



EUROPEAN TRANSPORT POLICY PROGRESS AND PROSPECTS



Institute for Transport Studies



FOREWORD BY CER

The next five years will be decisive for the future of transport in Europe. In spring 2009, European Commission President José Manuel Barroso acknowledged that tackling greenhouse gas emissions from transport must become a top priority in the next legislative period. The EU will have to come up with concrete policies to reduce carbon emissions of the sector by focusing on fair pricing and technological change, a new communication on a sustainable future for transport affirmed in June 2009.

Much is at stake. The European Commission has started preparing a new white paper on the future of transport that will be published in 2010 and will aim for a substantial reduction of emissions from the sector. But have the lessons been learnt from the last white paper, which in 2001 urged it was “time to decide”? Competition within the rail sector, an effective charging policy for all modes and the removal of infrastructure bottlenecks were identified and are still seen as the three key pillars to revitalise the railways and make transport more sustainable.

In 2004, the Community of European Railway and Infrastructure Companies (CER) asked the renowned Institute for Transport Studies (ITS) at the University of Leeds to provide a first independent review of the progress that had been made. The report then concluded that, although substantial developments had taken place in several areas, amongst others paving the way for an open and competitive rail freight market, overall progress had been rather disappointing.

A full legislative period has passed since this review with important initiatives in- and outside the transport sector. Most strikingly we saw the adoption of ambitious EU environmental goals to prevent climate change, while greenhouse gas emissions from transport have continued to rise. The objective of modal shift towards more environmentally friendly rail transport has not been met consistently: many railways face severe financial problems and as a result lose market share to polluting road hauliers. The problems have recently been reinforced by the global economic crisis. So what remains from the vision of the last white paper? What has been the impact of European transport policy initiated and accomplished in the last ten years?

To answer this we have again invited Professor Chris Nash and his team from the ITS to carry out a second assessment of progress regarding the Commission’s white paper of 2001 and its mid-term review of 2006. The findings of his research are intended to inform and inspire the European institutions at the beginning of this new legislative period. Coming from a thorough analysis of past policy, the authors suggest how EU policy should develop over the next few years: most urgently they identify the need to make transport policy more consistent with the EU’s energy and climate policy.

We strongly support this objective and look forward to discussing this challenge with all European institutions and other stakeholders in the coming years!



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PROGRESS AND PROSPECTS

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CONTENTS

EXECUTIVE SUMMARY	5
1. INTRODUCTION	13
1.1 Background	13
1.2 Overview of Developments	14
1.3 Structure of this Report	21
2. COMPETITION WITHIN THE RAIL SECTOR	23
2.1 Introduction	23
2.2 Current Legislation	23
2.3 Freight	31
2.4 Passenger	33
2.5 Conclusions	35
3. INTERMODAL COMPETITION	37
3.1 Introduction	37
3.2 Rail Infrastructure Charging	37
3.3 Charging for Roads	43
3.4 Other Modes	48
3.5 Conclusions	48
4. INVESTMENT AND FINANCING	51
4.1 Introduction	51
4.2 The Trans-European Transport Network	51
4.3 Funding Rail Infrastructure	55
4.4 Conclusions	61
5. POLICY FOR THE FUTURE	63
5.1 Introduction	63
5.2 Revitalising Railways through Competition within Rail	63
5.3 Adopting an Effective Charging Policy	65
5.4 Financing and Investment in Infrastructure	66
5.5 Vision for the Future	68
REFERENCES	71
ABBREVIATIONS	



EXECUTIVE SUMMARY

Introduction

In the 2001 White Paper, the Commission focused on a number of priorities of which the most crucial for the rail industry were: revitalising the railways through competition within the rail sector, adopting an effective charging policy to promote efficient competition between modes, and investing to remove infrastructure bottlenecks and complete the European transport network (TEN-T). In this report we assess progress in meeting the objectives laid out in the white paper and also the measures needed to achieve these objectives over the next 5-10 years.

In terms of these three basic pillars of the policy, progress has been largely restricted to intramodal competition. There has been little progress on the second pillar, efficient competition between modes, because legislation to allow internalisation of external costs for heavy goods vehicles has still not been passed. And the third pillar, adequate investment and its financing, whilst provided for in legislation, has still not been implemented in practice. As a result, the targets set out in the white paper, particularly on modal split, have not been met and the overall objectives as they affect the rail sector have not been achieved.

The consequences are particularly serious in the new member states (EU12). The enlargement of the EU, from 15 to 25 and subsequently to 27 member states, has initiated an enormous process of assimilation and change. EU transport policy was written for the old EU member states and did not give sufficient weight to the different basic conditions in the EU12. With weak enforcement of legislation by the Commission, some of the EU12 have been selective in their implementation of European legislation, especially in the financial situation, largely inherited from the past, which forces rail infrastructure managers to rely on high charges from freight traffic to finance infrastructure maintenance and renewals. Also, former national railways in some countries are still subject to obligations imposed on them by public authorities for which they are not fully compensated. Together these mean that former national railways are not always able to compete on an equal footing with new entrants.

The inadequate financial architecture has also led to a worsening competitive position for railways in relation to other transport modes, due to inadequate investment, leading to a vicious circle of decline. This issue needs to be taken far more seriously by the Commission and member states.

Furthermore, enlargement has led to the removal of institutional barriers in road transport, such as quota systems and this, together with the development of the road network, has led to greater competition from road, especially in relation to intermodal transport.

Despite rapid decline over the last two decades, the modal share of rail in freight in the new member states is still substantially higher than in Western Europe and competition from road transport is less severe due to the still relatively small motorway network. Rail now has a limited window of opportunity in Central and Eastern Europe (CEE). If this window of opportunity is not used very soon, however, this would have a negative effect on the development of rail transport in the whole of Europe.



The mid-term review of the white paper in 2006 recognised the growing importance of greenhouse gas emissions. Transport is the only sector in which greenhouse gas emissions are growing in the EU and this is not compatible with long-run targets for overall emissions levels. On current trends, emissions from the transport sector alone would exceed the 2050 target for all sectors, so substantial absolute cuts in transport emissions will be needed. This view is supported by the Climate Change Package which highlights the need for the transport sector to 'contribute actively' to achieving the overall targets. This will require further technological innovation. However, in the first instance there must be prices in place for all modes to cover the full external costs of transport in order to promote demand management and modal shift to less polluting modes and to provide incentives for innovation. Fair pricing will at least reduce the extent that technological progress continues to be outpaced by traffic growth.

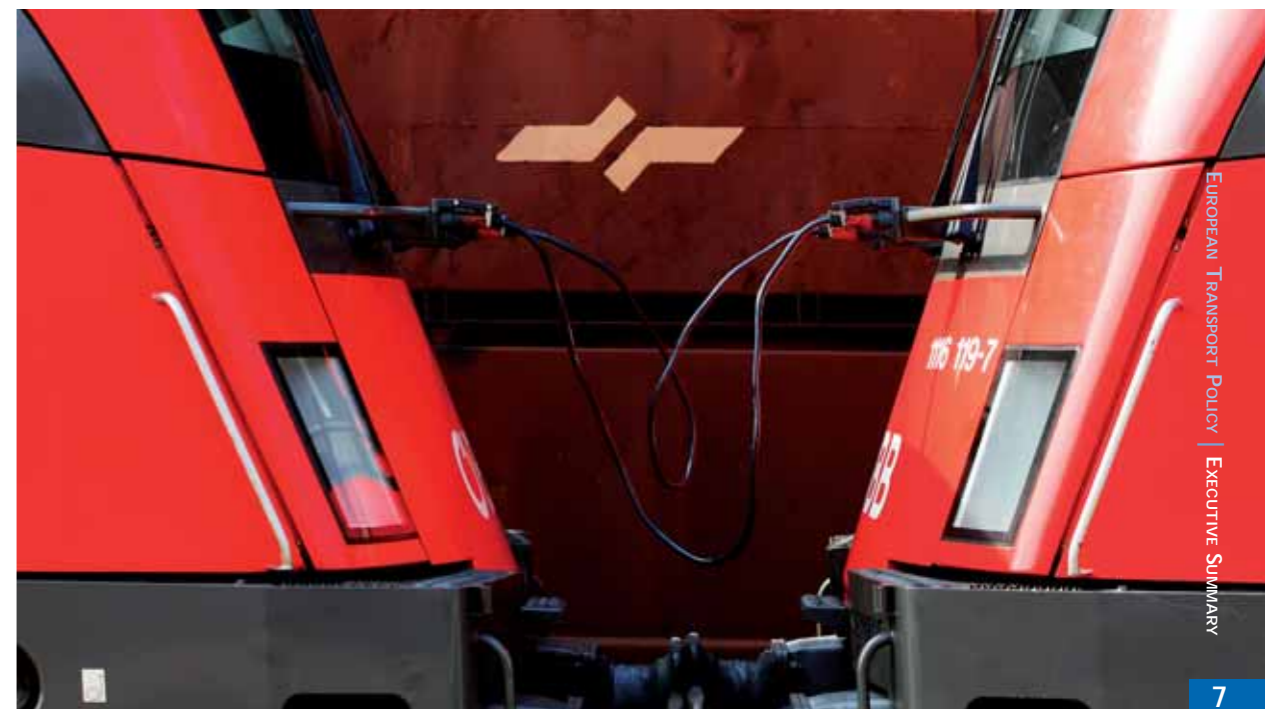
Within the transport sector, road transport is by far the most dominant source of greenhouse gas emissions. Emissions of greenhouse gas per vehicle km have been reduced but the sheer growth in road traffic volumes has outstripped these technological improvements. Emissions for transport will continue to grow unless the EU develops an ambitious policy to limit traffic growth, to drastically reduce specific emissions, particularly for road and air, and to shift more traffic to rail.

We consider below the three basic pillars of the policy in the white paper as they affect the rail sector: revitalising the rail sector through intramodal competition, efficient competition between transport modes (based on internalisation of external costs) and investment and its financing.

Revitalising the Rail Sector through Intramodal Competition

The three railway packages passed since 2001 together provide the basis for developing a competitive rail sector. Whilst many commentators have expressed dissatisfaction at the rate of change in the rail industry, in many ways the change over the last decade has been dramatic. There has been a substantial reorganisation, with infrastructure often in a different organisation from passenger and freight operations, or at the least in a separate division. Ownership of many freight operators has changed, with some now privately owned and others owned by the former national railways of other EU members. There are also new entrants into both passenger and freight operations. Strong competition has emerged in the freight business particularly on the crucial north-south axis through the Alps. In freight the market share of new entrants now exceeds 20% in Germany and Poland and is around 30% in Sweden and Romania.

This progress is despite the fact that much of the legislation, including the complete opening up of the freight market in 2007, has only taken effect recently, and adaptation to it is still taking place. Nevertheless there remain concerns that the institutional arrangements in many member states do not ensure fair competition between former national railways and new entrants. A major part of the problem is the failure of many member states adequately to implement existing legislation. The Commission has begun proceedings against these states, which need to be pursued vigorously. A particular issue concerns the powers and independence of regulators; we believe that strong independent regulation is the key to the solution of many of these problems. Whilst further legislation may ultimately be needed, it is important to test fully the extent to which the existing rail competition legislation, together with dissemination of best practice, may resolve the issues, and to ensure that future legislation is well thought through and appropriate to the task.



Revitalisation of the railways is threatened by the fact that several member states, in particular in CEE, have failed to ensure the financial equilibrium of their infrastructure manager (IM), as required by European legislation. The infrastructure managers must therefore borrow heavily and/or fail to maintain and renew its infrastructure to the standard required by train operators. In many cases, where public service obligation (PSO) payments from government to train operators are inadequate or not paid at all, passenger train operators are unable to pay infrastructure charges – further worsening the financial position of the infrastructure managers. With the opening up of the freight market for intramodal competition, it is no longer possible to rely on freight traffic as the main source of funding for rail infrastructure since the high prices will mean that freight train operators will lose traffic.

Without good quality and well financed infrastructure, the existing legislation aimed at introducing competition in the market will be ineffective. Legislation requiring the adequate financing of infrastructure managers exists but it is poorly implemented and this could have potentially disastrous consequences, particularly in CEE. The first priority of the Commission must therefore be to see that existing legislation on financing is properly implemented.

Intermodal Competition

Rail companies' fiercest competition comes from other transport modes. Efficient competition between modes of transport depends on achieving appropriate pricing and investment policies. Commission policy since 1995 has been based on the view that competition is distorted unless infrastructure charges are set appropriately and external costs are internalised into transport prices across the modes. Pricing should therefore be based on short-run marginal social costs.

Directive 2001/14 requires charges for access to rail infrastructure to be based on direct cost, including all external costs when this is achieved on other modes, and mark-ups where needed for financial reasons. Whilst these form a sound set of principles, there is great diversity in the ways in which the directive has been interpreted, and a great variation in actual charges. In many cases rail infrastructure charges greatly exceed marginal social costs resulting in a shift of traffic to other modes. This is damaging to the rail sector, and more generally to the efficiency of the transport system as a whole. However, in many ways Directive 2001/14 represents a sophisticated mix of compromises reflecting the different circumstances in different member states that, even with significant investments of time and effort all round, might be difficult to improve upon.

The current Eurovignette directive on charging for heavy goods vehicles (HGV) was finalised in 2006 to provide for distance-based tolls which would vary to reflect congestion and a range of external cost drivers. However, it is not consistent with the policy of short-run marginal cost pricing since the overall average charge is to be equal to average infrastructure costs. The exclusion of external costs from the total costs to be covered was explained by the Commission on the tenuous grounds that these are more uncertain than infrastructure costs.

In 2008, the Commission proposed a revision to the Eurovignette directive which would allow charges to reflect congestion, local air pollution and noise. However, congestion costs may only be incorporated into charging to the extent that congestion costs exceed long run infrastructure costs (i.e. including investment). Also the new proposals do not permit charging for external accident costs, as it is argued that these should be internalised via the insurance system. This, however, is not currently the case and there is no indication of any mechanism by which this situation might change.



The Commission does not propose that the charges proposed in the Eurovignette revision system become compulsory. Its argument is that incorporating external costs into charges is worth doing where there are serious problems of external costs, but that it is not worth pursuing where traffic is relatively light. However, a simple system, varying the km based charge only with the characteristics of the vehicle and administered simply via tachographs, would cost little to operate and be worth doing everywhere. It should therefore be made compulsory.

The current Eurovignette legislation forbids implementation of the Commission's policy of internalisation of external cost for heavy goods vehicles, and even the proposed revisions fall short of full pursuit of marginal cost based pricing. In many cases, road haulage currently pays well under marginal social costs. There is evidence that this, combined with high infrastructure access charges for rail freight, is having a significant impact on freight mode split. Market distortions are further increased by one-sided measures to reduce CO₂ emissions. Rail uses mainly electric energy which is covered by the emissions trading scheme but there are no equivalent systems for roads.

While rail, as the most energy and CO₂ efficient mode of transport, is paying considerable costs due to the existing emission trading scheme, the continued privileged position also of air and water transport, which neither pay for externalities nor often the same basic taxes as rail, is a further important distortion. This is so particularly where air is competing with high speed rail which often pays track access charges several times its marginal social cost.

Fully efficient charging would require extension of road charging to all types of vehicles, raising the caps on charges and allowing charging for the external costs of accidents. It would also require both charging for externalities and tackling tax anomalies on air and water transport. Whilst the 2008 Communication on the Greening Transport Package contains a laudable restatement of principles, it falls far short of presenting systematic proposals to achieve this end.

Investment and Financing

Poor infrastructure and rolling stock further affect the quality of rail services and ultimately leads to modal shift to road.

The EU's main role in infrastructure financing is in the promotion and financing of TEN-T projects. However, we do not believe that role is proving effective at present. First and foremost, we believe projects – and especially projects of the size of many of those on the TEN-T – need rigorous appraisal with full consideration of alternatives before Commission funding is provided. Consideration of alternatives must also include projects with less than full TEN-T standards. Especially in CEE, the adoption of lower standards may improve rates of return and free up money for vital maintenance and renewal works on the remaining viable network.



Secondly, we believe that the Commission's contribution should be concentrated on projects determined on the basis of traffic demands, particularly in international traffic, market needs and business cases. Special consideration should be given to smaller projects generating a capacity increase in the network (e.g. bottleneck relief, improvements in nodes, freight transport bypass routes around agglomerations, overtaking tracks). Where there is a need to assist some countries in rehabilitating and upgrading their infrastructure, this would be better done as part of a package focused clearly on the highest priorities and providing a coherent plan which might encompass renewal and maintenance of the entire viable rail network, reform, infrastructure charges and the level and funding of social obligations.

