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### **Published paper**

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*Working Paper 324*

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## RAIL POLICY IN THE EUROPEAN COMMUNITY

C A Nash

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## **ABSTRACT**

This paper begins by considering the reasons why the rail sector has long been considered a problem in European transport policy. These concern both the degree of government intervention and subsidy, which conflicts with the aim of a free international market, and the loss of market share even in those sectors- especially international traffic - in which rail should in principle be able to compete. It explains how the economic structure of rail transport leads to a case for public monopoly provision, with regulation and subsidy, but poses the problem of reconciling this with the need for efficient operation. The history of regulation and control of the rail sector, and of past Community attempts to reform it is then briefly considered before attention is turned to latest Commission proposals on rail policy.

These consist essentially of four measures. Two concern the specific need to provide a framework to encourage the development of an international network of high speed passenger and combined freight trains, and the only doubt about these rests on whether they go far enough to exploit the potential of these important and rapidly growing sectors of the rail market.

A third comprises a further attempt to clarify the relationship between government and railway, with increased financial autonomy, realistic balance sheets and clearer contractual arrangements regarding subsidies and can be generally welcomed.

But the greatest doubts must rest on the proposals concerning separation of the infrastructure from the operations. Whilst the rationale is superficially attractive, many reasons are cited to doubt whether it would be an efficient way of organising railway services in practice. As a way of promoting new entry in specific areas of operation, such as international freight, whilst leaving the bulk of operations in the hands of integrated companies, it has more to commend it, but even here there is reason to doubt whether the results would be better than a vigorous pursuit of joint venture operations.

## **1. Introduction**

Rail transport has long been regarded as a major problem area for Community transport policy. The existence of national monopoly railway companies is the very opposite of the ideal of an international free market. That they should also be heavily subsidised and subject to extensive government intervention is equally at odds with the general approach of the Community. Growth in subsidies and declining market share has simply served to reinforce the view of railways as a problem. Yet achieving any changes in this area has proved extremely difficult.

The layout of this paper is as follows. In the next section we consider the fundamental economic characteristics of rail transport. We then examine the forms of regulation and control of the rail transport sector which characterised the members of the community in the 1960's and 1970's including a brief look at the history of community rail policy. We then turn to a detailed critique of the radical proposals issued by the Commission late in 1989. Finally, we present our conclusions on the prospects for European rail policy.

## **2. Economic characteristics of rail policy**

Despite the existence of a limited amount of competition between rival companies at in the early nineteenth century in Europe, and more lasting competition in the U.S., it is generally accepted that rail transport is a natural monopoly. The main reason for this is the heavy overhead cost of the infrastructure. Even a minimal level of service on a route requires the provision of a single track, with all the associated earthworks and facilities. As traffic grows, extra facilities such as additional passing loops, improved signalling and larger terminals become necessary. Eventually, it will become worthwhile to replace the single track with double track. At this stage, segregation of trains in the two directions achieves major economies of scale, with typically something like a quadrupling of capacity for less than a doubling of cost (Nash, 1982, p.40).

Undoubtedly this is the main reason why cost studies of railways reveal major economies of traffic density (See Table 1). Moreover, the high level of sunk costs in railway infrastructure appear to make rail transport a non-contestable market. However, this view has been challenged more recently (Starkie, 1984). It is now argued that the natural monopoly element of rail transport rests solely in the infrastructure, and that there is no reason why the provision of services over that infrastructure could not be provided by separate companies on a competitive - or at least contestable - basis. This is a crucial argument in the latest Commission proposals, and we shall return to it in section 5.

However, it does appear that there are economies of scale in the provision of services as well as infrastructure. For instance, increases in traffic levels permit the operation of longer, heavier trains, more frequent services, through services to a wider variety of destinations, non stop services to more destinations and so on. Thus Harris (1977) found that a major part of the economies of traffic density rested in the operations rather than the infrastructure.

The high level of economies of traffic density leads to a number of important results. Firstly, it is obvious that more heavily used routes will tend to be more profitable and that lightly loaded routes will tend to be unprofitable. Secondly, marginal cost will typically be below average cost, and there will be a conflict between marginal cost pricing for economic efficiency and financial performance. Thirdly, it will be quite possible for there to be services for which user benefits exceed costs and yet it proves impossible to make them pay.

