REGULATION POLICY IN LAND PASSENGER TRANSPORTATION IN EUROPE

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ABSTRACT

This paper draws on a number of projects undertaken recently for the European Commission. It reviews the changing regulatory policies toward bus, coach and rail travel in the member states of the European Union. It is found that although there have been substantial reforms in individual member states, reforms at a European level have been limited in both their scope and impact. This is despite considerable activity that has included regulation 1893/91 (on public service contracts in local public transport), directive 91/440 (on international rail services) and regulation 12/98 (on international coach services), as well as a number of Green and White Papers.

Estimates of the economic benefits of commercialising the passenger rail networks, introducing tendering for local public transport and deregulating express coaches are made. These are contrasted with estimates of the benefits that might be achieved through investing in infrastructure to improve interoperability and interconnection.

Organisational issues are also considered. Evidence is presented that European railway companies should be restructured, with some companies being fragmented and others consolidated, with networks re-configured. The evidence on vertical separation is re-assessed. For the bus and coach industry, trends towards horizontal integration are noted and the anti-trust implications assessed.

It is concluded that continued regulatory and organisational reform is required and that this should probably be based on competition for the market for both the operation and the planning of most scheduled bus and rail services.

1. INTRODUCTION

This paper draws on four projects that have been undertaken for the European Commission in recent years. The first two projects, which both ran from 1996-99, examined competition and ownership issues in inter-urban transport. The first of these projects was entitled Strategic Organisation and Regulation of Transport – Inter-Urban (SORT-IT). The second, parallel, project was entitled Managing Interoperability by Improvements in Transport System Organisation in Europe (MINIMISE). These two projects had the following objectives:

- To develop policy measures addressing the organisation of the European transport system in order to improve the efficiency of the transport sector.
- To design measures to promote interoperability and interconnection, economic efficiency and spatial co-ordination of pan-European transport systems.

For those unfamiliar with Brussels-speak, a word of explanation is needed here. Interconnection refers to the physical links between transport systems at a variety of geographic scales (international, European, national, regional and local). Interoperability refers to the technical, economic and organisational efficiency of these interconnected links. For example, European rail systems are plagued by technical constraints, including differences in track gauge, loading gauge, traffic control systems and electrical supply systems. However, even where these technical constraints are overcome, rail services may be economically inefficient in that service levels are too low and fares too high. Furthermore, even if rail systems are technically compatible and the fare:service level mix is optimal, there may be problems with service delivery because more than one operating company is providing the service. This is an example of an organisational barrier. To cut a long story short, what the above suggests is that the European Commission is not solely interested in the economic efficiency of national transport systems but is also interested in the network benefits that might emerge from an interconnected series of efficient national transport systems. Arguably this is an externality that is neglected by many transport economists, but equally the emphasis on interconnection and interoperability may represent a misdirection of policy stimulated by various vested interests and their lobby groups.

The second set of two projects concern competition and ownership issues for urban public transport. The first project was entitled the Improved Structure and Organisation for Urban Transport Operations in Europe (ISOTOPE) and was undertaken between 1995 and 1997. The second, follow-up, project is entitled Managing and Assessing Regulatory Evolution in Local Public Transport in Europe (MAREOPE). It commenced in 2000 and is due to be completed at the end of 2002. The aim of ISOTOPE was to undertake economic and political analysis in order to determine efficiency in urban public transport. It was essentially an exercise in comparative statics. Although it did, at least to my mind, identify efficient organisational forms, it failed to identify the dynamic processes which produce these organisational forms. This shortcoming is being addressed by MARETOPE which is identifying barriers to change in urban public transport and the tools required to overcome these barriers.

The structure of this paper is therefore as follows. In Section 2, we examine the policy background to competition and ownership issues in land passenger transport in the European Union, highlighting the key issues and reforms. In Section 3, we assess the policy impacts of introducing competition. In Section 4, we assess the policy impacts of reforming ownership. Lastly, in Section 5, we draw some policy conclusions based on the evidence amassed by the four projects.

2. POLICY BACKGROUND

Articles 74 to 79 of the 1957 Treaty of Rome provided for a Common Transport Policy (CPT) which has been ratified by subsequent treaties (e.g. Maastricht, Amsterdam). However, it required a sustained legal challenge in the 1980s before a White Paper on the

CTP was produced (European Commission, 1992). This was preceded by Directive 91/440 which introduced a limited form of open access for international rail services and required the separation of accounts for rail operations and rail infrastructure. This in turn was followed by directives 95/18, on rail operator licensing, and 95/19, on rail infrastructure access and pricing. This was in preparation for the further expansion of open access envisaged by the Railways White Paper (European Commission, 1996), even though the White Paper highlighted the limited application of 91/440.

