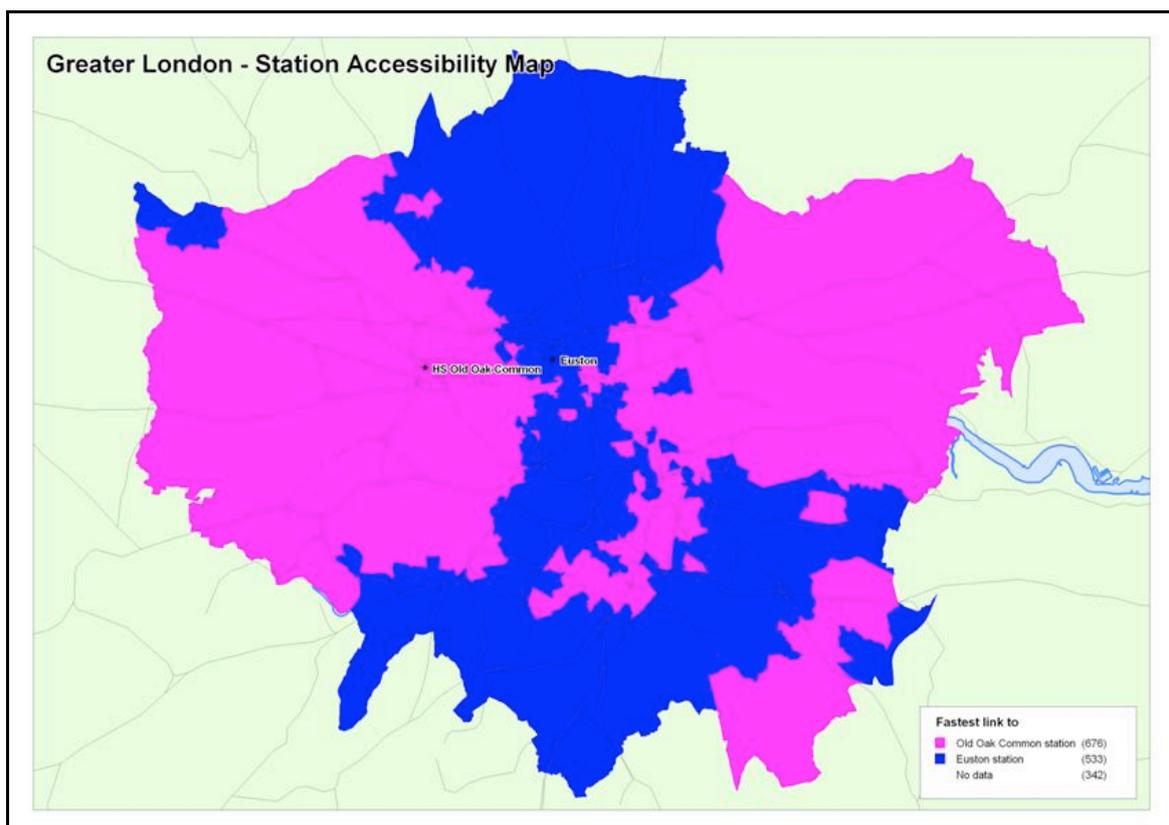


The Transport Economist

The Journal of the Transport Economists' Group



Editor Peter Gordon

Volume 39 Number 1
Spring 2012

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Demand forecasts and appraisal of High Speed 2

Mark Weiner, HS2 Ltd

Arup

26 January 2011

BACKGROUND

Mark Weiner of HS2 Ltd began by explaining that his talk was based on HS2 Ltd's analysis up to March 2010, which was being updated for the preferred route and would be published soon.

HS2 Ltd's original remit from 2009, when the company was established, was to develop a plan for a new line to meet the objectives of passenger capacity, speed and sustainability. The initial focus was on London to the West Midlands, but a longer term strategy to serve the North of England and Scotland was also to be developed. Questions that HS2 Ltd were to consider included how interchange with Heathrow Airport and with Crossrail could be provided, and whether there was a case for an intermediate station, a connection to HS1 or providing capability for freight traffic. HS2 Ltd was to carry out these assessments while being mindful of the local and national environmental impacts.

The characteristics of HSR that are different to other systems are:

- Speed imposes constraints on line curvature and on the numbers of stations
- Very fast acceleration which impacts on design
- High capacity: HS2 will initially handle 14 trains per hour (tph) rising to 18tph as the network is extended, and trains will have up to 1,100 seats, more than double the existing Pendolinos

The recommended HS2 scheme is illustrated in Figure 1: a new line from London Euston via Old Oak Common and Birmingham Interchange station with a spur into central Birmingham and a connection to the West Coast Main Line (WCML) near Lichfield.

Figure 1: HS2 scheme



TECHNICAL REQUIREMENTS AND MODELLING

Requirements for the HS2 model included a balance between broad coverage of national impacts and detailed analysis of localised effects such as station choice and use of released capacity. The models needed to be able to answer questions on the impact of HS2 across the country, the demand (over shorter distances) for released capacity, the location of stations, and how to serve Heathrow and provide international connectivity. The HS2 “model” is therefore a framework of models to address each of the key questions:

- PLANET Long Distance (PLD), national long distance demand
- PLANET South/Midlands, rail “local” trips
- Access to Heathrow Model, a multimodal model of trips to Heathrow for onward international connections

PLD is the main model used and is multimodal, representing rail, car and air demand and three journey purposes, business, leisure and commuting. There are 235 zones, typically at district level, but with some aggregation. Only strategic rail and highway services are modelled, but local rail and highway traffic is allocated to routes by “pre-loads” to capture the impacts of crowding and congestion.

Crowding at a local level is assessed in PLANET South and PLANET Midlands, which model short distance local services in London and Birmingham. These models allow the impacts of released capacity and the local impacts on rail services to be captured.

DEMAND FOR TRAVEL WITHOUT HS2

The base demand forecasts use the elasticities from the Passenger Demand Forecasting Handbook (PDFH), the TEMPRO database of growth factors and SPASM (the DfT’s air forecasting model). They show long distance travel growing over time, particularly to and from London, with 133% growth in rail trips to central London from Birmingham between 2007/8 and 2033, 170% growth from Manchester and 172% from Glasgow. The short distance market shows slower growth, with 40-50% more trips. For the purposes of the appraisal, all demand is assumed to be capped at 2033 levels, the future modelling year.

As Figure 2 shows, there is significant variation in growth across different markets. The higher growth rates are in line with current trends.

Figure 2: Background growth in travel: PLANET Long Distance model

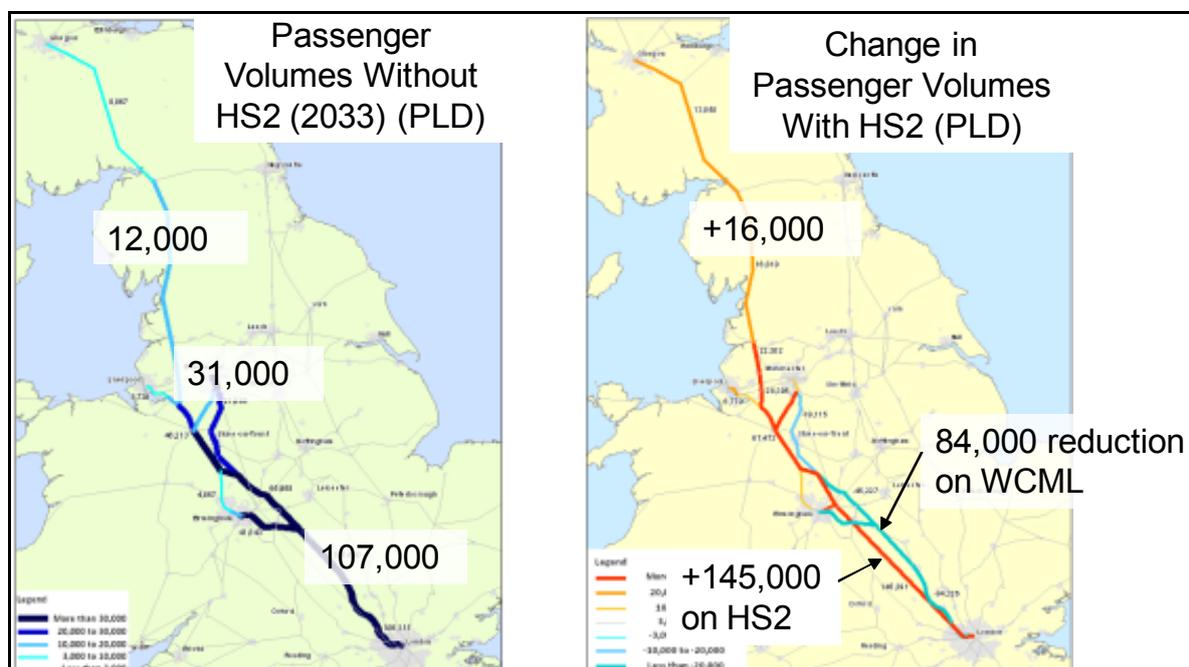
Daily trips	2008 Base Year	2003 Reference Year	Growth 2008-2033
Air	35,000	97,000	178%
Car	4,788,000	6,848,000	43%
Rail	975,000	1,583,000	62%
Rail to/from London	96,000	241,000	151%
Total	5,797,000	8,528,000	47%
Rail London ⇔ West Midlands	20,000	46,000	127%
Rail London ⇔ North West	18,000	47,000	163%
Rail London ⇔ Scotland	4,000	12,000	181%

IMPACT OF HS2 ON TRANSPORT DEMAND

As would be expected, HS2 produces relatively large changes in transport demand because of the journey time, crowding and reliability benefits, which provide incentives to switch mode or to travel more frequently. Of the HS2 demand, approximately 60-70% of passengers were previously travelling on WCML or other long distance trains, 20% are new passengers and 20% are transferring from air or road transport.

Figure 3 illustrates that long distance passenger demand volumes are forecast to double with HS2.