Thus even in a first best world, it may be argued that railways should be subsidised public sector

monopolies. Yet second best considerations have also led to arguments for the subsidy of rail services. The reason is the presumption that road transport is not adequately charged for the external costs it produces in terms of congestion, accidents, disamenity (noise, visual effects) and contribution to environmental degradation (air pollution, acid rain, the greenhouse effect). Given this, there is an argument for rail to be priced below its marginal social cost. Obviously this argument is stronger the more road is underpriced (and this is usually taken to be in congested urban areas) and the higher the cross elasticity between road and rail. Again the limited amount of evidence tends to suggest that this is strongest in the case of commuting in large cities, medium distance interurban passenger traffic and long distance freight traffic. There is also acute competition with air over long distances, and the environmental impact and congestion associated with air services is taken to be another reason for subsidising rail.

There are thus very respectable reasons for rail services to fail to cover their costs from revenue, and such subsidies should not be taken automatically to denote inefficiency. But now a major problem arises. If rail services are to be subject to monopoly provision and subsidy, how do we ensure that they are efficiently provided and that subsidies are used to improve services or hold down fares rather than being dissipated in inefficiency?

A number of factors have led to the belief that railways are frequently very inefficiently run. Firstly, one may point to the vast range of productivity and financial performance, even within a relatively homogeneous area such as Western Europe (Nash, 1985). For instance, Table 2 shows an enormous range in terms of productivity and Table 3 similarly for financial performance.

Whilst part of these differences may reasonably be explained by factors external to the railway (for instance, the mix of traffic types and geography of the country) it is hard to avoid the conclusion for instance that Netherlands railways is much more efficient than Belgian Railways or that French Railways is more efficient than Italian.

A second factor is the continued loss of market share in a buoyant transport market (Tables 4 and 5). Whilst this may be partly explained by external circumstances (increased car ownership, changing industrial structure from heavy industry towards high value manufactures goods and services) the failure of rail companies even to perform well in those sectors in which they have a comparative advantage, such as long distance international passenger and freight traffic, and the perpetual complaints about the price, quality of service and inflexibility of rail transport leads to doubts about the quality of rail marketing. For instance, the rail share of international intra-community freight fell from 14% in 1975 to less than 10% in 1987 (COM(89) 564 FINAL paragraph b).

Although rail now only carries less than 10% of passenger and 20% of freight within the as a whole Community, it remains very important in certain markets. For commuting in large congested urban areas there is no realistic alternative (for instance over 70% of the million daily commuters into Central London arrive by rail.) For inter city business trips over distances of 200-300 km rail remains dominant, and with higher speeds the ability to compete with air over longer distances is growing. Rail is also important in the long distance leisure travel market. For freight, its ability to carry large volumes of traffic quickly and economically between private sidings at major customers means that it has a dominant role in bulk traffics except where the even cheaper option of water transport (sea or canal) is available. For traffic in unit loads, the traditional approach of handling these in individual wagons requiring marshalling en route is looking less and less able to provide the cost or quality of service available from road haulage. However, growth of intermodal systems able to reduce the cost and delay problems of transferring goods between modes is making rail more able to compete for general merchandise over longer distances.

With growing concern about congestion and the environment, rail should have a bright future in these sectors. Indeed, rail investment is now running at enormous levels. A recent study concluded that the railways of Western Europe plan to spend a total of some £120-150b including £20b on urban rapid transit by the turn of the century (Table 6). Given both the opportunities and the level of investment now taking place in rail transport, it has become more important than ever to ensure that the arrangements for regulation and control of the sector are conducive to efficient marketing and operation. We turn to this subject in the next section.

### **3. Control and regulation of rail services**

The characteristics of rail transport discussed above led to a degree of commonality in the methods of controlling and regulating rail transport in the member states of the community. In general, monopoly power was deemed to require regulation of prices charged for rail services, and 'common carrier' obligations to carry whatever traffic was offered at that price. Withdrawal of passenger services required government approval, which was frequently withheld, requiring cross-subsidy of loss making services by profitable ones. Competition was also regulated, with protection of rail traffic being a major factor in the regulation of the bus and road haulage industries. Nevertheless, railways throughout the community fell into deficit during the course of the 1960's and 1970's. At the same time, railways typically had social obligations towards staff in the form of pension rights inherited from the days of a much greater railway workforce, no redundancy agreements and so forth. To the extent that in some countries they were required to fund the deficit by borrowing, this simply led to the further accumulation of financial difficulties until in some cases (notably the Federal Republic of Germany) the accounts of the railway company lost all contact with reality.