For inter-urban road passenger transport, the most important measure was regulation 12/98 that introduced cabotage (the ability of an operator in one EU country to ply for trade in another EU country) for regular coach services by June 1999. This followed earlier measures that introduced cabotage for non-regular tourist services in 1996 and liberalised tour packages in 1992.

Given the principle of subsidiarity – that political responsibility should be devolved to the lowest level of governance possible, the European Commission was initially reluctant to intervene in urban public transport. However a precedent was set by regulation 1893/91 which outlined procedures for public service contracts in local public transport, itself building on the earlier regulation 1191/69 on public service obligations. This was taken further by the Citizens' Network Green Paper (European Commission, 1995) which suggested that urban public transport should be subject to standard European procurement legislation. This was re-iterated by a follow-up paper (European Commission, 1998) which stated:

"Well designed procedures which introduce an element of competition into the awarding of exclusive rights can lead to better services and better value for money."

The proposed revisions to 1893/91 take this further by attempting to extend contracting-out and sub-contracting to the bus market and, to a lesser extent, the urban rail market (European Commission, 2000). However, there are a large number of possible derogations and the proposals are still being discussed.

Hartley et al. (1991) present a useful framework for analysing the impact of regulatory changes. They consider product market competition to consist of four broad types: perfect competition, monopolistic competition, oligopoly, duopoly and monopoly. Furthermore, capital market competition (or ownership) is viewed as consisting of six broad types: private manager owned, private-stock exchange listed, public sector company, government agency and government department. Figure One presents the result of this framework for road and rail infrastructure and for rail, inter-urban road passenger and urban road passenger transport operations. Further details are given in Beaumont and Preston (1998) but Figure One refers to domestic European transport between 1980 and 1997. It shows that although rail infrastructure remained a national monopoly its ownership status, mainly as a result of 91/440 changed from a Government department to a public sector company, with only Great Britain having privatised rail infrastructure. However, similar changes were also reported for road infrastructure, although here there was a long tradition of private sector involvement in some countries (notably Spain, France and Italy).

With respect to operations, for rail a similar change can be observed as for infrastructure, namely a change from government department to public sector company. Operations

remained monopolised except in Great Britain and, to a lesser extent, Sweden, the Netherlands and, at least notionally, Germany (Link, 2000). For interurban road passenger transport (i.e. coaches) there are a large number of providers of regular and irregular services, exhibiting features of monopolistic competition. Mixed ownership is important in that the coaching subsidiaries of state owned rail and municipally owned bus companies are important players. Regular express coach services are most important in the two countries that have deregulated and privatised the sector, namely Great Britain and Sweden, although it is reported that a number of other countries (Ireland, Italy) have de-facto deregulation (see, for example, the annex to the report of the European Commission, 2000).

For urban public transport (covering buses, light rail and urban heavy rail), the industry has remained monopolised but with a change from Government Department to Public Sector Company. The 'classic' model of regulated, publicly owned monopolies remains the dominant organisational form in ten European Union member states but with a number, including the Netherlands and Germany, preparing for substantial change, particularly for bus services. In four countries, limited competition (or competition for the market) has become the dominant (although not exclusive) market form. For three of these countries (Denmark, Finland and Sweden) this is based on route tenders, whilst for France this is more usually based on network management contracts. Lastly, there is the well known case of Great Britain outside of London that remains the sole example of a deregulated free market, at least for buses. For light rail in Great Britain, limited competition models in terms of long term concessions are the norm, whilst for urban (i.e. non national) heavy rail the 'classic' model still predominates, although an interesting form of privatisation is being proposed for the London Underground. However, it should be clear that the above is a gross simplification. An alternative taxonomy, suggested by Van de Velde (1999) distinguishes between those systems where the right of service initiative rests with an authority and those where it rests with the market. Figure Two gives some examples.

The Hartley gram of Figure One can be reformulated to examine changes in international operations at the European level by replacing the product market competition categories with no cabotage, partial cabotage and full cabotage. Figure Three shows the results of such an analysis for all the key transport sectors and suggests that rail is something of a lagging sector. Moreover, Button (1998) has noted that Europe has not exactly gone in for a 'big bang' approach to public transport reform. Whilst there may be some advantages of a softly, softly approach in terms of minimising the transitional costs of disruption, there is a suspicion that the extend prevarication with respect to public transport reforms may be prolonging substantial disbenefits. It is this issue that we will attempt to consider in the rest of this paper.

