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**DETERMINATION OF RAILWAY INFRASTRUCTURE CAPACITY INCLUDING  
ASPECTS RELATED TO THE FEE FOR THE USE OF THE INFRASTRUCTURE**

Developing European Railways Committee

Task Force Track Access Charges

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## 1. Introduction

The Developing European Railway Committee (DERC) mandated a task force of national government experts at their meeting in June 2004 to analyse track access charging regimes in different EU Member States. The mandate for this task force starts from the fact that average track access charges differ vastly between networks of different infrastructure managers. At the same time, EC directive 2001/14/EC stipulates common rules for calculating those charges.<sup>1</sup>

The present report does not explicitly answer all questions put in the mandate. Instead, it was felt important to provide concrete recommendations within the given legal framework.

The task force benefited from work conducted in parallel under the auspices of the European Conference of Ministers of Transport (ECMT),<sup>2</sup> and in particular, from working documents produced by Professor Chris Nash of Leeds University and by Lou Thompson. Professor Nash also presented and defended his paper in the task force. The task force decided to make use of this comprehensive work.

After adoption by DERC the present report will have the status of a public document. The Commission will make it available at its web site on the Europa server.<sup>3</sup> The report is addressed to rail infrastructure managers and railway undertakings, to national regulatory bodies and transport ministries and to the services of the European Commission. However, the opinions expressed in this document do not necessarily reflect the views of those organizations.

## 2. Relevance to the rail industry and public finance

Infrastructure charges account for a significant part of the cost of a railway operator. Often, rail freight operators pass on 5 to 25% of revenues to the infrastructure managers. The level and structure of the charge are therefore crucial in establishing competition on the rail network. Several national systems do not meet requirements of transparency and/or are deemed unfair, for instance when a locomotive is charged as much as a train even though a line is not congested. Due to the importance of track access charges in the overall cost structure and the business model of a railway undertaking, RUs have to be proactive, and to respond swiftly when difficulties occur, in order not to put at risk their financial viability.

New entrant railway undertakings stress the need for regulatory bodies (RB) to ex-ante verify compliance of charging systems with legal requirements. However, they also complain that

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<sup>1</sup> It is however noteworthy, that the directive does not set the objective of a common level of track access charges all over the EU. On the contrary, the directive allows, and in some cases even requires, infrastructure managers to spread charges on their network, for instance to reflect different costs of operation, or to reflect scarcity of rail capacity.

<sup>2</sup> "Railway Reform and Charges for the Use of Infrastructure", Council of Ministers of the European Conference of Ministers of Transport, CEMT/CM(2005)6, downloadable at [www.cemt.org](http://www.cemt.org).

<sup>3</sup> [Http://europa.eu.int/comm/transport/rail\\_archive/package/index\\_en.htm](http://europa.eu.int/comm/transport/rail_archive/package/index_en.htm).

several MS have not yet set up regulatory bodies or that regulatory bodies fail to respond to their demands due to a lack of resources, low staff numbers or lack of competence, or independence from incumbent railways or due to political influence. In such cases they have to rely on courts. There are also reports that due to the relative novelty and the complexity of the economic expertise required, courts lack the knowledge to rule on issues related to railway track access charges.

The way charges are determined is also crucial to a recurring issue all states face: how big a rail network and how many non-commercial passenger services should be supported by the public budget? Undercharging trains threatens the long-term financial sustainability of the network and deferring renewals can increase costs to crisis point in the long run. Undercharging subsidized passenger trains often results in over-charging freight, damaging its competitiveness with road haulage. It is also important to create transparency, continuity and predictability of financial flows. A stable outlook for charges and state contributions to infrastructure financing is of key importance, also because it is a prerequisite for public-private-partnerships for infrastructure financing.

### 3. Conclusions

Not all existing infrastructure charging regimes are consistent with EU policy objectives as regards:

- promoting financially stable infrastructure providers;
- providing effective price signals to users of rail infrastructure; or
- promoting effective competition in the markets (especially international freight) where competition would be sustainable.

