

# THE REGIONAL IMPACT OF HIGH SPEED RAILWAYS IN N.W. EUROPE

Roger VICKERMAN  
Professor of Regional and Transport Economics  
University of Kent  
Canterbury - UK

## INTRODUCTION

At the core of the plan for a European high speed railway network is the so-called PBKAL network, linking Paris-Brussels-Köln-Amsterdam and London. This will provide a major new transport network at the heart of the capitals region of Europe. The international character, and the way it will link major cities of world ranking, makes this network substantially different from existing high speed routes in France, Germany (or Japan) which typically link cities of different ranks and aim to increase the accessibility of lower rank cities to and from the major centres.

This paper focuses on the impact on three regions within the core of the PBKAL, Nord-Pas de Calais, Kent and Hainaut. It addresses two specific problems. First, the distribution of the economic impact will be disproportionate between the major conurbation centres at the ends of the network and the intervening regions. This is especially true for the three study regions which are border regions within the European Community. Secondly, the density of population in these regions imposes high environmental and construction costs. These problems have already delayed the decisions on routes for certain key links in the network in the UK and Belgium. Given these implicit redistributive effects we also need to consider an appropriate means of financing the network.

The paper has three main sections. In the first we outline the plans for the high speed network, and how these have been dealt with at the regional level. In the second we examine plans and prospects for regional development in the regions, together with an assessment of the extent of development response to date. The paper concludes with an assessment of the implications for financing the investment in this network.

### 1. PLANS FOR THE NETWORK

#### 1.1 The PBKAL Network

The proposals for the PBKAL network lie at the core of linking together the various plans for high speed rail transport in Europe. There are several significant issues in this. This is the first case where a new high speed line will require technical coordination, joint development and compatibility of rolling stock between different national rail systems. The core phase of PBKAL is, however, a purely French project, TGV-Nord, based on three links joining together in Lille. These involve a core link Paris-Lille, a link from Lille to

Calais, providing a connection to the Channel Tunnel and a short link to the Belgian frontier, a total of 330 km. As Figure 1 shows, it is the total system with its international links, including the London-Brussels link, which generates sufficient traffic to make the TGV-Nord project viable. This phase will be complete by early 1994.

The next stages of PBKAL are the links from the French border to Brussels and London respectively. These have been beset by delays. The Lille-Brussels section should open in 1996 and the link to London may not be complete before the early years of the next century. However, trains will provide through services using the existing networks in Belgium and the UK, although this will require multi-voltage trains and smaller stock to cope with the more restricted British loading gauge. Lille has the potential for becoming a major interchange point between international services and trains to destinations all over France, using the Paris Interconnexion.

The remaining stages involve the links beyond Brussels to Antwerp, Rotterdam and Amsterdam and to Liège and Köln. The latter will link to the proposed Köln-Frankfurt Neubaustrecke and hence into the German ICE network. The mix of new and upgraded track to be used and final decisions on investment remain to be taken for these links.

The significance of this network is that it joins together the main conurbation centres in the core region of North West Europe, the so-called European Capitals region. With a total population of 87 million, this entire region contains over 25% of total EC population and well over 30% of its GDP. Since the maximum distances involved are of the order of 700 km, with average distances nearer 400-500 km, implying possible rail journey times of less than 4 to 4½ hours, the network is ideal for a rail based system. There is also scope for development of feeder routes, to the four major airport complexes of Europe, London, Paris, Amsterdam and Frankfurt, as well as for diverting shorter distance traffic from air to rail.

## 1.2 The Planning Framework

Although the PBKAL network is of such obvious strategic significance, a significance confirmed by recognising the "Capitals Region" as one of the macro-regions of Europe for regional planning purposes (CEC, 1991), detailed planning for the network has been left to the national level. Supra-national coordination has been only consultative. Thus the decision and detailed routing for the French TGV-Nord was published as early as October 1987 as an accompaniment to the Channel Tunnel. At that stage there was a commitment to a high speed line from Lille to Brussels (and beyond), but no firm plans, and a clear statement that no such high speed link was needed in the UK.