3. POLICY IMPACTS - COMPETITION

We estimated that in 1994 in the European Union the rail passenger market had a turnover of around 21 BECU and the bus and coach market had a turnover of 28 BECU out of a total passenger market turnover, including car of 381 BECU (Preston, 1999a). Thus land-based, public passenger transport had a 13% share in terms of turnover, compared to 16% in terms of distance travelled. It was also estimated that bus, coach and

passenger rail services had costs of around 94 BECU suggesting 51% cost recovery and total annual subsidy of around 45 BECU (or around 0.7% of total EU GDP).

The main impacts of competition in the market have occurred in the bus and coach markets. Experience from both Great Britain and Sweden suggests that the unbundling and privatisation of bus and coach services can lead to cost reductions of 40%, whilst deregulation could lead to increases in demand on competed inter city coach routes of up to 50% (Thompson and Whitfield, 1995, Fagring, 1999). On the road competition has had less of an impact on the local urban bus market. In Great Britain, doubling of bus service often only led to a 10% increase in bus patronage, suggesting a market that is inelastic to service changes, at least in the short run. However, in the few cities where competition has been sustained in the long run more substantial patronage increases have been detected – for example as much as 80% in Oxford (Preston, 1999b). Overall, bus usage in Great Britain outside of London has declined by 34% since deregulation in 1986, whilst over the corresponding period bus usage in London, where a system of comprehensive tendering was introduced, has increased by 13% (Preston, 2001a).

Simulation work undertaken in Sweden as part of the SORT-IT project indicated that the main benefit of coach deregulation was that it stimulated the lowering of fares by the monopolist passenger rail operator. This led to a net economic benefit per annum of 0.3B Swedish Crowns (SEK) (Berglund and Edwards, 1998). A similar result had been found for Great Britain (Douglas, 1987). It this result is extended to the European Union as a whole, on a pro-rata population basis, a possible benefit of 1.5 BECU per annum is identified.

The main source of evidence on competition in the market for European railways comes from simulation models. Preston et al. (1999) in studies of the Leeds to London and Gatwick to London routes conclude that head-on competition is not feasible because one or both parties make losses but for high-density routes limited entry, in the form of cream skimming, may be feasible. This work has recently been replicated in Sweden for the Stockholm – Gothenburg and Gothenburg – Karlstad routes with broadly similar results. Simulation work on the Piacenza-Milan corridor in Italy indicates that competition will be stimulated if the infrastructure manager adopts an objective of maximising social welfare rather than maximising profits, with an approximate doubling of passenger train services, assuming no capacity constraints (Shires et al., 1999). Simulation work has also been undertaken for the Stockholm-Arlanda route as part of the ISOTOPE project (European Commission, 1997). It was found that welfare was maximised when services were provided by express bus, by the A-train, by SL and by SJ (operating an hourly service from Central station and a 20 minute service from Södertälje). However, this configuration was not sustainable as SJ suffered operating losses.

For urban bus and light rail, the main form of competition has been competition for the market. Table One shows some oft-quoted, and somewhat contentious, results from the ISOTOPE project that show that the deregulated bus systems in Great Britain have much better cost recovery (87%) than either the classic regulated systems or the limited competition systems (both 47%) (European Commission, 1997). However, this is a bit misleading as the calculations for Great Britain exclude fuel duty rebate, which is around 12% of operating costs net of this rebate. Moreover, revenue includes concessionary fares support which constitutes around 17% of revenue. If these adjustments are made then cost recovery becomes 63%. (Data derived from Bristow et al, 2001). Moreover,

the deregulated British system appears to have much lower costs per bus kilometre, 23% lower than limited competition systems and 51% lower than regulated systems. This research was reinforced by modelling work (Preston, 1999c, Wunsch, 1996) that found that unit costs in Great Britain were around 50% lower than those in the rest of Europe. ISOTOPE speculated that if higher factor prices and labour rigidities were taken into account, the cost reductions achievable elsewhere in Europe would be around 15%.

Furthermore, Table One shows that limited competition systems have 8% higher staff productivity than regulated systems, if measured in terms of vehicle kilometres per member of staff. However, this is a partial measure. In order to know whether this was efficient or not one would need to know about relative factor prices, in particular the price of labour and of capital. Moreover, if productivity is measured in terms of passenger kms then different results are obtained, with regulated systems appearing to have 62% higher load factors than deregulated systems and 126% higher load factors than limited competition systems. This reflects both exogenous factors (such as population density) and endogenous factors (such as fare structures and levels).