The divergence of current infrastructure charges is illustrated in annex 2, figure 1, showing cost recovery rates, and figure 2, showing average charge levels. Some differences are to be expected. For example, the upper bound for cost recovery is a question for political decision at the national level. Also the mix of traffic (see figure 3) and traffic densities (see figure 4) vary greatly between countries and this has a strong influence on costs. The differences can also be explained by track access charges differing according to network category.

Some of the differences observed, however, create financial risks or undermine the competitiveness of rail services.

- Some countries charge at levels significantly below the lower bound represented by marginal costs, including renewals, prescribed in Directive 2001/14/EC. It makes little sense to carry traffic that cannot even pay the marginal costs it imposes on the network in terms of wear and tear and train planning.<sup>4</sup>

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<sup>4</sup> Unless this is explicitly to correct for distortions on other modes and in that case the better course of action is to remove those distortions.

- Some charging systems result in freight trains covering some of the costs of passenger trains in order to push down the budget transfers required to pay for passenger service obligations. Such circumstances will be found when an infrastructure manager has to operate under a high (or full) cost recovery target while his network is used below capacity. This is financially unsustainable as it will destroy the competitiveness of rail freight.
- There are many instances of barriers to international services created by differences in the way countries along international corridors structure charges. Freight train charges that are structured to provide incentives to consolidate loads and run fewer, longer trains in one country, and structured to promote operating short, light trains in a neighbouring country complicate train path planning and increase the costs of international paths. This will suppress international rail traffic. There has so far been a failure to co-operate internationally to correct these distortions, seriously undermining international rail markets. Harmonizing the structure of charges for freight trains would:
  - Make charging schemes more consistent and predictable and help optimise international services;
  - facilitate the planning of international services; and
  - enable railways to be more responsive in quoting prices to shippers.

#### **4. Recommendations**

Further exchange of information is recommended to promote the development of more coherent charges for the use of infrastructure. For international rail freight services this is an urgent priority. Guidance should be provided to infrastructure managers and rail regulatory agencies to facilitate this, and the recommendations that follow are a first step in providing that guidance.

Independent<sup>5</sup> economic rail regulatory authorities can play an important role in ensuring many of the specific recommendations that follow are implemented, and could play a useful role in all Member States.

##### ***1. Charges for freight trains on international corridors***

Infrastructure managers should negotiate the mark-ups along international freight corridors and take into account the cost of competing modes. They should prevent mark-ups being fixed at levels that the rail freight market cannot bear and that would result in losing business that can pay its marginal costs to competing modes.

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<sup>5</sup> Independent of Government as well as train operators and infrastructure managers.

Charges should be set on the basis of marginal costs, with simple mark-ups where required. There could be merit in adopting similar charges for domestic freight as well in many countries.

These charges need not be uniform in level but must be consistent in structure and should be based on a set of simple factors of use, at least outside of capacity bottlenecks and peak hours. Charges per gross tonne-km should be employed to reflect maintenance and renewal costs for track.<sup>6</sup> Where freight capacity is not constrained, such a single factor, simple charge may be sufficient. Where capacity for freight is constrained (and the marginal costs of freight traffic are significant) charges per train-km may also be useful.

It should be accepted, however, that where rail freight is the dominant use of the network and its market position is strong (as in the Baltic States for example) an alternative approach based on full costs is appropriate.

Also, whilst harmonisation of track access charges is clearly a desirable aim, there remains a need to take into account the particularities of different national charging regimes, as a result of different systems of infrastructure financing. Generally, it should be credited that at national level track access charges serve a twofold objective, namely cost recovery and efficient allocation. These two aspects are of equal importance. Harmonisation measures should not go as far as to create an obligation for Member States to subsidise track access charges.

Member States should define long-term strategies for contributions to railway infrastructure. In the long run, common rules on investment for construction and renewal should be set.

## ***2. Structure charges for passenger and freight trains to balance competition and financial objectives***

National access charge regimes might need to reflect the complexity and intensity of the use of the rail network. Countries with intensive traffic and a multiplicity of users could best construct their access regime from a mix of approaches:

- Full cost based charges (with costs recovered as a two part tariff) for suburban and non-competing intercity passenger operators running on exclusive rights of way.