Reactions to this emerging crisis varied. Table 6 summarises the regulatory system in France, Britain and West Germany member countries at the end of the 1970's (Nash, 1981). In Britain, the mechanism of regulation of both rail and road haulage had been largely dismantled, and a system of explicit grants for loss-making but socially necessary passenger services introduced by the 1968 Transport Act. Difficulties in allocating costs to particular routes and the need to conform with EC regulations led to the replacement of this system by a global public service obligation grant in 1974. By 1968 rail was free to practice price discrimination and charge what the market would bear in both passenger and freight markets. In France and West Germany deregulation of rail and its competitors was slower to take place, with a continuation of requirements on the railways to adhere to maximum tariffs, and controls on entry and price into the road haulage industry. In West Germany, the railway was still required to practice non-discrimination and road haulage still remains regulated in terms of entry and price, although presumably completion of the single European market in 1992 will require removal of the last such controls.

The response of the Commission to this situation was to encourage governments to reorganise railways as autonomous commercial bodies (in a number of countries the railways were still run directly by government departments), with separate and realistic accounts and with social obligations minimised but appropriate recompense paid where such obligations were maintained. Governments were not to interfere with market mechanisms by providing subsidies to railways except under specific conditions. Three regulations were critical in this process. These were (Table 8):

(i) 1191/69 on Public Service Obligations

It is under this regulation that in general the largest sums of money are paid, both for obligations to operate particular services and for tariff obligations either in general or regarding particular groups of travellers. In Britain, a single lump sum is paid in respect of the public service obligation to continue to provide passenger services 'broadly comparable to those operating in 1974'. Most other railways receive separate sums for service and tariff obligations. For instance, in West Germany, large sums are paid for the obligation to provide short distance passenger services, and for tariff obligations towards particular groups of travellers on long distance services.

(ii) 1191/69 on Normalisation of Accounts

Under this regulation, railways are compensated for elements of cost which other modes do not have to bear. Most railways receive a share (usually 50%) of level crossing costs, but the largest sums under this head are paid in West Germany, where the railway has major pensions and social security obligations not borne by other modes.

(iii) 1107/70 On Aids to Transport

Generally, this regulation covers obligations excluded from 1191/69, such as other tariff obligations, for instance on non-rail subsidiaries, and financial difficulties arising from excess capacity. A number of railways receive support for tariff obligations under this heading.

French Railways also receives substantial sums of money towards infrastructure costs under the latter heading, to correct for a failure to charge appropriate infrastructure costs to road hauliers. Although many other countries appear to undercharge road hauliers, nowhere else is the railway specifically compensated for this. This has long been one of the major obstacles to the achievement of fair competition in the freight transport industry.

Despite these measures, the Commission perceives continued major problems in the rail transport field. The most obvious of these is the continued loss of market share, particularly for international traffic. Behind this is thought to lie a number of problems in terms of organisation and control (Table 9):

(i) The fact that rail operators are still largely nationally based, with complicated arrangements requiring inter company negotiations regarding through traffic between countries. This is believed to affect the flexibility and quality of service offered to the customer, compared with situations in which the entire operation is under the control of a single operator.

(ii) Growth in the level of financial support for rail services, together with the continuation of a system whereby compensation for social obligations is still largely provided ex post, with such compensation often being inadequate and not clearly identified with particular obligations. At

the same time railways still frequently have totally unrealistic balance sheets containing inherited debts which bear no relation to the earning power of their assets.

- (iii) Inadequacy in the capacity and quality of infrastructure, particularly regarding the ability to operate high speed passenger and combined transport freight services on international routes. In some cases, the problem is a sheer lack of capacity, but more often it is difficulties such as inadequacies of speed and loading gauge. Where bottlenecks on one system lead to loss of traffic by its neighbours, the Community as a whole clearly has a special interest.
- (iv) Following on from this, there remains the general problem of technical harmonisation, for instance in terms of systems of signalling and electric traction, which lead to difficulties in terms of through running and mass production of rolling stock. In the case of the Iberian peninsula there is of course the particular problem of different track gauge from the rest of the community.

In the face of these problems, the Commission produced a new policy statement late in 1989 (COM (89) 564 FINAL), and it is to the proposals of that document that we now turn.

#### **4. The 1989 rail policy proposals**

The 1989 proposals comprise the following (Table 10):

- (i) Proposal for a Council Directive on the development of the Community Railways;
- (ii) Proposal for a Council Regulation on public service obligations (amending 1191/69);
- (iii) Proposal for a Council Decision concerning the establishment of a network of high speed trains;
- (iv) Proposal for a Council Directive amending 75/130 on the establishment of common rules for certain types of combined carriage of goods between Member States.

This section will comment on each in turn.