MINIMISE, in a detailed modelling exercise, estimated that the franchising of urban and regional transport could have annual net benefits of 6.5 BECU (MINIMISE, 1997). Assuming a local and regional bus market with a total cost base of 39 BECU (but revenue of only 20 BECU – see Preston, 1999a), this is equivalent to a cost reduction of around 17%, a figure consistent with the findings of ISOTOPE and with a detailed study of tendering of bus in Sweden (Alexandersson et al, 1998). It should be noted that the MINIMISE study also included light rail and metro systems but these only carried around 12% of the traffic of bus systems at the European Union level.

4. POLICY IMPACTS – OWNERSHIP AND ORGANISATION

We have seen that the main reform with respect to passenger railways in the European Union has been commercialisation so that railways are now operated as public sector companies rather than government departments. Another contentious set of findings, this time derived from Shires and Preston, 1999, are presented in Table 2. The key result (which was also found to be statistically significant) was that in 1994 the more commercially oriented railways had 32% higher productivity than the more directly state controlled railways. It was speculated that given total rail costs of 67 BECU per annum, extending commercialisation throughout the European Union could lead to benefits, through cost savings, of 10 BECU, although some of these benefits would accrue to freight operations. Table 2, however, suggests that, between 1994 and 1997 the productivity gap reduced from 32% to 25%, suggesting that some catch-up was occurring.

Shires and Preston (op. cit.) also develop a translog operating cost model of European railway operations. It suggests that the industry exhibits a U shaped average cost curve with respect to both scale and density. It was estimated that the mean returns to scale of European rail operations is 0.78 (suggesting decreasing returns – the average railway is too big) and mean returns to density of 3.22 (suggesting increasing returns – the average railway's traffic is too sparse). Substantial horizontal separation and/or network reconfiguration is required, given findings that the optimal sized network is estimated to consist of around 2,900 route kms and 23,000 train kms per route km per annum. This

work suggests that, for example, the British railway network should consist of around four or five network operators. It is somewhat gratifying to see that this is what is happening (see Table Three). Conversely, some smaller rail networks could usefully merge with neighbouring networks (e.g. Ireland, Luxembourg, Denmark).

Evidence with respect to the vertical integration of railways is mixed. Cantos Sanchez (2001) has shown that track infrastructure and passenger operations are cost substitutes (higher track costs will lead to lower operation costs by permitting faster services) but track infrastructure and freight operations are cost complements (higher track costs lead to higher freight operation costs due to higher maintenance costs). Although this is further evidence of the diseconomies of scope of joint passenger and freight services (at least above a certain output level), it also suggests the possibility of benefits of vertical integration. The only empirical evidence on vertical separation comes from Shires et al., (1999) who found that, all other things being equal, operating costs in Sweden have reduced by around 10% since separation. Separation in Sweden is based on a publicly owned track authority utilising marginal cost pricing principles. The situation in Great Britain is substantially different, being based on a privately owned track authority utilising a variant of average cost pricing. In both countries there is a problem in that the track authority is a monopoly. Else and James (1994) suggest the problem may be more severe than this if the operations are provided by area monopolies. This leads to the coexistence of bilateral monopolies (between the track authority and the operators) and complementary monopoly (between operators). This results in multiple marginalisation and a situation where prices are higher and output lower than that which would be provided by an integrated monopoly. In Sweden this situation is avoided by regulating Banverket so it charges for access according to marginal cost principles and providing lump sum subsidy to cover the deficit. In Great Britain this situation is arguably exacerbated by requiring Railtrack to act commercially although it is moderated by price and output regulation of train operators (who are also provided with lump sum subsidy for any deficits), quality incentives for both Railtrack and the train operators and price regulation of Railtrack. However, the form of regulation chosen (RPI-X, also known as price capping) may lead to a dynamic inconsistency where capital costs are sunk. If such a cost minimising investment is made, it is likely that the regulator will ex-post tighten the price cap (i.e. increase X). Knowing this, the regulated firm will be reluctant to invest in sunk cost schemes (Helm and Thompson, 1991). In Great Britain there appears a strong theoretical possibility of under-investment, although the empirical evidence is more mixed – at least for track, although for rolling stock there is stronger evidence of under-investment (Preston, 2001c).