It makes sense to recover full costs from these services where they are the dominant user of the system, generating most of the costs, which is almost always the case around major cities, and generally the case across the whole network in many member countries. Where passenger trains are a marginal user on freight-dominated systems it may be appropriate to charge them only marginal costs.

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<sup>6</sup> Or per wagon-km, which is simpler but less accurately reflects gross weight.

In the case of passenger services supported from public budgets under public service obligations, charging these trains the full costs they impose on the network makes the costs entailed more transparent for the public authorities that decide on the level of services that should be provided. This should help reconcile the demands for services from one part of government (for example transport local authorities) with the resources available from public budgets for rail infrastructure.

- Simple marginal cost based charges, plus a mark-up where necessary, for situations where intercity passenger trains will compete on the same tracks. Fixed charges need to be avoided as they almost always present a barrier to small operators seeking to enter the market.

Such a mixed approach, with simple marginal costs charges for freight, with a simple mark up (e.g. a percentage increase on the marginal charge) where required for higher cost recovery, will permit the best balance among competition and financial stability objectives to be achieved.

Different national systems relating to infrastructure financing will lead to differences in track access charging regimes. The setting of charges can be transferred to the discretion of the infrastructure manager, in accordance with Art. 4, para. 1 of Directive 2001/14/EC which allows for the delegation of powers to establish specific charging rules to the infrastructure manager. Where such approach is chosen, as for example in Germany, independence of the infrastructure manager can pertain to the fixing of track access charges. The means of the State to interfere with entrepreneurial decisions of the infrastructure manager are then, consequently, limited to regulatory control.

### ***3. Provide for renewals***

Infrastructure managers should at least collect marginal costs, including accelerated renewals, from all trains. Variable, traffic-driven renewal costs, that is the increased present value of costs that result from having to undertake renewals sooner than if a train had not been run on the track, are not always charged for at present. As noted above, it makes little sense to carry traffic that cannot pay at least these costs. For rail freight to remain competitive with alternative modes it is important to achieve recovery of these infrastructure renewal costs also in other modes of transport. The examples given in annex 3 illustrate some different national approaches to differentiating between the marginal and non-marginal costs of infrastructure provision.

### ***4. Respect financial commitments***

Transport policy determines the size of the gap between the revenues generated from access charges and the full cost of maintaining and renewing the infrastructure network. The key factors are specification of the services to be delivered under public service contracts and setting the framework for infrastructure charges. Filling the gap from public funds is essential for financial sustainability, with long-term implications for the quality and safety of the network and the cost of maintaining it. Short-term pressures inevitably lead finance ministries and parliaments to seek cuts in spending from time to time that are inconsistent with existing policy. The chief risk is delays to renewals that cause the condition of the network to deteriorate and a backlog of expenditure to accumulate. Long

term agreements between the infrastructure manager and the state should set out the level of support to be provided and the quality to which the infrastructure should be maintained. This would act as a performance regime not an open cheque for infrastructure spending.

#### ***5. Public service contracts for passenger services***

Public service contracts for rail passenger services are another important guarantee of financial sustainability. They are required for passenger services that are not fully commercially viable but are required of train operators by the State. These contracts should fund train operators to cover at least the avoidable costs of the services concerned, including infrastructure charges. Public service contracts will add to transparency and predictability.

#### ***6. Ensure adequate public information on rail costs and accounts***

Getting adequate data into the public domain is pre-requisite to full implementation of these recommendations. Data is currently insufficient to say with certainty which infrastructure managers charge below marginal costs or just how serious the practice, traditional in Eastern Europe, of covering passenger costs from freight charges is.

Line of business accounts and a complete record of government support to be reported annually to public authorities by infrastructure managers and train operators, in a consistent format is necessary. Regulatory bodies could develop and update such formats including a set of indicators. IM annual reports should also include a discussion of any changes in the condition of the infrastructure from the previous year, and a statement of the degree to which income from users plus government support meets or falls short of the cost of maintaining the infrastructure including the planned renewals. Infrastructure managers should report in the framework of the contract with the State.