Figure 3: Impact of HS2 on travel demand



Disaggregation of the growth forecasts by region shows that the growth in rail trips to/from London that arises from HS2 is generally less than 60%. The London-West Midlands rail market increases by 26%, London-North West by 33% and London-Scotland by 57%. These figures are not inconsistent with the effects of the WCML upgrade which was 60% growth in the London-Manchester market within 3-4 years. The largest growth, in the Scotland market, arises where there is scope for mode shift from air services due to the time savings from HS2.

BENEFITS OF HS2

The main benefits of HS2 are expected to be:

- Journey time improvements

- Reliability improvements arising because all high-speed trains will operate at the same speed and with fewer junctions
- The relief of crowding on the classic rail network
- The release of capacity on the WCML, which has particular benefits for short distance trips such as commuting into Birmingham and London
- Some decongestion of the road network
- Some wider economic impacts

There are also costs which are captured by the HS2 models:

- The costs of construction and operation
- Environmental costs (not covered in this talk, but will be set out in the forthcoming Appraisal of Sustainability)
- Changes to trip patterns due to changes to classic rail services

The business case shows that transport user benefits and wider economic impacts are expected to be significantly greater than the costs of HS2, with returns of £2.70 in benefits for every £1 spent. However, alongside these figures, the Government must also weigh up the non-quantified positive and negative impacts.

Figure 4: "Transport User" Business Case

	£ billion (2009 present value)
User benefits	28.7
WEIs	3.6
Total (PVB)	32.3
Cost	25.5
Revenue	-15.0
Indirect tax	1.5
Total (PVC)	11.9
BCR excluding WEIs	2.4
BCR including WEIs	2.7

Source: HS2 March 2010 Report

It is difficult to assess in which regions the benefits of HS2 will occur. A location need not be a beneficiary solely because a trip starts or ends there. The greatest benefits relate to trips to and from London, which is unsurprising given the geography of HS2, but generally, the benefits are distributed right along the WCML. Almost half of all benefits accrue to trips starting in London and Birmingham.

Wider economic impacts (WEIs) can mean a wide range of issues to different people, but for the appraisal of HS2 a specific definition was used, according to DfT draft guidance on WEIs, focusing on agglomeration and imperfect competition. Agglomeration benefits arise where firms gain additional benefits from closer proximity. DfT guidance focuses on impacts over (relatively) short distances arising from intra-regional travel and HS2 from London to Birmingham is too long a distance to have a substantial impact. However, the impacts of any extensions northwards would be expected to have a bigger impact as the distances between the cities served may well be within scope of the DfT guidance. Nevertheless, the line to Birmingham is still forecast to deliver agglomeration benefits of £2 billion, mainly due to the impacts of released capacity on the rail network and from decongestion of the road network. “Imperfect competition” impacts add £1.6 billion to the benefits.

DfT guidance on agglomeration is based in intra-regional evidence, so HS2 Ltd commissioned academic research to consider whether there were any additional effects over longer distances. This research concluded that agglomeration may have impacts over longer distances, but the additional impacts are likely to be small and have not been included in the business case so far.

Two further issues explored using the demand and appraisal tools were access to Heathrow Airport and wider network extensions.

HEATHROW AIRPORT

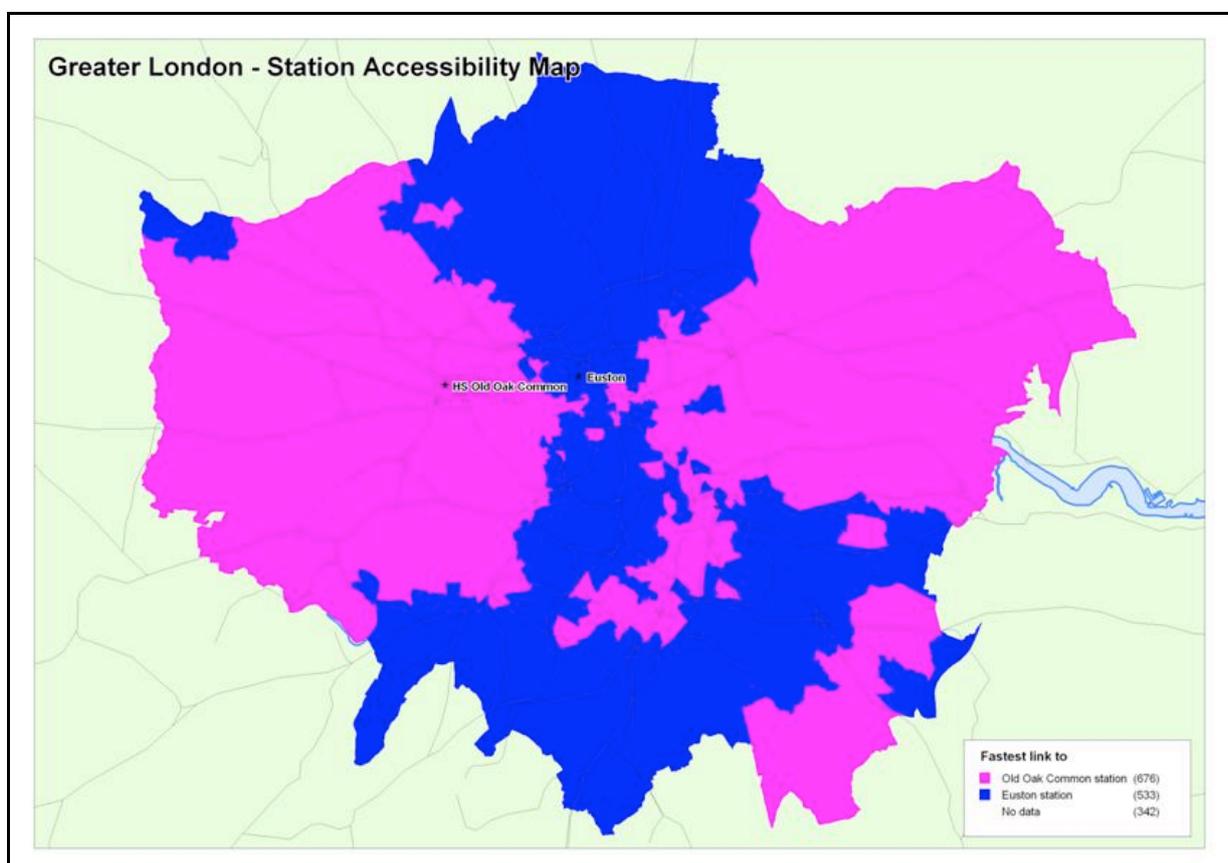
HS2 is forecast to attract 10,000 domestic air passengers travelling to or from London every day. It is well placed for domestic trips, serving a core area of demand in central London, while domestic air travel require interchange and access time to the city centre.

However, HS2 is not so strong for Heathrow access, with only 1,000-2,000 passengers per day forecast to go to Heathrow on HS2. The key reason is that the main market for international air trips from Heathrow airport itself is the South East.

Euston would be the main HS2 station, handling around 95,000 passengers per day, almost 90% of whom would be going to London, the remainder to the East and South East.

Old Oak Common, identified as a more attractive location to access Heathrow, also adds accessibility to the core London market, relieving pressure at Euston. Old Oak Common enhances accessibility for around 30,000 passengers per day via Crossrail, and also enhances links to HS2 for passengers from outside London, via the Great Western Main Line. Figure 5 illustrates which London destinations would most easily be reached via Euston (blue), typically via Northern and Victoria Lines, and Old Oak Common (purple), typically via Crossrail.

Figure 5: Old Oak Common and London access



WIDER NETWORK AND EXTENSIONS

HS2 also modelled three potential longer term networks. The “inverse A” network had by far the best benefit cost ratio (BCR) and the largest benefits, even though it was more costly. The “S” network did not perform as well since beyond Manchester the journey time benefits were eroded. The “reverse E” network provided little benefit to Manchester.

Further work on extending HS2 to both Leeds and Manchester suggested these would provide further benefits. The Manchester extension delivered a BCR of 2.2, similar to the London-West Midlands route. The Leeds extension would be even better, opening up new markets, serving many more passengers and providing much greater benefits. HS2 Ltd now has a further remit to develop a “Y” network and the business case for it.

ISSUES AND CHALLENGES

Mark noted that there has been focused challenge on the HS2 business case and its assumptions, particularly in two areas: the demand forecasts, and the valuation of benefits in the business case.

On the demand forecasts, HS2 Ltd has applied DfT guidance as far as possible within the models to develop its forecasts of the future. There is different evidence on elasticities, such as from PDFH5 and from the ITC report by Joyce Dargay, and these have different points of view on the relationships between economic growth and travel demand. There is no evidence of a slowdown in rail or long-distance travel, and HS2 Ltd considers it is reasonable to apply a cap to demand growth. At the moment, no tools are available to develop genuinely multimodal forecasts of how people move between travel modes over time.

On the benefits, it has been claimed that we should not value all of the time saved by people who can work on trains. However, in practice, it is not simple to handle these impacts in transport appraisal. Changing values of time would also mean changing other factors, such as crowding values, for consistency. There are also negative productivity impacts from people having to stand on trains, which are not currently captured in appraisals, and from people transferring from car to rail. This is an area that needs to be looked at further in the future.

NEXT STEPS

Mark concluded by explaining the next steps for HS2 Ltd. Work is now in hand on preparation for the public consultation, updating forecasts, and expanding the analysis to address concerns currently being raised. A longer-term programme of work is in train to refine the economic case and design of HS2 in preparation for the hybrid bill process, should that go ahead. This programme will also address competition and regulation, and the financial and commercial case will be expanded. Work will also be needed for design of the Leeds and Manchester extensions.

DISCUSSION

Stephen Bennett (Independent) queried the base case assumptions about the capacity of the rail system: what happens to the business case if capacity constrains demand before 2033? Mark explained that there are two issues to be considered in the light of forecasts of increasing demand: choosing between HS2 and alternatives to meet the demand and, if the chosen solution is HS2, whether network capacity will be sufficient in the interim period before HS2 is open?