In France the project is financed entirely by SNCF on the basis of an estimated financial rate of return of 12%. Agreement was reached on a revision to the routing in Lille to enable the line to serve a new central railway station. The cost of this has been borne by the local authorities (and the French government through a Contrat de Plan) rather than by SNCF. Agreement was not, however, forthcoming to divert

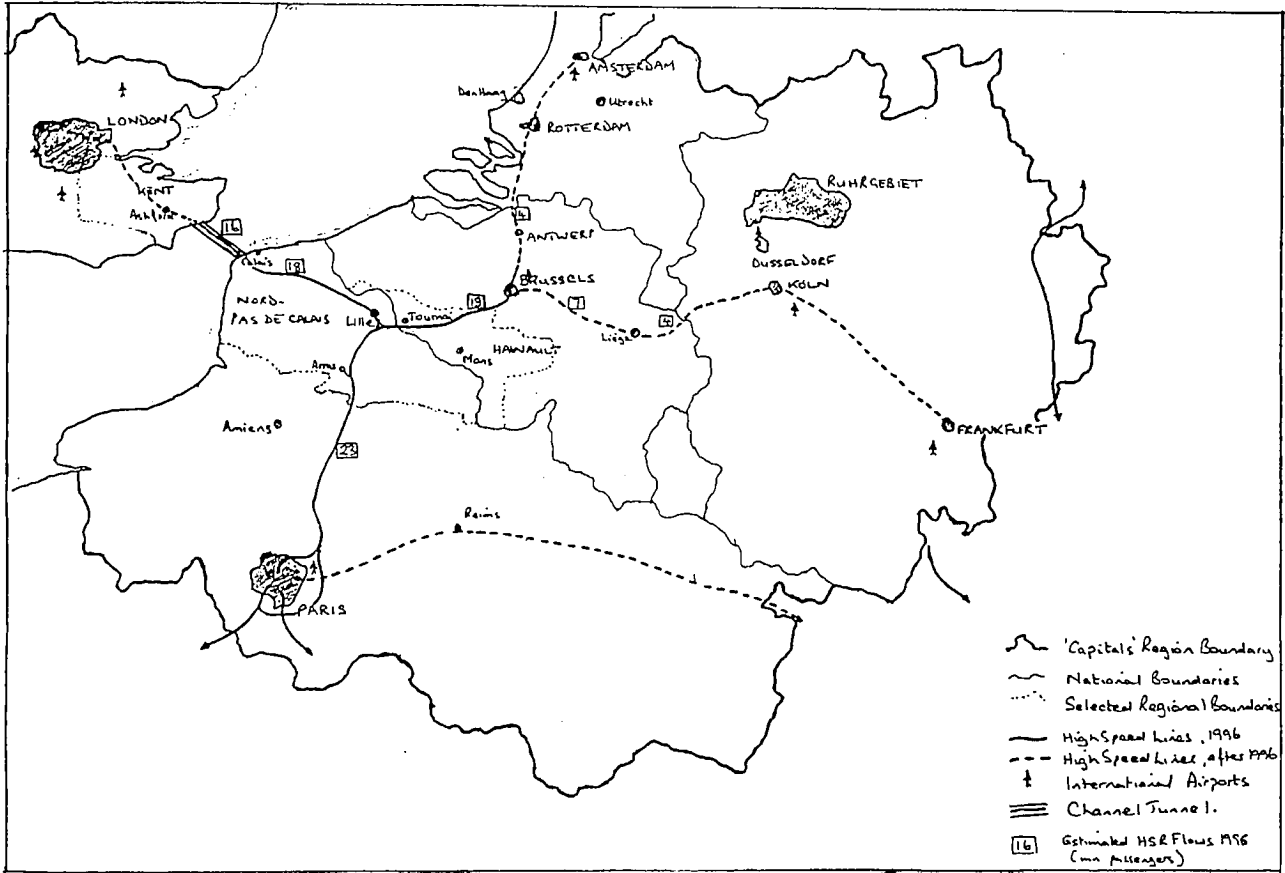


Figure 1 The European Capitals Region and High Speed Rail Lines

the line to serve Amiens since the time penalty and loss of revenue potential would have been too great for through traffic. A commitment to incorporate a direct Paris-Channel Tunnel TGV-Picardie in the Schéma Directeur for the TGV network has been made, although the projected rate of return on this of 4.8% is too low for it to stand a chance of being built in the foreseeable future.

In Belgium the issue was complicated by the plan to run trains non-stop from Lille to Brussels, which thus conferred no advantage on the intervening region although it would have to suffer the costs of environmental damage, intrusion and noise. Moreover, intermediate cities such as Mons which currently enjoy international rail services may lose these in the future and would need to access the network via Lille or Brussels. There were also difficulties between the Flanders and Wallonia regions of Belgium over the route over their territories. Further problems arose over the development of a new station for TGV services in Brussels. Although these difficulties have been resolved, this has led to a delay to at least mid-1996 before high speed services can operate in Belgium. This delay has also necessitated electrification of the existing line from Lille to the Belgian frontier to enable TGV trains to access the Belgian network.

The saga in the UK is even more convoluted (Holliday et al, 1991). Initially the UK government wished to distance the Channel Tunnel project from any plans for a high speed line through the environmentally sensitive region of Kent. Sufficient capacity was thought to be available on the existing rail network due to a long term decline in the volume of London commuter traffic. Through trains can operate between London and both Paris and Brussels from the opening of the Channel Tunnel. Upgrading of the track to increase capacity and allow 160 km/h operation is being undertaken and a new International Rail Terminal constructed at London's Waterloo Station.