There is ample precedent in regulatory experience for requiring that infrastructure managers report their annual results in a common format that permits analysis of individual railway performance and facilitates comparisons among railways. The burden this imposes on railways is negligible as they should already be collecting this information for proper management of their assets.

#### ***7. Common understanding of costs***

Europe's railways also need a common understanding of how to define and measure marginal and full private and external costs for use of rail infrastructure. Joint efforts are needed for a common approach and a consistent database. This has direct policy relevance and is not simply a research question. Annex 4 provides an overview of relevant research activities the EU Commission is already undertaking.

## **Developing European Railways Committee**

### **Track access charges**

- Draft Mandate for a task force on track access charges -

EU Directive 2004/14/EC stipulates as a principle that track access charges be based only on cost directly incurred as a result of operating a train service. However, the access charges actually levied differ largely between networks in different Member States. The below diagram depicts the present situation on track access charges for a 1,400 ton freight train. The average charge in the 4 countries with the highest fees is seven times more than the average of the four countries with the lowest fees.

This is a point of concern as high access charges, for instance in the form of two-part tariffs, have shown the risk of excluding new entrant railway undertakings from offering a service on a rail network. They may not lead to an efficient exploitation of rail capacity, while inadequate financing arrangements may lead to decrease performance of the rail network.

**It is proposed to start a task force on track access charges, which should investigate into the following questions and produce recommendations to the DERC and the Commission.**

How can these vast differences be explained?

What is the importance of financing arrangements, as regards short term and long term? Do these arrangements insure an adequate quality of rail infrastructure on the medium to long term?

What cost elements are considered when calculating infrastructure cost, as a basis for calculating access charges?

What are the underlying tariff structures of track access charges?

Are tariff structures on certain networks potentially discriminatory?

What has been changed and what new elements have come into play?

What is the role of external factors, such as transport policy, with regards to road transport? What is the effect of such charges on relative position of rail freight as regards competing modes of transports?

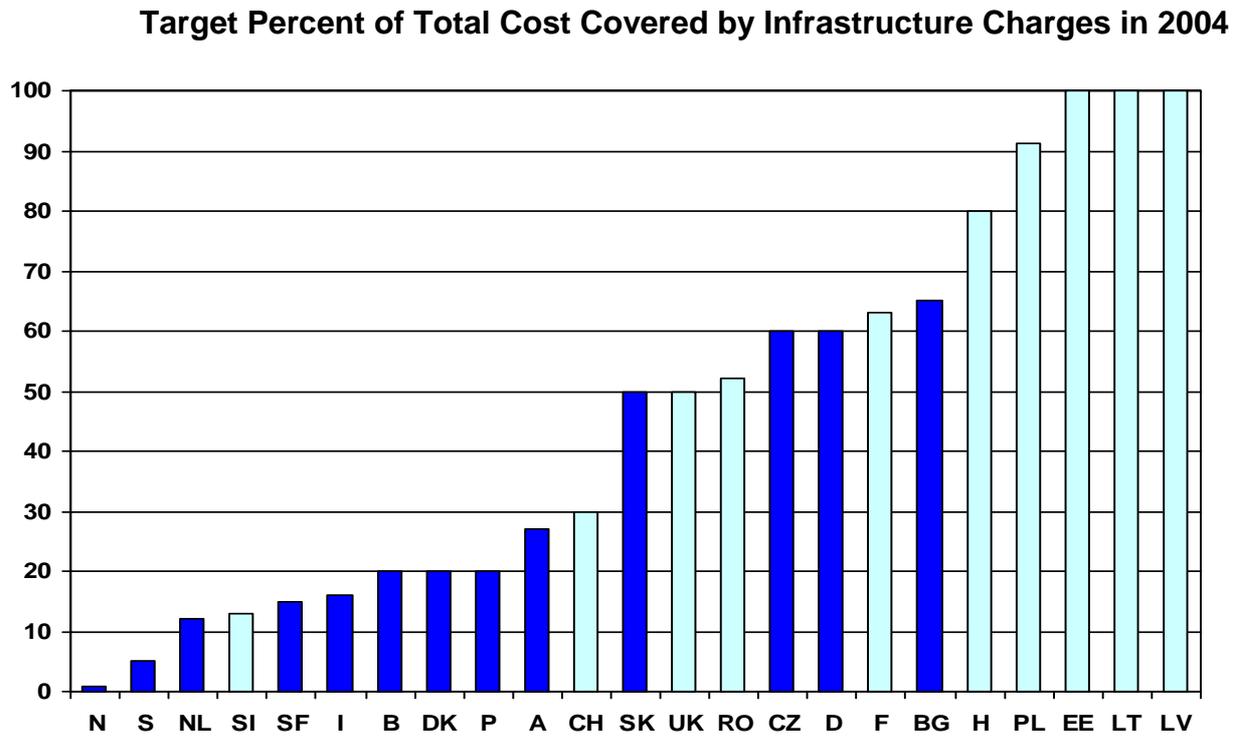
Have accounts of IMs and RU been separated?