An important advantage of vertical separation is that it creates a level playing field for competition in the market, although problems concerning the determination of access rights and charges remain. Moreover, it is argued by some that with appropriate anti-trust policy, competition for the market is possible for vertically integrated structures. Important regulatory information may be provided by the amount a vertically integrated company charges itself for using its own infrastructure and the amount of revenue (and operating costs) foregone if it allows the infrastructure to be used by another operator. This is the basis for the efficient component pricing rule (Baumol, 1983), although this assumes, amongst other things, efficient behaviour by the incumbent monopolist and transparent accounts (Jahanshahi, 1998). Overall, the jury on vertical separation remains out, although there is some evidence that the way the British have dealt with this issue has been particularly problematic. SORT-IT's preference was for vertical integration, but

with vertical separation as a possible transitional stage used to help determine railways' true capital costs.

ISOTOPE developed a similar translog model of operating costs for urban bus operations (see Preston, 1999c). U shaped average cost curves were again suggested, with returns to scale for the mean operator found to be 0.71 and returns to density found to be 0.86. This suggests diseconomies with respect to both scale and density. In other words, on average, European bus operations are too big and too dense. Strong substitutability between capital and labour was found, whilst input price elasticity for labour was estimated at -0.34 and for capital was estimated at -0.18. Overall, it was found that the optimal bus operation's size was a fleet of around 100 vehicles. If this were true, then the British bus industry might consist of 780 equally sized bus companies (Preston, 2001). Table Four shows that this palpably is not the case - the top five big groups currently control 68% of the British bus market. Similar levels of concentration are exhibited elsewhere in Europe where markets have been freed up (France, Scandinavia).

Our explanation is that large bus firms have some advantages that do not show up in conventional econometric studies of returns to scale. There may be advantages of being big in terms of purchasing power, with respect to new vehicles, fuel and capital in general. There may be human capital advantages in terms of the recruitment and retention of key staff (particularly managers and drivers). There may be demand side complementarities related to timetable and route coordination, integrated ticketing and product differentiation which can only be achieved by large firms. There may also be market power advantages for large firms who can deter competitive entry by threatening predation. This has important, but difficult, anti-trust implications (see, for example, Mackie and Preston, 1996, Chapter 7).

In short, there are advantages of being big. In addition, there are also advantages of being small related to more hands-on, locally responsive management, cheaper, non unionised labour and, once a critical mass is reached, efficient scheduling of crew and vehicles. Our view is that the bus groups attempt to reap the benefits of being both big and small at the same time. The British public transport conglomerates tend to maintain a lean headquarters focusing on strategic functions, with tactical and operational functions devolved to the local level. For bus, this is often the depot level of around 100 vehicles or so (Preston, 1999c). For rail this devolved unit may be somewhat larger, but the same broad principle seems to apply.

5. CONCLUSIONS

The reform of land passenger public transport in Europe has been relatively slow. In part this is due to the principle of subsidiarity which, influenced by the seminal work of Tiebout (1956), suggests that much of the responsibility for public transport should rest with local and regional governments. However, this assumes that there are no external effects between jurisdictions. With the emergence of a pan-European public transport industry, led by British and French conglomerates, this is no longer the case. By early 2000, UITP reported at least nine companies acting as public transport operators in more than one EU member state, whilst in only four Member States was the provision of public transport services restricted to home country services (European Commission, 2000). There is a risk that an unregulated public transport monopoly in one member state could

compete unfairly in other member states where public transport markets are more open. Such international spillovers are clearly of concern to the European Commission, but are difficult to deal with through competition law.

Dudley and Richardson (2000) note that four variables are important determinants of 'third order' (i.e. major) policy change: namely ideas, interests, institutions and individuals (after Peters, 1996). Of these four Is, there has been little convergence of transport policy ideas, interests and institutions at a European level, so that policy exhibits something of a hollow core. There may be a possibility that this empty core has been occupied by vested interests, not least from industry, including civil engineering firms and manufacturers of public transport equipment. This in part may explain the policy emphasis on transport infrastructure and in particular on the Trans European network (see Sichelsmidt, 1999). It may also explain the obsession with technological solutions to problems concerning interconnection and interoperability. Work by the MINIMISE consortium (1999) suggests that such investments may have only modest returns, at least for land-based public passenger transport. Table Five indicates that a series of measures to remove interoperability and interconnection barriers in public transport at the European level were estimated to amount to 6.7 BECU. By contrast, the continued removal of organisational barriers was estimated by SORT-IT to lead to annual benefits of 18 BECU.