By 1988, it became clear that a rapid increase in commuter traffic was making the issue of capacity critical. Although the distance in the UK (about 110 km) made time savings from high speed operation less significant than in France, the lack of capacity could seriously affect both average speeds and reliability. A new high speed line was proposed, coupled with a plan to construct a second international terminal at King's Cross Station in London. This would enable both through operation of international services to provincial destinations in the UK and easier interchange between international and national services. A by-pass solution, similar to the Paris Interconnexion, is less feasible in the UK for reasons of both geography and economics, although the potential for serving airports is similar.

Four alternative routes were proposed for consultation. Although there was a general acceptance of need, all posed problems for a densely populated and environmentally sensitive region. This led to a rapid escalation in costs, which reduced the rate of return to well below BR's required 8%. Since the 1987 Channel Tunnel Act prohibited the use of public money to subsidise international rail services (seen as a potential hidden subsidy to the privately financed Tunnel), the government refused to finance these increased costs. It argued that

the benefits would accrue to the users of the new line who should therefore meet the full costs of environmental protection. BR failed to find a joint venture private sector partner for its chosen route if no direct public investment were to be available.

BR was required by the government to rethink its proposals and to consider two alternative schemes. These were held to be financially viable because they were for the development of a joint passenger and freight line. Lower passenger traffic and revenue from a slower and more circuitous route and the higher construction costs of a line engineered for freight trains would be outweighed by the additional revenue from freight. The UIC loading gauge, would enable conventional continental rail wagons to reach a major terminal in East London at Stratford. BR schemes had been for a pure passenger high speed line, with freight continuing to use the upgraded existing network.

Although BR continued to prefer its original route, the Government announced in October 1991 that it had chosen instead a more northerly route based on one of the private sector proposals. Despite recognising the advantages of the BR scheme on purely transport criteria, including upgrading the regional Kent services, the government's decision was taken on the basis of economic development benefits it was believed would be gained as part of the plans for redevelopment of the Eastern Thames Corridor. The government claimed, however, that the new line was not needed on capacity grounds until around 2005 and that left ample time for necessary detailed planning. This was despite several studies which show that at peak times capacity would be a problem from the opening of the Tunnel.