Chris Nash (ITS Leeds) asked how fares were modelled, given that HS2 would be likely to have a sophisticated fares management system? Mark said that it was assumed that HS2 fares would be the same as future WCML fares, with single average fares modelled for business/leisure/ commuting. This is an area for more detailed analysis in the future.

David Starkie (Case Associates) asked about the assumptions on air fares and their consistency with DfT's published forecasts. **Tom Worsley** (Department for Transport), chairing the meeting, explained that the HS2 business case is not very sensitive to aviation demand. Mark added that the switch from air travel formed around 8% of HS2 passengers.

David Metz (UCL) asked why the Secretary of State is so enthusiastic about HS2: is it based on figures or something else? **Tom Worsley** answered, as this was a DfT policy question. He explained that the Secretary of State forms his views based not just on DfT advisors but also from other experts whom he has asked for their views.

Tim Griffiths (ORR) asked whether, with such good BCRs, HS2 shouldn't have been built earlier, thereby avoiding the WCML upgrade. **Tom Worsley** agreed that that could have been done, but the UK is behind other European countries in developing high-speed rail.

Robert Barrass asked how HS2 fits into the European high-speed rail network. Would passengers have to walk between Euston and St Pancras? Mark explained that HS2 Ltd had examined the case for the HS1 link, as reported in March 2010. Only around 5,000 passengers per day are expected to travel from Birmingham and Manchester to Europe, so it is difficult to make the case for a high frequency service.

Peter Gordon (TEG) suggested that HS2 might be fine for travel to/from central London, but how to model cross-London penalties and connectivity? Mark outlined that the PLANET South and PLANET

Midlands models take account of transfers and how long they take. The network is modelled as it is expected to be in 2016, with no improvements beyond the Crossrail and Thameslink projects.

Dick Dunmore (Steer Davies Gleave) queried the Old Oak Common plans and the operability of the station including dwell times. Mark clarified that Figure 5 is a simplification: the model has a finer distribution of preferences and confirms an improvement in accessibility from Old Oak Common. Engineers had assessed issues such as dwell times.

Jeremy Drew (Independent) asked how much work was done on alternative speeds (rather than the conventional speed comparison which doesn't save enough costs). Is there an intermediate speed option with a better balance that would reduce CO₂ emissions? Mark explained that the impacts of alternative speeds were not modelled as the HS2 Ltd remit was to define the appropriate technical design speed. **Tom Worsley** suggested that the proposed design speed was consistent with European practice.

David van Rest (ex-University of Aston) raised the social consequences of agglomeration, citing the example of the Tokyo-Osaka line which resulted in the best lawyers (etc) moving to Tokyo. Mark acknowledged that economic impacts could be a two-way road, although in France there was the opposite impact, with firms in Lyon expanding into the Paris market, where there was a gap in the market in SME firms. **Tom Worsley** added that the Government is now very aware of this issue and could put policies in place to mitigate the risks.

Dominic Walley (KPMG) commented that clients in local authorities were seeing HSR as an opportunity but rethinking how their city works. To what extent have the opportunities for re-engineering local networks and services to spread the benefits been considered? Where does the responsibility lie? Mark responded that the potential for the reuse of released capacity had been examined and there was more to be done in this area, including looking at responsibilities.

Tim Griffiths asked about the HS2 base case and how much capacity can be obtained from the existing infrastructure? Mark commented that HS2 Ltd had not looked at this as it was not in their remit. **Tom Worsley** explained that DfT had looked at upgrades to the existing network. Some additional capacity could be provided with a good economic return, but to provide capacity similar to HS2 it is very difficult to upgrade the network at comparable cost. As the network gets busier, adding capacity gets more challenging. Experience of the WCML upgrade

demonstrates that it is very difficult to forecast disruption costs, and HS2 has the advantage that it largely avoids disruption apart from at Euston. Capacity on the WCML is probably adequate for the next 10 years.

David Starkie suggested that the BCRs on the longer term networks were interesting but looked high and asked how these had been examined. Mark clarified that the examination of the “A”, “S” and “E” networks was a high-level strategic comparison. It did not particularly focus on connecting different cities as the largest market is to/from London and that is where the benefits lie. Extending HSR northwards changes the context somewhat as it opens up opportunities to use the infrastructure differently.

Chris Nash asked about the proposed Leeds extension, with a published incremental BCR of 25:1. While this might be the fastest way to serve Leeds, might it result in running out of capacity for Birmingham? Mark explained that in order to maximise the benefits to locations across the country, when Manchester and Leeds are served directly it may be necessary to look at optimising service patterns, with some potential need to trade off different places to maximise the benefits of the line.

Nigel Harris (The Railway Consultancy) commented that Eurostar trains are large and inflexible: will the HS2 trains operate at low frequency to destinations such as Liverpool once they are off the HS2 line? Mark explained that the highest capacity trains will operate between London and Birmingham. “Classic compatible” trains will be 200 metres long and could therefore join and split, allowing capacity and frequency to be traded off.

John Dodgson (Independent) asked how HS2 would compare with current services. Mark explained that HS2 services plus Pendolinos still operating to serve intermediate stations would have service frequencies comparable to or higher than those operated now.

Dick Allard (previously Queen Mary College) queried assumptions on airport capacity. Mark clarified that these were based on DfT forecasts, which at the time included Heathrow runway 3 (R3). He pointed out that the air market is not a key driver of the case for HS2, and that removing R3 would have only a small impact.

Bruce Weston (HS2 Action Alliance) pointed out that the demand forecasts have been challenged. Productivity benefits and time savings are the largest single benefit in the business case: is it satisfactory to press ahead on the basis of these benefits?

Mark explained that the implications of different assumptions would need to be examined, and that he would like to publish information on that later. **Tom Worsley** highlighted that there is always uncertainty in forecasting models, and the tendency is for economists to wait for further information before making decisions. However, there will always be uncertainty, and Ministers still have to take decisions, so they will need to be informed on the ranges of results rather than waiting for “final” results.

Chris Castles referred to an ICEA presentation on optimism bias and suggested that HS2 would form a good case study of economic appraisal making the case for a project rather than evaluating it. **Tom Worsley** replied that there have been examples where forecasts have been about right, such as the Victoria Line. There is always risk in forecasting but there is not too bad a record in the profession.

Report by Julie Mills

The Transport Business Case

Gavin Gaunt, Department for Transport

Arup

23 November 2011

INTRODUCTION

Gavin opened by explaining that his presentation had been prepared for, and given to, the Transport Planning Society and the Chartered Institution of Highways & Transportation and might not be ideally suited to an audience of economists. He proposed to speak on three points:

- A quick primer in transport appraisal
- The Coalition Agreement and DfT Business Plan
- Decision-making reforms in 2011

A QUICK PRIMER IN TRANSPORT APPRAISAL

Transport presents a challenging environment for appraisal and decision-making. Many people are affected in many different ways, entailing complex trade-offs for decision-makers. In addition many different schemes – rail, road, bus and smarter choices – vie for the same funding pot. Hundreds of promoter bodies submit business cases to DfT and demand consistent treatment.

These challenges shape the way appraisal is carried out. DfT routinely appraises a wide range of impacts and has rigorous approaches for qualitative and quantitative, social, economic and environmental impacts. DfT publishes detailed guidance (WebTAG) to ensure consistency between promoters, modes and options. New guidance is independently reviewed and consulted on before becoming definitive.

The New Approach to Appraisal (NATA) was developed for the 1998 Roads Review of a programme of hundreds of schemes. “A New Deal for Trunk Roads in England: Understanding the New Approach to Appraisal” introduced it as “*A clear and open framework to appraise and inform the prioritisation of proposals.*”

The key innovation was the development of the Appraisal Summary Table (AST), a structured framework for considering pros and cons. Impacts were appraised against the Department's five strategic objectives. NATA was used by Ministers to reduce the hundreds of road proposals into the set of 67 that became the Targeted Programme of Improvements. NATA was later augmented to support the Multi-Modal Studies programme.

Gavin presented an example of an AST from 1998, reproduced as Figure 1. More recent versions used a seven-point scale in place of "moderate -ve" and "moderate +ve" but were, he felt, now rarely as clear, with much more text and smaller fonts. He drew attention to the gross cost top right, with the PVC bottom right taking into account indirect tax revenue effects, and the low prominence given to the Benefit to Cost Ratio (BCR) in the bottom right hand corner.

THE COALITION AGREEMENT AND DFT BUSINESS PLAN

Shadow Ministers had taken a keen interest in NATA and reflected this in their plans. In coalition, they had said that

- We will reform the way decisions are made on which transport projects to prioritise, so that the benefits of low carbon proposals (including light rail schemes) are fully recognised.

Gavin highlighted "*the way decisions are made*" but noted that this was not, in itself, a statement about appraisal.

