Recent Developments in Rail Infrastructure Charging in The European Union

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1. Introduction

Ten years ago, rail infrastructure charges were virtually unknown in Europe. Rail services were generally provided by state-owned, vertically integrated organisations, and there was simply no need to levy charges for the use of the rail network. Two sets of events changed this.

- Some countries, notably Sweden and Great Britain, decided to restructure the railway industry, introducing among other things a vertical separation between infrastructure provision and train operations.
- The European Commission implemented a package of measures that created rights of access for certain types of service to rail networks in each Member State. Once other parties are granted access rights, then clearly there needs to be some way of charging for infrastructure use.

This paper addresses both policy and practice in relation to rail infrastructure charging in the European Union, paying particular attention to a set of measures recently put forward by the European Commission in the form of a proposed Directive. These measures are described in Section 4 and discussed in Section 5. Before that, Section 2 describes the earlier development of the Commission's policy in relation to access rights and infrastructure charges, and Section 3 summarises the current approaches to infrastructure charging adopted by individual Member States.

2. The Policy Background

Throughout the 1990s the European Commission has introduced a range of initiatives in the transport sector, with the main objective of promoting the development of the single market through greater mobility and more efficient transport provision. A number of these measures have been focused on the rail industry, both because of its potentially significant role in transporting passengers and freight between Member States, and also because the industry has been characterised by high entry barriers and falling market shares.

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Directive 91/440 (European Commission, 1991) introduced a number of important provisions, including a requirement for accounting separation between infrastructure provision and train operation, and measures to ensure greater managerial independence of train operators (or "railway undertakings") from government. Significantly, the Directive also established access rights for two types of international services: those provided by international groupings of railway undertakings; and combined transport freight services.

The Directive is largely silent on the way in which these (or other) services should pay for their use of rail infrastructure, stating only that infrastructure charges should be calculated in such a way as to avoid any discrimination between railway undertakings (and also that charges may vary to take account of mileage, train composition, and specific requirements in terms of factors such as speed, axle load, and the degree or period of infrastructure use).

The Commission recognised the need for further measures to support the access rights created by Directive 91/440. A further Directive, 95/19 (European Commission, 1995), therefore contains more detailed requirements in relation to both infrastructure charging and capacity allocation (together with safety certification). The main provisions of Directive 95/19 on infrastructure charging are as follows.

- Revenues from infrastructure charges, plus state contributions, should (under normal business conditions and over a reasonable time period) cover infrastructure expenditure.
- There should be no discrimination in the charges for services "of an equivalent nature in the same market".
- Charges should be fixed according to "the nature of the service, the time of the service, the market situation and the type and degree of wear and tear of the infrastructure".

The impact of these measures varies significantly between Member States. A recent communication (European Commission, 1998a) reported that not all Member States had implemented the legislation necessary to create the access rights required under Directive 91/440, and only four Member States had notified the Commission that they had implemented the later Directive (95/19) on capacity allocation and charging (together with an associated Directive on licensing).

Perhaps more importantly, the Commission found that only two groupings had taken advantage of the access rights created by Directive 91/440, though new entrants had won the right to operate regional or local services in some Member States (these services are outside the scope of the Directive).

The failure to exploit the opportunities created by Directive 91/440 was thought to reflect the impact of high start-up costs and also a fear that potential entrants might be treated unfairly by those infrastructure managers which were still vertically integrated with the main train operator in some Member States. Such fears underlined the need for the package of measures on infrastructure charging and capacity allocation that the Commission was already planning to introduce.
3. The Development of Rail Infrastructure Charges

By the end of 1997, seven Member States had introduced systems of infrastructure charging (and one other country, The Netherlands, had set charges at zero while a longer-term approach was being developed). In Sweden and Great Britain, charges were introduced following a restructuring of the industry that included a complete structural separation between infrastructure provision and train operations. Elsewhere, the separation of infrastructure provision from train operations has usually been achieved either by creating separate divisions within a vertically integrated railway administration, or by creating a new, publicly owned body to be responsible for infrastructure management. In the latter case, the existing railway organisation often continues to operate and maintain the rail network, but now performs these functions under the terms of a contract with the new infrastructure manager.