### 1.3 Regional Issues in Planning

There is a marked difference in the importance of regional considerations in the planning process in the affected regions. In Nord-Pas de Calais the region had lobbied for an early start to TGV-Nord, which was regarded as essential for regional development independently of the Tunnel. TGV was seen here as just one element in a complete planning package, the Plan Transmanche, concluded between the State and the Conseil Régional. This included, in addition to TGV-Nord, electrification of existing lines in the Calais and Boulogne areas and the completion of links to the main TGV line to enable TGV services to all the main centres, and a major road investment programme. As well as Lille, new TGV stations are planned for Arras (to be served by a spur off the main line) and at Fréthun, next to the Channel Tunnel terminal, serving Calais and the coastal region.

In Kent, in contrast, despite attempts by Kent County Council, there has been no formally agreed coordinated planning programme. The Channel Tunnel Joint Consultative Committee, was set up in 1986 to examine the consequences and deal with the routine administrative issues implied by the Tunnel, but this is only a consultative body. The Kent Impact Study, undertaken for the JCC, reported at the end of 1987 and was reviewed in 1991. This emphasised infrastructure needs for the county, but was not able to consider wider regional issues in

the UK which have been largely ignored. The division of responsibilities on infrastructure has meant that, although the county is directly involved in proposals for road schemes, even where these are 100% financed by central government, there is no formal way it is involved in rail projects. These are proposed by British Rail, and vetted by the Department of Transport, both on grounds of rate of return (a minimum 8%) and overall levels of expenditure (BR has a constraint of an external financing limit). The Channel Tunnel Act prevented any special case being made for new international rail links. Any EC funding, such as obtained for completion of the M20 motorway in Kent and various other infrastructure improvements, would also be included in BR's overall external financing limit and thus would be of no direct benefit.

Kent's main concerns were threefold. First and foremost was the need for a firm commitment for an international rail station at Ashford, to be available from the opening of the Tunnel, to give Kent access to the new rail network. Secondly came the need to ensure that international rail services did not impose excessive environmental damage on existing communities, whilst encouraging the transfer of traffic from road to rail. Thirdly, came the problem of avoiding the further deterioration of already poor rail services on existing lines and gaining an enhanced service from the use of capacity on any new line. Such services might be a way of circumventing the ban on subsidy to international rail services. On all of these decisions, however, Kent could only lobby, it had no direct voice in the decision making process and no means by which it could contribute to the financing of the improvements.

This was particularly seen in the developments over the Ashford International Station. Despite firm commitments by all parties, no plan has yet been finally approved and it is unlikely that a station will be available for the start of Channel Tunnel services. The government has rejected BR's own plans for a station consistent with its high speed line proposals for the Ashford area and has indicated a budget figure of £18 million, which is unlikely to provide a station which is fully integrated with the existing station and rail system.

In Belgium, the plans for the high speed rail routes were also taken at the national level and there has been a strong attempt by Wallonia to gain recognition of the regional problems. These are particularly focussed on the west and central part of the region, since the eastern part would gain from the integration of Liège into the network. Cities such as Charleroi and Namur will need to access the network in Brussels and gain little in journey time and lose in cost since the longer journeys will be more expensive. Mons will gain access via Lille, which will be a longer journey than at present and again at higher cost. Compared with Nord-Pas de Calais where attempts to avoid the concentration of all the benefits on one or two centres by allowing TGV trains to serve destinations off the new line, the Walloon towns would lose out, and this is particularly true of Hainaut as the westernmost province of the region.

A proposed regional response has been through upgrading of the Walloon dorsal rail route across the region from Tournai to Liège. As in Kent, the lack of direct access benefits from the new links have focussed attention on achieving the maximum environmental safeguards in the region.

A basic conclusion from this section is that only where there has been a direct regional input into the planning process, in Nord-Pas de Calais, have significant direct benefits from the proposed high speed rail network been gained for the region. In both Hainaut and Kent the direct impact of the line is likely to be seen as negative, with insufficient compensation from those actually benefitting.