##### **(i) Development of the Community Railways**

The key elements in this proposal require firstly increased commercial and financial independence and realistic balance sheets. Secondly, and more controversially is the requirement for rail operators to establish separate divisions for infrastructure and operations, to require the infrastructure to be accessible to other operators on fair and equal terms and to implement a system of charging for the use of infrastructure (based on train kilometres, speed, time, axle weight, etc) which facilitates this in the context of fair competition between modes. The important questions this raises are:

- A. What sort of re-organisation would this necessitate? Would the necessary changes reduce or enhance pressures for efficient use of infrastructure?
- B. How would appropriate prices and access conditions be established and regulated? Could a pricing structure be devised which adequately reflected scarcity of capacity at peak times?
- C. What other operators might be interested in running passenger or freight trains and in what markets? Would their entry lead to an improvement in variety, quality and price of rail transport and a rise in the rail share of the market? Or would it lead to less well integrated services and loss of economies of scale by fragmenting traffic between operators?

(ii) Public Service Obligations

The aim of this amendment is to require replacement of generalised public service obligations by contracts, spelling out clearly the services to be provided and the prices and subsidies to apply. The key issue is the extent to which a more formal contractual arrangement leads to a more transparent and effective relationship between government and railway.

(iii) High Speed Lines

The proposal here seems mainly to be aimed at ensuring compatibility between proposals of the Member States by setting up a new committee. It may be considered that the Community should take a more proactive approach towards filling missing links (including that from London to the Channel Tunnel) and the recent funding of a multi-year European infrastructure programme (albeit on a limited scale) may make this more possible. In practice, the committee of experts reported in December 1990 on this topic and covered both technical harmonisation and route network. However, in the absence of a substantial Community infrastructure programme, the powers available to the commission to implement these proposals are very limited.

(iv) Combined Transport

The key proposal here is to require governments to remit vehicle excise duty (VED) in respect of the period for which road goods vehicles are engaged in combined transport. Since VED is generally charged on tractor units, the remission presumably applies only to the time such vehicles are on "rolling motorway" type trains (which can not operate in Britain because of the loading gauge, although they will operate through the Channel Tunnel).

A key question may be whether more should be done to provide combined transport, eg remission of taxes on vehicles used for collection and delivery or more extensive grants for terminals?

The major elements of the proposals regarding financial autonomy and contracts and the separation of infrastructure from operations are considered in more detail in the following sections.

## **5. Financial autonomy and the contract system**

The Commission proposals regarding financial autonomy and public service contracts accord very much with commonly held views on efficient management within the transport industry. These are that management needs to be given maximum discretion within clearly defined objectives and constraints, including financial ones, stipulated for several years ahead. Management should not be involved in defining the level of fares and services that is socially desirable - that is a task for the political process. Also, the amount of finance within which management has to operate should be stipulated well in advance. To simply make up the deficit at the end of the year is to destroy the incentive to efficiency, whilst to then portray this deficit as a failure on behalf of management when it is the inevitable result of social objectives and constraints simultaneously destroys morale.

Thus these proposals are widely welcomed in principle within the industry even if there is doubt about some of the details. In many ways, they mirror what is already best practice. French Railways, for instance, works already to a multi-annual contract with the state, stipulating financial, traffic and productivity targets and investment levels. In Britain, the Public Service Obligation grant is stipulated several years in advance, and detailed productivity and quality of service objectives are set in a periodic

ministerial letter to the Chairman of the British Railways Board, usually covering a three year period. A number of countries, such as the Netherlands, also have long term rail traffic and investment plans. These are only likely to prove effective, however, if they are realistic and enjoy the confidence and commitment of both railway management and politicians. What is far more controversial is the proposals regarding separation of infrastructure and operations. We turn to that in the next section.

## **6. Separation of infrastructure from operations**

There are a number of considerations to be taken into account in considering the Commission's proposals for a separation of infrastructure from operations. Broadly, the proposal seems to have three main advantages (Table 11), which will be discussed in turn:

(i) It places rail transport in a similar position to road particularly with respect to the planning of rail infrastructure and the charging for its use.

Specifically, governments will be well placed to appraise infrastructure proposals on a common cost-benefit analysis basis, and to charge for the use of infrastructure on a common marginal social cost pricing basis. To the extent that undercharging for one mode (e.g. road haulage) continues to exist, compensatory undercharging for others will be easily implemented.

The symmetry between road and rail which would be achieved by this aspect of the proposals is superficially attractive; yet it is not clear that major institutional reform is necessary to achieve these advantages. Indeed the proposals of the Commission recognise that the state could take on these responsibilities simply by amending the objectives set the national railway companies and by requiring the finances of the infrastructure to be kept separate from the operations.