This became a commitment through the DfT Business Plan 2011-2015

- | |
|---|
| vii. Reform the way transport projects are assessed and funding prioritisation decisions are made so that the benefits of low carbon proposals are fully recognised |
| a) Review and revise DfT guidance on appraising transport projects |
| b) Review and revise DfT processes for assessing schemes and supporting Ministerial decisions |

Figure 1: example of an Appraisal Summary Table (AST)

A556 (M) M6-M56 Link (GONW)		1996 scheme - 10.5km D2/3 new motorway		Cost £100m
PROBLEMS				
48,000 vpd with 20% HGVs. Long delays at junctions and unreliable journeys for much of working day on sub-standard S4 link between two motorways. Poor environment for communities along road. Congestion causes diversion on to unsuitable roads. Accident rate significantly above average in places.				
OTHER OPTIONS				
On line improvement or toolkit measures would not solve congestion or relieve problems in Mere and Bucklow Hill. Rail park and ride at J19 of M6 has been considered but would not offer some economic or local environmental benefits. Downscaling to D2 with changes to Side Roads Order is an alternative option. Improved M6/M56 interchange at Lymm would lead to longer journeys.				
CRITERIA ENVIRONMENTAL IMPACT	SUB-CRITERIA	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
	Noise	Scheme takes traffic out of Mere and Bucklow Hill. 59 properties would experience significant increase in noise without scheme.	No. properties experiencing: - Increase in noise 13 - Decrease in noise 73	60* properties experience net decrease in noise
CO ₂ tonnes added 0 - 2000	Local air quality	Air quality improved with the removal of heavy traffic flows from existing road. Deterioration in air quality on new route as PM ₁₀ levels increase by 2µg, NO ₂ levels increase by 2 ppb and the NAQS NO ₂ objective is exceeded.	No. properties experiencing: - improved air quality 91 - worse air quality 0	-155 PM ₁₀ * -800 NO ₂ *
	Landscape	Moderate adverse impact with loss of open land in Green Belt area.		Moderate -ve
	Biodiversity	Three SSSIs may benefit from improved road drainage. Some minor damage to sites of local importance.		Moderate +ve
	Heritage	Significant archaeological potential. Mitigation through recording may require significant field work.		Moderate -ve
	Water	Even with mitigation, there may still be: a significant risk of polluting sensitive watercourses and groundwater during construction and operation; and an impact on flood risk as the scheme bridges several rivers		Moderate -ve
SAFETY		Safety improves because traffic removed from unsuitable roads and communities	Accidents Deaths Serious	PVB £27m 47% of PVC
ECONOMY	Journey times & VOCs	Benefits largely from time savings	Slight 1200 49 450 1300 inter-peak 6 mins	PVB £160m 290% of PVC
	Cost			PVC £56m
	Reliability	There is already serious congestion on the route.	Route stress Before 91% After 46%	Slight Low rel to PVC
	Regeneration	Serves Greater Manchester ERDF Objective 2 area	Serves regeneration area? Development depends on scheme?	Yes -
ACCESSIBILITY	Public transport Severance	No impact on public transport		Neutral
		Reduces severance by up to 85% on A556 between Bucklow and Mere. Little new severance		Large +ve
	Pedestrians and others	Deterioration in journey times and amenity for some offset by improvements in journey times, safety and amenity for others and provision of new cycle way.		Slight +ve
INTEGRATION		Cheshire County Council medium/long term transport plans are complementary to the scheme, including improved access to Manchester Airport.		Positive
COBA			PVB £190m PVC £56m NPV £130m BCR 3.4	

Ministers' interest in appraisal has continued once in government.

Philip Hammond had said, in *Local Transport Today* 558, that “*We have the best appraisal system in Whitehall – there’s no question about that. The Department of Transport’s appraisal system is more objective, more quantitative than anything else across Whitehall ...*”

Theresa Villiers has stated, in evidence to the Transport Select Committee, that “*The processes of economic appraisal and NATA are a very useful aid to decision-making. They are very useful, in particular, in ensuring a degree of consistency between looking at different competing projects ...*”

However these sentences had continued respectively with

“... but we’ve got to make it more reflective of current priorities, in particular decarbonisation.”

“... but they are not the last word, and they are just part of the range of factors that a Government has to take into account in the decisions that it makes. On top of the economic appraisal one obviously has to look at broader goals about north-south balance, regional equity and social justice.”

The outcome of their reforms were announced in a Written Ministerial Statement on 27 April regarding:

- The replacement of NATA
- The formal adoption of the HMT Five Case Model for transport
- Changes to the WebTAG guidance on appraisal
- Greater emphasis on early stage sifting, with a new support tool

The Government’s response to the “Transport and the economy” inquiry gave more context, for example clarifying its position on the use of the BCR.

The BCR summarises a lot of information in a single metric that lends itself to the comparison of proposals. However, it should be remembered that a BCR only captures those impacts that are amenable to quantitative analysis and monetisation, and obscures the detailed trade-offs that are being made within its calculation. Hence:

- It can be a **useful device for a first comparison** of proposals

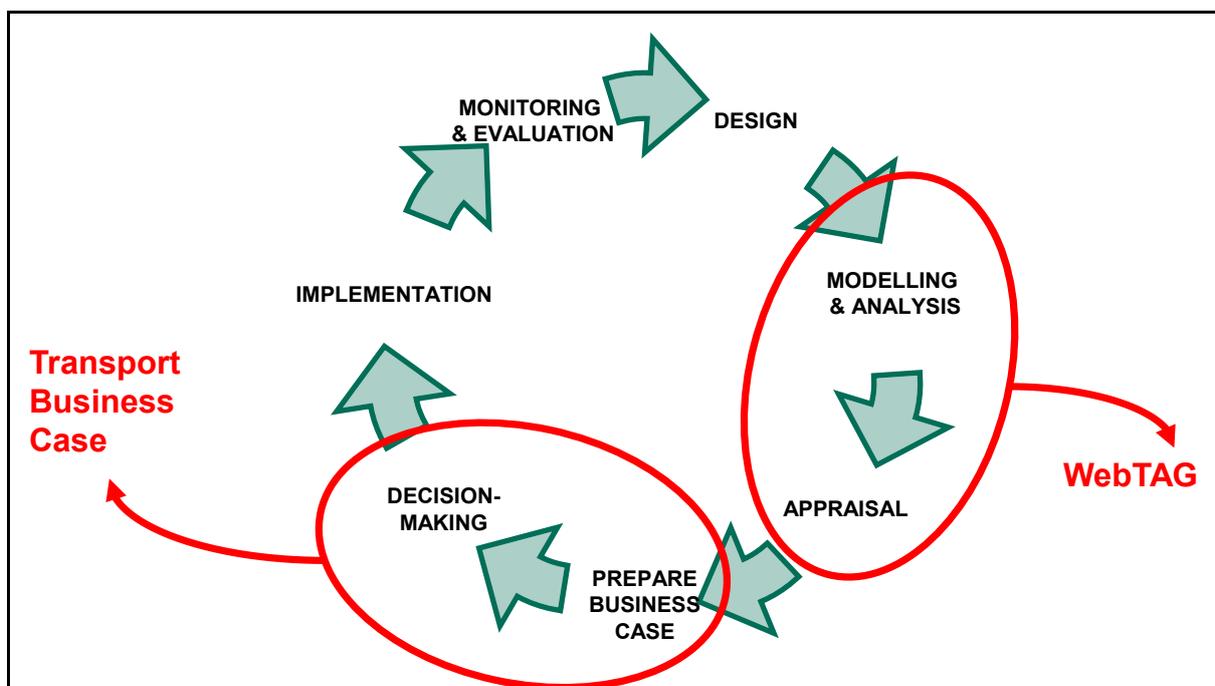
- It is **not a substitute for a more detailed consideration of impacts**, or for reasoned discretion in decision-making

Gavin stressed that, while WebTAG now extends to around 1,600 pages, Ministerial discretion remains a fundamental aspect of the decision-making process. In particular:

- Appraisal is **not** the same as decision-making
- The CBR is **not** everything
- Rigour is **not** just arithmetical quantification and monetisation

Figure 3 illustrates how the appraisal and decision-making processes fulfil different but complementary functions.

Figure 2: appraisal and decision-making processes



DECISION-MAKING REFORMS 2011

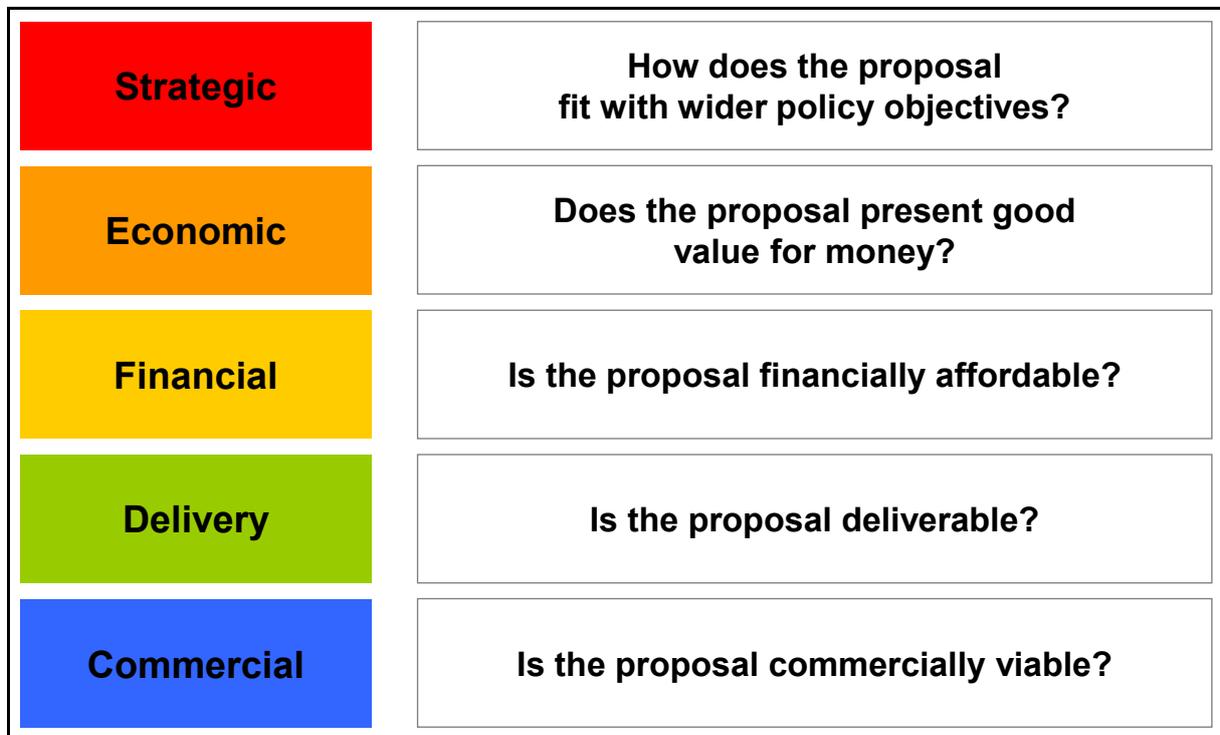
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- The replacement of NATA
- The formal adoption of the HMT Five Case Model for transport
- Changes to the WebTAG guidance on appraisal

- Greater emphasis on early stage sifting, with a new support tool

The Five Case Model considers the proposition from five distinct perspectives, as shown in Figure 2.