We should also not forget the importance of individual agency. Many domestic reforms were championed by particular individuals, whether they be politicians (for example Nicholas Ridley with respect to British bus deregulation) or policy advisors (for example Christopher Foster with respect to British rail privatisation). Transport has lacked such policy champions at the European level. Somewhat surprisingly, at least from a British perspective, the person who has come closest to fulfilling this role has been Commissioner Neil Kinnock.

Overall, our review of the theoretical and empirical evidence leads us to conclude that for scheduled urban passenger transport both competition in the market and for the market will promote productive efficiency. However, competition in the market will neglect the importance of user economies of scale at both the route and network level. For frequent, turn up and go services there is a case for price and quantity regulation. This may be best achieved within a tendering or franchising framework. We are attracted by systems in which there is competition for the market for the strategic and tactical, as well as operational, functions but experience from Adelaide, the British rail franchise re-negotiations, Helsingborg and Sundsvall indicates how difficult this may be to do in practise (Preston, 2001b).

For scheduled interurban public transport, where passengers can book in advance and pre-plan their journey, user economies of scale are less important and can be more easily internalised. Price/quantity regulation is probably not required, although residual regulation concerning safety, environmental performance and competition policy is still needed. For rail, there is however the problem of the interface between urban and interurban operations. This will be exacerbated where inter urban services are of a high enough frequency to encourage turn up and go behaviour. This suggests that competition for the market might also be appropriate for high frequency, short distance inter urban routes. This might be accompanied by the possibilities of some fringe competition, particularly to stimulate technological innovation through product differentiation. It is

likely that the potential for this is greater in inter urban than urban markets. Open access competition for passenger rail might be limited to long distance, inter urban (often international) services. This might be stimulated by extension of the Rail Freight freeway concept to passenger services, although hopefully with a bit more success.

We thus conclude in favour of competition for the market but we agree that:

"…. it is necessary to resolve questions about the geographical scope of the exclusive right, the duration of the contract, its financial structure and assignment of risk." (European Commission, 1998).

For urban bus, we would recommend shortish (3 to 5 years), route based contracts based on gross costs but with patronage bonuses and with minimum quality standards concerning vehicle age, size and reliability, enforced by penalties. Consideration should be made of contracting out the planning function at the network level. Where there are serious land shortages, the Authority should consider providing terminals and depots, whilst in extreme cases the Authority should perform the role of a residual service provider, particularly where there is concern about market concentration.

For rail, we would advocate longish (around 15-20 years), area based, vertically integrated contracts based on net costs with minimum quality standards concerning overcrowding, punctuality/reliability and cleanliness, enforced by penalties. Regulation of fares in markets where rail is the dominant mode of travel would be needed. Variants of this regime would be required for new heavy and light rail systems based on Design, Build, Operate and Transfer (DBOT) concessions.

However, for the above to happen requires a coalition of policy entrepreneurs at the European and national levels who are prepared to overcome the policy barriers erected by local politicians, incumbent operators and trade unions. Despite the best intentions of projects such as MARETOPE, there seems little prospect of such a coalition emerging at the European level in the immediate future.

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See also the SORT-IT project web site: www.its.leeds.ac.uk/projects

CONVERSION FACTORS

1 ECU = 1 Euro = 9.18 SEK = 7.88 NOK = 0.86 USD = 0.60 GBP

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Table 1: Key indicators for European Urban Bus Systems

	R/TC	PK/VK	VK/SN	TC/VK
Deregulated	0.85	16.7	17,987	1.44
Limited Comp.	0.47	11.9	19,383	2.26
Regulated	0.47	27.0	16,387	2.97

R = Revenue, TC = Total Cost, PK = Passenger Kms, VK = Vehicle Kms, SN = Staff Numbers

Source: European Commission, 1997.

Table 2: European Union Railway Performance

	Operating Performance		Commercial Performance		Financial Performance	
	Vehicles Kms/Staff Nos		Traffic Units/Vehicle Kms		Total Rev./Total Cost	
	1994	1997	1994	1997	1994	1997
State Controlled Firms	2,522	3,183	185	176	0.42	0.49
Commercial Firms	3,318	3,992	164	161	0.48	0.50

Source: Shires and Preston, 1999.