A more fundamental objection to the approach relates to the difficulty of defining marginal social cost of the use of rail infrastructure. Assessing the marginal wear and tear caused by passage of an additional train of particular characteristics over the system is in principle no more difficult than the equivalent exercise for road transport. But here the similarity ceases. For road transport, it is possible to proceed to define the external costs of congestion in terms of delays imposed on other vehicles, according to conditions in terms of type of road and degree of capacity utilisation by time of day. In the absence of electronic road pricing, the best that can be done is then to average this over the system as a whole to produce the best single charge for the use of the road system.

For rail the situation is quite different. Firstly, rail operations have to be scheduled so as to be feasible within the infrastructure provided. Whilst congestion may be a factor as capacity utilisation increases, the principle cost of running an additional train at a busy time of day is the opportunity cost of the path in question ( i.e. the inability to run other trains at that time). Quantifying that opportunity cost is difficult, particularly where a mix of commercial and social services is involved. But in any case simply charging an average opportunity cost to different services does not resolve the issue of the allocation of track space. Either this needs to be planned, on commercial or social criteria, or some sort of bidding process for the paths needs to be implemented. The former requires the continued involvement of the infrastructure authority in the detailed planning of the timetable; separation of the two functions with the relation between them governed by a pricing system is seen to be a myth. The feasibility of the latter will be considered in the next section on competition.

(ii) It allows for the introduction of competition in the operation of rail services.

It is often argued that one of the big problems in ensuring efficient marketing and operations of rail services is that they are provided by public sector monopolies. If it is true, as suggested in section 2, that the only natural monopoly element in rail transport is in the infrastructure, then why not introduce competition in the provision of services? In the case of commercial services this could take the form of on the tracks competition with different companies running on the same route; for subsidised services the competition could take the form of competitive tendering. This is broadly the position of the British bus industry following deregulation in 1986.

Two major issues arise here. The first is whether it is more efficient to have vertically integrated companies responsible for both infrastructure and operations. Railway companies themselves almost invariably answer that it is. Their argument is that the link between the services operated and rolling stock used and the amount, quality and technical characteristics of the infrastructure is so close that the two need to be planned together by the same organisation. For instance the appropriate number of tracks on a particular route, location of passing points and maximum running speeds are all entirely dependent on the details of the services it is intended to operate. Achieving higher speeds requires a carefully selected mix of investment in infrastructure and rolling stock.

British Rail in particular argues that the introduction of sector management has led to substantial economies in infrastructure through the closer involvement of business managers in infrastructure planning. Sector management was introduced in 1982. Five sectors were established, with responsibility for the costs and revenues of their own services. The sectors are defined to be relatively homogeneous both in the types of traffic they carry (and the objectives with respect to which they carry it) and in the equipment they use. As far as is possible without wasteful duplication, staff and assets are made specific to a particular sector (or subsector), which has control over how they are used.

The main advantages of sector management have been twofold. In the first place, it has been possible to develop much clearer lines of managerial control, with identified sector and subsector managers responsible for each passenger service or flow of freight traffic, no matter where it goes in terms of regional boundaries. In the second place, these managers have had much tighter control over assets as a result of increased specificity of assets to sectors and subsectors and of the development of systems of costing and budgeting that make managers directly accountable for the costs they incur and the revenue they earn. The marketing advantages of being able to put a single manager in charge of an entire flow of traffic have been particularly pronounced in the case of freight traffic, which tended to flow across regional boundaries as the latter were set up with the more important flows of passenger traffic in mind (FTA, 1989).

Initially under sector management each sector contracted with a single operating department for operation of the services. However, as from 1991, each sector will actually own and operate, as well as taking commercial responsibility for, particular sections of track, depots, terminals and staff. Other sectors will have to enter into contracts for running rights over the track, use of depots etc. Since the owning sector will have extensive monopoly power, this will create problems. At present, sectors are charged avoidable cost for use of assets belonging to another sector. This is the economically efficient approach. Where conflicts arise, for instance regarding the relative quality of service received by the joint users, these are resolved by negotiation, or - failing that - by the decision of the Chief Executive who has the ultimate authority. Whilst this may sound a cumbersome procedure, in practice the fact that the sectors

are ultimately all a part of the same organisation helps to ensure that solutions which favour a particular sector but are not desirable from the point of view of the system as a whole are avoided. Were the transactions to become a purely commercial matter, one would expect each sector to charge what the market would bear. Particularly where services operated under contract to the government are concerned this could lead to monopolistic exploitation and failure to provide an adequate quality of service. It would seem therefore that regulation of these relationships would be necessary.