## 2. REGIONAL DEVELOPMENT PLANNING

It is clear that high speed railways do not, of themselves, create major regional development benefits. Such benefits will only come from accompanying policy measures which serve to validate the improvements in accessibility conferred by the new network. These measures are of two main types, investment in the regional transport infrastructure, which links to the main network, and investment in other business related infrastructure.

### 2.1 Regional Transport Investment

The problem of new high speed railways is that they do emphasise the main access points at the potential cost of other locations in the region. To some extent the French TGV network has overcome this by TGV serving major centres off the new network, including where necessary the electrification to enable this (e.g Lyon-Grenoble). The rather different, less centre dominated (at least prior to unification), urban structure of Germany also allows for this, although ICE services are being concentrated on those routes (Hamburg-München via Frankfurt or Würzburg) where they can take maximum advantage of the NBS. It is, however, not just a case of the high quality inter-regional services giving direct access to lower order urban centres, but of upgrading the intra-regional network to give all centres an enhanced access to the main access points. Furthermore, the provision of good urban transport links to new stations in larger cities is important to validate economic developments which might derive from the improved accessibility. If high speed rail is to divert traffic from alternatives such as air and car then it must be able to be seen as part of a complete door to door transport system.

### 2.2 Business Infrastructure

Transport investment is not the only requirement, however. There is a further need for the development of a business environment which receptive to new investment. Studies of the impact of TGV-Sud Est have shown the relative impacts on Lyon-Part Dieu and Valence, where such investment took place, compared to the situation in Montchanin-Le

Creusot or Macon, where it did not (Plassard & Cointet-Pinell, 1986). This was clearly recognised in both Nord-Pas de Calais and Kent where major developments were seen as an accompaniment to the new station developments in Lille and Ashford. The latter was not accompanied by any real investment of public money, but private developers saw the potential advantages and land prices and rents for both industrial and office space increased rapidly.

In Lille, the opportunity was taken to develop a major new commercial centre of the city, to be known as Euralille. This is a joint venture operation of public and private capital, but led by the public sector. This reflects the need for the public sector to provide the strategic commitment to such new development.

Apart from these developments, Kent and Nord-Pas de Calais both saw clear advantages to be gained from associating the attractiveness of the region to business with the Channel Tunnel. Substantial interest in business parks developed over both regions. In Calais, for example, several major sites are being developed, both at the Tunnel terminal and TGV station, and along the Rocade Littoral (see Vickerman, 1992) which amount to around 850 hectares. A similar area of land is available for development in the whole of Kent. Policy emphasis has been on replacing the lost jobs in the mining and ferry industries in East Kent, but the lack of public sector financial investment has made it difficult to secure private sector interest away from Ashford or sites nearer to London in West Kent, which are seen to have better all-round accessibility.

Thus in both these regions there was a recognition of the need to provide both a validation of the new rail investment by accompanying investment at the major access points to the network and counterbalancing investment at other locations to avoid intra-regional problems of increasing concentration on focal points such as Lille and Ashford. Such a choice was not open to Hainaut, where the policy choice has been the extent to which the province needs to align its economic fortunes with that of the Lille metropolitan region in the west or Brussels to the north.

### 2.3 Development Response

In view of the centrality of these regions, especially Nord-Pas de Calais, to the core of the new network and to the wider capitals region of Europe, and the degree of interest in the development of the Channel Tunnel at the core of this system, it would be expected that considerable investment had taken place in the regions. In practice, however, the achieved investment has been extremely small (see Vickerman, 1992, for a more detailed discussion). The question is, therefore, why is this so?