The current green paper on trans-European networks, with its emphasis on the need for appraisal and its stress on networks rather than priority projects, shows a welcome awareness of these issues. Access opportunities to rail via intermodal hubs (ports, airports, freight platforms with customer access) are crucial to achieve the objective of an efficient co-modal transport system.

There is a need for targeted investment on a major scale to raise rail productivity and quality of service. Combining this with full internalisation of externalities, which could provide funding for investment, is the key to increasing rail market share.

Priorities

What should be the priorities of the Commission over the next 5-10 years?

Firstly, in the rail sector it needs to monitor developments, ensure the existing legislation is fully implemented and disseminate best practice. Full implementation must include, in the first place, the provisions regarding compensation for social obligations and financial equilibrium of infrastructure managers as well as non discriminatory access to the market. Further legislation to solve remaining problems may be needed in the future, but this should be carefully thought through as a result of experience with the existing approach.

Secondly, the Commission must continue to press for legislation to require full internalisation of externalities for all modes of transport, using simple pricing technologies to achieve approximations to optimal pricing where more complex systems would be too expensive.

Thirdly, it needs a major reform of the way it encourages and finances investment in transport infrastructure, to give appropriate incentives to member states to implement efficient packages of pricing, structural reform and investment.

It should be emphasised that the Commission's policies should be seen as a package: they will fail to achieve their objectives unless they are all implemented simultaneously with equal vigour. New entrants will not be attracted on to run-down rail networks with high infrastructure charges and subsidised competition from other modes whatever is done to liberalise entry.

If all three pillars of the white paper were implemented effectively, this would make a major contribution to achieving a sustainable transport system in the face of the threat of global warming. The Commission has suggested that the transport sector should aim to cut its CO₂ emissions by 50% by 2050. In pursuit of this, it sees technological change on other modes - widespread use of electric cars, biofuels for aviation and so forth – as key measures. But it will be difficult to achieve any of these developments without attention to transport pricing and the incentive of a much higher price for the use of carbon-based fuels. That must in turn imply a growing role for rail in the markets in which it is most efficient – long-distance and bulk freight, commuting into big cities and medium distance transport between major cities.

The energy and climate policy instruments of the EU need to be made consistent with the objective of a sustainable European transport and environment policy. The key need for the next decade is to prepare the railway for this role by using increasing competition and carefully targeted investment on a major scale to raise rail productivity and quality of service. Combining this with full internalisation of externalities, which could provide funding for investment, is the key to increasing rail market share and thereby improving the sustainability of the transport sector.

1.1 Background

The aim of this report is to outline progress in the implementation of European transport policy since the 2001 White Paper (CEC, 2001) and to put forward a vision of what further developments are needed over the next 5-10 years to attain the objective of the creation of a competitive European railway area. Hence, the focus of this report is on issues affecting the rail industry, both directly, in terms of initiatives and legislation targeted on the rail industry, and indirectly, in terms of initiatives and legislation having a bearing on rail as it seeks to compete with the other transport modes. Given that we are coming to the end of the period covered by the previous white paper, it is clearly timely to consider to what extent policy for the next decade should differ from what has gone before. Indeed, the European Commission has already launched its initial thinking on how it might shape European transport policy beyond 2010 (CEC, 2009c).

In the 2001 White Paper (CEC, 2001) the Commission took the view that the decline in rail traffic over the past 30 years reflected in part the failure of the rail system to provide efficient high quality transport, and the fact that the relative prices of the different modes of transport did not reflect their full social costs including externalities. Ten years on since the beginning of the process of market opening, launched in the rail sector by Directive 91/440 and with subsequent parallel initiatives in the air and road sectors, the white paper noted that rigidities and distortions continued to prevail within the transport system. The view was that these rigidities and distortions were frustrating the workings of the internal market and arose out of a failure to pursue policy in a harmonious way throughout the EU. The Commission had, also prior to the white paper, firmly established a policy to pursue fair and efficient transport prices across the modes, with the aim of using prices to internalise the external costs of transport (CEC, 1998). Furthermore, in response to concerns regarding infrastructure bottlenecks and the adequacy of transport infrastructure to serve and promote European cohesion, the trans-European transport network (TEN-T) had been established; the aim being to provide enhanced transport infrastructure links throughout the regions of the EU.

In the 2001 White Paper, these policy pillars affecting rail were embedded within a broader European transport policy.

Thus, the 2001 White Paper adopted the following action priorities:

- **shifting the balance between modes of transport** under which key actions were revitalising the railways (to be achieved largely by liberalisation) and controlling growth in air transport
- **eliminating bottlenecks** and in particular completing the TEN-T
- **placing users at the heart of transport policy**, with key actions of adopting an effective charging policy and regulating safety
- **managing the globalisation of transport** where two areas are of particular relevance to this report
 - Managing enlargement
 - International agreements on sea and air



With respect to shifting the balance of the modes of transport, the Commission adopted a specific target to return the rail share of mode split in 2010 to what had existed in 1998: for the EU15, that is a mode share of 6% for passenger and 12% for freight. For the then preaccession countries, now the EU12, the paper sought to avoid the loss of rail market share that had taken place in Western Europe over many decades and set an additional target that rail's share of freight should not fall below 30%.

In 2006 the Commission published its mid-term review of progress with the white paper (CEC, 2006). By that time it was clear that more progress had been made with some aspects of the policy, such as rail liberalisation, than with others, including internalising externalities and investment. Moreover there was very little chance that the mode split targets for freight would be achieved.

The mid-term review abandoned these explicit targets, and rephrased its priorities, talking of co-modality and smart infrastructure charges, rather than shifting the balance between modes and internalising externalities. Co-modality was explained as ensuring that each mode could perform that function in the transport market for which it was most efficient.

This was interpreted in some quarters as a complete change of policy, although the 2006 document still emphasised that rail should play a greater part in certain key markets such as bulk and long-distance freight, and intercity and commuter passenger transport. Moreover, it is clear that each mode can only play its most efficient role if appropriate pricing and investment policies are in place, so co-modality should not be equated to *laissez-faire*. In fact, the Commission has never waived in its commitment to the need for investment and the communication forming part of the 2008 Greening Transport Package (CEC, 2008a) contains a firm restatement of the commitment to the internalising of externalities in the form of marginal social cost pricing.

1.2 Overview of Developments

In the meantime, transport policy in Europe has continued to face challenges and market trends have continued to shift. Two further major challenges are worthy of particular note. Firstly, enlargement from 15 to 25 and subsequently to 27 member states, has initiated an enormous process of assimilation and change. Secondly, the growing concern with global warming and transport's contribution to it has led to the setting of some rather challenging emissions reduction targets. Before commenting on these developments, it is interesting to review recent transport market trends and to set these in the longer-term context.

Figure 1.1 shows that rail passenger km amongst the EU15 has enjoyed modest and steady growth since 1970, and has grown by more than 10% between 2000 and 2007. However, it also shows that passenger traffic in the new member states (EU12) has, since 1990, been in sharp decline, falling by approximately 60% between 1990 and 2004, before stabilising from 2004-2007.

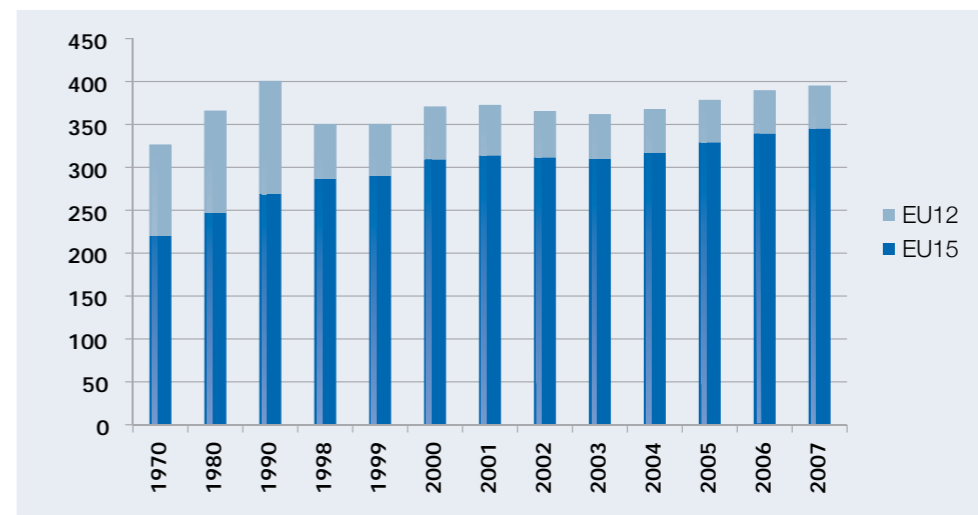
However, the picture in relation to modal split highlights looks less encouraging (Figure 1.2). Rail's share of all passenger km has fallen, from 6.6% in 1995, to 6.1% in 2007. Setting this in the longer-term context, rail's share of passenger km in the EU in 1970 was some 10%.

It is highlighted by Preston (2009) that high speed rail – be it on dedicated or conventional lines - has come to form an important part of this picture, having almost trebled in volume during the decade up to 2006 by which time it comprised more than 20% of passenger rail travel in the EU.¹ In fact, he contends that the observed growth in passenger rail volumes since 1995 can all be credited to growth in high speed rail and that, in fact, subtracting high speed rail from the figures would show a decline in non-high speed rail traffic. This highlights

¹ This is based on UIC data which includes all travel on high speed trains irrespective of whether they are on high speed track (and therefore at high speeds)

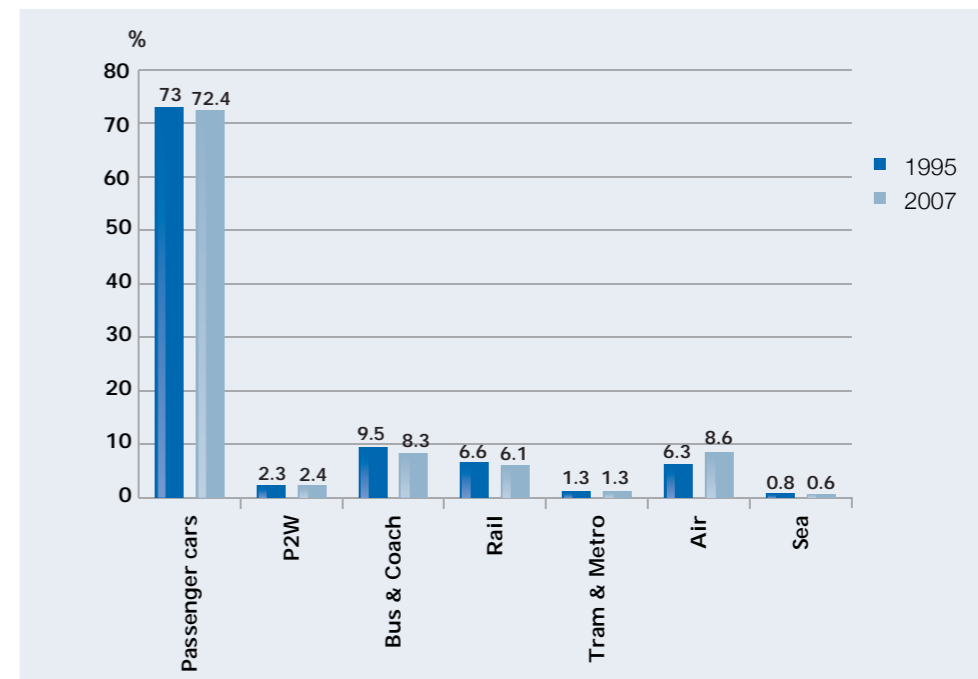
an important change in the European rail market. However, it must be acknowledged that high speed does not function in isolation and that conventional rail accounting for nearly 80% of the market, remains by far the most important part of passenger rail traffic.

Figure 1.1 Rail passenger km (billion), 1970-2007



Source: European Commission DG TREN (2009)

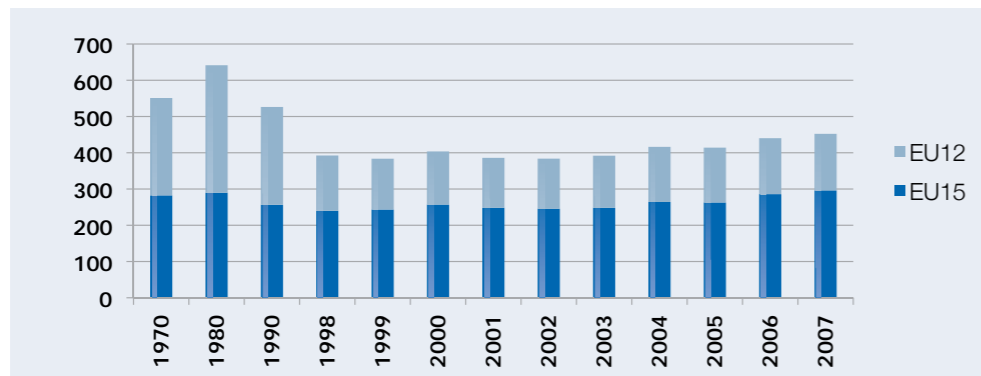
Figure 1.2 Mode split passenger km (%) EU27, 1995 and 2007



Notes:
 Air and Sea: only domestic and intra-EU-27 transport; provisional estimates
 P2W: Powered two-wheelers
 Source: European Commission DG TREN (2009)

Turning to the freight market, Figure 1.3 shows that rail freight traffic throughout the EU was in decline until the late 1990s, at which point there began a revival amongst the EU15. Growth has been particularly strong in transit countries, such as Austria and the Netherlands. However, traffic in the EU12 continued to decline until 2003, at which point it began to experience a minor revival – approximately returning in 2007 to its 1998 level.

Figure 1.3 Rail freight tonne km (billion), 1970-2007

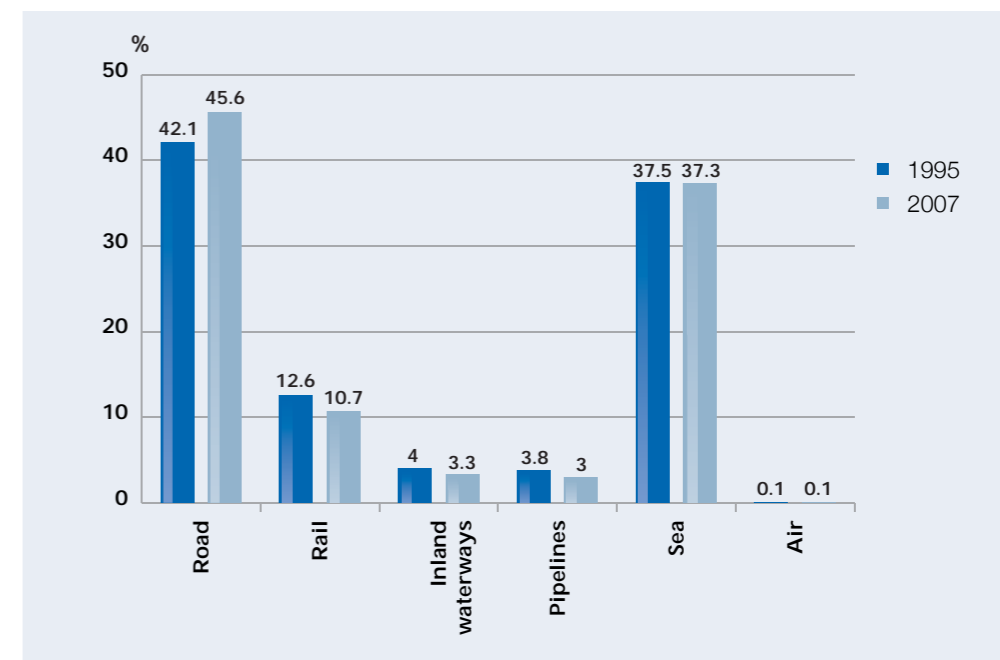


Source: European Commission DG TREN (2009)

Again, concerns are highlighted when examining the trend in rail's share of freight tonne km, as set out in Figure 1.4. This shows a decline in rail's market share from 12.6% in 1995 down to 10.7% in 2007. Setting these figures in a longer-term context highlights an even more startling decline from a share of 20% in 1970.