Figure 3: the Five Case Model



In explanation, Gavin noted that the economic case is not the same as NATA, and that the commercial case includes:

- Whether the project can be carried out in the private sector?
- If not, whether the public sector can satisfy the requirement in a viable contract?

The overall process of development of evidence for the business case is summarised in Figure 4.

April 2011 also saw changes to WebTAG content, then key items of which are shown in Figure 5. The change to the BCR formula is that indirect taxation has moved from a cost to a benefit, changing the BCR but with no effect on NPV.

Figure 4: the development of evidence

Appraisal of impacts		Development of evidence for business case				
		Strategic case	Economic case	Financial case	Delivery case	Commercial case
Guidance available in WebTAG	Study outputs					
	Stage 1: Option development	✓	✓	✓	✓	✓
	Outputs from EAST					
	Options Assessment Report	✓	✓	✓	✓	✓
	Appraisal Specification Report					
	Stage 2: Further Appraisal	✓	✓	✓	✓	✓
	Appraisal Summary Table					
	Transport Economic Efficiency table					
	Public Accounts					
	Analysis of Monetised Costs and Benefits					
Greenhouse gas worksheet						
Noise worksheet						
Air quality worksheet						
Social Distributional Impact worksheet						
Other guidance & tools	Social Research advice & guidance web pages	✓				
	Carbon Tool for Local Authorities	✓				
	Value for Money guidance					
	Advice on Public Private Partnership (PPP) and Private Finance Initiative (PFI)					✓
	DfT's Evaluation guidance including evaluation plans and benefits realisation				✓	
	Office of Government Commerce's Gateway Review guidance				✓	
	Network Rail's management & control process for enhancements (GRIP)	✓	✓	✓	✓	✓
Highway Agency's project control framework (PCF)	✓	✓	✓	✓	✓	

Figure 5: key changes to WebTAG content

Changes to Benefit Cost Ratio formula Social and distributional impacts Air-quality monetisation	Methods
Latest DECC carbon values Revised valuations to reflect recession and tax changes New value of health impacts of air pollutants	Values
Appraisal Summary Table	Tools

Gavin suggested that the effect of the WebTAG changes would be that:

- Schemes will generally have lower value for money, as a result of the changes in valuation to adjust for the recession
- Schemes that generate traffic and hence carbon emissions will have a lower BCR and generally be considered lower value for money
- Social and Distributional effects may have the biggest impact on the appraisal effort required
- Ministers will be presented with a wider, more balanced, range of evidence to inform decision-making

SUMMARY

For transport economists, the main effects would be:

- Continued support to decision-making by evidence-based analysis
- A need to adapt to a new clearer structure to business case
- An opportunity to demonstrate rigour and relevance of evidence
- Some changes to WebTAG to be taken into account

DISCUSSION

Alan Wenban-Smith (Planner) was worried that NATA and subsequent developments were still not substantially different from the practice of the last 30 years. He had said to SACTRA in 1999 that the largest and most important effects are not considered, as Peter Hall and others had noted. The scheme-level “angle of attack” may not be right, with serious effects. Strategic evidence might suggest a 50:50 balance between road and rail but on cost-benefit analysis (CBA) at the scheme level, road schemes passed and rail schemes didn’t, resulting in a 75:25 split in favour of road. This had been identified as a problem in Birmingham and other cities, resulting in the wrong balance for 30-40 years.

Gavin asked whether Alan thought that this was the fault of appraisal or decision-making. Alan was not sure that it was possible to distinguish them in a “hand-in-glove” culture. Gavin agreed that it can be dangerous to take transport decisions in isolation, but this was what had led to the inclusion of the Strategic Case which could show, for example, transport proposals in a regeneration area to be linked with other decisions. However, the challenge of CBA analysis is attribution of effects to the actual decision being made. Alan suggested that the real problem might be that DfT has to provide a rationale for transport, but not the whole problem, such as integration with schools policy, but with a departmental structure of government such integration could only take place at PM-level, and must still be rigorous and evidence-based.

David Walker (Independent consultant) suggested that the issue was how transport helped urban development other than at the “nitty gritty” level of time savings. There was a big gap between the views of, for example, a transport economist and those with a vision for a new town: Britain tends to focus much more on “value for money” than elsewhere.

Gavin agreed that we don’t know how to quantify or monetise everything, but noted that it is important how we collect evidence. Perhaps there should be a focus on how strategic cases could be better supported?

David Metz (University College London) agreed that the strategic case was important, but that we need to consider that time savings are absent from the long term impacts. In the long term, travel times don’t change, presumably being converted into land use (generation) or travel pattern (distribution) changes. Benefit-cost ratios based on travel time savings aren’t giving decision-makers sensible information, and we need to advise on the real long-term impacts such as land use. Gavin responded

first that land use change is not automatic and, even if a consequence, still depends on a range of contingent decisions, and second that time savings might be a semantic point. Transport Economic Efficiency suggested that if people travelled further they did so for a reason. If they forego time savings, it must be for something else of greater benefit.

Peter Jones (University College London) reminded Gavin that he had said that BCR is a useful filter, but argued that it may not be across schemes, as it will tend to focus on certain types of scheme. Gavin felt that this was fair comment, and the remedy was not to use the CBA too early in the process. It should be used to filter, not to veto. Conversely, a scheme should not be considered a “no-brainer” merely because it had a “stellar” cost-benefit ratio. Peter was still concerned that the wrong things might be filtered out first.

Peter then queried the Five Cases. The Strategic Case seemed good, but were the economic, financial and commercial cases not all closely related? Why not, for example, environmental or social cases? Gavin replied that the Economic Case is really the application of economics to other things, but if the implied concern was that the Cases were not orthogonal, he agreed that they rely on the same information but used it to answer different questions.

Peter had a third question but gave way to **John Bates**, who wished to pursue the same point. Five Cases was overdoing it and, although he accepted that they can be defined, we are not the only ones struggling to see the differences between them. Gavin responded that the Five Cases map well to the disciplines within DfT: the delivery case, for example, addressed many of the concerns of procurement.

Sir Christopher Foster wondered if he was out of touch, but surely the methodology should not be defined by the professional backgrounds of the civil servants. His main point was that the “improvements” in NATA appeared to relate to matters such as the treatment of indirect taxes and the still-minor weight given to carbon emissions. Social impacts had always been there but were still treated qualitatively. Was there not a risk of double-counting some things. “How do you compare all this with HS2, where the costs are double the benefits?” In summary, he was not sure that the “improvements” had made things any better.

Gavin was confident that double-counting should be avoided if the full guidance was read. With limited resources within the DfT team, there was also a need to focus on how best to advise decision-makers. It was not yet possible to monetise factors such as biodiversity and heritage:

the latter might just become a measure of local sentiment. There might be an “economics nirvana” in which everything can be quantified, but this might mean fitting everyone with utility meters.

Sir Christopher was concerned that if a lot of small things were bundled together this might overstate the value they would have in a quantitative CBA. Gavin reassured him that all Five Cases would be scrutinised for rigour and evidence of double-counting. “Please trust us”.

Michael Spackman (NERA) said that the Appraisal Summary Table was good and that the Five Case model was not a transport creation, having come from the Treasury several years ago. The choice of headings was Whitehall-wide, a good thing as it makes transport appraisal more like other fields and less like economics “a damn good thing”. Gavin thought that the Five Case model had originally come from the Department of Health. He and DfT colleagues had “tyre-kicked” it in workshops but could not find a better structure.

Stephen Glaister (RAC Foundation) suggested that the test should be whether the model was useful or helpful.

Gavin replied that we were about to find out. Local authorities seemed happy with it, but he could not yet say whether it would, for example, tip the balance of expenditure between interurban and urban or between road and rail. Stephen asked if there will be a decision on high-speed rail, and would be interested to see how the Secretary of State presents it in Five Case terms.

Tim Elliott (Independent) was concerned that there can be disproportionate data collection and modelling for minor schemes, with high costs to create spurious accuracy. WebTAG was a menu, not a recipe, and it should be possible to ignore the trivial more. There should be less effort on being exhaustive and more on sensitivity tests. He also suggested that the AST should score and weight the qualitative as well as the quantitative, which can help make clear what the best option is.

Gavin agreed that WebTAG should be read intelligently and the most appropriate level of analysis discussed with the client. Local authorities can sometimes specify “fully WebTAG-compliant” appraisal, resulting in expensive proposals from advisors. Gavin said that the intent was that authorities should come to DfT in future to discuss the best way forward. In urban areas, for example, it would be possible to cut back on landscape impacts. However, the bar keeps being raised, by both promoters and consultants, and losers and those suffering from impacts

demand rigour. Gavin suggested that a risk analysis on the benefits might usefully be improved, to understand the consequences of getting things wrong, but this did not necessarily mean repeated large model runs for “pure sensitivity tests”. On the suggestion that weights should be applied, this could be useful for sifting, but Ministers could still use their discretion in final decisions.

David McEwan (Independent) made a plea for politicians to quantify things, but wondered how we could get comparisons across modes, when air, rail and road could be funded by different means. Gavin suggested that the financial case might cover this, but the economic case should be blind to where cash comes from and ignore transfers.

David Simmonds (David Simmonds Consultancy) wondered whether the Five Cases were really two “Should we?” and three “Can we?”, but thought it good that the latter three had been added. He also thought that explicit recognition of the Strategic Case could, but not necessarily will, be the answer to Alan Wenban-Smith’s concerns, but who would identify the fit to the wider objectives: would this be promoters or DfT? Gavin said that the fit should be identified by the promoter and then scrutinised by officials, but accepted that there was no central database of government policies. David raised the further issue of potentially different local policies. Gavin thought that the thinking can and should be applied to all five Cases.