There are clearly some macroeconomic reasons for this. The period from the commitment to the Tunnel and TGV system in late 1987 has been dominated by recession. This has particularly affected UK companies, who are also amongst the major investors, especially in the property sector, in Nord-Pas de Calais. The early promise reflected in the



property market up to this date has not been maintained. An element of uncertainty has also surrounded the transition to the Single European Market, which should be of considerable significance to these border regions. This has clearly led to some holding back in investment decisions in several sectors until a clearer picture of the final shape of the Single Market is known.

However, it is also clear that investors have not been convinced by the relative advantages of these regions vis à vis competing regions. Competition comes from three other types of region: the nearby major metropolitan conurbations, the newer technopole or motor regions of Europe which lie outside the capitals region such as Rhône-Alpes or Baden Württemberg, and the peripheral regions which offer lower input costs, and greater regional incentives (Vickerman, 1991).

The current economic situation of these regions clearly does not reflect their apparently favourable location. All three had per capita GDP below the average level for the EC as a whole in 1988, 97% in the case of Kent, 88% in Nord-Pas de Calais and 78% in Hainaut. Unemployment in Kent in 1990 was somewhat below average at 3.9%, that in Nord-Pas de Calais was 11.8% and in Hainaut 13.1%, but the situation in Kent has deteriorated markedly since then and the unemployment rate has more than doubled.

Industrial development in Kent has been negative over the period 1986-91 in that more sites have been vacated than new sites developed. Although planning permission was sought on new sites exceeding the Structure Plan guidelines of 885 ha by 20%, only 36% of this development was actually committed. The 1991 Kent Impact Study Review similarly scaled down the estimated employment gains expected from the Channel Tunnel and associated development from the 12,900 forecast in 1987 to just 1,960. Growth of new employment was expected to be lower and a the loss of jobs from traditional port and ferry industries much larger than earlier. Figures on business failures in Kent also show these to have risen from 352 in 1989 to 559 in 1990 and 991 in 1991, the highest figures in the south east region.

A similar lack of interest has been shown in Nord-Pas de Calais. Both the Euraille Metropole and the major business park planned for the Tunnel terminal near Calais have shown low rates of take up. In Lille the problem of inserting new expensive office space in a city with substantial available space at much lower rents has delayed the major project for the new TGV station, where the accessibility advantages have been insufficient to outweigh the cost disadvantage. The only area of success has been the Dunkerque Enterprise Zone where a wider range of inducements and benefits is available.

Thus we must conclude that these centrally located regions show little evidence of attracting major new development in advance of their improved accessibility, even where substantial accompanying investment is taking place. Even where there are good opportunities to create major new transport nodes, such as in Lille, it is proving extremely difficult to compete business away from locations in the major metropolitan centres. If Lille is to move to a higher order and become a major European business centre, there is little sign of this

occurring before the commencement of TGV services; business is at best playing a wait and see game.

### 3. APPRAISING AND FINANCING THE NETWORK

Since the development of the high speed rail network appears not to be conferring economic advantages on the regions it passes through, and may be imposing costs on them, the final question is how to appraise the investment to reflect this and thus how best to finance the network. Of course no real decision has been taken about the network as such. Separate decisions have been taken on each element of the network; first the Channel Tunnel, to be financed purely privately, then TGV-Nord on the basis of SNCF's evaluation that it would achieve a viable rate of return in excess of 12%, the remaining links in Belgium and the UK have then been subject to separate national decisions. Two factors stand out, first the use of the territoriality principle in which each state is responsible for that part of the network built on its territory, secondly the use of different evaluation procedures.

#### 3.1 Territoriality

The problem with territoriality is that it fails to recognise a network as a complete whole, with important implications for regions other than those directly concerned, even where recognition of the regional economic impacts of new infrastructure is included. Hence, a strong campaign was made on the part of Nord-Pas de Calais for the completion of TGV-Nord in its own right, given the perceived economic advantages to the region. No consideration was given to the impact on neighbouring Belgian regions, nor indeed to the neighbouring French region of Picardie.