Setting aside the broader considerations motivating EU enlargement so as to concentrate on the implications for transport in particular, the enlargement has undoubtedly led to a range of opportunities. Firstly, there has been an enormous growth in trade flows and, consequently, in traffic volumes. At the same time, levels of local air pollution from road traffic and road safety have seen marked improvements, despite the growing traffic volumes. The road haulage and air transport sectors amongst the new member states appear to have been able to take most advantage of these sorts of opportunities, both having achieved significant restructuring and traffic growth.

Figure 1.4 Rail freight tonne km mode split (%) EU27, 1995 and 2007



Notes:

Air and Sea: only domestic and intra-EU-27 transport; provisional estimates

Road: national and international haulage by vehicles registered in the EU-27

Source: European Commission DG TREN (2009)

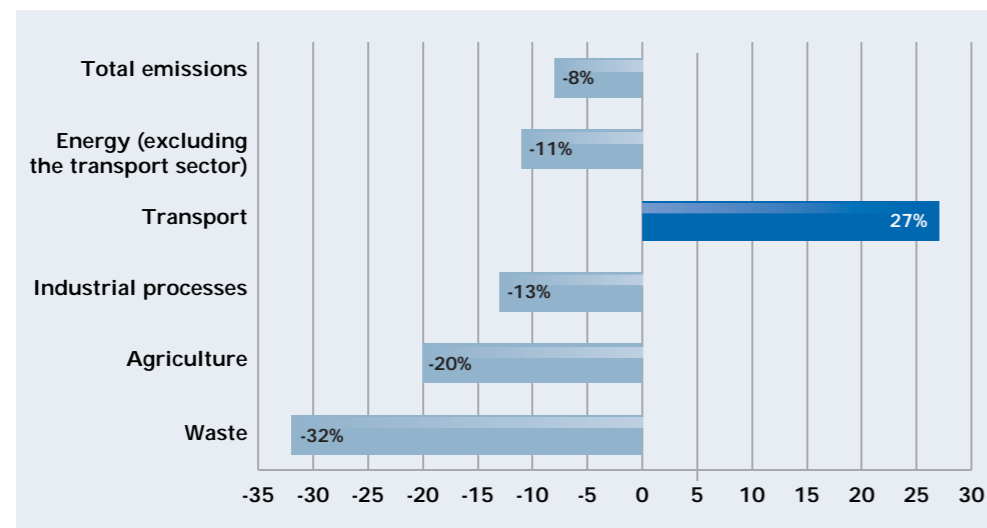
In contrast, some of the most significant challenges for transport arising out of enlargement are those which affect rail. In particular, the fragile financial condition of the EU12 (CEE) railways is increasingly apparent, with the equity capital of railway companies in CEE having dropped substantially at the same time as their debt levels are significantly growing. There is a shortage of funds, be it from industry or government, for adequate infrastructure maintenance and investment in both infrastructure and rolling stock (evidence on this is presented in chapter 4). Consequently, infrastructure networks as well as services are acknowledged to be deteriorating, but many of the EU12 have no comprehensive strategic plan for the future of the transport sector and consequently none for the future of their railways. Furthermore, enlargement has led to the removal of institutional barriers in road transport, such as quota systems and this, together with the development of the road network, has led to greater competition from road, e.g. in relation to intermodal transport.



At the time of enlargement there was strong pressure to adopt EU transport policy, but in practice its adoption has been patchy, with speedy action on liberalisation but little progress in dealing with the financial situation and run down infrastructure of the railways. As a result, it has been suggested that the level playing field in relation to transport “is no more than a paper reality for certain issues” (RebelGroup, 2007).

The past decade has seen increasing concerns regarding the emission of greenhouse gases contributing to global warming and climate change (e.g. the Stern Review, HM Treasury, 2006). Actions across the range of economic sectors thus far have had some success, with a reduction in greenhouse gas emissions of 3% across all sectors between 1990 and 2006 in the EU15, and a reduction of some 8% across all sectors over the same period in the EU27 (EEA, 2008). However, as Figure 1.5 shows, greenhouse gas emissions from the transport sector in the EU27 grew by some 27% over the same period.

Figure 1.5 Changes in EU-27 greenhouse gas emissions by sector, 1990–2006



Data source: EEA 2008. Annual European Community greenhouse gas inventory 1990-2006. http://www.eea.europa.eu/publications/technical_report_2008_6

Within the transport sector, road transport is by far the most dominant source of greenhouse gas emissions. European Commission regulations relating to vehicle emission classes have been successful in reducing emissions of many pollutants. However, emissions of carbon dioxide (CO₂), the main greenhouse gas, have not been regulated. The regulation on CO₂ emissions from cars, agreed in December 2008, replaces a voluntary agreement with manufacturers as this had failed to produce the promised reductions. At the same time, greenhouse gas emissions from the international aviation and maritime sectors have experienced the fastest growth from 1990 to 2006.

The European Commission has adopted greenhouse gas emissions targets for the European economy as a whole as part of the Climate Change Package in 2008: these are a 20% reduction in CO₂ by 2020 with the possibility of extending it to 30% if other countries follow suit (CEC 2007a). A short summary of the targets in the package can be found at http://ec.europa.eu/climateaction/docs/climate-energy_summary_en.pdf while the full texts



of the package with all the details can be found at: www.europarl.europa.eu/sides/getDoc.do?type=TA&reference=20081217&secondRef=TOC&language=EN

In addition the Commission has suggested that for developed countries a 60-80% overall reduction will be needed between 1990 and 2050 (CEC, 2007a). On current trends, the transport sector alone would exceed this target for all sectors, so substantial absolute cuts in transport emissions will certainly be needed.

The Climate Change Package highlights the need for the transport sector to ‘contribute actively’ to achieving the overall targets, but no sector-specific targets are set. From an efficiency perspective it makes sense for those sectors of the economy which are able to reduce their emissions at the lowest cost to do so and this may naturally lead to other sectors, where it is relatively more costly to reduce emissions, increasing their share. However, whilst transport might be permitted a smaller reduction if other sectors achieved more, it is clear that, given the size and rate of growth of CO₂ emissions from transport, a substantial reduction from existing trends will be necessary as part of a strategy to achieve these targets. It should be recalled that electrified rail is already included in the emissions trading scheme (ETS), via the electricity generation industry’s inclusion. By contrast, aviation fuel is untaxed and air transport will only be included in the ETS in 2012. Whilst road transport fuel is taxed, this tax is also the main means of charging for the use of roads, and excessive growth of road transport leads to increased greenhouse gas emissions.



The latest challenge to the transport sector is that of economic recession. Whilst this may provide some temporary relief from problems such as growing congestion and greenhouse gases, it provides challenges of its own. There is more resistance to reform when jobs are scarce, and whilst there may be short-term promotion of investment to reflate the economy, the crisis in the banking system and pressure on the finances of many member states may make progress with investment more difficult in the longer run. Indeed, the current recession has already led to an average 35% drop in rail freight traffic in a sample of countries in the EU15 and the EU12 (Source: CER).² This is likely to cause great financial difficulties especially in Central and Eastern Europe where shortages in government funding to the railways have forced rail infrastructure managers to rely on high charges from profitable freight traffic to finance maintenance and renewals.

² Change January 2008 - January 2009.



1.3 Structure of this Report

In the next three chapters of the report we consider the three basic pillars of the policy as they affect the rail sector: revitalising railways through the development of competition within the rail mode, efficient competition between transport modes (based on internalisation of externalities) and investment and financing. Whilst this seemed the most effective way of characterising policies, it must be borne in mind that many measures have implications for more than one of these objectives and that, because of the different starting positions, measures may also have a different impact in the new member states compared to the old member states. We then reach our conclusions.



COMPETITION WITHIN THE RAIL SECTOR

2

2.1 Introduction

Starting in 1991, with Directive 91/440, there has been a steady opening up of the rail market to competition. Directive 91/440 only opened the market to certain types of international freight, but by 2007 the market for all rail freight, domestic and international, had been opened up.

It was recognised that access to the market without safeguards as to track access charges, allocation of paths and the treatment of licensing and safety issues was of limited value. Therefore a parallel succession of measures, brought together and extended in the First Railway Package in 2001, was introduced. In the next section we consider current legislation and its implementation. We then look in turn at competition in the freight and passenger sectors before reaching conclusions.

2.2 Current Legislation

The legislation enshrining the First Railway Package is contained within three directives – Directive 2001/12, Directive 2001/13, and Directive 2001/14. In brief, these require:

- separation of the management of infrastructure, freight and passenger services, at least into separate divisions with their own profit and loss accounts and balance sheets
- non-discriminatory setting of access charges and allocation of paths (as a safeguard; if the infrastructure manager was also involved in train operation then these functions had to be undertaken by an independent body)
- the establishment of a rail regulator, independent of the infrastructure manager and any train operator, to whom appeal could be made in the case of dispute
- a performance regime to incentivise the infrastructure manager
- financial equilibrium of the infrastructure manager - either through the regulatory system or by means of a multi-annual contract lasting at least three years – whilst maintaining pressure for cost reductions

Two further packages have introduced important measures regarding safety and interoperability, but most countries crucially have completely opened up the market for both domestic and international freight traffic, and will commence opening the market for international passenger traffic in 2010.

An important part of the process required by Directive 2001/14 is the provision of a network statement. This is designed to provide the information a new entrant to the rail industry requires in order to understand the procedure to gain access and what it will cost. The network statement is required to set out both the levels of charges for accessing the track and other services and the principles upon which they are based. The former is obviously crucial for the railway undertakings to determine whether it is profitable for them to provide the service they are considering, whilst the latter is necessary for them to understand

whether the charges comply with the legislation or whether there might be grounds for an appeal to the regulator. An indication of how charges might develop over the coming five years is also required, as clearly if railway undertakings are making investments in new services they need a degree of financial and legal certainty about future access charges. The nature of any legal agreements such as access agreements that are required should be specified, and the possibility of multi-annual framework agreements explained.

Some countries had already gone beyond this set of requirements. For instance, a number of countries, including Germany, the UK and Sweden, opened up the freight market – domestic as well as international – for new entrants, and Germany did the same for commercial passenger services. Competition for the market was introduced in the form of competitive tendering for some or all subsidised passenger services in Sweden, Germany, the Netherlands and Denmark, whilst the UK introduced competitive franchising for virtually all passenger services during the mid-1990s. Table 2.1 summarises the state of market opening in Europe at the present time.

Table 2.1. Overview of market opening in the European railway sector³

Country	Formal Award Procedure for Public Service Contracts	Access: Commercial Passenger Services	Access: Freight Services	External Passenger Operators		External Freight Operators	
				Number	Share (of pass. km)	Number	Share (of tonne km)
Austria	Direct negotiation and competitive tendering	Open access *	Open access	Several state owned +1 additional	Public service: 10%	10	7.7%
Belgium	Direct negotiation	Open access (domestic companies only)	Open access	None	0%	3	N.a
Bulgaria	Direct negotiation	Open access	Open access	None	0%	2	3%
Czech Republic	Direct negotiation and competitive tendering	Open access (domestic companies only)	Open access	19 (freight and passenger)	Small	19 (freight and passenger)	Small
Denmark	Direct negotiation and competitive tendering	Open access for domestic operators *	Open access	2	3.4%	2	100%
Estonia	Competitive tendering	Open access	Open access	N.a.	Public service: 40% Other: 100%	N.a.	30%

³ For most countries data is for 2006. Market share of new entrants has since increased substantially. For example that for Germany was 21% in 2008. Source: DB 2009 Competition Report

Country	Formal Award Procedure for Public Service Contracts	Access: Commercial Passenger Services	Access: Freight Services	External Passenger Operators		External Freight Operators	
				Number	Share (of pass. km)	Number	Share (of tonne km)
Finland	Direct negotiation	No access for external operators	Open access *	None	0%	None	0%
France	Direct negotiation	No access for external operators	Open access	None	0%		
Germany	Direct and public negotiation and competitive tendering	Open access for domestic operators *	Open access	Short distance: 50 Long-distance: 3	Short distance: 15% Long-distance: <1%	ca 280 (of which 8 dominate)	16%
Great Britain	Competitive tendering	Open access	Open access	33	100%	9	100%
Greece	Direct negotiation	No access for external operators	Open access	None	0%	None	0%
Hungary	Direct negotiation	Open access for domestic operators *	Open access	None	0%	4	5%
Ireland	Direct negotiation	No access for external operators	Open access	None	0%	None	0%
Italy	Direct negotiation and competitive tendering	Open access for domestic operators *	Open access *	6	<1%	10	8%
Latvia	Direct negotiation and competitive tendering	Open access *	Open access	None	0%	4	10%
Lithuania	Direct negotiation and competitive tendering	Open access	Open access *	None	0%	None	0%
Luxembourg	Direct negotiation	Open access for domestic operators *	Open access	None	0%	None	0%

Country	Formal Award Procedure for Public Service Contracts	Access: Commercial Passenger Services	Access: Freight Services	External Passenger Operators		External Freight Operators	
				Number	Share (of pass. km)	Number	Share (of tonne km)
Netherlands	Direct and public negotiation and competitive tendering	National services closed for new entry until 2015	Open access	Short distance: 3	N.a	9	25%
Norway	Direct negotiation and competitive tendering	Open access only on disused lines *	Open access	1	N.a	2	N.a
Poland	Direct negotiation and competitive tendering	Open access for domestic operators *	Open access	10	10%	29	23%
Portugal	Direct negotiation and competitive tendering	Limited open access (international groupings)	Open access *	1	N.a	None	0%
Romania	Competitive tendering	Open access for domestic operators *	Open access	3	1.2%	23	26%
Slovakia	Direct negotiation	Open access for domestic operators *	Open access	None	0%	27	3%
Slovenia	Direct negotiation	Open access only to cross-border services for foreign companies	Open access *	None	0%	None	0%
Spain	Direct negotiation	No access for external operators	Open access *	None	0%	2	<1%
Sweden	Competitive tendering	Open access for night trains and chartered trains only	Open access *	8	Public service: 55% Other: 10%	11	35%
Switzerland	Direct negotiation	Limited open access (only for irregular special services)	Open access	17	N.a.	5	25%

* Some restrictions for foreign operators
Source: Alexandersson (2009)



However, some countries were lagging behind. The 'Rail Implement' project (Steer Davies Gleave, 2005) considers directly the implementation of the First Railway Package. But, as the report recognises, it was undertaken at a stage when the reforms were very new, and the situation was changing rapidly. Thus although it found many problems, for instance regarding access to facilities such as terminals and marshalling yards, the content of network statements and lack of independence of regulatory authorities, it expected many of these to be overcome in time. It saw enforcement action and the role of the competition authorities as being sufficient for most purposes, but foresaw a need to consider amendments to the legislation, notably regarding infrastructure charges, separation of infrastructure from operations and independence of regulators.

A later study, the IBM/Kirchner liberalisation index, published by German railways DB AG, was last updated in 2007, so it is more up to date (IBM/Kirchner, 2007). It considers a wide range of factors relating to liberalisation regarding the legal provisions, access to information and actual degree of competition in the passenger and freight sectors of all member countries. Whilst its findings have been challenged in some cases and there is room for debate on the relative weight attached to different indicators, which is of necessity subjective, the study provides a wealth of information. By 2007 it found all but four countries (Luxembourg, France, Ireland and Greece) to be on schedule with liberalisation.

In 2008, the Commission wrote infringement letters to no less than 24 of the 25 member states with rail systems warning them that it considered that they had failed to correctly transpose the First Railway Package (CEC, 2006b). Whilst in some cases the failure related to minor details in others it was more serious.