The charging frameworks adopted by most Member States can be assigned to one of two broad approaches.\(^1\)

- The “Scandinavian Approach” describes the systems adopted in Sweden and Finland, and also to a large extent in Denmark. It features a relatively simple charging structure with low variable charges based on short-run marginal cost (SRMC), taking account of relevant external costs, and also adjusted to take account of comparisons with other modes of transport. In some cases there are also (generally low) fixed charges, which are based on a comparison with the taxation of road users.

- The “Adjusted Average Cost Approach” describes the systems adopted, though with some differences, in Germany, France and Austria. It aims to raise a target amount of revenue, mainly (but not exclusively) through variable charges. Although these charges are adjusted to reflect a number of cost and market factors, and some revenues are raised through fixed charges, this approach sometimes leads to variable charges that are substantially higher than SRMC, depending on the level of state contributions available (and thus the level of the cost recovery target).

An important difference between these approaches is the relationship between state contributions and the level of infrastructure charges. Under the Scandinavian Approach, the level of infrastructure charges is determined mainly by cost conditions (and also comparisons with other modes of transport), so that the level of state contributions is determined as the difference between total infrastructure costs and the amount of revenue raised from infrastructure charges.

In contrast, state contributions under the Adjusted Average Cost Approach are generally determined by governments (in the context of wider decisions on public spending and taxation), and infrastructure charges need to be set so as to generate sufficient revenues to cover the difference between total infrastructure costs and the available state contributions. This approach is often adopted in cases where governments are unwilling to provide the level of state contributions necessary to facilitate SRMC pricing.

\(^1\) See NERA (1998) for a more detailed description of each approach, together with an overview of the charging frameworks applied in individual Member States.
The approach adopted in Great Britain does not fit easily into either of the above categories. The particular market structure and financing framework adopted in Great Britain allows very high fixed charges to be applied (to a small and well-defined group of franchised passenger train operators) without distorting competition. Thus a high level of cost recovery can be achieved while holding most variable charges at (or probably below) SRMC. Alone among the Member States, some infrastructure charges in Great Britain (for freight and “open access” passenger services) are determined by negotiation between train operators and the infrastructure manager.

4. The Commission’s New Proposals

The Commission’s latest measures, published recently in the form of a proposed Directive (European Commission, 1998b), include a number of new provisions relating to capacity allocation and infrastructure charging (it also replicates the safety certification provisions from Directive 95/19, so that this earlier Directive can be repealed).

The new proposals on infrastructure charging aim to promote allocative efficiency by setting charges, where possible, at short-run marginal cost.² Productive efficiency is also promoted both by requiring performance schemes (which provide for penalties for actions that disrupt the operation of the network, and bonuses that reward better than planned performance), and also by requiring state contributions to infrastructure managers to be provided through a contract (or other regulatory arrangement) that determines contributions for a period of at least three years. Infrastructure managers will therefore have stronger incentives to improve cost efficiency, as they will retain the benefits from cost reductions at least until the next review of state contributions.

Consistent with the SRMC-based approach, the proposed Directive allows for infrastructure charges to reflect scarcity values where there are identifiable capacity constraints, and also to take account of external effects. In both cases, the proposed Directive does not specify how these charges should be calculated, though infrastructure managers will be required to consult actual and potential users on the methodology used to adjust charges for these factors.

There are two main exceptions to the SRMC-based approach. The first deals with cases where a departure is needed in order to support particular investment projects. “In exceptional circumstances and for specific projects”, therefore, infrastructure charges may be based on the long-run additional costs arising from particular investments, provided that the investment would not otherwise have been made, and the investment and the charging framework together result in “an improvement in economic efficiency”.