Is there cross subsidisation and are public service obligations duly compensated for?

What is the effect on railway undertakings entering into a national market?

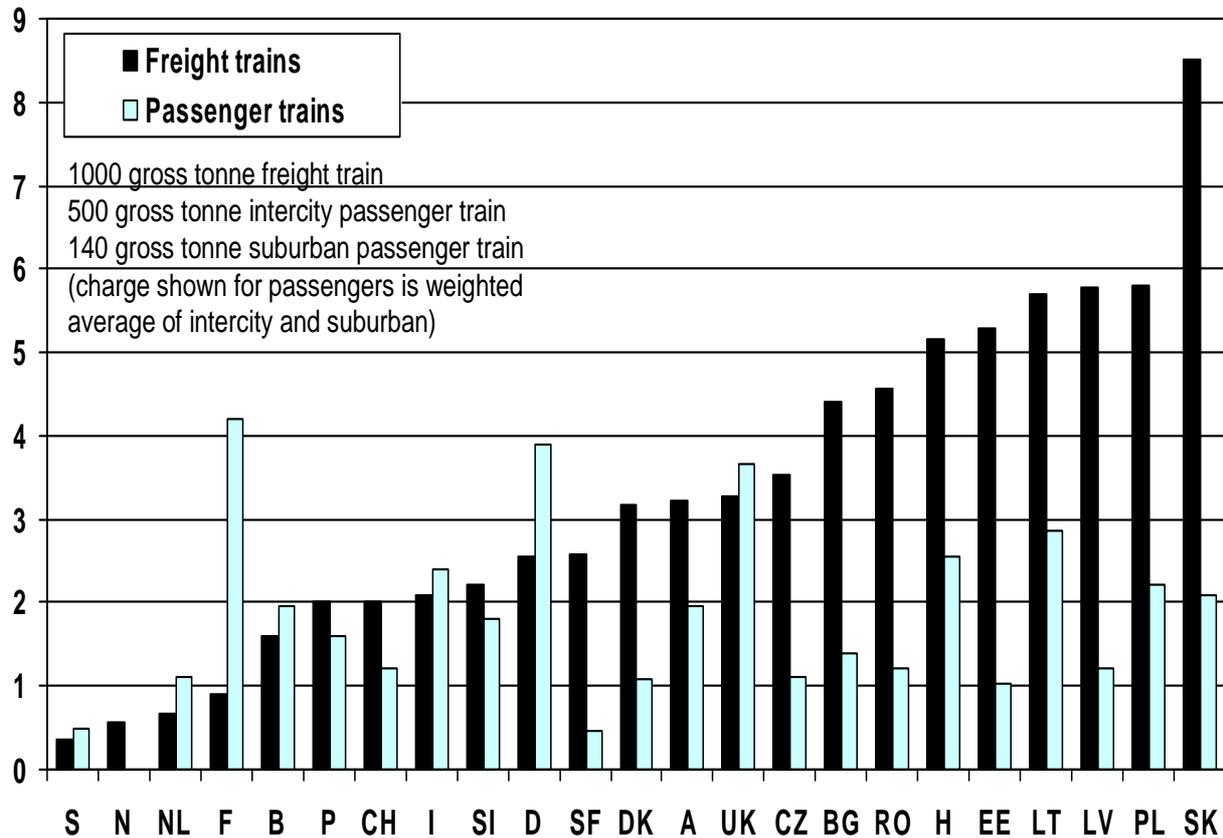
## Annex 2

Figure 1



Source: ECMT 2005

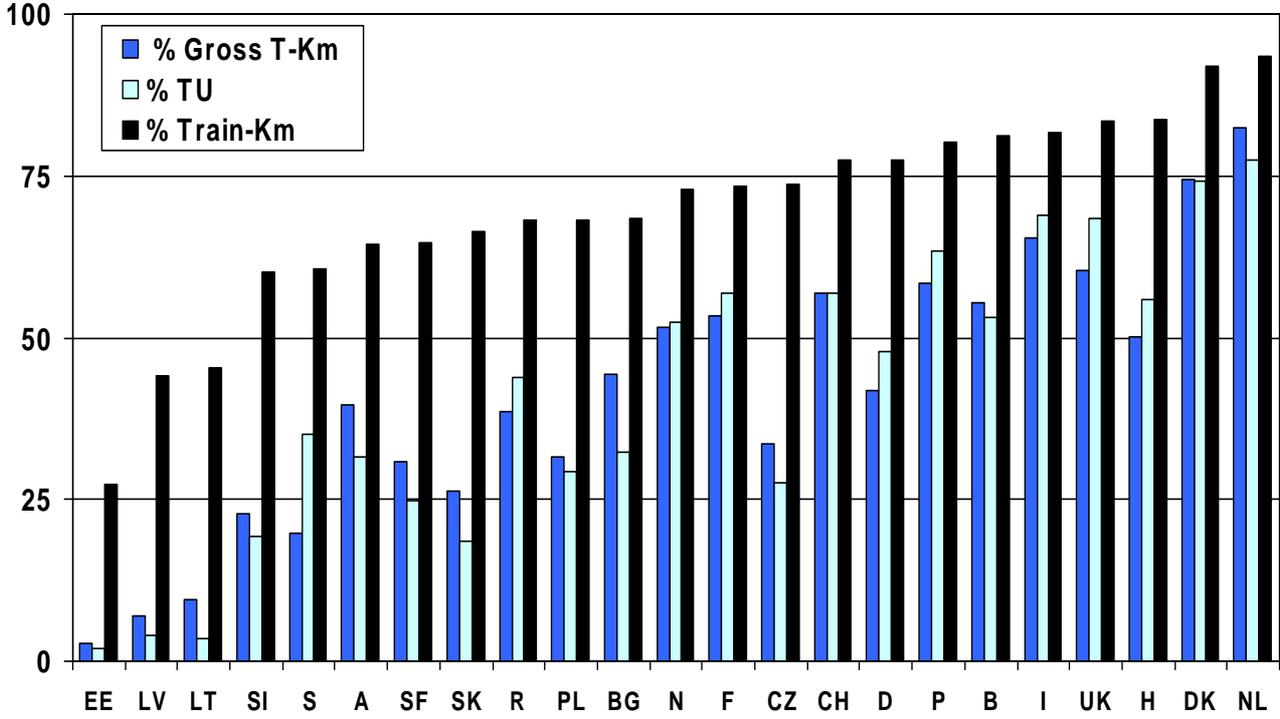
Figure 1. Average Access Charges (2004, €/ train-km, excluding cost of electric traction)



Baltic freight trains are much larger than elsewhere. Baltic access charges are not directly comparable with those in other countries and have been adjusted here. In Estonia, for example, a typical 3145 tonne train is charged €11 per train-km.