Amongst the prominent issues were:

- a failure to ensure adequate independence of the infrastructure manager from train operators where these were still part of the same company
- insufficient implementation of the charging framework set out in Directive 2001/14, including a lack of the required performance regime
- a failure to establish an independent regulator with appropriate powers and accessibility
- insufficient incentives for the infrastructure manager to reduce costs and the level of access charges

The result is continuing suspicion that the institutional arrangements are biased in favour of the incumbent. One approach to resolving this would be legislation to require complete vertical separation of infrastructure from operations. This idea has provoked a lot of argument

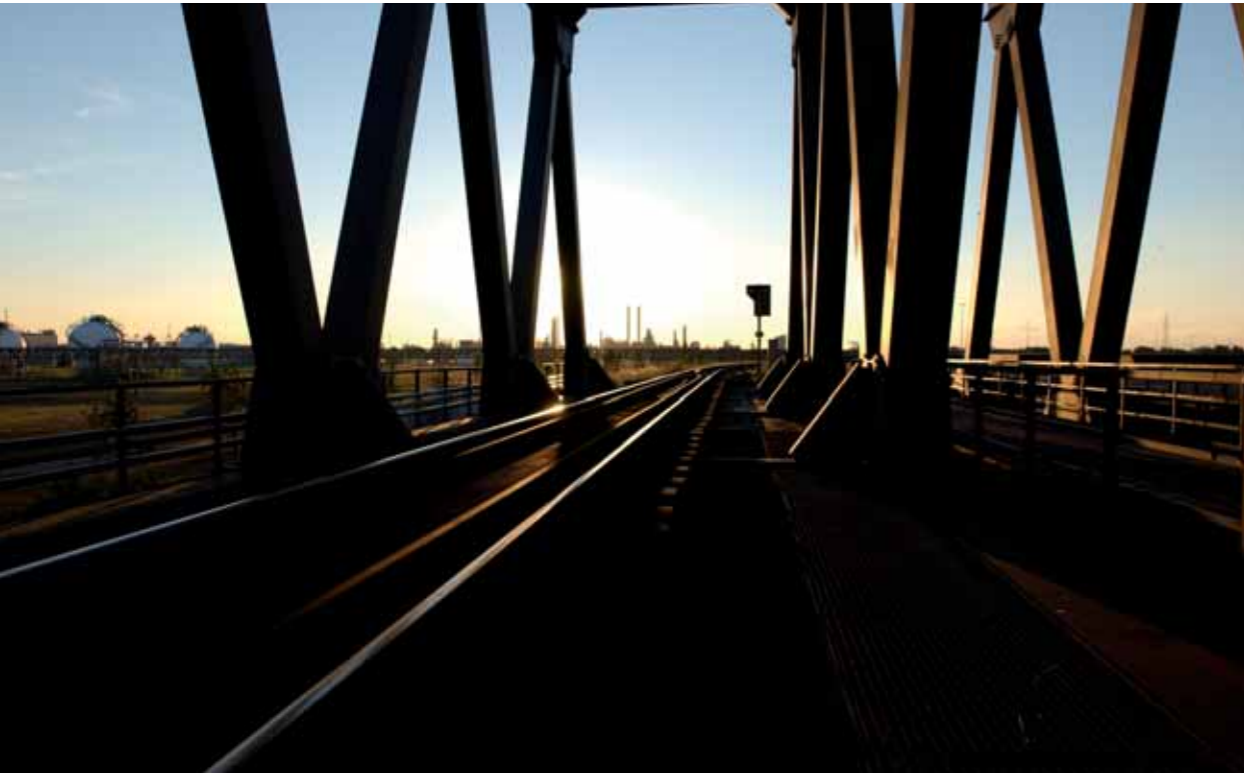


and also a lot of research. One of the arguments often cited against vertical separation is the transaction costs of negotiating and enforcing contracts between the infrastructure manager and train operators. In a comparison of Germany, Sweden and Britain, Merkert et al (2008) find that transactions costs are indeed higher in vertically separated forms, but that the difference in costs is only around 1% of total costs, and therefore not a conclusive argument against vertical separation if it had other advantages. Of course, the advantage claimed most often is that of assuring non-discriminatory behaviour by removing the main incentive for discrimination. On the other hand it is often argued that there are cost savings from the joint control of infrastructure and operations. There are a number of studies of this issue, including Friebel, G., Ivaldi, M. and Vibes, C. (2005) and Growitsch, C. and



Wetzel, H. (2009), and the results vary from study to study and between countries with a range from no effect to a 30% cost penalty for vertical separation. Undoubtedly vertical separation adds complexity to the system, but the impact on costs seems to vary according to the circumstances of the country and the way in which it is implemented. The results seem inconclusive, suggesting that much depends on the circumstances of the country concerned and the way in which the system is managed. What does seem clear is that countries which have undertaken a well planned and sensibly phased package of reforms are on average performing better than those that have resisted reform. At the same time, there is evidence that adequate investment in infrastructure – including both high speed passenger and capacity and quality for freight – is another key ingredient to success (Preston, 2009; Dirand, 2008).

An alternative to vertical separation is to rely on strong regulatory bodies to ensure equality of treatment. A particular weakness in the current situation is the failure to ensure adequate regulatory arrangements (IBM, 2006 concluded that the regulatory arrangements were only satisfactory in the UK, Germany, Netherlands and Sweden). Both incumbents and new entrants are concerned when the regulator on whom they rely for impartiality is weak or not independent enough from the political authorities, as has been the case to date in many countries, for instance France, Italy and Spain. New entrants would feel reassured if such independence was guaranteed and incumbents feel that a strong regulatory body is the best way to put an end to unjustified and damaging suspicion. However, there are proposals to create stronger more independent regulators in these countries.



At the same time, several member states, in particular in Central and Eastern Europe, appear to have failed to ensure the financial equilibrium of their infrastructure manager, as they are obliged to do under Directive 2001/14. In such cases, this then requires the infrastructure manager to borrow heavily and/or be inadequately funded to maintain and renew its infrastructure to the standard required by train operators. In some cases, where PSO payments from government to train operators are inadequate or not paid at all, train operators are actually not paying the infrastructure charges – further exacerbating the financial disequilibrium. The result is high charges for commercial traffic (mainly freight) and a decline in the quality of infrastructure, discouraging new entry and damaging the position of rail in intermodal competition (intermodal competition is considered further in the next chapter and the problem of financing investment in chapter 4). In its Communication on Multi-Annual Contracts for Rail Infrastructure Quality, the European Commission acknowledges this area as being a problem (CEC, 2008b). Nevertheless, the Commission is not apparently pursuing this particular failure to implement the legislation with the same vigour as it is other failings, the reason for which is unclear to us.

In many of the new member states, cross-subsidy has been the main way of funding social obligations in the past. However, with the opening up of the market for intramodal competition, it is no longer possible to rely on freight traffic as the main source of funding for all rail infrastructure. Amongst train operators, as the rail market is opened up to new entry, the possibility for cross-subsidy becomes even more limited: if incumbent operators are forced to cross-subsidise passenger services in order to fund social obligations, they will not only lose freight traffic to other modes but also to new entrants into the market. It was an inevitable consequence of opening up the market to competition that these systems of cross-subsidy would break down.

In the light of all these problems, the Commission is considering a recast of the First Railway Package, to clarify a number of issues, including the requirements concerning the independence of the infrastructure manager and the basis of track access charging (the latter issue is considered in chapter 3). As part of this, consideration is being given to strengthening the legislation regarding multi-annual contracts and the role of regulatory bodies. In parallel, the Commission is starting to analyse the possible opening up of the domestic passenger services market to competition. The latter issue is considered further in section 2.4 below.

A further issue under consideration is that of charges for and access to ‘rail-related services and facilities’ such as terminals and marshalling yards. With regard to ‘rail-related services and facilities’, studies report particular difficulties in accessing specific facilities (e.g. relating to training, depot and freight terminals, marshalling and shunting services and services in border stations) and of charges that vary widely and lack transparency (Steer Davies Gleave, 2006). Servrail also considers that Directive 2001/14 failed to consider some essential services such as water supply, toilet emptying and driver training. On their side, incumbent railways in some countries, particularly some of those in CEE, claim that they are still subject to obligations imposed on them by public authorities for which they are not fully compensated and that debts inherited from the past have not been cleared, meaning that they are unable to compete on an equal footing with new entrants.

The issue of rail-related services is a complicated one. In some countries, considerable progress has been made in developing a market for facilities such as terminals and maintenance depots, and regulatory intervention regarding access and charges may actually hamper this process by imposing constraints on commercial providers (Veenman, 2008 and Elzinga et al, 2008). Where there are problems in achieving such a market, for instance because there is only one terminal within a port, or there is no reasonable prospect of developing alternative marshalling yards because of the high fixed costs, then existing competition legislation regarding access to essential facilities may be used as well as rail specific legislation (see Article 5 of 2001/14). It is only to the extent that these two approaches to tackling the problem prove insufficient that further legislation will be required.

In the next two sections of this chapter we will consider in turn competition in rail freight and passenger services, before reaching our conclusions.

2.3 Freight

As commented above, opening up of the market for certain kinds of international freight commenced in 1991. Initially market entry was slow. However, with the introduction of the further measures mentioned above, including the complete opening up of the market for all international freight in 2006 and domestic freight in 2007, the pace of change has quickened. Competition is particularly intense through the Alps, where there are two competing consortia involving the two main Swiss operators, SBB and BLS. There are also new market entrants in the form of major transport companies such as Veolia as well as customers such as shipping lines in the case of ERS. Moreover, increasingly national companies are competing on each other’s territory as well as buying companies in other countries. The most astonishing growth has been that of DB AG, which now owns major rail freight operators in the Netherlands, the UK, Denmark and most recently Poland, as well as smaller companies with operating licences in France, Spain and Norway, is part owner of the second major company in Switzerland and has an alliance with the lead operator in Sweden. DB AG also has major interests in road haulage and logistics more generally.

Table 2.1 (p.24) shows the share of external operators in the rail freight market. The market share of new entrants has now reached 35% in Sweden and 23% in Poland, whilst the latest information from CER members is that it is now 21% in Germany, and 12% in both Italy and France. In the UK, which is shown as 100% in the table because there is no longer a state owned incumbent, the privatisation of all rail freight operations in the mid-1990s led to the establishment of two major operators, originally specialising in different market sectors but now competing with each other, whilst another seven companies have entered the market on a small scale. The two main operators (now DB Schenker UK and Freightliner) account for more than 90% of the market. With its 64% market share, DB Schenker UK has the least dominant position of any main rail freight operator in Europe (Merkert, 2009).

This may look disappointing in terms of the degree of market domination, to those familiar with competitive conditions in other industries. However it must be remembered that rail only has 11% of the freight market in total in Europe and for much of the traffic competition from other modes is strong. Moreover, in countries such as France, competition only started three years ago and is developing fast.

A further consideration is that in major countries such as France and Germany, 50% of freight traffic is still wagonload traffic. This is unlikely to be of interest to any new entrant as the wagonload market is the least profitable part of the freight market and has high fixed costs of entry. There is little sign to date of competition emerging in the wagonload market and it is not clear that the 'capital-intensive' character of this business will be conducive to elicit any business interest from new entrants or whether further action to remove barriers to entry in this market would have any effect. On the other hand, competition in the non-wagonload market is now acute, removing the historic ability to cross-subsidise by or share joint costs with these services. As a result, the future of wagonload traffic must be of great concern in the light of the objectives of the Commission. Were this wagonload traffic to continue to decline or to cease altogether, it is not clear that it could be substituted with other rail traffic to protect rail market share. Financial assistance for the development of freight terminals and sidings, particularly though not solely for use by this traffic, may be justified as long as road transport is not paying its full social costs as discussed in the next chapter.

One recent interesting development is a joint venture between the American company RDC (Railroad Development Corporation), RFF and Caisse des Dépôts which is planning to establish itself in the French market to operate and maintain branch lines to move wagons to and from marshalling yards, before they are formed into longer trains moved onward by SNCF. This kind of venture may provide a means of stabilising and revitalising the wagonload market.

A particular disappointment in the freight sector has been the slow progress in providing sufficient capacity and quality of paths on the rail network for freight, particularly international freight. In 2008 the Commission brought forward new proposals on this in the form of a draft regulation (CEC, 2008c). This would require member states to designate corridors as freight priority corridors, including a network of strategic terminals, and prepare an implementation plan, including economically justified investment. Freight would be allocated good quality paths, and paths for unforeseen freight traffic would be reserved when the working timetable is drawn up. Moreover, in the case of freight classed as priority, that path could not be cancelled or modified to allow another train to take precedence, even in the case of disruption to services, without the consent of the operator concerned. Whilst this would help ensure adequate capacity and quality of service for international freight, strong concerns have been expressed that the proposal is insufficiently flexible to deal with disruptions in the best way from the point of view of the system as a whole and might lead to a wasteful use of



capacity (EIM/UNIFE, 2009). In particular, criticism has come from Germany, with its dense network characterised by a high degree of mixed traffic, concerning impacts on capacity for and reliability of passenger services.

2.4 Passenger

In 2010, the process of opening up the market for passenger services will begin with international passenger services. These will be allowed to carry domestic passengers, unless to do so would disturb the financial equilibrium of existing services subject to a public service obligation. There are already signs of potential competition emerging in the profitable high speed sector on key international corridors, and indeed in the domestic market as well where legislation in the country concerned permits it. Examples so far all relate to profitable high speed lines. NTV, Nuovo Trasporto Viaggiatori, a new company in Italy, in which SNCF is a partner, has ordered 25 high speed trains. TRENITALIA has applied for paths in France, and a partnership has been formed between Air France and Veolia. It is widely expected that DB and SNCF will compete on a number of international routes. It is doubtful, however, as to the extent of potential new entry elsewhere.

It was mentioned above that further liberalisation of the domestic passenger sector is under consideration. A variety of ways forward on this is being examined, but the ultimate intention



of the Commission seems to be that commercial services should be subject to open access competition, whereas services subject to a public service contract should be awarded by competitive tender. In this way the entire passenger market would be open to competition either in the market or for the market.

The current state of competition in the passenger market is shown in Table 2.1 (p.24). The first country in Europe to completely open up the market for new entry of commercial passenger operators was Germany, which did so in 1994. But for intercity services, which are treated as commercial, so far only one or two operators have entered operating a handful of trains. This is not particularly surprising. Most intercity passenger services are not particularly profitable and there are strong network benefits to the incumbent. Services also sometimes face fierce competition from air transport, as well as car.

There is also evidence that competition in the form of cherry picking may emerge and that this is not socially desirable (Preston, Wardman and Whelan, 1999; and Preston, Holvad and Rajé, 2002). Where this emerges as a real problem, one option would be a regulatory system such as that in the UK, where the right of entry is not automatic, but subject to a public interest test undertaken by an independent regulator.

In the case of services subject to a public service obligation, competitive tendering is widely practiced in Sweden, Germany, the UK, the Netherlands and Denmark. However, the attempt by the EU to legally require competitive tendering for PSO contracts has been abandoned, and whilst the more limited obligations placed on heavy rail by Regulation 1370/2007 require there to be a clear, transparent contract, setting out what has been paid, the specific requirements relating to tendering do not apply to heavy rail.

Specifically relating to franchising of passenger services, ECMT (2007) provides a wealth of evidence about experience to date. Brenck and Peter (2007) conclude that German experience of competitive tendering has been very successful, with typically a 30% cost saving as well as improved services and more passengers. Results in Sweden (Alexandersson and Hulten, 2007) and the Netherlands (Van Dijk, 2007) were similarly favourable. In all three countries, there were some problems with unrealistic bids, leading to bankruptcies or premature withdrawals from the market but in the UK (Smith, Nash and Wheat, 2009) and Australia (Kain, 2007) the problem has been acute, and contributed to a significant failure to achieve the aims of the exercise with early cost reductions being more than offset by later increases in the case of the UK. The conclusion seems to be that franchising is not always successful, but that it is important to have at least the threat of competition to ensure value for money in terms of the cost and quality of service of the incumbent.

2.5 Conclusions

Whilst many commentators express dissatisfaction at the rate of change in the rail industry, in many ways the change over the last decade has been dramatic. There has been a substantial reorganisation, with infrastructure often in a different institution from passenger and freight operations, or at least in a separate division. Ownership of many freight operators has changed, with some being privately owned and others owned by the national railways of other EU members. There are new entrants into both passenger – predominantly franchised services – and freight operations. Strong competition has emerged in the freight business particularly on the crucial north-south axes through the Alps. NERA (2003) finds strong evidence of rising efficiency and improved cost coverage amongst European railways in the second half of the 1990s, suggesting that already the changes underway were paying off, but draws particular attention to the poor financial condition of a number of rail organisations, especially RFF particularly in terms of inherited debt, despite the requirement in Directive 91/440 for member states to deal with this problem.

On the other hand we have seen that there remain problems with the workings of some of the new legislation, particularly relating to infrastructure charges (discussed further in the next chapter), and in the practical application of the provisions on regulation and access to ancillary facilities, whilst the problem of the financial architecture of railways is even more acute and growing in many of the new member states (RebelGroup, 2007). Without tackling the issues of adequate funding, both of infrastructure and of social obligations regarding passenger services, the liberalisation of railways cannot have the results hoped for.