The second departure from SRMC pricing, which is likely to be more relevant to many Member States, deals with the problem that SRMC-based pricing will typically

² The proposed Directive does not refer explicitly to short-run marginal cost. Instead, it states that charges should be set “at the cost that is directly incurred as a result of the operation of the train”. (Article 8, para 3.) Although a time period is not specified, a later provision allows for charges, in certain circumstances, to be based instead on “the long-run additional costs arising from the investment made”. (Article 9, para 1.)
lead to low levels of cost recovery (typically only 10 to 20 per cent of total infrastructure costs). The proposed Directive specifies three possible ways in which charges can be adjusted in order to achieve a higher level of cost recovery.

- **Two-part tariffs**: a fixed charge can be levied on the operator making greatest use of a “segment” of infrastructure (segments must be at least 1,000km in length), provided that the fixed charge does not exceed those costs associated with the segment which would not be recovered by SRMC-based pricing. Other operators using the same infrastructure may pay a mixture of fixed and variable charges, provided that these do not result in either the average or the marginal charge per train being more than 10 per cent higher than that paid by the main operator using the segment.

- **Negotiated charges**: charges may be determined by negotiation, based on the elasticity of demand for different services or types of service, and subject to regulatory scrutiny to ensure that charges are not excessive.

- **Ramsey-based pricing**: differentiated published tariffs may be applied to different “clearly defined traffic types”, reflecting their relative willingness to pay above SRMC. Again, there must be regulatory safeguards to ensure that charges are not excessive, and also to ensure that traffic which can pay SRMC is not priced off the network.

Importantly, the proposed Directive states that these approaches can be applied only “for services other than freight”, implying that freight services should be charged at SRMC regardless of any cost recovery target placed on the infrastructure manager.

Other provisions of the proposed Directive relating to infrastructure charging include the following requirements.

- The application of the charging system should result in objective, equivalent and non-discriminatory charges for different railway undertakings performing similar services.
- While Member States may establish the framework for infrastructure charging, it is for infrastructure managers to establish specific charging rules, and to determine and collect charges.
- Infrastructure managers should prepare a statement of charges and charging schemes, including indications of likely changes in charges over the following five years.
- Any discounts should not exceed actual cost savings to infrastructure managers, may only relate to charges levied for a specified section of infrastructure, and separate schemes should be applied for different types of service.
- Member States may implement time-limited schemes to take account of unpaid (marginal) external and infrastructure costs of other transport modes.

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3 SRMC pricing may lead to levels of cost recovery higher than 20 per cent if there is significant congestion and this is reflected in increased infrastructure charges.
5. Discussion

The proposed Directive's apparent emphasis on SRMC pricing is consistent with one of the main conclusions from the Commission's consultancy study (NERA, 1998). The use of SRMC-based charges, including elements to cover congestion costs, disruption costs, and external impacts, should help to promote the efficient use of existing rail infrastructure.

In theory, charges set equal to SRMC (including congestion, disruption, and other external costs) should ensure that the rail network is neither under-used nor over-used, and also that scarce capacity is allocated efficiently between potentially competing users of the network. There are, of course, major practical difficulties to be overcome before this goal can be achieved, particularly in relation to the inclusion of a scarcity element in infrastructure charges. Both here and for external impacts, the Commission has not prescribed any methodology to be used to calculate charges, but instead will require infrastructure managers to consult on and eventually publish the methodology they use.

One difficult area for infrastructure charging is to decide the appropriate role for charges in cases where there are capacity constraints. Charges can be used to promote an efficient allocation of the existing capacity, or they may play some role (such as signalling, and perhaps also providing incentives) in the infrastructure manager's investment decisions.

NERA (1998) discusses the implications of these approaches, concluding that, in the majority of cases, the charging framework should aim to promote the efficient use of existing capacity, rather than trying to provide investment signals or incentives. One reason for this is that the charging mechanism alone cannot provide accurate investment signals or incentives (not least because of the heterogeneity of rail infrastructure). Since there will still need to be a separate system of investment appraisals, with regulatory oversight where necessary to ensure that worthwhile investment takes place, it is difficult to justify the loss of allocative efficiency that might result from trying to address investment problems through the charging mechanism. The provision of investment incentives, in particular, will require charges to remain above SRMC after the investment has taken place, and could well result in potentially viable traffic being priced off the new facility.

