.0	13.1	-0.8
Norway	30.0	21.7	-8.3	11.7	10.0	-1.7	18.5	16.0	-2.5	11.8	10.8	-1.0	18.0	14.6	-0.4
Portugal	20.0	20.0	0.0	15.7	9.3	-6.3	18.0	18.0	0.0	16.0	11.5	-4.5	17.4	14.7	-2.7
Spain	20.0	20.0	0.0	11.0	11.0	0.0	22.5	13.8	-8.8	12.7	12.7	0.0	16.5	14.4	-2.1
Sweden	30.0	21.7	-8.3	12.3	9.3	-3.0	20.0	16.0	-4.0	8.6	7.2	-1.4	17.7	13.6	-4.1
Switzerland	25.0	20.0	-5.0	18.7	17.0	-1.7	16.3	14.3	-2.0	15.5	15.5	0.0	18.9	16.7	-2.2
United Kingdom	20.0	6.6	-13.3	17.0	11.3	-5.6	21.3	12.3	-9.0	13.8	9.8	-4.0	18.0	10.0	-8.0
Average	**23.9**	**19.5**	**-4.4**	**14.4**	**12.1**	**-2.4**	**18.5**	**14.4**	**-4.0**	**11.8**	**9.9**	**-1.9**	**17.5**	**14.3**	**-3.2**

CONCLUSIONS

There has been a clear trend towards the liberalisation of European transport markets. We initially make some conclusions on a sector by sector basis. These conclusions draw heavily on the work of Arbault *et al* (1998).

Road Transport: From Fierce Competition to Fair Competition

The road freight sector, which accounts for most of the international trade traffic, is probably the mode where the deepest significant changes have occurred. The disappearance of quantitative restrictions in most countries, the disappearance of compulsory tariffs, and the almost free circulation through Europe have all taken place. Only the definition of quality criteria for access to the road industry remains. In this sector where interoperability does not cause major problems, competition is high on both international and national markets. Freeing of cabotage transport is expected to increase it substantially as reported from the interviews in many countries. With a large number of small firms encountering very low entry/exit barriers, price deregulation resulted in fierce competition. The decrease in road transport prices are also the result of substantial increases in productivity, due to technical improvements in the infrastructure and equipment as well as organisational restructuring, and innovations in the road transport production process itself. However, there is also strong evidence of the emergence of large specialist freight logistics and distribution firms at a European level and increasing market concentration (Browne, 1997, Bayliss, 1998), although the competitive fringe remains substantial.

The liberalisation movement in the road freight transport sector has faced professional or social reactions, slowing down the reforms in Germany and causing strikes in France and Spain. Therefore, harmonisation may be a necessary counterpart of liberalisation, particularly given that the quality criteria for access to the are not defined precisely at the European level, being left to national countries who can interpret them in a more or less restrictive way. However, the existence of numerous Small and Medium Enterprises in the road freight transport sector, as in the inland waterways transport sector, leads to difficulties in the enforcement of harmonised regulations at national and European level. In addition, these companies face organisational problems when they operate at the European level with unbalanced trade flows and problematic access to market information and shipper requirements. Improvements in informatics could assist here.

Considering the regular inter-urban passenger road transport sector, the liberalisation movement is so far limited. In several countries, private operators have to apply for a concession, and in others scheduled coach services are only provided by the national public railway company, often as a substitute to railways services. Where express coach services have been deregulated (UK, Sweden), intense competition with the railways has occurred, particularly for certain traffics (students, the elderly) (see, for example, Douglas, 1987). Where rail capacity is limited, this may be a useful way of exerting competitive pressures on the passenger railway.

Rail: An 'Open Debate' if not 'Open Access'

The changes are more recent for rail and more difficult to implement, because rail is largely in the domain of large national monopolies, and because interoperability remains a difficult technical question. Infrastructure and rail operating systems have traditionally been vertically integrated, even from an accounting point of view. To develop open access for rail, the definition of new concepts is needed. It can be noticed that the introduction of competition is generally related to a split up of the former monopoly, but at different levels which can be institutional (the creation of autonomous entities), organisational (by creation within the monopoly of a set of distinct divisions) and accounting (unbundling infrastructure and service accounts within the monopoly). Most European

railways have separated at the organisational level but often with the view to eventual institutional separation.

Even if reforms of national railway organisations and the implementation of the 91/440 Directive, have common objectives (to reverse the decline of the railways and to alleviate the State budget from the large amounts of operating subsidies), we can point out that these reforms vary enormously from one country to another, with the UK (institutional fragmentation and privatisation) and France (maintenance of an integrated company) the two extremes. Moreover, the question of the status of the nodal points remains often unclear in the rail transport sector, compared to air and sea transport. Development of the rail-road combined transport, for example, raises new questions about these terminals and rail hubs, in their planning as well as in their operation.