Much of the legislation, including the complete opening up of the freight market in 2007, has only taken effect very recently, and adaptation to it is still taking place. As we have seen, implementation has been inadequate in many member states. The first priority of the Commission must be to see that it is properly implemented (particularly through the mobilisation of member states to establish strong regulatory bodies). At the same time, research to identify best practice on these issues is very important, and the Commission has an important part to play in encouraging dissemination and take up of the results. It may be that ultimately further legislation is needed on these issues. But it does not improve the prospects of achieving the aims of the industry or the Commission to have the effort and uncertainty of adapting to perpetual legislative change. Any further changes made must therefore be based on adequate experience and sound research, so that it is clear that they are needed and they are appropriate to the task.



3.1 Introduction

In the previous chapter we discussed progress with the policy of market liberalisation in the rail sector, but it must be acknowledged that often rail companies' fiercest competition comes from outside of the rail sector, from other transport modes. Market liberalisation has been actively pursued in air and water, and the last restrictions on cabotage in road haulage are now being removed.

Perhaps the biggest remaining area of argument in relation to market opening on other modes concerns the access to airport capacity, where the practice of 'grandfathering' is used to allocate take-off and landing slots amongst different airlines. This practice is widely acknowledged as a potential barrier to entry at major EU airports (Mott MacDonald, 2006) and, whilst a proposal has recently been published for a regulation to amend the common rules for slot allocation at airports (CEC, 2009a), this is still based around the 'use it or lose it' principle. Despite grandfathering, there has, of course, been significant market entry from 'low-cost' airlines, though this has relied mainly on the use of 'secondary' airports, where capacity is less constrained and slot allocation less of a problem. This, plus competition between traditional airlines, means that the air sector is now subject to quite strong competition.

Thus it may be concluded that all other modes of transport are subject to fierce intramodal competition forcing down costs and prices. The issue for this chapter is whether adequate measures have been taken to ensure that this process also leads to efficient mode split. As explained in the introduction, efficient competition between modes of transport depends on achieving appropriate pricing and investment policies. Commission policy since 1995 has been based on the proposition that competition is distorted unless infrastructure charges are set appropriately and external costs are internalised into transport prices across the modes. Efficient modal split requires prices to be based on marginal social cost, so that consumers choosing between modes for a specific journey or freight consignment have an incentive to choose the mode which imposes the least additional costs on society by handling their traffic.

In this chapter we consider progress with this policy.

3.2 Rail Infrastructure Charging

Within the rail sector, then, the big issue is how far infrastructure charges reflect marginal costs. The legislation governing railway infrastructure charging is enshrined in Directive 2001/14, on allocation of railway infrastructure capacity and levying of charges. In summary, the directive determines that charges must be based on 'costs directly incurred as a result of operating the train service'. They may include:

- scarcity, although where a section of track is defined as having a scarcity problem, the infrastructure manager must examine proposals to relieve that scarcity, and undertake them unless they are shown, on the basis of cost benefit analysis, not to be worthwhile

- environmental costs, but these must not lead to a rise in the average level of charge unless they are levied at a comparable level to other modes
- recovery of the costs of specific investments where these are worthwhile and could not otherwise be funded
- discounts but only where justified by costs; large operators may not use their market power to get discounts
- reservation charges for scarce capacity, which must be paid whether the capacity is used or not
- non-discriminatory mark-ups but these must not exclude segments of traffic which could cover direct cost
- specific time limited subsidy schemes are permitted to offset the effects of a failure to charge appropriately on other modes

It seems from the list of elements that may be included in the charges that ‘the direct cost of operating the service’ is to be interpreted as short-run marginal social cost. Short-run marginal cost pricing advocates charging the incremental, or marginal, cost of use of the existing infrastructure by the train concerned, given the assumption that all other trains on the network are running. The costs generated when an additional train uses the infrastructure are comprised of five main elements (Lindberg et al, 2009):

- use-related wear and tear costs – the costs associated with maintenance and renewal activities that are required as a direct consequence of damage to the infrastructure resulting from the passage of trains
- congestion costs – the costs associated with ‘knock-on’ or ‘reactionary’ delays on the network, whereby a delay to one train has a ‘knock-on’ effect that causes subsequent trains to be delayed, which increases as capacity is utilized more intensively
- scarcity costs – the opportunity cost of network capacity, where capacity is insufficient to give all operators the slots they want
- external accident costs – the external costs associated with fatalities, injuries and damage to property resulting from rail accidents
- environmental costs – the costs associated with rail-related noise, local air pollution and CO₂ emissions

In recent empirical studies of wear and tear costs it was calculated that charges based on marginal cost would cover only 20-30% of the total maintenance and renewal costs (CATRIN D8). Most other costs of the infrastructure manager appear to be largely fixed, and although charges for congestion and scarcity might significantly increase cost recovery, it appears likely that pure marginal cost pricing will fall far short of covering total cost.

There is a wealth of literature relating to alternative means of recovering more than simply marginal cost. The standard economic argument would justify mark-ups above marginal cost targeted more on markets where demand is less responsive to changes in price, such that the price elasticity of demand is low, as it is in these markets that the mark-ups will have less impact on demand. However, such mark-ups still give operators an incentive to cut services below what would exist with pure marginal cost pricing. The generally advocated alternative is two-part tariffs, comprising a variable part equal to (or based on) marginal cost and a fixed part needed to achieve the cost recovery target. The attraction of two-part tariffs is that the fixed part may be related to ability to pay, but leave the operator free to raise the



necessary cash in a way that loses them the least traffic, whilst the variable part may be equal to marginal cost. The difficulty is that, if the fixed part is the result of a tariff, rather than negotiated on the basis of ability to pay, it almost inevitably favours large operators against small. This is not a problem with franchised services, provided that whoever wins the franchise pays the same fixed charge.

Whilst allowing for mark-ups above marginal cost, the directive provides very little guidance on the application of these mark-ups. Consequently, there appears to be a great deal of variation in their use and calculation, generating a further driver of overall variation in the charges. There is no transparency about the calculation of direct costs and mark-ups in most countries.

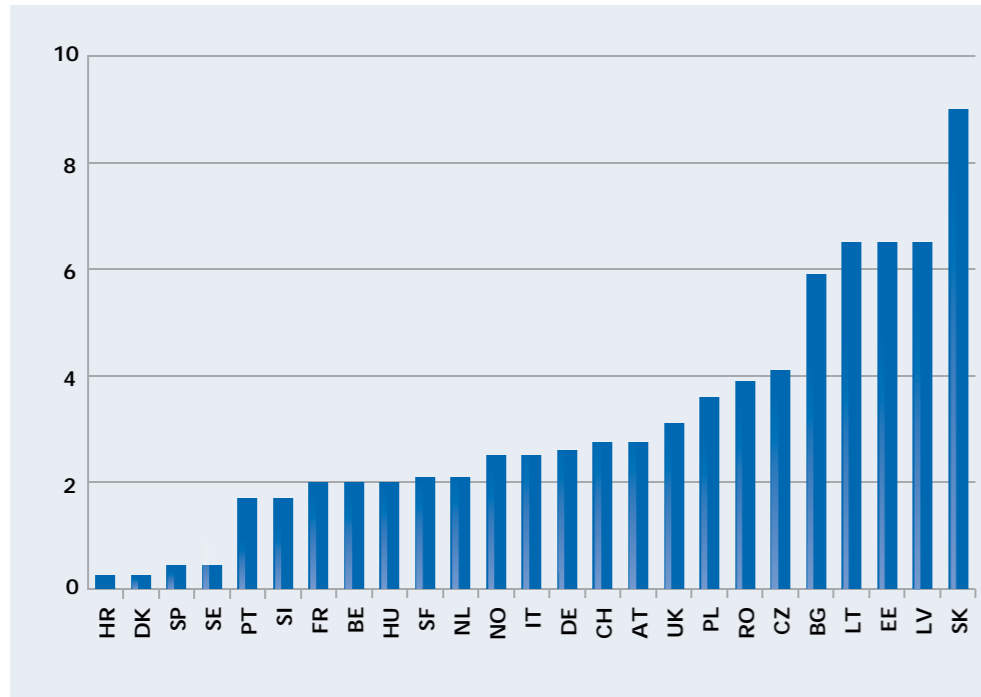
In other words, this directive reflects some quite sophisticated argument, and includes special provisions for a range of situations. However, there is a lack of clarity about some of the provisions, whilst the flexibility it gives also may lead to a variety of approaches. In particular, the degree to which competitive charges for paths involving several countries will be achieved will inevitably be limited.

ECMT (2005) – partly updated in ITF (2008) – shows the wide range of practices in rail infrastructure charging within Europe regarding which cost elements are covered by the charge and the form of the charge, which ranges from a simple charge per gross ton km kilometre in Finland, to a mix of reservation charges and charges per train km differentiated by type of infrastructure and time of day in France. It appears that a wide range of approaches to this issue persist, which may lead to confusing and contradictory price signals for operators of international trains. But it is the level of charges in some countries which causes most concern.

Figure 3.1 illustrates the variety of average levels of charges found for a typical freight train. It will be seen that these vary enormously from a fraction of a euro per train km in Denmark, Spain and Sweden, to over 6 euros in Estonia, Latvia and Lithuania and 9 euros in Slovakia. There is a clear pattern of high charges for freight traffic in Central and Eastern Europe,

and there are concerns that these may exceed the 'stand alone' cost of the necessary infrastructure for freight operations in order to subsidise infrastructure needed for passenger services. Importantly, Directive 2001/14 is vague in relation to maximum charges, and whether it is permissible for them to exceed even stand-alone costs. It should be noted also that further changes to the charges have already been announced for future years, including substantial increases in France.

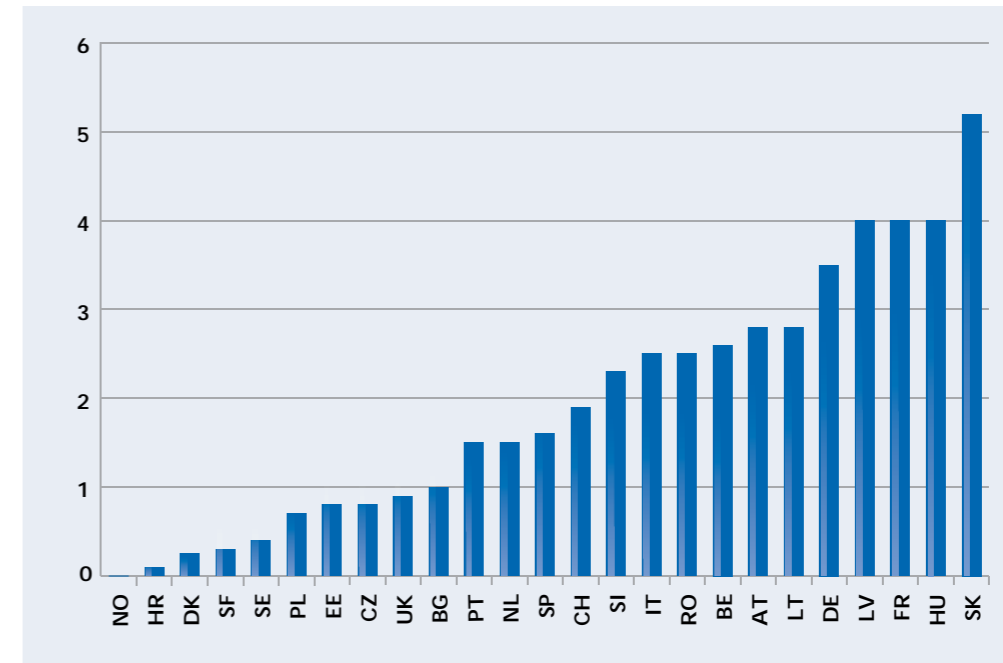
Fig 3.1 Typical freight access charges per train-km (€) in 2008



Source: ITF (2008)

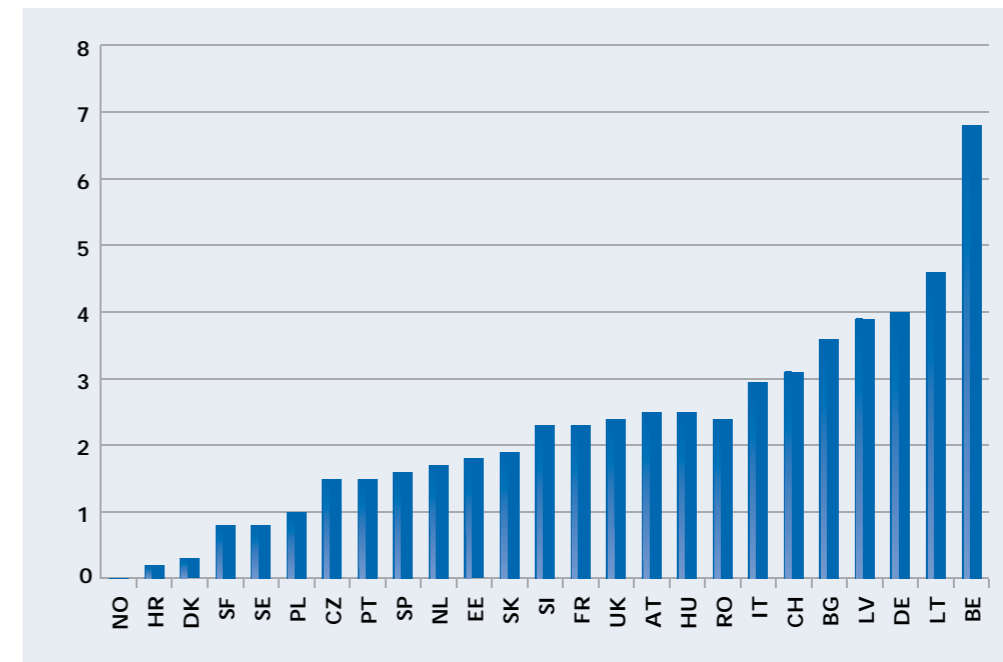
Figures 3.2-3.4 show typical charges for different types of passenger train. There is as much variety here as in freight, but the pattern is rather different, with some of the Central and Eastern European countries that have high freight charges having very low passenger charges which implies cross-subsidies of passenger businesses by freight ones. The other point not revealed in average figures is the very high charges that may apply for new infrastructure (UIC, 2007), such as high speed lines, bridges or tunnels (Figure 3.4 on p.42). These are up to 16 euros per km for the busiest high speed lines in France, and much more than that for the Channel Tunnel and the first high speed line in Britain. It is well understood that governments will want to recoup much of the cost of such projects from users and this is unproblematic if it does not greatly impact on rail market share, but there is evidence that on routes where the rail market position is less strong, high charges can damage rail market share so much as to destroy the case for the investment. Adler, Kroes and Nash (2008) find that the social benefits of high speed rail are much greater if marginal cost pricing is used to promote efficient mode split than if very high charges are levied, leading to poorer utilisation of new infrastructure capacity. Moreover, at low infrastructure charges, a franchised operator can afford to pay a substantial lump sum towards infrastructure costs

Fig 3.2 Typical access charges for local and suburban passenger trains per train-km (€) in 2008



Source: ITF (2008)

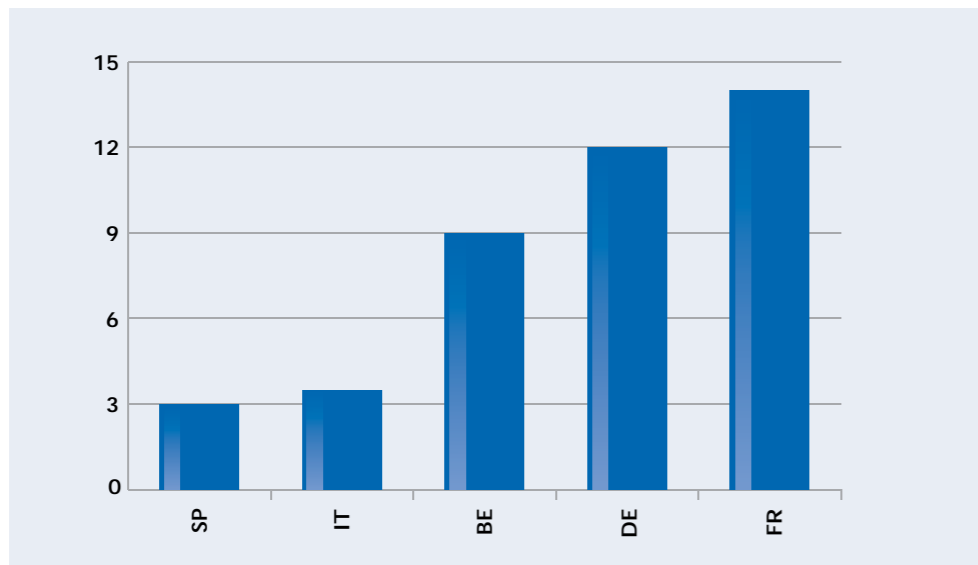
Fig 3.3 Typical access charges for inter city passenger trains per train-km (€) in 2008



Source: ITF (2008)

(or as a premium for the franchise, which can then be used to help pay for the infrastructure). This is a more efficient way of achieving this result than by high variable charges which discourage provision of high levels of service. But it is highly problematic when open access entry is permitted, as it may be judged discriminatory and open access entry will in any case reduce the profitability of existing services and therefore the ability of the train operator to pay for a franchise.