Table 3: Structure of the Bus Industry (% breakdown by revenue)

1985		**1999**	
National Bus Company (NBC) (70 subsidiaries)	28	First Group	23
Scottish Bus Group (SBG) (9 subsidiaries)	6	Stagecoach	16
London Transport (LT)	13	Arriva	16
Metropolitan PTCs (7 companies)	18	Go Ahead	7
Municipal PTCs (50 companies)	10	National Express	6
		Other Privatised	10
		Publicly Owned	6
Independents	25	Independents	15

Sources: Cole (1998), TAS (1999)

Table 4: Structure of the Rail Industry (% breakdown by revenue)

1997		2001	
National Express Group plc (5 Franchises)	20%	National Express Group plc (9 Franchises)	29%
Prism Rail plc (4 Franchises)	9%	Stagecoach Holdings plc/ Virgin Rail Ltd. (4 Franchises)	20%
MTL Holdings Ltd (2 Franchises)	9%	First Group plc (3 Franchises)	15%
Stagecoach Holdings plc (2 Franchises)	8%	Arriva Ltd. (2 Franchises)	9%
Go-Ahead Group plc (2 Franchises)	4%	Go-Ahead Group (2 Franchises)	4%
First Bus plc (1 Franchise)	3%	Connex Rail Ltd (2 Franchises)	14%*
Connex Rail Ltd (2 Franchises)	14%	Sea Containers Ltd (1 Franchise)	6%
Virgin Rail Ltd (2 Franchises)	12%	GB Railways Group plc (1 Franchise)	2%
Sea Containers Ltd (1 Franchise)	6%	M40 Trains Ltd (1 Franchise)	1%
GB Railways Group plc (1 Franchise)	2%		
Great Western Holdings (2 Franchises)	12%		
M40 Trains Ltd (1 Franchise)	1%		
12 Separate Groups		**9 Separate Groups**	

Based on Knowles (1998)
*Re-Franchising will see 1 Franchise with around 6% of revenue transfer from Connex to Go-Ahead

Table 5: Estimated Net Benefits of Removing Organisational and Interoperability Barriers to Passenger Transport at a European Level (BECU)

Organisational Barriers		Interoperability Barriers	
Deregulation of Express Coach	1.5	Low Floor Buses & Trams	1.1
		Park and Ride Systems	1.3
Commercialisation of Rail Passenger Services	10.0	Multi Systems HSTS	1.3
		Real Time Information	0.5
		Links between Heavy & Light Rail	1.5
Tendering/Franchising of Urban/ Regional Public Transport	6.5	Other Measures	1.0
TOTAL	**18.0**		**6.7**

Source: Preston, 1999a.

Figure 1 Location of Domestic European Transport Sub-Sectors in 1980 and 1997

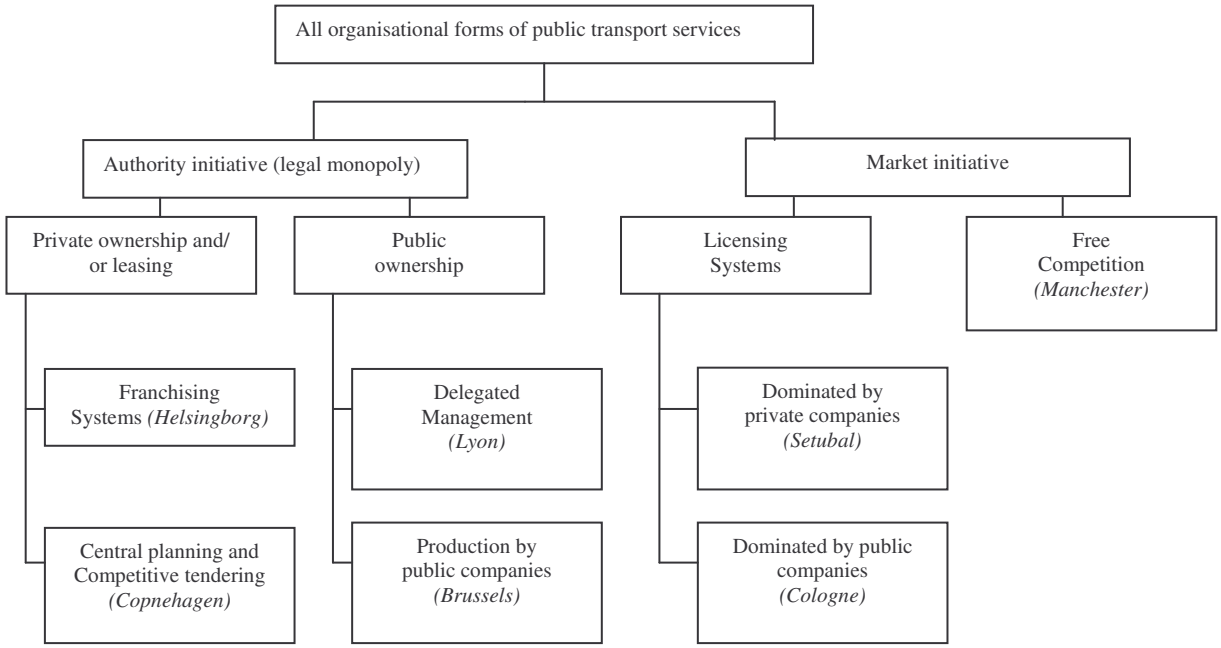
Product Market (Competition)