David Starkie (Case Associates) noted that most commercial organisations made decisions subject only to planning concerns. A car manufacturer might get a local grant but would still need planning permission. When a transport proposal is commercially viable, to what extent should it be appraised in all the other Cases, and was there not an inconsistency depending on whether a scheme was introduced by the private or public sector? Gavin noted that many schemes involved two distinct decisions: whether to fund, and whether to grant consent. David wondered whether officials should be taking a view on delivery. Gavin stated that this was a decision for Ministers on the basis of the report of advice, but government would not impose a full Five Case appraisal on what was in effect a planning decision.

With insufficient time for further discussion, Julie Mills thanked the speaker and closed the meeting.

Report by Dick Dunmore

Reviewing rail fares for the Rail Value for Money study

Dick Dunmore, Associate, Steer Davies Gleave

Arup

25 January 2012

Disclaimer

The study which formed the basis of this presentation was commissioned jointly by the Department for Transport (DfT) and the Office of Rail Regulation (ORR). However, the speaker opened by stressing that the views expressed were his own and did not reflect those of DfT and/or the ORR or his employer.

BACKGROUND

Dick Dunmore began by pointing out the lengthy background to railway fares regulation, beginning with Gladstone's Railway Regulation Act of 1844 which specified that every station on every line should have one train per day in each direction for third-class passengers:

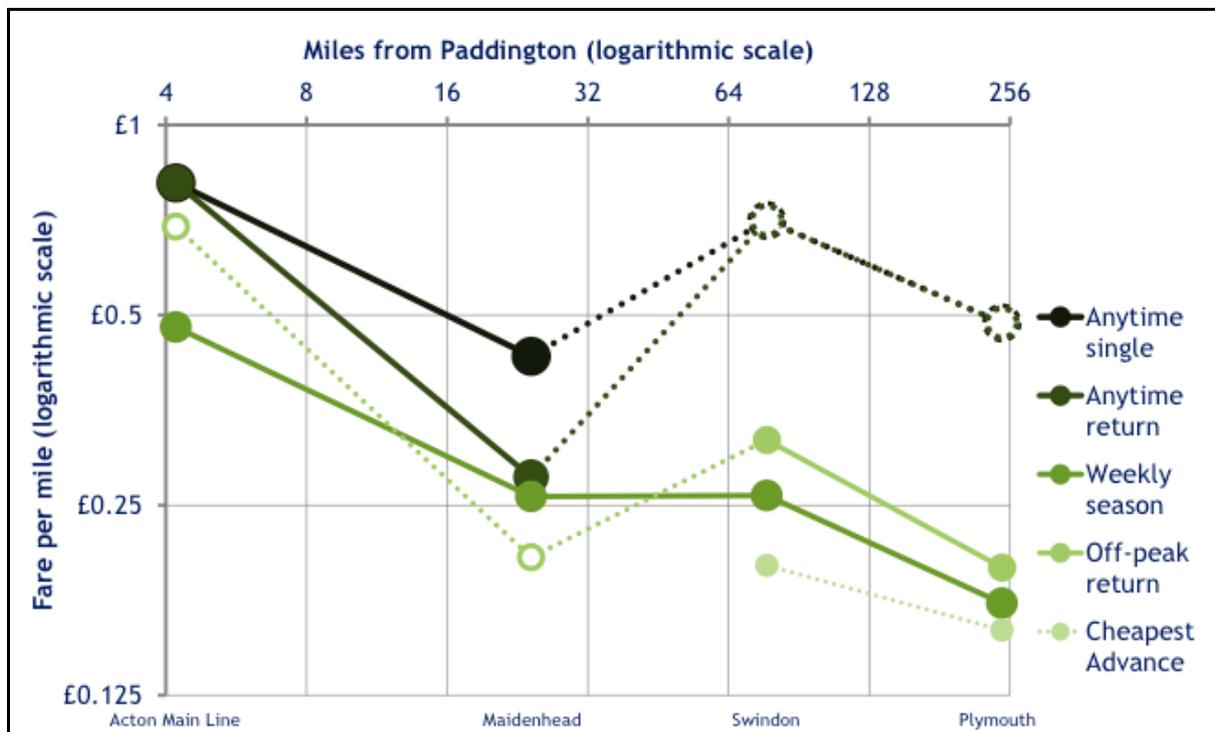
- At a fare of no more than 1d (one old penny) per mile
- With an average speed of not less than 12mph
- With seats and protection from the weather

1d per mile in 1844 would now equate to 34p per mile if indexed with RPI, or £1.79 per mile if indexed with RPI+1% per annum.

In the intervening years since this Act, the railways had introduced a whole variety of fares including returns, season tickets, day returns, saver tickets and advance purchase tickets. Some of these had been market-priced from their inception, and since the 1970s all national rail fares had been market-priced rather than calculated on a strictly per mile basis. With the introduction of franchising the government decided to regulate the level of all season ticket prices, most short-distance peak fares and certain long-distance off-peak fares (effectively Saver and Super-Saver tickets).

The effects of some 15 years of fares regulation are shown in Figure 1, in which solid dots and lines represent regulated fares and hashed dots and lines represent unregulated fares.

Figure 1: Variation of regulated and unregulated fares over distance



This chart clearly shows the effects of regulating short-distance fares (Acton Main Line and Maidenhead) differently from long-distance fares (Swindon and Plymouth).

One would expect peak users always to pay more than off-peak users, but this does not happen in practice. A passenger commuting on a weekly season ticket from Swindon pays one of the lowest rates per mile.

Another key decision at the time of privatisation was to insist that passengers must be able to buy a through ticket from every station to every other station. This has ensured a continuing complexity in the fares system and indirectly led to many anomalies. With just over 2,500 stations on the network there are over 6 million station pairs for which through tickets have to be available. Given that the range of fares often includes Standard and First class, and Singles and Returns, plus Anytime, Off-Peak, Advance and Season Tickets, this results in a total of around 100 million individual fares. Within this total, each train operator sets around 5 million fares, only around 6,000 of which are ever bought by passengers. Thus only 0.12% of all the fares set are actually used.

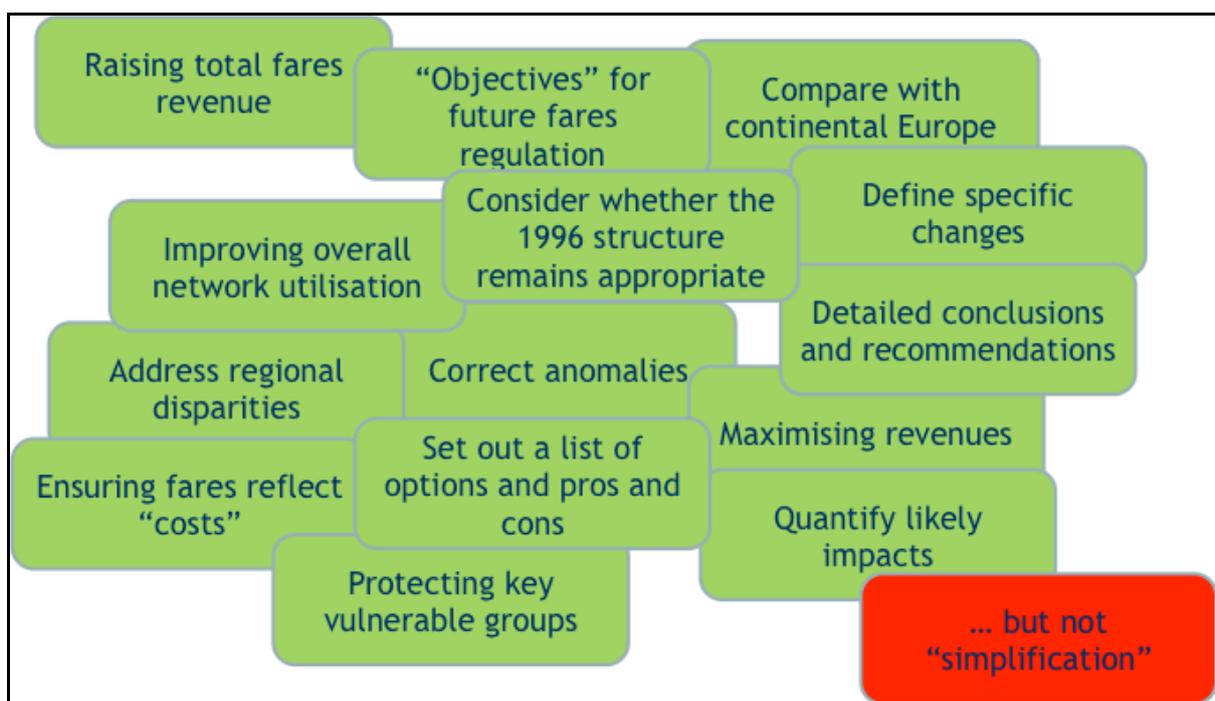
This disparity is even greater in terms of revenue, since each train operator gets most revenue from only around 100 fares: only 1 in every 50,000 fares set matter to operators in revenue terms. The overwhelming majority of fares are neither thought about nor used.

The Rail Fares Study

The terms of reference for the enquiry into Rail Value-for-Money by Sir Roy McNulty were set out in February 2010. Sir Roy made his initial submission in December 2010 and his final submission in May 2011. Of the 29 consultancy reports published as part of the McNulty study, 28 addressed cost issues. This was the only study addressing revenue issues.

The complex objectives of the study are summarised in Figure 2 below.

Figure 2: summary of study remit and objectives



The study began by identifying the potential objectives for fares regulation, which can be divided into Equity (“fairness”) and Efficiency.

EQUITY OBJECTIVES

The study proposed new objectives relating to equity or “fairness” (Table 1) and examined a number of aspects of fairness (Figure 3).