Fig 3.4 Typical access charges for high speed passenger trains per train-km (€) in 2008



Source: ITF (2008)

Thus there is a real dilemma as to how to reconcile open access entry with recovering a high proportion of infrastructure costs from users. The same issue of course applied to the high charges for freight trains in some countries as noted above. Vertical separation with open access competition makes it far more difficult to recover infrastructure costs by carefully differentiating prices to reflect willingness to pay in the final transport market: the ability of the infrastructure manager to differentiate according to willingness to pay is much less than that of the train operator who deals direct with the ultimate customer. The difficulty in reconciling open access competition, efficient infrastructure pricing and high infrastructure cost recovery is at the heart of the problem with EU rail policy in countries where governments cannot or will not make a significant contribution towards rail infrastructure costs.

Other than the study noted above, there is relatively little evidence on the impacts of rail infrastructure charges, perhaps because there are a range of possible responses that train operators might pursue and because it is difficult to separate out the effect of charges from other factors influencing patterns of train operations. Two studies shed some light on intermodal competition in the freight sector and are particularly relevant as they show the impact of different mark ups on short-run marginal social cost.

Firstly, the Leeds Freight Transport (LEFT) model is used for multimodal freight demand modelling in the UK (Johnson, Whiteing and Fowkes, 2007). The model tests a range of individual policies for the UK. In order to form the 'best case strategies' for road and rail,

the policies are bundled into two groups to form a pro-rail strategy and a pro-road strategy, which are tested against a do-nothing strategy. The results are explained in terms of the impacts for 2016.

The impacts of the policy of doubling track access charges for rail freight from the existing levels, which in Britain are essentially short-run marginal cost (Fowkes Johnson and Whiteing, 2007), is that rail tons fall by 2.03% and ton kms by 4.71% in comparison to the do-nothing scenario. The length of haul falls by 2.73% in comparison to the do-nothing scenario. As expected, the impact on road is in the opposite direction with increases in tons and ton-kms and the length of haul in comparison to the do-minimum, but the increases are rather modest. Interestingly, introduction of marginal social cost pricing on roads, part of the pro-rail strategy, has a bigger impact, increasing rail ton kms by 18% (reducing those by road by 11%).

Secondly, the British Office of Rail Regulation (ORR) commissioned MDS Transmodal to assess the impact of an increase in track access charges on freight traffic (MDS, 2006). This work formed part of their work to review British charges, and was designed to investigate the impacts of including a mark-up on infrastructure charges for freight so as to recover the costs of freight-only lines. MDS used the GB Freight model along with models for intermodal and coal traffic, and their results found a substantially larger effect, with rail tons falling by 8% as a result of a 50% mark-up.

This modelling work provides a strong indication that where charges are markedly in excess of marginal cost, particularly in some parts of Europe where they are probably well above double marginal cost, rail traffic is being suppressed. These charges in excess of marginal cost are of particular concern given the relatively low charge levels on roads that tend to prevail. Indeed, it is noted that these modelling results suggest that road infrastructure charges are actually more important in terms of their impacts. We turn to these in the next section.

In summary, then, there has been considerable activity in relation to rail infrastructure charges following on from Directive 2001/14. The range of interpretations of the directive and approaches to implementing it have led to a very diverse outcome, in terms of the levels and structures of charges prevailing throughout the EU. There is strong indicative evidence that the resulting situation is damaging to the rail sector, and more generally to the transport system as a whole. The Greening Transport Package (CEC, 2008) included a specific proposal to require track access charges to reflect the relative noise levels of different rail wagons, because of concern at the noise nuisance caused particularly by old freight wagons with noisy braking systems, and some form of differentiation in this respect may be useful. However, the bigger priority should be to address the variation in interpretation and approach to implementing Directive 2001/14. The member state responses to the current infringement procedures should go some way toward doing this, but our view is that it is likely that a set of guidelines on implementing the directive will need to be drawn up to provide common definitions and consistent interpretations and approaches. As a last resort, if problems persist beyond this, then there may be cause to amend the legislation.

3.3 Charging for Roads

European legislation regarding infrastructure charges for road transport largely concerns road freight traffic. The issue of charging for the use of roads by the private car is an issue where subsidiarity is seen to apply. The current legislation revising the European road goods vehicle charging regime, based on a supplementary licence known as the 'Eurovignette', was finalised in March 2006. It was stated that it would 'encourage member states to introduce

and develop tolls and charges which will make it possible to improve the management of commercial freight traffic, reduce pollution and generate funds for investment in new infrastructure.’ (IP/06/383)

The directive allows the toll to be applied to all HGVs (vehicles weighing over 3.5 tonnes) as from 2012, replacing the 12 tonnes limit applicable until then. It is applied to the trans-European network but permits application of pricing to other roads as well. It is also recommended that ‘revenues from tolls or user charges should be used for the maintenance of the infrastructure concerned and for the transport sector as a whole, in the interest of the balanced and sustainable development of transport networks.’ (European Parliament, 2006).

In terms of differentiation, the 2006 directive provides for variations according to a number of factors such as:

- the distance travelled
- infrastructure type and location as expenditure on maintenance varies on trunk road varies from that on a motorway, and infrastructure type and location also influence accident rates and the cost of noise and air pollution
- the vehicle type which includes characteristics such as axle weight and suspension type which influence infrastructure repairs and maintenance. Engine type, energy source and emission standards influence air pollution levels and vehicle size as larger vehicles make a bigger contribution to congestion
- the time of day, which also affects congestion levels as it varies between peak and off-peak times

Furthermore, the directive allows member states to increase tolls with a ‘mark-up’ (they can charge up to 15% more or 25% on cross-border routes) on roads in particularly sensitive mountainous areas. The income from the mark-ups must then be used to optimise the transport system, which can include paying for infrastructure on alternative modes such as rail.



Whilst the 2006 directive allows greater variation in tolls to reflect congestion and a range of cost drivers, it is not properly consistent with the policy of short-run marginal cost pricing adopted by the European Commission in the White Paper on Fair Charges for Transport Infrastructure (CEC, 1998) and reaffirmed since. Firstly, the degree of differentiation is heavily constrained by a requirement that no charge be more than 100% higher than the minimum. Secondly, as in the earlier directive, on average, user charges are tied to the costs of construction, operation, maintenance and development of the network. The overall average charge is to be equal to average infrastructure costs, where infrastructure costs must be allocated to vehicle types on the basis of equivalence factors based on objective evidence. This linking of average user charges to the cost of ‘constructing, operating, maintaining and developing the network’ further limits the extent to which the overall level of tolls can reflect environmental costs, external accident costs and marginal costs of congestion. There would obviously be a degree of double counting if both additional capacity and congestion costs were charged for, whilst the exclusion of environmental costs from the total costs to be covered was explained by the Commission on the grounds that these are more uncertain than infrastructure and external accident costs, despite the enormous amount of work the Commission has funded on their measurement and valuation in recent years. Additional regulatory charges to deal with congestion and environmental problems are permitted, but only in specific circumstances.

Part of the compromise agreed upon in 2006 was that the European Commission be required to re-examine the issue of external cost and produce new proposals within two years, and it did this as part of the Communication on the Greening Transport Package (CEC, 2008a). In this, the Commission proposes to allow charges to reflect congestion, local air pollution and noise. However, congestion costs may only be incorporated into charging to the extent that congestion costs exceed long-run allocated infrastructure costs. In that sense, the base charge is equivalent to long-run marginal cost, with the short-run marginal cost of congestion acting as a cap. Furthermore, the new proposals do not permit charging for external accident costs, as it is argued that these should be internalised via the





insurance system. This, however, is not currently possible and there is no indication of any mechanism by which this situation might change.

The 2008 proposals do not seek to incorporate the costs of climate change into the charging framework, as it is argued that these are better charged for through fuel tax. It was also argued that by addressing congestion fuel consumption would be reduced, thereby indirectly leading to a reduction of CO₂ emissions. There is a legal minimum level of fuel tax within the EU of 30.2 eurocents per litre for diesel, which – were all other costs covered by other charges – would cover a shadow price of CO₂ well in excess of 85 euros per tonne of CO₂, which is higher than most studies suggest (CE Delft, 2008b). Of course, in the current situation other costs are not covered by other charges in most countries, and therefore road haulage remains cheap, resulting in excessive CO₂ emissions as well as other costs. The IMPACT study strongly argues that both the information and the methods now exist to correct this distortion.

As part of the IMPACT study, a handbook on the measurement of social cost, drawing together much of the recent research on this topic, has been developed on behalf of the Commission (CE Delft, 2008a). This set out estimation methods and example values for the range of external costs, and the 2008 proposals prescribe the use of this handbook for the purposes of calculating charges relating to external costs. The proposals lay down maximum permissible charges, approximately equal to the average in the handbook. The justification for regulating charges is to prevent countries in strategic locations from imposing excessive charges in order to make money out of transit traffic, but the result of these caps is to prevent full internalisation of externalities in circumstances in which external costs are above average.

It is not proposed that this differentiated system be compulsory. The European Commission's argument is that incorporating external costs into charges is worth doing where there are serious problems of external cost, but that it is not worth pursuing where traffic is relatively light. However, varying the km based charge with the characteristics of the vehicle and administering it via the tachograph would be a simple system and would cost little to operate. Hence, our view is that this would be worth doing everywhere and should be made compulsory. Beyond this, differentiated charging to more specifically equate to levels of external cost, which we acknowledge would be more expensive to administer, should be permitted, but its implementation could be allowed to vary according to the levels of external costs experienced in different places, subject to an assessment of the costs and benefits of implementation.

Whilst attention has focused on heavy goods vehicles, as private cars are seen as the responsibility of member states, the broader perspective of charges for all road users should not be lost. A situation where there remains a widespread lack of use-related charges for private cars, light vans, buses and coaches is one in which the terms of competition between the modes remains unequal. It is acknowledged that, in terms of the European Commission, there are subsidiarity issues here that obviate against European legislation, but the Commission should continue its role as a facilitator and shaper of policy debate. Beyond this, the Commission may wish to consider acting to extend the scope of the simple km charge referred to above, varying with the characteristics of the vehicle and administered simply via the tachograph, to long-distance, cross-border bus operations. Where these services compete directly with rail, and particularly where they enjoy favourable treatment regarding road taxes, there is a clear competition issue in requiring rail to pay for infrastructure access and internalise external cost whilst not requiring bus to do the same.

A major concern leading to opposition to pricing reform has been worry that such reform will have damaging effects on the economy, particularly in peripheral regions. Many projects have carried out work relevant to answering this question; two will be referred to here – IASON and TIPMAC.

The IASON project undertook an impact assessment of short-run marginal social cost pricing in the road freight market throughout Europe using the SCENES model (Tavasszy, Renes and Burgess, 2004) and the valuation of externalities from UNITE. A computable general equilibrium model was used to assess regional impacts. TIPMAC again used SCENES but this time with an input-output model to examine economic impacts and computed the effects if revenues were 'recycled' to reduce income tax (Kohler et al, 2008).

Both projects found that the impacts of efficient pricing on the economy in general were not great, since on average the cost of freight transport is only a small part of the final delivered price of goods. Whilst there was some reallocation between modes, changes to the sourcing of inputs and distribution systems were equally important in reducing road freight traffic. When recycling of revenues was not allowed for, there was some reduction of output and employment particularly in peripheral countries but, with efficient recycling of revenue, all countries gained, although peripheral countries less than countries at the core.

Early indications are that it is not going to be easy to secure agreement on the revisions to the Eurovignette directive proposed in the 2008 Greening Transport Package. The proposals were discussed at the Council of Ministers in December 2008, where issues of earmarking and of congestion cost were particular stumbling blocks in the way of ministers reaching agreement (the proposals currently under consideration seek to earmark receipts for spending on making transport more sustainable). In March 2009, the first reading went through Parliament with few amendments, but the Council of Ministers failed to reach agreement.

A further major issue of relevance here is that of road vehicle dimensions. The European Commission is considering increasing the permitted dimensions of goods vehicles to permit vehicles of perhaps 60 tonnes gross weight and 25 metres length on to parts of the European road network. An initial study (TML, 2008) found substantial benefits from this measure, whilst stressing that it should go hand in hand with full internalisation of externalities, if not to have the perverse effect of diverting traffic from rail when the social costs of its using rail are still lower. Other studies (e.g. Knight, Newton and McKinnon, 2008) have been much more cautious, citing major uncertainties as to the resulting costs in terms of attention to bridges and parking areas and regarding safety. They also see more limitations on the traffic for which such vehicles would be suitable and expect a fall in load factors if they are introduced.

Provided that robust analysis shows that the benefits of introducing such vehicles exceeds the costs, they pay appropriately for the externalities they cause, and the necessary measures are taken to ensure that rail is able to compete by providing appropriate infrastructure in terms of quality and capacity for freight transport, then they will only be introduced where they are socially efficient. But this requires an enormous change from the current situation, and is another case where it is crucial that the various elements of policy work together. To introduce larger road goods vehicles without ensuring appropriate terms of competition with rail could lead to a significant diversion of rail freight to road, particularly its profitable long-distance traffic and seriously damage progress with achieving the Commission's objectives.

3.4 Other Modes

Infrastructure charging policies for international air and water transport are agreed through international government bodies, the international civil aviation organisation and the international maritime organisation. Under the agreements of these bodies such transport is not subject to fuel tax or value added tax, and this also applies to domestic transport in many European countries. Airport landing charges are not allowed to cover externalities: it is possible to recover the costs of mitigation measures, but not of the externality itself.

Nevertheless there are some cases of airport charges that are differentiated by environmental factors as well as congestion and scarcity. Some countries also levy a passenger tax, but given that most externalities are imposed by aircraft rather than people, this is not ideal.

Under Directive 2008/101 air transport will be included in the European emissions trading scheme for greenhouse gases from 2012; this may be applied to water transport at a later date. There is also a directive on airport charging which would permit more differentiation including environmental criteria (CEC, 2009a) and an international agreement on setting targets for cutting emissions from international aviation. Maritime transport is also due to be discussed at the United Nations Climate Change Conference in Copenhagen in December 2009. So some progress is being made on the key issue of greenhouse gases. However, regarding charging for other externalities, including noise, local air pollution, congestion and scarcity, there is no sign of progress at all.

3.5 Conclusions

For rail, Directive 2001/14 already requires charges based on direct cost, with provision for charging for all external costs when this is achieved on other modes, and mark-ups where needed for financial reasons. Whilst these form a sound set of principles, there is great diversity in the ways in which the directive has been interpreted, and a great variation in actual charges. In many cases rail infrastructure charges greatly exceed marginal social cost.



Rail charges already include charging for greenhouse gases through inclusion of electricity generation in the European emissions trading scheme, and through taxes on diesel fuel in many countries.

For road, the emerging systems of charges for heavy goods vehicles offer the potential for charging which reflects the costs of road use much more accurately, by permitting a charge directly related to kilometres travelled, and which may be differentiated by vehicle type and, depending on the technology, in time and space. However, the current legislation forbids implementation of the Commission's own policy of internalisation of external cost, and even the proposed revisions fall short of full pursuit of this. In many cases, road haulage falls short of paying marginal social cost. There is evidence that this, combined with high charges for rail freight, has a significant impact on freight mode split (e.g. Johnson, Whiteing and Fowkes, 2007)

The continued privileged position of air and water transport in neither paying for externalities nor often the same basic taxes as rail is a further important distortion, particularly where air is competing with high speed rail, which often pays track access charges several times its marginal social cost.