While favouring an SRMC-based approach, the proposed Directive recognises that this would lead to a level of cost recovery that is unacceptably low for some Member States. It therefore allows charges to be set higher than SRMC, though not for freight services, and furthermore allows this to be achieved through one of three methods.

In most cases, NERA (1998) concludes that published tariffs for different market segments, based on Ramsey Pricing principles, should be used to meet cost recovery targets, though it recognises that there might be some cases where a particular cost recovery target could be met only through directly negotiated charges. It acknowledges the

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4 The section of the proposed Directive that deals with capacity allocation includes such a mechanism, which involves the declaration of infrastructure as "capacity constrained", followed by a "capacity analysis" to consider ways of easing capacity constraints, and then a "capacity enhancement plan".

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significant potential benefits of two-part tariffs in terms of allowing variable charges to remain at SRMC, but recommends that they be rejected in cases where they are likely to distort competition. The Commission has sought to limit the impact on competition by imposing a limit on the extent to which smaller operators may be disadvantaged by either higher average charges or higher variable charges per train.

The proposal that charges for freight services should not be increased above SRMC to help meet cost recovery targets may, in many cases, lead to charges that are only slightly lower than those which would have resulted from market-based pricing (on the assumption that freight services are generally more price sensitive than passenger services). However, there may be cases where certain freight services are able to pay charges materially higher than SRMC, and this would appear to be ruled out under the new proposed Directive.

6. Concluding Comments
In general, the proposed Directive seems likely to lead to some significant improvements in rail infrastructure charging, particularly in those Member States currently using the Adjusted Average Cost Approach. In some of these Member States the overall structure of charges may be already consistent with the proposed Directive. The main failing is that there is not enough variation between the charges for different types of traffic, with the result that charges for particularly price-sensitive traffic are higher than they need to be. The proposed Directive would certainly lead to lower charges for freight services, and might also lead to lower charges for the most price-sensitive types of passenger service. Other changes might be required as some of these countries currently levy fixed charges that could give rise to price differentials greater than those allowed under the new proposals.

The proposed Directive may have less impact in those Member States which have adopted the Scandinavian Approach, though the proposals in relation to state contributions (determined for periods of at least three years) and performance regimes may lead to some improvements in productive efficiency.

The British Approach also contains some elements that appear to be contrary to the provisions of the proposed Directive. The franchised passenger train operating companies (TOCs) currently pay very high fixed charges, though these are not distortionary as they were reflected in the TOCs' franchise bids. It may be a matter of legal drafting whether or not these charges are consistent with the proposed Directive. In addition, however, freight services are also charged above SRMC within a framework of negotiated charges that aims to allow Railtrack (the infrastructure manager) to recover its total freight-specific costs. This approach would be ruled out by the proposed Directive. In the absence of other policy changes, this would require Railtrack to absorb significant losses that might be avoided, in the longer term, only by a substantial reduction in the volume of freight accepted onto its network. To maintain the current situation, the government would almost certainly need to provide direct subsidies (either to Railtrack or to train operators) to prevent a significant loss of rail freight traffic.
Finally, it is important to note that the impact of any change in infrastructure charging will depend on other developments affecting European railways. Most infrastructure managers and train operators are still publicly owned. They may pursue non-commercial objectives (including those of senior managers or politicians), with the result that financial incentives and price signals may have little if any impact on their behaviour. Entry opportunities are still severely limited in some Member States, and this situation may be exacerbated by less than full separation between infrastructure managers and train operators. The full benefits of improved infrastructure charging may only be realised, therefore, if measures are taken to ensure a proper separation in all Member States between infrastructure managers and train operators, and also to ensure that infrastructure managers and train operators are managed on a proper commercial basis.

References


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