Monopoly	RoadI 80 RailI 80 RailO 80 RoadOU 80	→	RoadI 97 RailI 97 Rail O 97 RoadOU 97			
Duopoly						
Oligopoly						
Monopolistic Competition				RoadOIU 80 RoadOIU 97		
Perfect Competition						
	Govt. Dept.	Govt. Agency	Public Sector Co.	Mixed Owner-Ship	Private Stock Exchange Listed	Private Manager Owned

Capital Market (Ownership)

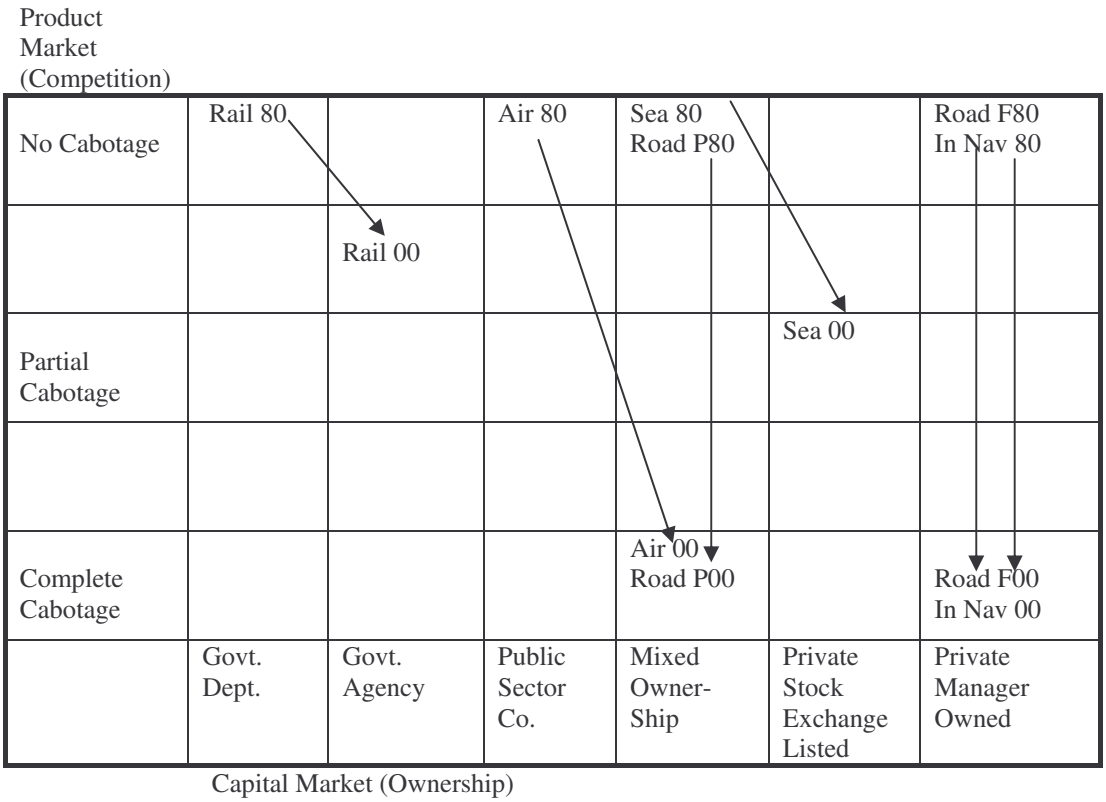
I = Infrastructure, O = Operations, IU = Inter Urban, U=Urban.

Figure 2 Organisational forms of public transport services



Source: Van de Velde (1999)

Figure 3 Location of International European Transport Sectors in 1980 and 2000 - Operations



P = Passenger, F = Freight.