Fully efficient charging would require extension of road charging to all types of vehicles (currently seen as an issue for member states under the subsidiarity principle) and not just implementing the 2008 proposals for goods vehicle charging, but also raising the caps on charges as well as allowing charging for the external costs of accidents. It would also require both charging for externalities and tackling tax anomalies on air and water transport. Whilst the Greening Transport Communication contains a laudable restatement of principles, it falls far short of presenting systematic proposals to achieve this end.

4.1 Introduction

In this chapter, we consider the issue of investment and funding of infrastructure. We first discuss the trans-European network and the financing of priority projects, where there has been much attention but where implementation has fallen some way behind the envisaged plans. We then turn to the specific issue of the financing of rail infrastructure, where it is becoming very clear that the situation in some member states is gravely damaging rail's ability to compete and properly contribute towards overall transport objectives. We then draw conclusions.

4.2 The Trans-European Transport Network

The European Commission believes that there are inadequate incentives at the national level for individual governments to invest to improve cross-border transport links. This is essentially, because many of the benefits of such investment accrue to other countries – indeed in the case of key transit corridors this would include all countries other than those linked by the infrastructure in question.

Since their inception in the early 1990s, the development of trans-European networks (TEN) has been viewed by the Commission as a major element in integrating national markets to develop the 'Single Market' for the entire EU and promoting economic and social cohesion via the freedom of movement of persons, goods and services throughout the EU. The white paper's investment objectives were, consequently, almost entirely bound up with development of the trans-European transport network (TEN-T). The TEN-T are multi-modal and multi-dimensional, consisting of roads, railways, airports, international sea ports, inland ports, traffic management systems and, since 2004, motorways of the sea. An early statement of the aims of the TEN-T (European Parliament, 1996) was that they should:

- integrate national networks and modes of transport
- link peripheral regions of the EU to the centre
- improve safety and efficiency of the networks

The TEN-T itself was initiated in 1994 by the European Council endorsing a list of 14 priority transport projects, selected by the Christophersen Group and since referred to as 'the Essen projects'. In 2001, the white paper identified several problems with respect to the realisation of the TEN, and in early 2003 the Van Miert High Level Group was appointed to undertake a comprehensive review of progress with the TEN-T. In their review, the group noted candidly that "an examination of all the priority projects selected by the Christophersen Group might give the impression that they do not have a perfect coherence. Some of the Essen projects reflect a national planning desire which does not show any strong synergy with the remainder of the trans-European network. Others take the form of packages including many disparate projects" (HLG, 2003)⁴. They put these difficulties down to "the method used and the rules of the game inherent in this type of exercise"; in other words, the appraisal and decision-making framework which focuses on national objectives.

⁴ http://europa.eu.int/comm/ten/transport/revision/hlg/2003_report_kvm_en.pdf



Subsequently, revised TEN guidelines and revised financial rules were adopted in April 2004 (Decision 884/2004 and Regulation 807/2004). The 2004 guidelines define priority projects according to a set of criteria, specifying that priority projects are those that:

- are intended to eliminate a bottleneck or complete a missing link on a major route of the trans-European network, in particular projects which are cross-border projects, cross-natural barriers or have a cross-border section
- are on such a scale that long-term planning at European level will help significantly
- present, overall, potential socio-economic net benefits and other socioeconomic advantages
- significantly improve the mobility of goods and persons between member states and thus also contribute to the interoperability of national networks
- contribute to the territorial cohesion of the European Union by integrating the networks of the new member states and improving connections with the peripheral and island regions
- contribute to the sustainable development of transport by improving safety and reducing environmental damage caused by transport, in particular by promoting a modal shift towards railways, intermodal transport, inland waterways and maritime transport
- demonstrate commitment on the part of the member states concerned to carrying out studies and evaluation procedures in time to complete the work in accordance with a date agreed in advance, based upon national plans or any other equivalent document

At the same time, the Commission decided that environmental objectives – in particular the objective of decoupling the negative impacts of transport growth from economic growth – be integrated into the TEN framework. To this end, it was, firstly, agreed that the TEN-T proposals be subject to environmental assessments, as provided for in EC legislation. Secondly, it was agreed that priority be given to rail, inland waterways and short-sea shipping, on the basis that they are environmentally friendly modes.

The 2004 guidelines extended the list of priorities to include 30 projects and, at the same time, extended the time horizon from 2010 to 2020. The list includes and adds to the initial list of Essen projects endorsed 10 years earlier, only three of which have been completed in that time. There is an implication that the projects identified as priorities meet the criteria specified in the guidelines, though the evidence to support or demonstrate this does not appear to be available in the public domain. Indeed, a number of research projects, including FUNDING, have cast doubt on the economic case for the priority projects and on the adequacy of their appraisal.

In extending the list of priorities, the 2004 guidelines recognised that a considerable increase in appropriations will be needed in order to meet the TEN objectives. With this in mind, the guidelines set out a number of points aimed toward concentrating funding efforts. They specify that for each priority project:

- member states give an appropriate priority to the projects declared of European interest when submitting applications for funding under the TEN budget and the cohesion funds
- the Commission ensures that projects declared of European interest are taken into account when projects or programmes co-financed by ISPA and the structural funds are established



- a project may be withdrawn from the list where there are unjustified delays in implementation, so as to incentivise member states to adhere to the agreed timetable
- ex-post project evaluations take place to facilitate future revisions of the guidelines and list of priority projects and improve project evaluation methods amongst the member states



Following a suggestion from CER, the Commission has designated coordinators to oversee the progress of the priority projects. Their role is seen as comprising three main elements. Firstly, to promote joint methods for the evaluation of projects and, where appropriate, advise project promoters on the financial package for the projects. Secondly, to draw up an annual progress report. Thirdly, to consult, with a view to gaining fuller knowledge of the demand for transport services, the possibilities of investment funding and the type of services that must be provided in order to facilitate access to such funding.

There is a requirement that at least 55 percent of funding of the projects in the TEN-T be rail and no more than 25% be road. This is not justified exclusively on environmental grounds. Research has demonstrated that rail tends to have more spillover benefits from one member state to another (for instance in the FUNDING project some rail schemes were found to have spillover effects on other countries approaching 50% of all benefits, whereas for road schemes benefits tend to be much more concentrated on domestic traffic).

The five railway axes the EU intends to take forward on a priority basis are

- Paris-Bratislava, which will improve connections with the new member states
- Lyon-Budapest, the East-West corridor south of the Alps
- The high-speed southwest Europe axis, connecting France to the Iberian Peninsula
- Berlin-Palermo, the North-South corridor of central Europe
- Rail Baltica, which will connect Helsinki to Warsaw via the Baltic states

European coordinators have been appointed for these five axes. Their role is to bring together the member states involved to devise solutions to identify implementation problems and to speed up project execution.

In addition, a sixth coordinator has been appointed to oversee the implementation of a trans-European industrial project: the European Rail Traffic Management System (ERTMS). This project is focused on promoting safety, reliability and interoperability across the rail network so as to improve efficiency and remove any associated barriers to entry by means of a new harmonised train control system. There is evidence to suggest that non-interoperability is a source of increased costs for Europe's railways, in that either trains have to be equipped and drivers trained to handle several different signalling systems, or locomotives and drivers must continue to be changed at borders. The latter approach may be a particular problem for small new operators. In the long term, ERTMS should also eliminate the cost of lineside signalling and improve capacity and reliability. But this can only happen when it is widely installed and most rolling stock equipped to use it. Thus determination of the optimal migration path is very difficult, and there is a risk of enormous expenditure yielding very little benefit in the short-run.

4.3 Funding Rail Infrastructure

The level of funding provided from the EU's TEN-T budget is very limited. It provides funds for studies (50%) and towards construction (10% or 20% exceptionally). However, in eligible countries regional and cohesion funds provide up to 80% of the cost. TEN-T projects also qualify for favourable lending terms from the European Investment Bank (EIB).

Table 4.1 shows the proposed levels and sources of funding for the seven years starting 2007. It demonstrates the importance of cohesion funds and of the EIB as sources of finance, but also that the plans rest heavily on funding from the member states themselves.

Table 4.1 Expected sources of finance for TEN-T projects, 2007-13

Source of funding	€ billion
TEN programme	8
Regional Funds	8
Cohesion Funds	35
TOTAL (EU)	51
European Investment Bank loans/guarantees	54
Other resources (mainly national governments)	284
Total	389

Source: European Commission (DG TREN)

At the same time, substantial additional investment is going to be needed if the objectives of the freight priority network are to be met. The NEW OPERA project identified 43 billion euros of investment in rail freight initiatives, whilst McKinsey identified 145 billion euros of investment (McKinsey, 2007). Initiatives include mechanisms to improve productivity (e.g. longer trains) and provide enhanced capacity so as to enable a step change in rail freight



volumes (e.g. McKinsey identify a potential 72% growth in rail freight volumes by 2020). However, it is not clear where this funding will come from. There is a heavy emphasis in the current priority projects on high speed passenger lines. These may be efficient where passenger volumes are high and existing lines are congested, and may release capacity for freight traffic. But this needs to be part of a coherent plan with appropriate prioritisation of capacity and investment planning on the existing lines to achieve this objective. Hopefully, the proposed regulation on freight priority networks will aid with this but the concern is that it may actually introduce rigid rules that stand as a barrier to appropriate capacity planning and effective operation (see chapter 2).

However, not only are there doubts about how these major investment programmes will be financed, but there are also serious concerns about the “sustainable financing of existing rail infrastructure, the quality of infrastructure service and how to get infrastructure managers to perform better” (CEC, 2008b). At the national level there are essentially five potential sources of finance for rail investment:

- rail infrastructure charges – in particular where there are mark-ups above marginal cost
- revenues from other transport charges (e.g. the Eurovignette)
- the private sector
- national and regional governments
- international financial institutions in Central and Eastern Europe

As discussed above, infrastructure charges that include mark-ups to marginal costs are permitted, either to cover fixed costs for which no other source of revenue is available, or to fund specific projects. In principle there are widely acknowledged means of incorporating such mark-ups in an efficient way that minimise any impact on traffic levels, but in practice, as has been seen in the previous chapter, there prevails an enormous variety of structures and levels of charges. Separation of infrastructure from operations makes it more difficult for railways to engage in effective differential pricing, partly because it is difficult for the

infrastructure manager to identify what type of traffic is being carried on a particular train and there is therefore only limited scope to impose different infrastructure access charges for different markets. In practice, whilst there are high mark-ups for the use of high speed passenger lines in many countries and also for the use of specific pieces of expensive infrastructure such as the Betuwe line in the Netherlands or the Oresund bridge connecting Denmark and Sweden, there are very few cases of freight track access charges being differentiated by freight commodity. Where there is an aim to achieve high cost recovery from track access charges, as in some of the CEE countries which have recently joined the EU, this is achieved through higher access charges for all freight traffic. These high freight charges were highlighted in the previous chapter, and there is great concern at the impact of this practice on rail’s freight market share.



On the other hand, the broader picture is that in about half of all member states, the infrastructure manager's income from track access charges does not make a significant contribution to infrastructure investment costs: in many countries track access charges do not even cover maintenance and operating costs. In these situations, the ability of rail infrastructure managers to finance investment themselves is reduced, leaving it to the state to take responsibility for funding most investment.



Full internalisation of externalities on other modes should provide considerable potential for cross-funding of environmentally friendly modes of transport, and the existing Eurovignette directive does allow for this. It was highlighted above that the directive recommends that revenues should be used for both the maintenance of the infrastructure concerned and for the transport sector as a whole. Furthermore, the directive allows mark-ups on charges on roads in particularly sensitive mountainous areas, so long as the revenues from the mark-ups are used to fund alternative transport infrastructure, such as rail. However, as described in the previous chapter, progress on implementing these provisions has been slow.

On the other hand, as has been observed in a number of member states, the introduction of private operators can have a positive effect on investment because it can obviously facilitate private investment in train operations and also potentially in infrastructure. The Commission also sees public private partnerships as an important method of funding although this view is not shared in all member states. However, there are practical problems with getting private operators to finance infrastructure investment where there is open access, because an investor must share use of the facility with its competitors. Where there is competition in the market (as in freight), private operators are therefore reluctant to bear the risk of such long-term investments; and where there is franchising (as for passenger services in some countries), franchises are typically too short to provide an adequate return on investment. Ultimately, if schemes are basically unprofitable then at best this only postpones the day when the government has to find the funds itself.

Hence, all of this points towards the continued importance of government financing. However, the position regarding funding for rail infrastructure in some of the newer member states is dire, as illustrated in Table 4.2.

Table 4.2 State financial support to rail

	State spending on rail infrastructure	Traffic units	Track length (km)	State spending per transport unit	State spending per track.km
	(in million €)	(in billion p.km+t.km)	(in km)	(in €)	(in €)
Luxemburg	394	0.7	619	0.53	636,511
Ireland	603	2.1	2,334	0.29	258,355
Belgium	3,226	18.2	6,067	0.18	531,729
Netherlands	2,687	20.0	6,517	0.13	412,306
Denmark	937	8.0	3,286	0.12	285,149
Greece	275	2.5	2,997	0.11	91,758
United Kingdom	6,601	70.2	31,701	0.09	208,227
France	10,100	119.7	52,820	0.08	191,215
Italy	5,126	70.6	23,193	0.07	221,016
Sweden	1,415	31.6	13,496	0.04	104,846
Slovenia	186	4.2	2,193	0.04	84,815
Germany	8,001	186.0	64,219	0.04	124,589
Finland	467	14.7	8,830	0.03	52,888
Hungary	560	19.8	7,942	0.03	70,511
Austria	637	30.3	9,874	0.02	64,513
Slovakia	223	12.2	6,867	0.02	32,474
Spain	563	33.7	18,791	0.02	29,961
Czech Republic	270	22.7	16,049	0.01	16,823
Portugal	74	6.3	3,613	0.01	20,482
Bulgaria	61	7.8	7,216	0.01	8,453
Poland	310	71.7	37,504	0.00	8,266
Latvia	31	17.8	3,436	0.00	9,022
Estonia	12	10.7	1,583	0.00	7,581
Lithuania	3	13.3	3,519	0.00	853
Romania	3	23.9	20,384	0.00	147

Source: CER analysis based in part on UIC International Railway Statistics, 2006
p.km = passenger km
t.km = freight km



In some of these countries, there is evidence that governments are failing to pay the costs of passenger services operated under public service obligations, including the avoidable cost of infrastructure for passenger services, and that they are, furthermore, failing to perform their duties under Directive 2001/14 to ensure the financial equilibrium of infrastructure managers. Infrastructure managers are unable to carry out even basic maintenance and renewals without borrowing, and the burden of debt adds to their financial difficulties (CER, 2005). Directive 2001/14 requires that financial stability and pressure for efficiency should be provided either through the regulatory system or through a multi-annual contract between the infrastructure manager and the state, but in many member states neither of these exist. Whilst this is a problem at the member state level, the repercussions are felt at both the member state and EU level. At a member state level, it would seem highly likely that traffic trends, deteriorating infrastructure quality and this financial situation are all inter-linked. At the EU level, the high infrastructure charges for rail freight traffic are felt to be damaging international freight flows, and the reduced ability of rail to compete, in particular with road, will hamper the achievement of targets in relation to greenhouse gas emissions.

The European Commission has gone some way to acknowledging the seriousness of this issue. It has issued new guidelines clarifying the rules on state aid to railways and its Communication on Multi-Annual Contracts for Rail Infrastructure Quality makes proposals to clarify government responsibilities for ensuring financial equilibrium which may form part of the forthcoming 'recast' package. However, there appears to be little attention being given to enforcement of the existing duties, set out in 2001/14, to ensure financial equilibrium.

In such a situation, there is a particular need to ensure that cohesion funds are used effectively, particularly given the requirement for member states to find at least some matching funding. There is also evidence that the quality of appraisal of projects is grossly inadequate in many member states (ECORYS, 2005).

4.4 Conclusions

We believe that the EU needs to play a role in financing investment but we do not believe that role is proving effective at present. First and foremost, we believe projects – and especially projects of the size of many of those on the TEN-T – need rigorous appraisal with full consideration of alternatives before Commission funding is supplied. Consideration of alternatives must also include less than full TEN-T standards. Especially in CEE, the adoption of lower standards can improve rates of return and free up money for vital maintenance works.