One of the strengths of the sector management approach has been the strong links between commercial planning and infrastructure planning and the commercial decisions of the sectors. Broadly, the approach has been that on each stretch of track the prime user has first been asked what level and quality of infrastructure it requires and is able to pay for. Then the other sectors in turn have been given the choice of making use of any spare capacity within the infrastructure as specified by the prime user, or paying for it to be enhanced. The result has been a major improvement in the efficiency with which the infrastructure is provided and used.

The second issue is whether there are economies of scale in having all the operations ( or at least all the operations of a particular type of service) on a particular route in the hands of a single company. We have already cited American evidence that there are major economies of density in operation as well as infrastructure. This suggests that, although the overall size of the railway company is found to yield little in terms of economies of scale, specialisation in terms of route and traffic type is desirable. The American evidence relates of course predominantly to freight traffic. In the case of passenger traffic there may be further considerations. Amongst the strongest criticisms of the effects of bus deregulation in Great Britain has been the resulting lack of coordination of services, with sensible headways, connections between services through ticketing and passenger information all suffering. These factors are even more important in the case of rail transport, with its generally lower frequencies and longer trip length, and any loss in these areas would be serious.

Furthermore, the idea that paths over the infrastructure could be allocated between operators by some kind of auction faces all sorts of practical problems. On a rail network carrying a variety of types of train over a variety of routes, there is no simple way of defining a timetable slot. Running a particular train requires allocations of platforms at all the stations used, and paths over the track space and through the junctions between them. All of these can be used in a wide variety of ways to provide trains between different points at different speeds and with different stopping patterns. There is no sensible alternative but to have a single track owning authority which tries to timetable the services as a whole in the way which most closely meets the aspirations of the various operators over the track. Whilst it is no doubt possible to devise contractual arrangements for a variety of operators to run over a single stretch of the track (and this already happens in the US), the theoretical simplicity of the 'bidding' model is an illusion. American experience of one company operating over the tracks of another has not been particularly happy, and has often been cited as a major reason for the quality of service problems of Amtrak.

In practice, two European railways already have a degree of segregation of financial responsibility for their infrastructure. In Switzerland, the state has already taken over financial responsibility for the infrastructure of CFF. In return, it simply charges CFF a lump sum based on what CFF can afford. Thus there is no element of marginal cost pricing in the arrangement.

The situation in Sweden is more interesting. Swedish Railways has been divided into two totally separate organisations - Affärs-SJ, which operates services, and Banverket, which provides the

infrastructure. A complicated tariff on very much the same lines as road taxation has been worked out, with a fixed charge per vehicle and a running charge per vehicle mile for each type of vehicle. The latter is supposedly based on marginal cost pricing principles, with the former being a balancing charge to recover part - but by no means all - of the difference between marginal and average cost (Jansson and Cardebring, 1989). There is as yet no peak/off peak differential.

In neither case is there any real competition between alternative operators over the same route. However, in Sweden there is competition for the contract to operate subsidised services, and in one case a local bus operator has won the contract in competition with Swedish Railways. Clearly such competition is facilitated if either the local authority owns the rolling stock (as in Sweden) or it can be leased, and if contractual arrangements regarding its maintenance can be obtained, so that the sunk costs of entering the market are minimised. This is essentially the way in which much privately owned freight rolling stock is provided at the present time.

### (iii) Operation of international services by a single organisation

We have seen considerable reason to doubt whether the separation of infrastructure from operations is generally an efficient way to organise a railway. However, the strongest element in the Commission's argument may be the evidence of the failure of the railways to exploit the potential of the international market. Commonly heard complaints in this area are that the railways are inflexible regarding price and level of service, that the need for multilateral negotiations often means that they are slow to quote for business, that the services themselves are slow and unreliable and that the need to deal with a number of organisations makes provision of information and quality control poor. Surely this is an area where the overall control of services by a single operator, and perhaps one with the marketing and distribution expertise of the major private sector companies, would achieve better results?

To a degree it must be said that this is the direction in which railways themselves are already moving. Thus for instance freight services through the Channel Tunnel are likely to involve a number of joint venture public/private companies who will simply buy space from the railways. One such operation, Charterail, has already been set up within Britain, and piggyback operations within France and Germany are the responsibility of similar joint companies. Although they do not actually provide locomotives and traincrew, in other respects they differ little from the private international operators envisaged in the Commission's proposals.

However, there is an important institutional difference. At present such arrangements are negotiated by the railways on their own terms, and care is taken to ensure that they do not damage other aspects of the railways' services. This gives rise to some suspicion on the part of the private sector, who see a conflict of interest in the role of the railways as simultaneously wholesalers of freight transport to them and retailers in competition with them.