Open access encouraged by the 91/440 Directive and more recently by the Freeways process, has resulted in an open debate as to the economic efficiency of privatisation and competition in network management and operating systems. Given that infrastructure/service relations are difficult to split up in their functionalities, these efficiencies do not appear clearly for policy makers nor for economists (see, for example, Preston, 1996). Improved dynamism of the railway system was obviously needed, but it is difficult to assess the synergies existing in integrated solutions that can be lost in a disintegration process, or the costs of an increased number of transactions in disintegrated solutions. Simulation work can provide some answers (Whelan *et al*, 1997) but empirical evidence from the UK will be particularly useful.

In any case, the 91/440 directive raised an impressive opportunity to discuss the evolution of rail transport within a market environment at a time when rail share is on a decreasing trend in all countries and where a more flexible road transport is dominating. The debate is now set more clearly and innovative solutions can be expected in particular in rail operating systems as is already shown in intermodal rail-road transport. The dissociation made between infrastructure management and railways operations with the 91/440 directive is a necessary step toward open access if not privatisation.

Air and Water: Two Opposite Ways to Liberalisation

Concerning air transport policy, the liberalisation has been very much organised step by step, with regular negotiation at European as well as world level. The process shows effective results: all companies are now under strong pressure from competition whatever their status, private or public (see, for example, Button, 1997). Social reactions have often occurred, but the trend has often appeared unavoidable. The remaining problems are concentrated on slot allocation, hub dominance, computer reservation systems and baggage handling.

For maritime transport, European policy has been fairly late, probably because it is a field where fierce competition already exists for short sea shipping and inland waterways, but also where very protected national policies exist for safety reasons, particularly for passenger services. Now, an open situation will prevail and liberalisation effects are already seen for short sea shipping. But the question of the status and of the competition within and between the nodal points - the harbours - could become a new critical subject for further liberalisation and harmonisation at European level, and also with reference to other social and fiscal policies. For ports the key trend has been the development of landlord ports in which the dockside activities are provided by the private sector but the docks themselves are publicly owned (Baird, 1997). The key exception is provided by the UK where both dockside activity and the docks themselves are largely privatised, although horizontal and vertical mergers are leading to some competition policy concerns (Goss, 1998).

In the inland waterways transport sector, in several countries, the deregulation of the most traditional part of the sector - small and individual undertakings, 'tour de role' organisation - is occurring

gradually. The objective is to reorganise and modernise the sector, to support the emergence of new actors able to provide high-performing transport and logistics services to industrial and intermodal operators, before allowing increased competition. The traditionally organised part of the sector is contrasted to the highly competitive market situation prevailing on the major European inland waterways corridors, particularly the Rhine.

Conclusions: The Patchwork Quilt Slowly Unravels

Our research indicates that the regulation and organisation of transport in Europe is something of a patchwork quilt in that structures vary greatly between countries and between sectors. Our interviews indicate that where deregulation and privatisation has been pursued, there has been a concern with regulatory failure and particular concern with respect to the x-inefficiencies exhibited by publicly owned and regulated firms. One of the greatest gains of liberalisation is the 30-40% operating cost reductions that can be achieved (see, for example Heseltine and Silcock, 1990), although this may be dependent on labour markets also having been deregulated. For example, the improved performance of the port sector in the UK was mainly due to the abolition of the Dock Labour Scheme (Evans et al, 1993). Other important gains of privatisation and deregulation are seen as including improvements in dynamic efficiency (through increased innovation) and the removal of concerns arising from regulatory capture, although this can still be a factor in the area of competition policy.

Where there has been a reluctance to deregulate and privatise, our interviews suggest that this has been linked to concerns with market failures. However, this is rarely solely linked to economic explanations concerning natural monopoly, operator and user economies of scale or negative externalities such as congestion, environmental degradation or accidents, although these are important factors. Emphasis tends to be placed on equity rather than economic efficiency to justify state intervention, particularly to ensure economic and social cohesion. In addition, it is often argued that a deregulated and privatised transport sector will fail to provide the optimal degree of interconnection, interoperability and intermodality (which we can think of as positive network externalities) without a helping hand from the state. The problem is that the benefit of these network externalities is difficult to measure. Although cost-benefit analysis can help with appraisal, there are large problems in forecasting the impacts of removing barriers to these network benefits. The failure of modellers to correctly forecast the use of the Channel Tunnel is a case in point (Szymanski, 1998). There is a risk that some of these network benefits may be illusory. By contrast, the savings from improvements in productive efficiency are likely to be very real but may be offset by allocative efficiency losses where output:price mixes are allowed to diverge further from the optimal.