Table 1: proposed objectives based on equity

1	Fares regulation should protect passengers from abuse of market power
2	Passengers using peak services should pay fares that reflect the costs of providing peak capacity
3	The structure of fares should have regard to perceptions of fairness and the need to ensure that vulnerable groups have access to affordable rail travel

Figure 3: issues of “fairness” and the approach to their regulation

“Fair” relationships			Current approach
Standard	Should be “less than”	First Class	Quasi-regulation
Short distance		Long distance	
Single		Return	
Advance		Walk-up	
Fares for “the poor”	Should be “similar”	Fares for “the rich”	Railcard regulation
Off-peak		Peak	Saver regulation
Commuters		Infrequent travellers	Season regulation
Future		Past	RPI-X regulation
One train or operator		Another train or operator	Interavailability
One region or route		Another region or route	Historic BR fares
Fares		“Costs”	?
Rail fares	Fares for other modes		
Fares in Great Britain	Fares on the continent		

Passengers typically expect “fairness” to mean that the fares on the left are less than, or similar to, those on the right. Currently such “fairness” is achieved by a mix of quasi-regulation (items 1-4), regulation of Railcards, Savers and Season Tickets (items 5-7), imposition of RPI±X limits on fares increases and of interoperability requirements (items 8-9), and from historic British Rail fares levels.

There is currently no attempt to achieve “fairness” in the last 3 items on the list. Perceptions of fairness in these areas are not addressed by any form of regulation (quasi-, formal or historical).

Fairness between rail fares and fares on other modes

The study examined the prices to consumers of equivalent journeys by rail, bus and car in a number of cities. Not surprisingly the results were highly variable. Key conclusions were:

- Bus is often cheaper than rail, but rarely competes head-to-head
- Parking charges alone often exceed rail fares, and are not regulated in any way
- For some trips, (such as where there is free workplace parking), parking is a cost of rail travel but not of car travel

Fairness between Great Britain and the continent

The common wisdom is that fares in Britain are higher than in the rest of Europe. However Figures 4 and 5 based on earlier research for Passenger Focus show that Great Britain simultaneously has the highest fares (for walk-up purchase) and the cheapest fares (for advance purchase) in Europe. The latter point is rarely mentioned in the media.

Fairness between fares and costs

The study specifically rejected average cost recovery as a defensible objective. Economic theory suggests that prices should reflect long-run incremental costs (LRIC), or more specifically the incremental unit cost of the next increment of capacity. Whilst this approach is fine in theory it is highly problematical to apply in practice. In a railway context, the application of LRIC essentially requires the adoption of arbitrary rules on the allocation of costs, for example how to allocate the various network costs arising from:

- Different corridors and connecting passengers
- Short and long distance journeys on slow and fast services
- Peak, shoulder peak, off-peak and counter peak

Hence a more practical approach is to proxy short run marginal costs (SRMC) using some measure of crowding, setting peak fares at market-clearing levels to proxy SRMC and congestion externalities. This approach also means that off-peak and counter peak fares could be regulated down to SRMC, on the grounds that the system as a whole exists to cater for the peak.

Figure 4: Walk-up fares

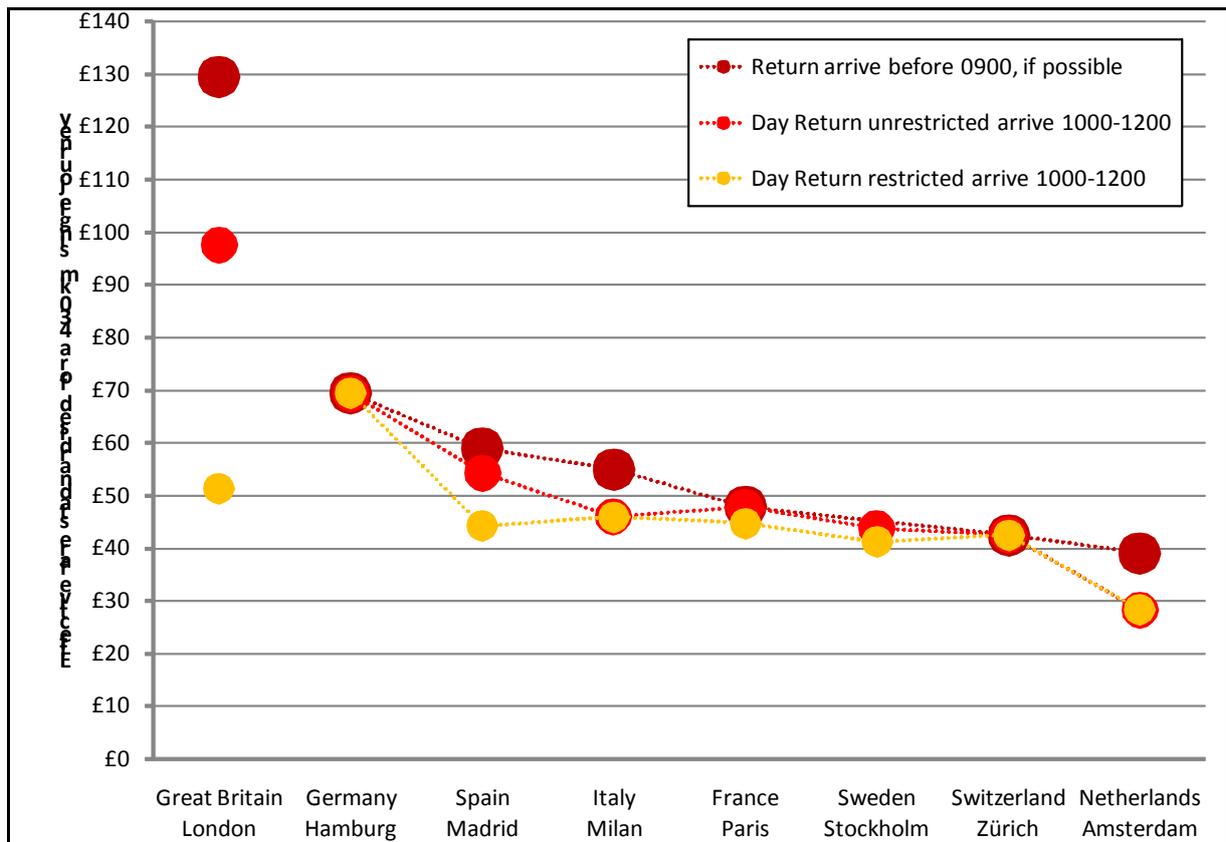
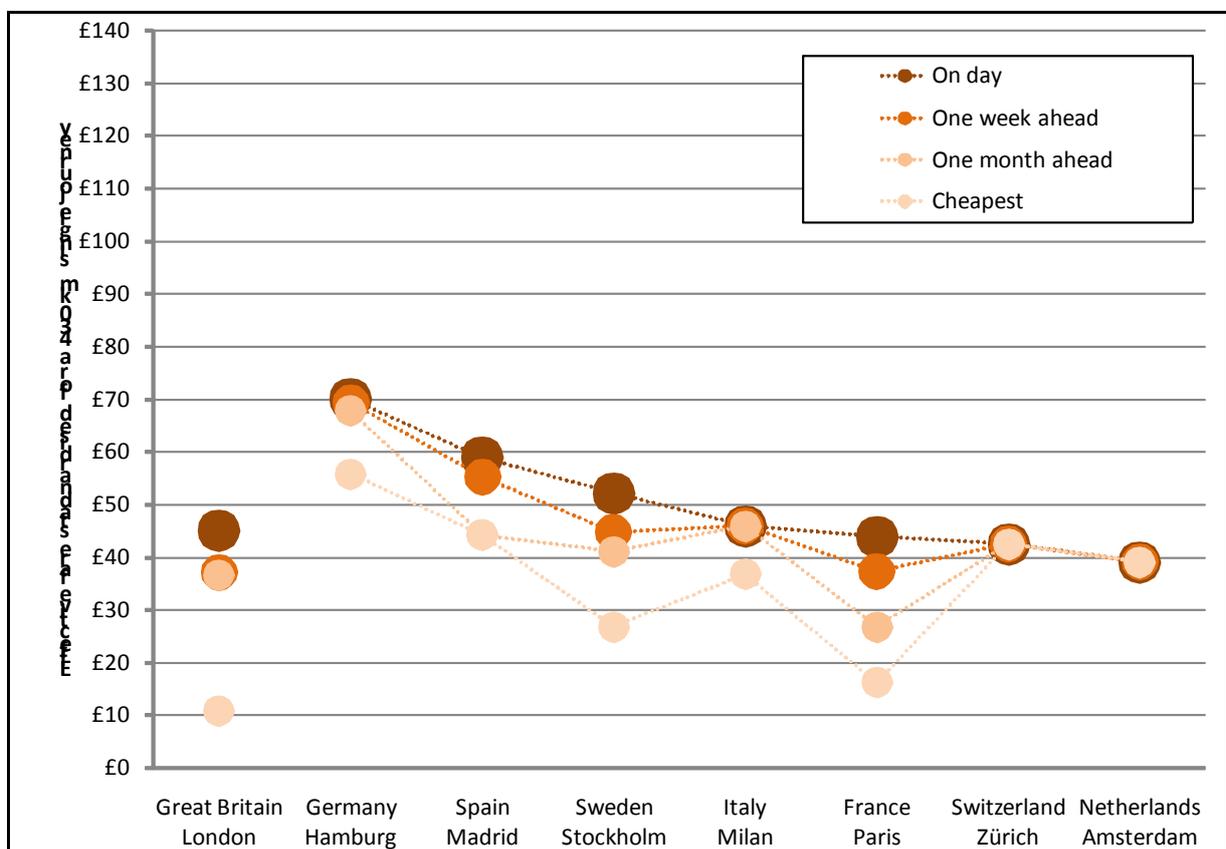


Figure 5: advance purchase fares



EFFICIENCY OBJECTIVES

The study also proposed three objectives relating to economic efficiency:

Table 2: proposed objectives based on economic efficiency

1	The system of regulation of fares should be designed to minimise the associated administration burden on the industry
2	The structure of fares should encourage efficient use of available capacity
3	The system of regulation of fares should allow for the correction of externalities in the wider transport system

OPTIONS AND ANALYSIS

Nine options to address the objectives were refined to five, shown in Table 3.