The Commission's proposals would give such companies the right of access to the infrastructure at a 'fair' price (we have already commented on the difficulty involved in defining what a fair price should be when routes are congested and a major cost of providing a path to a freight operator is its opportunity cost to other sectors). This might lead to a number of further operators coming into the market and the removal of any degree of protection other rail services enjoy from these operations. Such competition might stimulate increased efficiency, better marketing and innovation. However, it would have a downside. By spreading traffic between a number of operators it might reduce the number of routes on which through international services could be

justified. In other words there is again a risk of loss of economies of density. Thus, whilst there is no doubt that this is a sector in which the private sector has a lot to offer, it may be better to reap these benefits by the existing method of joint venture companies rather than by freedom of access to the infrastructure.

## **7. Conclusion**

That there is a rail problem within the Community is clear. The problem is not simply that railways require and receive subsidy; we have shown that there may be good reason for that. Nor is it that governments intervene in railway operations; again that may be justified. The real problem is that there is evidence of inefficiency in terms of railway operations and marketing as witnessed in the very low productivity of some railway companies and the continued loss of market share even in markets which are inherently suitable for rail transport.

In this context, the current Commission proposals on rail policy may be seen as a brave attempt to face up to a difficult problem, with much to commend in them. The further attempt to clarify the relationship between government and railway, with increased financial autonomy, realistic balance sheets and clearer contractual arrangements regarding subsidies can be generally welcomed. The only criticism of the proposals regarding high speed rail and combined transport is that they represent an uneasy compromise between what is needed and what the Council of Ministers may accept; thus they may not go far enough to achieve the full potential of these important and growing sectors of the rail transport market.

But the greatest doubts must rest on the proposals concerning separation of the infrastructure from the operations. The disadvantages are summarised in Table 12. Whilst the rationale is superficially attractive, many reasons have been cited to doubt whether it would be an efficient way of organising railway services in practice. As a way of promoting new entry in specific areas of operation, such as international freight, whilst leaving the bulk of operations in the hands of integrated companies, it has more to commend it, but even here there is reason to doubt whether the results would be better than a vigorous pursuit of joint venture operations. Perhaps this aspect of the proposals should be best viewed as reflecting despair on behalf of the Commission after many attempts to make existing organisations work better, rather than an ideal solution to the problem of railway organisation.

## **References**

D. Caves, L. Christenson and J. Swanson (1981) Productivity Growth, Scale Economies and Capacity Utilisation in US Railroads 1955-1974 (American Economic Review, (5) 994-1002)

COM (89) 564 FINAL (1990) Communication on a Community Railway Policy

A. Friedlander and R. Spady (1981) Freight Transport Regulation (MIT Press)

R. Harris (1977) Economies of Traffic Density in the Rail Freight Industry (Bell Journal of Economics 8(2) 556-563)

J.O. Jansson and P. Cardebring (1989) Swedish Railways Policy 1979-88 (Journal of Transport Economics and Policy, 23)

S. Jara-Diaz and C. Winston (1981) Multiproduct Transportation Cost Functions: Scale and Scope in Railway Operations (in N. Blattner et al, Eds, Eighth European Association for Research in Industrial Economics, Vol.1, Basel)

T.E. Keeler (1974) Railroad Costs, Returns to Scale and Excess Capacity (Review of Economic Statistics, 61, 201-208)

C.A. Nash (1981) Government Policy and Rail Transport in Western Europe (Transport Reviews, 1(3), 225-250)

C.A. Nash (1982) Economics of Public Transport (Longman)

C.A. Nash (1985) European Railway Comparisons - What Can We Learn? (in K.J. Button and D. Pitfield, International Railway Economics, Gower)

D. Starkie (1984) BR - Privatisation without Tears (Economic Affairs)

C. Winston (1985) Conceptual Developments in the Economics of Transportation: An Interpretive Survey (Journal and Economic Literature XXIII, 57-94)

**Table 1**  
**Elasticities of Rail Cost with Respect to Output**

<u>Study</u>	<u>Functional Form</u>		<u>Cost Elasticity</u>
Keeler (1974)	Cobb-Douglas		0.57
Harris (1977)	Linear		0.64
Friedlander and Spady (1981)	Translog		0.895
Caves, Christenson & Swanson (1981)	Translog		0.605 to 0.716
Jara-Diaz and Winston (1981)	Quadratic		0.352 to 0.787

Source: Winston (1985)