Secondly, we believe that the Commission contribution should be concentrated on rail projects determined on the basis of traffic demands, market needs and business cases. Consideration should be given to limiting contributions to specific projects to the level of spillover benefits to other countries. Where there is a need to assist poorer countries in rehabilitating and upgrading their infrastructure, this would be better done as part of a package focused clearly on the highest priorities and providing a coherent plan encompassing renewal and maintenance, reform of institutional arrangements (including relations with governments), infrastructure charges and the level and funding of social obligations.

The current green paper on the trans-European transport network policy (CEC, 2009b), with its emphasis on the need for appraisal and its stress on networks rather than priority projects, shows an awareness of these issues, but we recognise that getting agreement to tackle these problems will not be easy given the politically sensitive nature of the project selection process.



5.1 Introduction

In the 2001 White Paper, the Commission focused on a number of priorities of which the most crucial for the rail industry were: revitalising the railways through competition within the rail sector, adopting an effective charging policy to promote efficient competition between the modes, and investing to remove infrastructure bottlenecks and complete the trans-European network (TEN-T). Although the mid-term review adopted more guarded language on some issues, including targets for modal split, it broadly maintained emphasis on these issues, whilst recognising the growing importance of targets for greenhouse gas emissions. In this chapter we will assess progress in meeting these objectives and also put forward our vision for the future and the long term measures needed to achieve it.

The aim of the Commission's policies was to ensure an efficient pattern of transport volumes and modal split, taking full account of external costs. Writing in the foreword to its latest report on transport and the environment, the head of the European Environment Agency (EEA) said: "Although there is a growing awareness of transport's disproportionate effect on the environment, there is little evidence of improved performance or a shift to sustainable transport across Europe." As we saw in the introduction, whilst rail freight and passenger traffic in the EU grew over the period 1996-2006, road grew faster. Although the rail share of the market seems to have stabilised in the EU15, it has collapsed in the new member states. Thus the policy package as a whole can only be said to have failed. However, as seen in previous chapters, we see the failure not so much as a result of inadequate policies themselves as because of a far ranging failure to implement the policies.

5.2 Revitalising Railways through Competition within Rail

The policy of revitalising the railways relied partly on increased competition within the rail sector to achieve it, and a whole series of measures has been taken to achieve this. Entry into the rail freight market has been completely liberalised. Rules have been introduced regarding infrastructure charging, slot allocation, safety certification and independent regulation to prevent discrimination in favour of the existing operator. Whilst new entry under previous legislation relating specifically to international freight had been slow, with the passage of the Second Railway Package in 2004 and particularly market opening for domestic freight in 2007, the pace of entry seems to be accelerating, with competition emerging in France and Belgium, and continuing to develop in Poland, Germany and Britain amongst others.

There remain concerns amongst new entrants that they may still be discriminated against, that they have difficulties accessing facilities such as ports, terminals and maintenance depots and that regulators are not sufficiently strong and independent. Many of these concerns might be addressed by better enforcement of the existing legislation, and the Commission has warned no less than 24 of the 25 member states with railways that they

have not adequately transposed the legislation, whilst other concerns – such as access to essential facilities – might be addressed by action under competition law. Moreover, much of the legislation is still quite new and the situation is still developing. New regulatory bodies have been established in the past few years in Germany and Sweden, and one is about to be established in France. In each case the new body appears more powerful and more independent than its predecessor. Further legislation may ultimately need to address these concerns, but it is much too early to judge the success of the existing legislation, as the market for freight was only fully opened to competition in 2007, and many aspects of the existing legislation have yet to be adequately implemented in many member states.



Progress on introducing the discipline of competition into the passenger sector is slower, with the requirement to permit competition on international services only coming into force in 2010, and the attempt to require competition for the market via competitive tendering, where exclusive access rights and/or subsidies are involved, has been abandoned. We saw in chapter 2 that determining the best way of introducing competition into rail passenger services is not straightforward, and that both competition in the market and competition for the market can have undesirable side effects. Nevertheless, we see the threat of competition as an important way of ensuring value for money from rail passenger services.

But when considering measures to revitalise the railways the most crucial requirement is to ensure that infrastructure managers are adequately financed to maintain the infrastructure they need and invest in economically justified projects. Where large infrastructure networks are maintained primarily for subsidised passenger services, subsidies must be adequate to cover not just short-run marginal social cost but also the cost of maintaining the capacity needed for such services. Multi-annual contracts provide some degree of stability of funding, but we would also see independent regulatory authorities having an important role in judging whether what the government requires of the rail infrastructure and the funding provided are consistent, given efficient delivery. In this, we consider that the regulator has a role in protecting rail organisations from unreasonable government demands as well as in regulating them.

The enlargement report (RebelGroup, 2007) expresses this forcefully. It says:

“A comprehensive action package is required to solve the financial and organisational problems in the railway and local public transport sectors. Implementation of the community acquis is insufficient to ensure fulfilment of White Paper ambitions in the area of railways. Targeted research and impact assessments should make visible how the investment climate for railways can be improved and how contracting of public services can be improved in order to tailor more sustainable public transport systems. A level playing field in transport has not been established yet. NMS [new member states] railway operators suffer from disproportionate infrastructure charges. Public passenger transport is not sufficiently compensated for Public Service Obligations.”

5.3 Adopting an Effective Charging Policy

With respect to the adoption of an effective charging policy, rail infrastructure charges remain a problematic area. Directive 2001/14 has been interpreted in many different ways in different countries, since it deliberately maintains a lot of flexibility to deal with different situations regarding for instance the availability of government finance. The result is a wide variety of structures and levels of charging. Many of the structures do not appear to provide appropriate incentives for efficient use of the infrastructure as they fail to charge accurately for wear and tear, to differentiate by environmental impact and – most crucially – to use the price system to reflect shortages of capacity. There may ultimately be a need to amend this legislation to clarify its meaning, although in the meantime clearer guidance and dissemination of best practice from the Commission would help (the Commission funded Railcalc and Imprint-Net projects make a contribution to this). But, in terms of the revitalisation of the industry, it is the high charges in certain strategically placed countries as well as for some new pieces of infrastructure that are of more concern. Charges which are many times marginal social cost for rail, whilst other modes are often charged below marginal social cost, must distort the market. Guidance on how to measure cross-subsidy from freight to passenger, and a requirement to produce such information in annual accounts might help here, and again ultimately legislation to prevent such cross-subsidy might be needed

But at least in the rail sector we have a directive which is based on sound principles, allows for financial constraints and the effect of inappropriate pricing on other modes and which permits full internalisation of externalities on rail when this is achieved for other modes.

Regarding road haulage we are waiting to see if the Greening Transport proposal for Eurovignette to allow charges to internalise costs of congestion, local air pollution and noise will be accepted. Even then, the charges would be constrained by ceilings which are below the measured costs in many cases, and there is no proposal to internalise accident costs. These might be appropriately handled through insurance systems if all external costs were charged to the insurance company, and if insurance premiums were adequately differentiated according to distance travelled and risk involved, but neither is the case at present.

For the moment levying charges on HGVs is not compulsory, although the Greening Transport proposals state that this will be reviewed in 2013. The reason for not making them compulsory is said to be that systems may not be worth the cost of implementing them in member states where externalities are not a big problem. But there seems no reason why a simple kilometre based charge reflecting the average level of externality levied by means of a tachograph should not be compulsory, as it is cheap to implement. More sophisticated pricing systems could be permitted, on the basis that they will only be introduced where the benefits justify the costs.

At the same time as tackling these charging issues, better enforcement of safety and social legislation is needed. Again, the enlargement report is forceful on these issues:

“Road freight operators, particularly in the Old Member States, may face unpredictable and multi-technology systems of road charges... Member States and the Commission should focus more on uniform application of existing standards and cooperation in checking and enforcement.” (Rebel Group, 2007)

Elsewhere in the transport sector progress is even slower. Charging cars for their externalities is seen to be a matter for member states, but it is more efficient and more acceptable to implement heavy goods vehicle charges as part of a national road pricing scheme as is proposed in the Netherlands. On air and water, even the charging of value added tax and fuel tax to reflect greenhouse gas emissions is yet to be achieved. It is understood that as these are international modes of transport, progress towards complete internalisation is dependent on international organisations, but this is no reason why progress should not be made on traffic within Europe. The inclusion of air transport in the emissions trading scheme is at least a step in the right direction.

5.4 Financing and Investment in Infrastructure

The third key policy action in the 2001 White Paper was financing the removal of infrastructure bottlenecks and the completion of the trans-European networks. We referred above to the need to ensure funding is available for economically justified investments. But we are far from convinced that the current approach to trans-European networks is making the most efficient use of the money made available. EU priority projects are not always justified by traffic forecasts and economic benefits. Projects are put forward by the member states seemingly without clear justification or appraisal. The projects put forward to date have a heavy emphasis on very expensive new construction and particularly on high speed passenger lines. Whilst these may be justified where traffic density is high, there is evidence that many of the projects currently being put forward are poorly analysed. Furthermore higher priority should be given to smaller projects generating a major capacity increase in the network.

Particularly when externalities are taken into account, there is a strong argument for more priority to be given to rail freight. Sometimes new high speed passenger lines may be the best way of achieving this, where the key problem is conflicts between high volumes of passenger traffic and freight, and freight can then be given priority on the existing lines. Sometimes – but rarely according to research projects such as FUNDING – the solution may be new freight lines. But most often what is required is a more appropriate allocation of paths on existing lines (and appropriate charging for scarce capacity could help here) plus investment to increase their capacity and to make freight trains more productive. The length of passing loops, maximum axle loads and loading gauge are major constraints both on the capacity and the productivity of the rail system for freight. Moreover, these are factors where inadequacies in one country have widespread effects in that either international freight trains have to be reformed at its borders or they run at less than maximum productivity through all countries. Thus there is a strong community interest in overcoming their inadequacies.

Measures to increase interoperability may help the development of competition and, in the long run, provide major economic benefits. For instance the widespread use of the ultimate generation of the European Train Control System (ETCS) should increase capacity, reliability and safety whilst reducing the cost of signalling systems as line side signals are no longer needed. But the best migration path to get there is difficult to achieve, and there is a risk



of heavy upfront investment with little benefit until other lines and the relevant rolling stock are also equipped. This is an area particularly in need of thorough analysis and well thought through strategies.

In Central and Eastern Europe, investment in transport infrastructure is heavily funded through EU regional and cohesion funds. These appear to be particularly subject to problems, in that the Commission funds up to 80% of the cost, giving limited incentive for the countries involved to design the most cost-effective projects and to implement appropriate pricing policies (de Rus and Pilar Socorro, 2009).

On the other hand, the matching funding still absorbs a lot of the limited domestic resources of these countries. Reform of these funds seems an urgent priority and needs to reflect the long and complex project preparation and implementation cycle of railway projects which on average is eight years. The experience of the World Bank, in moving from funding individual projects to funding whole packages for railways, including reform and restructuring, pricing, rehabilitation and investment may have useful lessons. These could include regional project facilities encompassing more than one country, thereby reducing the problem of lack of coordination along corridors. The emphasis in the recent green paper on the trans-European transport network policy on the need to look at networks rather than priority projects is a step in the right direction.



5.5 Vision for the Future

So what then is our vision for transport in Europe in the next decade?

In the rail sector, we see the emergence of a small number of strong groups of rail operators competing in international freight and/or passenger markets. It remains the case that it is generally easier to compete in international markets by forming alliances with operators in each country, or by setting up or buying subsidiaries in those countries. Therefore co-operation as well as competition must be expected to remain part of the pattern, and this is particularly important where there are strong network effects, as with wagonload freight services and connecting passenger services. The international prominence of the DB group and its alliance partners is a model for this, but it would be worrying if other such groupings did not emerge. In the passenger sector, there are already strong international companies such as Arriva and Veolia who specialise in operating rail services under franchises and we expect these to grow and others to emerge. Within national markets there will continue to be an important role for smaller operators specialising in niche markets. Whilst appropriate pricing of competing modes is important, as important is the continued improvement of the quality and efficiency of rail systems, supported by appropriate but not wasteful investment.

Road transport will inevitably continue to grow and more investment in road infrastructure will be needed, but hopefully it will be part of a package involving appropriate pricing and investment, rather than being based on a 'predict and provide' philosophy. Air and water transport should also be more appropriately priced to remove artificial tax advantages and charge for externalities, leading to the development of more efficient cleaner technologies and more economically efficient patterns of use.

What should be the priorities of the Commission in seeking to achieve this vision?

Firstly, in the rail sector it needs to monitor developments, ensure the existing legislation is fully implemented and research and disseminate best practice. Full implementation must include the provisions regarding compensation for social obligations and financial

equilibrium of infrastructure managers as well as non discriminatory access to the market. Further legislation to solve remaining problems may be needed, but this should be carefully thought through as a result of experience with the existing approach rather than rushed.

Secondly, the Commission should continue to press for legislation to require full internalisation of externalities in all modes of transport, using simple pricing technologies to achieve approximations to optimal pricing where more complex systems would be too expensive.

Thirdly, it needs a major reform of the way it encourages and finances investment in transport infrastructure (and especially the use of regional and cohesion funds), to give appropriate incentives to member states to implement efficient packages of pricing, structural reform and investment.

It should be emphasised that the Commission's policies should be seen as a package: they will fail to achieve their objectives unless they are all implemented simultaneously with equal vigour. New entrants will not be attracted on to run-down rail networks with high infrastructure charges and subsidised competition from other modes whatever is done to liberalise entry. A failure to charge heavy goods vehicles for their external costs will affect rail market share both directly, and by failing to provide the funds to invest in environmentally friendly modes such as rail.

To a large extent, then, we see the policy for the next decade as a continuation and extension of that of the last, with an emphasis on achieving full implementation of the policies. But there remains doubt as to whether that alone will tackle the issue of achieving a sustainable transport system in the face of the threat of global warming. In a recent paper (CEC, 2009c) the Commission has suggested that the transport sector should aim to cut its CO₂ emissions by 50% from their 1990 levels by 2050. In pursuit of this, the Commission sees technological change on other modes (widespread use of electric cars, biofuels for aviation, and so forth) as key measures. But it will be difficult to achieve any of these developments without attention to transport pricing and the incentive of a much higher price for the use of carbon-based fuels. That must in turn imply a growing role for rail in the markets at which it is most efficient – long-distance and bulk freight, commuting into big cities, medium-distance transport between major cities. The need for the next decade is to prepare the railway for this role by using increasing competition and carefully targeted investment on a major scale to raise rail productivity and quality of service.

Table 5.1 EU rail modal share of freight (ton km %) in 2020

Base (1.8% p.a. productivity growth)	19.2
Full internalisation at upper limits of handbook estimates of costs	24.1
Full internalisation plus 0.9% p.a. higher rail productivity	30.5

Source: IWW/Nestear (2009)

A recent study by IWW and NESTEAR (Table 5.1) concluded that full implementation of internalisation of externalities at the 'high' values estimated in the handbook on external costs plus faster growth in rail productivity would be capable of raising the 2020 rail share of medium- and long-distance freight from 19% of the road and rail freight market without these measures to 30% with them. This finding best sums up the sort of impact we believe that a well thought through and fully implemented European transport policy along the lines we have put forward in this paper could have.



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ABBREVIATIONS

CEC	Commission of the European Communities
CEE	Central and Eastern Europe
CER	Community of European Railway and Infrastructure Companies
CO₂	Carbon Dioxide
DG TREN	Directorate General - Energy and Transport
ECMT	European Conference of Ministers of Transport
EEA	European Environment Agency
EIB	European Investment Bank
ERTMS	European Rail Traffic Management System
ETCS	European Train Control System
EU	European Union
EU12	The 12 new member states: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia, Slovenia.
EU15	EU member states before 2004
EU27	EU15 + EU12. Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, the United Kingdom.
HGV	Heavy Goods Vehicle
HLG	High Level Group
IFIs	International Financial Institutions
IM	Infrastructure Managers
ISPA	Instrument for Structural Policies for Pre-Accession
ITF	International Transport Forum
ITS	Institute for Transport Studies
LEFT	Leeds Freight Transport Project
ORR	British Office of Rail Regulation
P2W	Powered Two-Wheelers
PSO	Public Service Obligation
RDC	Railroad Development Corporation
TEN-T	Trans-European Transport Network
UIC	International Union of Railways
UK	United Kingdom