Our work suggests that the patchwork quilt is slowly unravelling at a European level. It is clear that in its early days European transport policy was 'all at sea' but this has been rectified since the European Court of Justice ruling in 1985 culminating with the complete liberalisation of air services in 1997, road freight services in 1998 and shipping in 2004. A timetable for rail transport and for regular road passenger transport has still to be established and this is a major shortcoming (see Gerondeau, 1997, for a particularly critical perspective). There have been important initiatives in the area of infrastructure too but fiscal harmonisation is some way off, whilst nodal centres may be a flash point in the future. European policy may be criticised as having been slow, at times inconsistent and permitting too many exemptions, but it is beginning to be effective. At the domestic level, influenced by developments at the international and European levels, there is also some evidence that the patchwork quilt is unravelling. Between 1980 and 1997 our index measure of state control of domestic European transport markets declined from 17.5 to 14.3 (down about 20%). The standard deviation measure around our estimate also declined, all be it by a small amount, from 1.88 to 1.82. Rather than a north-south divide our research suggest a small-large divide but within the context of a general trend toward convergence. Overall, the SORT-IT project

has thus shown how the regulatory and organisational structure of the European transport market has changed markedly since the early 1980s.

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REFERENCES

Arbault, M-L, Mathonnet, C. and Reynaud, C. (1998) **Summary of the National Reports**. SORT-IT Deliverable D3. January.

Armstrong, M., Cowan, S. and Vickers, J. (1994) **Regulatory Reform: Economic Analysis and British Experience**. MIT Press, Cambridge.

Baird, A. (1997) **Privatisation and Deregulation in Seaports**. Privatisation and Deregulation of Transport Seminar, Regulatory Policy Research Centre, Oxford.

Bayliss, B. (1998) Regulation in the Road Freight Sector. **Journal of Transport Economics and Policy 32**, 113-132.

Browne, M. (1997) **Privatisation and Deregulation of the European Road Freight Industry**. Privatisation and Deregulation of Transport Seminar, Regulatory Policy Research Centre, Oxford.

Beaumont, H., Preston, J. and Shires, J. (1996) **Summary of Country Reports**. SORT-IT, Deliverable D1. September.

Bishop, M., Kay, J. and Mayer, C. (1994) **Privatisation and Economic Performance**. Oxford University Press, Oxford.

Bishop, M., Kay, and Mayer, C. (1995) **The Regulatory Challenge**. Oxford University Press, Oxford.

Button, K. and Pitfield, D. (Eds) (1991) **Transport Deregulation**. Macmillan, London.

Button, K. (1997) **Flying into the Future: Air Transport Policy in the European Union**. Edward Elgar, Cheltenham.

Done, D. (1996) **Pan-European Transport: Creating Passenger and Freight Networks for the Next Century**. Financial Times Management Report. Pergamon Professional, London.

Douglas, N. (1987) **A Welfare Assessment of Transport Deregulation - the Case of the Express Coach Market in 1980**. Gower, Aldershot.

Edwards, H., Engstrom, R. and Bergland, C.M. (1997) **Model Specification, Data Requirements and Data Availability**. SORT-IT Deliverable D2. April.

Evans, N., MacKay, D., Garratt, M and Sutcliffe., P. (1993) **The Abolition of the Dock Labour Scheme**. Employment Department Research Series 14.

European Commission (1992) **The Future Development of the Common Transport Policy - A Global Approach to the Construction of a Community Framework for Sustainable Mobility**. EC, Brussels.

European Commission (1996) **A Strategy of Revitalising the Community's Railways**. White Paper, EC, Brussels.

European Commission (1997) **Transport Research Fourth Framework Programme Urban Transport - ISOTOPE**. Office for the Official Publications of the European Communities, Luxembourg.

Forsyth, P. (1998) The Gains from the Liberalisation of Air Transport: A Review of Reforms. **Journal of Transport Economics and Policy 32**, 73-92.

Gerondeau, C. (1997) **Transport in Europe**. Archtech House, London.

Goss, R. (1998) British Ports Policy Since 1945. **Journal of Transport Economics and Policy 32**, 51-72.

Hansen, J.D., Heinrich, H. and Nielsen, J. V-M. (1991) **An Economic Analysis of the EC.** McGraw Hill, Maidenhead.

Hartley, K., Parker, D. and Martin, S. (1991) Organisational Status, Ownership and Productivity. **Fiscal Studies 12,** 46-60.

Heseltine, P.M. and Silcock, D.T. (1990) The Effects of Bus Deregulation on Costs. **Journal of Transport Economics and Policy 24,** 283-294.

Hibbs, J. (1985) **Regulation: An International Study of Bus and Coach Licensing**. Transport Publishing Projects, London.

Krausz, P. (1998) **Developing Fair Competition in the European Trucking Market**. Seminar on the Regulation of Commercialised Transport Operations, World Bank, Washington DC.

Preston, J (1996) The Economics of British Rail Privatization: An Assessment. **Transport Reviews 16,** 1-21.

Preston, J. (1998) **Big and Small is Beautiful: The Emerging Organisation of the Pan-European Bus Industry**. Working Paper 863, Transport Studies Unit, University of Oxford.

Szymanski, S. (1997) **Cross Channel Competition between the Ferries and the Tunnel**. Privatisation and Deregulation of Transport Seminar, Regulatory Policy Research Centre, Oxford.

Whelan, G., Preston, J, Wardman, M. and Nash, C. (1997) The Privatisation of Passenger Rail Services in Britain: An Assessment of the Impacts of On-the-Track Competition. **Proceedings European Transport Forum**, Brunel University, London.