Source ECMT, 2005

Figure 2. Traffic Mix (Percent Passenger Traffic)



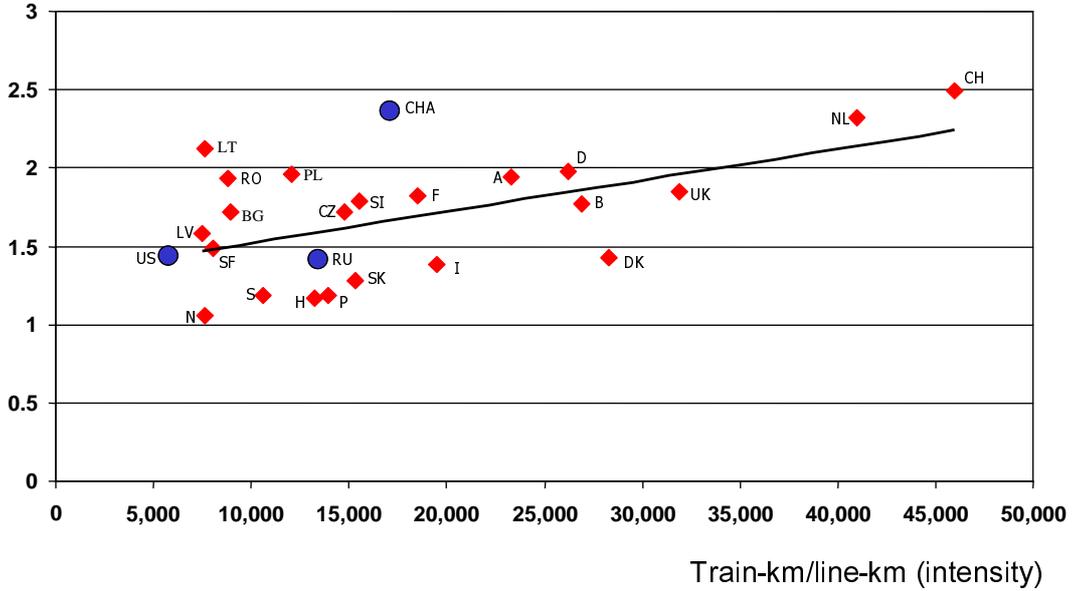
Note: TU=P-Km + T-Km

Source ECMT, 2005

**Figure 4**

**Network Complexity versus Intensity of Use**  
(trainkm/km of line basis)

Ratio: track-km/line-km (complexity)



Note: Russia, US and China added manually and do not affect the regression line.

### Annex 3

The below table indicative variable shares of cost as used by the Office of Rail Regulation in the UK.

<b>Asset</b>	<b>Activity</b>	<b>Compo-</b>	<b>% variable</b>
Track	Maintenance		30
	Renewal	Rail	95
		Sleepers	25
		Ballast	30
Structures	Maintenance		10
	& Renewal		
Signalling	Maintenance		5
	Renewal		0
Electrification	Maintenance		10
	Renewal	AC	35
		DC	41

Experts of the Dutch infrastructure manager ProRail estimate shares of variable cost as follows:

<b>Asset</b>	<b>Activity</b>	<b>Compo- nent</b>	<b>%variable</b>
Track	Maintenance		30
	Renewal	Rail	50
		Sleepers	35
		Ballast	30
Structures	Maintenance & Renewal		5
	Renewal		0
Electrification	Maintenance		15
	Renewal		10

## **Annex 4**

### Research Activities launched by the EU Commission

The Commission provides on its web site extensive research on pricing of the rail infrastructure use<sup>7</sup>. Foremost, the UNITE project has provided cost information on the external effects involved in the use of different modes of transport.

Starting in 2005 under the 6<sup>th</sup> Framework Programme for Research and Technological Development (FP 6), the GRACE project is to provide more insight into the costs of infrastructure use by developing European cost functions and testing them in different case studies. The project FUNDING will research into the relations of optimal investments and charging, including the revenues from charging and a methodology to efficiently set mark-ups. Finally, two other projects are to look into, firstly, user reactions, efficient ways of setting charges and ways of cost allocation to user groups and, secondly, national accountability practises, the classification of infrastructure expenditures and methods for determining capital and running cost.

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<sup>7</sup> [http://europa.eu.int/comm/transport/infr-charging/charging\\_en.html](http://europa.eu.int/comm/transport/infr-charging/charging_en.html)