In practice this was not of great importance in the decision given its viability without considering wider socio-economic impacts. The only element which was subject to this was the choice of route through Lille which has been financed separately. However, it is clear that this financial viability arises from international traffic. SNCF's current predictions are summarised in Table 1. These suggest that less than 40% of traffic on the Paris-Lille axis is domestic. In Belgium and the UK, where the links are not viable on pure financial criteria, this proportion is likely to be much lower (zero in the Belgian case and dependent on provision for commuter traffic in the UK).

The forecasts emphasise the importance of capital to capital traffic, at just over 50% of all traffic, and that traffic to beyond the three capitals is likely to be modest reflecting the difficulties in competing with air over longer distances. BR's forecasts, although rather lower in total than those of SNCF, at around 13.4 million for the UK-Continent traffic, suggest that 43% of such traffic is for London and a further 25% for the rest of South East England. Over 70% of forecast traffic would access the network in London, about 14% would use Ashford and the remaining 14% through services which would only capture 50-60% of more distant regional traffic. Despite the

Roger VICKERMAN

forecast of considerable growth in Lille traffic, likely traffic flows over the 110 km to Brussels are still forecast to be only 15% or so of those over the 220 km to Paris.

Table 1 Traffic Distribution and Predictions

French domestic services	France-Belgium services	UK-Continent services
Paris- Lille 51%	Paris- Mons,	UK- Paris 55%
- Dunkerque,	Brussels 58%	- N. France 11%
Calais etc 19%	- S. Belgium 5%	- Brussels 19%
- Douai,	- N/W Belgium 6%	- Germany 9%
Valenciennes 16%	- Holland 8%	- Holland 6%
- Arras 14%	- Germany 13%	
	Lille- Brussels 10%	
Total (mn pass/yr) 8.65	6.25	16.50
Increase 63%	74%	312%

Note: Paris refers to traffic to and from Paris and French regions other than those North of Paris.

These figures demonstrate clearly the potential distortion from not taking into account the wider impacts of the new network.

### 3.2 Evaluation Procedures

The principal concern here is the distortion caused by using different appraisal procedures, including the use of private finance, for different parts of the network. Although SNCF and BR use similar financial rate of return guidelines for appraising new investments, the effects are different due to different accounting practices and the constraint on BR of its external financing limits. BR is neither as free to borrow the money required on the markets nor to invite local authorities to contribute to the costs of a development in which they have a vested interest.

The plans in the UK have been distorted by the impossibility of treating a project which is potentially worthwhile in the long run on the basis of its wider economic benefits as an investment. The financial return must be virtually certain from the outset and any subsidy is regarded as given principally against short run benefits.

The network as a whole is also distorted by the fact that the UK link involves use of a private infrastructure, the Channel Tunnel. This clearly imposes a greater financial burden on UK traffic, given the higher cost of this infrastructure which cannot be avoided. However, the concern of the UK government has been not only not to subsidise the rail services, but particularly not to allow any such finance to be seen as a subsidy to Eurotunnel. This has wider economic

consequences for the UK and particularly for Kent as the region most directly affected which have not been assessed.

### 3.3 Conclusions

Both of these elements of concern over financing suggest that where international infrastructures, or indeed any infrastructures which have major implications for inter-regional balance, are concerned there needs to be greater coordination of planning and appraisal. In this case direct involvement of the European Community would have been beneficial, since the EC has in any event been called on to provide finance for competing road investments in all the affected regions. The EC has identified this network as one of the key rail developments for building the Community's infrastructure. As we have seen, both in terms of traffic and the apparent wider economic impacts of the network, the distribution of costs and benefits has clear inter-regional distributional implications. This is not so much a plea for Community financing of the network, likely traffic levels will make this largely unnecessary if the network were considered as a whole, but for Community level planning and evaluation. Only in this way is it likely that those suffering the costs and not the benefits can both have these demonstrated and hope to receive adequate compensation from those who do benefit, wherever they may be. It also would make the case for private sector involvement clearer since coordinated investment within an international strategic plan would remove one of the major elements of risk, the likelihood of competing investments.

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