**Table 2**  
**Labour Productivity**  
**(train km per member of staff)**

	<u>1987</u>	<u>1977</u>
Britain* (BR)	2796	1817
West Germany (DB)	2333	1750
Denmark (DSB)	3300	2242
Italy (FS)	1419	1411
Netherlands (NS)	4238	3909
Belgium (SNCB)	2071	1800
France (SNCF)	2203	2096

Source:

1987: UIC: International Railway Statistics 1987; 1977: BR/Leeds University: A Comparative Study of European Rail Performance (1979)

Note: \* includes BREL staff

**Table 3**  
**Financial Performance**  
(percentage of total expenditure covered by self generated revenue)

	<u>1985</u>	<u>1975</u>
Britain (BR)	73.8	71.0
West Germany (DB)	66.0	55.8
Denmark (DSB)	64.7	69.4
Italy (FS)	30.7*	31.3
Netherlands (NS)	58.2	65.2
Belgium (SNCB)	51.7+	24.7
France (SNCF)	63.3	71.1

Source:

1985: Com (88) 12 Final. Sixth biennial report from the Commission on the economic and financial situation of railway undertakings;

1975: Com (77) 214 Final. First biennial report on the economic and financial situation of railway undertakings

Notes:

\* 1984

+ includes a high proportion of other receipts; for traffic revenue alone the figure is 24.7.

**Table 4**  
**Rail Passenger Traffic Share (% of pass km) (excluding metros)**

	<u>1978</u>	<u>1988</u>
Great Britain	8.2	7.4
Belgium	9.6	7.5
Denmark	6.3	7.0
FR Germany	6.6	6.5
France	10.2	9.6
Italy	9.2	7.3
Netherlands	6.5	5.7
Spain	10.7	8.6

Source: Transport Statistics Great Britain (1978-88)

**Table 5**  
**Rail Freight Traffic Share (% of tonne km**  
**by rail, road, water and pipeline)**

	<u>1978</u>	<u>1988</u>
Great Britain	12.6	9.3
Belgium	23.3	19.5
Denmark	8.1	9.1
FR Germany	23.9	21.8
France	28.0	22.9
Italy	11.8	8.7
Netherlands*	5.5	5.4
Spain	11.8	8.3

\* excludes pipeline

Source: Transport Statistics Great Britain (1978-88)

**Table 6**  
**Investment Prospects to 2000 (£m, 1989)**

	<u>National Rail</u> <u>Total 1989-2000</u>	<u>Rapid Transport</u> <u>Total 1989-2000</u>
Austria	3430-4410	340-440
Belgium	4350	660-990
Denmark	1530-1650	180-270
Finland	2025	
France	18390	4090-5100
Germany	20700	3450
Greece	330+	44+
Ireland	46-230	
Italy	34400-49150	4950-7370
Luxembourg	140	
Netherlands	2600	150-460
Norway	1140-1615	170
Portugal	1460	90-130
Spain	9730	830-1110
Sweden	2730-2940	100-200
Switzerland	6260-6650	780-1180
UK	8250-11000	3850-4950
TOTAL	118000-137000	19700-25900

Source: Kennedy Henderson (1990)

**Table 7**  
**Contrasts in Freight Policy**

	<u>West</u>	<u>France</u>	<u>Britain</u>
	<u>Germany</u>		
<b><u>Rate Controls</u></b>			
Maximum	YES	YES	NO
Minimum	YES	NO	NO
<b><u>Entry Controls into Road Haulage</u></b>			
Quality	YES	YES	YES
Quantity	YES	YES	NO

**Table 8**  
**Major EC Regulations Relating to Rail Transport**

1191/69 on Public Service Obligations  
1192/69 on Normalisation of Accounts  
1107/70 on Aids to Transport

**Table 9**  
**Continued Problems of Community Rail Transport**

1. Rail operators nationally based
2. Growth in and administration of subsidies
3. Inadequacy in capacity and quality of infrastructure
4. Technical harmonisation

**Table 10**  
**1989 Commission Proposals on Rail Policy**

1. Directive on the development of the Community Railways
2. Regulation on Public Service Obligations (amending 1191/69)
3. Decision on the Network of High Speed Trains
4. Directive on Combined Transport (amending 75/130)

**Table 11**  
**Advantages of Separating Rail Infrastructure and Operations**

1. Comparability between road and rail
2. Introduction of competition in operations
3. Operation of international services by a single organisation

**Table 12**  
**Disadvantages of Separating Rail Infrastructure and Operations**

1. Need for integrated planning of infrastructure and operations
2. Lack of commercial pressure on infrastructure company
3. Provision of services as well as infrastructure a natural monopoly
4. Problem of allocation of paths