Table 3: options examined

Rationale	Option
Allocative efficiency	Long-distance travel: address “spurious peaks” due to off-peak (Saver) regulation
	Short-distance travel: “peak-spreading” to encourage use of available capacity
Fairness between peak and off-peak	Reduce the price “taper” on long-distance season tickets
fairness between regions	Allow lower-than-average fares to rise faster to harmonise them
Administrative efficiency	Give operators complete flexibility within the fares basket

Spurious peaks

Demand for long distance travel is greatest immediately before and after specific cut-off times for the availability of Saver tickets. Travel out of Euston on a Friday evening just before 16:00 is a good example. To address this issue the study evaluated the concept of deregulating the regulated Standard off-peak return fare, and letting operators smooth demand at the edges of the peak period.

It was considered that operators had limited market power to price up fares outside peak periods. Four routes (ECML to Leeds and Scotland, and GWML to Bristol and South Wales) were modelled using a modified and enhanced version of the Faber Maunsell (now AECOM) “Saver” model. The outcome was that some fares would need to rise by 40%. If carried out in annual stages from 2012 to 2018, this would raise a total of £125 million by the end of Control Period 5 (CP5), when the change would be worth £25 million per year.

Peak spreading

Season tickets and Travelcards give no financial incentive to avoid peak trains, leading to overcrowding in the core peak and spare capacity being available in the shoulder peak. A potential approach to solving this problem is to adopt Pay-As-You-Go (PAYG) fares, at least for any element above the off-peak fare, and to vary fares between core peak, shoulder peak and off-peak with the implicit target of achieving consistent load factors. This approach also addresses the “fairness” objective that “passengers using peak services should pay fares that reflect the costs of providing peak capacity” and is consistent with “demand management” adopted for other modes, matching demand more closely to available capacity. However, the study did identify a number of practical issues, referred to by the shorthand titles below, reflecting the locations and routes which typify the potential problems.

East Croydon effect: reducing numbers of long distance commuters (such as from the Sussex Coast) to make room for short distance travellers (such as from East Croydon) does not cut maximum loads and worsens overall load factors.

Crossrail effect: Barrier-free rail to Underground interchange means that touch-in/touch-out may be at LUL gates, and hence the charge cannot identify the particular train used, or even always where it was boarded.

Waterloo effect: Natural justice suggests that passengers on late-running pre-peak trains should not pay peak prices. Equally, those arriving on end-of-peak trains should not be incentivised to loiter on platforms until fares fall. Hence the charge cannot be based on touch-out, but must be based on touch-in.

Weymouth effect: Commuter trains can take up to two hours to reach London. However, prices cannot consistently either discourage or encourage use of a train if it is “peak” at one station and “shoulder peak”

at the next. Consistent charging for trains may mean peak charging times varying with distance.

Hampton Court effect: Services with only one train every half hour might have big price steps between trains.

In theory, peak spreading is about the uneven use of peak capacity and the adoption of varying pricing to even out some measure of load factor. Using the existing Faber Maunsell model, the study found that some peak commuter fares would rise by up to 40%, whilst others might need to fall. This would raise a total of £500 million by the end of CP5, when it would be worth £200 million per year.

The analysis also showed that existing services and rolling stock could carry 5% more passengers, which represents 2 years' traffic growth, and that the existing infrastructure could carry 10% more passengers, equivalent to 4 years' traffic growth. Almost all the gains arose on short-distance services. Although these gains were relatively small, they might allow some £5-£10 billion of capital expenditure to be deferred by around 4 years. However, the question remains whether the main effect is to change the time at which passengers travel (a "good" effect) or to change the mode of travel (a "bad" effect). The limited data and models currently available do not give a clear answer.

In practice, train services represent a set of discrete steps in capacity and not the smooth curve in supply that the classical economists' model suggests. As indicated above, peak spreading gives rise to a number of outstanding issues including:

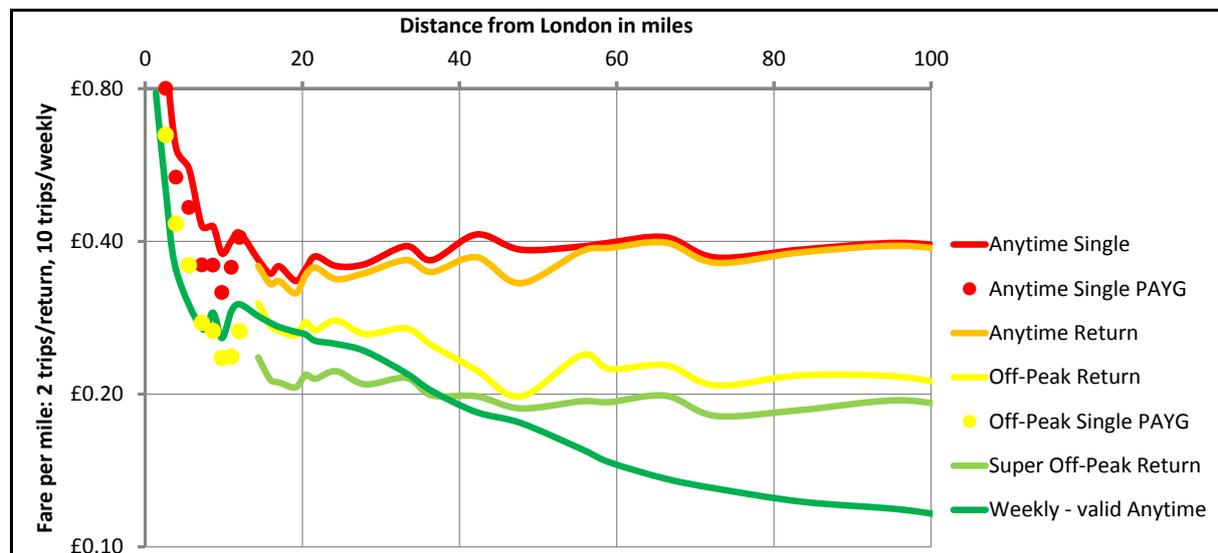
- Coordination and consistency with TfL and PTE fares, and between short and long-distance fares
- Complexity, if "peak" times vary by corridor, by distance, and by timetable which might be difficult to explain to passengers
- Avoiding the creation of new "spurious peaks" such as by the Hampton Court Effect
- How it could be achieved by specification, incentivisation and/or regulation within a franchise agreement?

Arguably, it might be possible to achieve the same objectives by adjusting stopping patterns.

Season ticket taper

Figure 6 shows how season tickets are cheaper per mile than off-peak or super off-peak fares over distances greater than around 35 miles, even though they allow travel in peak periods.

Figure 6: fares on the Waterloo to Exeter corridor



The study evaluated the concept that passengers using peak services should contribute to the costs of providing peak capacity, and that weekly season should therefore cost at least five times the cheapest off-peak return. This was done by testing a floor of £0.25 per mile, which is currently reached at 30 miles. The study team also suggested a possible hardship scheme for existing users. The effect was that some fares would rise by 80% or possibly more. If carried out in stages each year from 2012 to 2018, a total of £80 million would be raised by the end CP5, equivalent to £20 million a year. Overall the effect would be relatively minor, as few people regularly commute very long distances.

Harmonisation: fairness between regions and routes

The adoption of “Fares Baskets” in fares regulation has allowed operators to focus on inelastic markets. This means that fares in the “cheaper” regions may be approaching revenue-maximising levels. To achieve fairness the concept would be to allow “lower than average” fares to rise faster until consistent with fares elsewhere. This would allow the gradual removal of various anomalies, since operators would not be able to raise fares beyond revenue-maximising levels.

Modelling consisted of allowing anytime fares to rise to the higher of £0.44 per mile or £4.40 single; season tickets to £0.33 per mile or £33.00 per week; and saver tickets to £0.25 per mile. This option would also allow operators to address spurious peaks and to remove the season ticket taper. The estimated effect was that some fares would rise by up to 100%. If the change was carried out in stages from 2012 to 2018, a total of £500 million could be raised by the end of CP5, when it would be worth £130 million per year. However, with no detailed understanding of price elasticity by region, let alone by individual station-to-station flow by time of day, there is some uncertainty over how soon elasticities would reach -1.

Reduction in administration costs

This option would involve some combination of merging baskets for seasons and other fares and of having different caps on each basket, with more “flex” to raise individual fares. Operators would be allowed to price up season tickets at the expense of more elastic fares. Again, this would also allow operators to address spurious peaks and to remove the season ticket taper. With no cap on individual fares it was not possible to predict the maximum fares increase. If carried out in stages between 2012 and 2018, a total of £350 million could be raised by the end of CP5; at that stage it would be worth £80 million per year.

SUMMARY OF APPRAISAL OF OPTIONS

The speaker cautioned that option evaluation was uncertain for a number of reasons which affect all appraisals in which either the fares that operators will charge, or the way that passengers will respond to them, is uncertain.

Appraisal of rail proposals is normally based on default assumptions that fares will remain the same, or sometimes that they will rise to reflect the benefits of investment.

However, appraisal is subject to some inconvenient truths, namely that:

- The understanding of peak-spreading is based on only limited stated preference research
- Regulation covers only a third of long-distance passengers
- Models of yield management or price competition are poor

The consequences for the option appraisal results are that:

- Fares rises could cause mode shift back to road with consequential disbenefits
- Improvements may be taken as yield with no mode shift
- Extra capacity may be filled by reducing average yields

Table 4 summarises the options against the range of criteria. It shows the fares rises additional to RPI+3% for the first 3 years and RPI+1% from then to 2018/19.

Table 4: Summary of appraisal of options

	Spurious peaks	Peak spreading	Season ticket taper	Harmonise lowest fares	Fares basket flex
Extra annual rise in fares basket	+1.4%	+2.3%	+0.5%	+1.9%	None
Highest extra annual rise in fares	+7%	+7%	+9%	+10%	TOC decides
Highest extra total rise in fares 2012-18	+40%	+40%	+80%	+100%	
Extra revenue by 2018	£125m	£500m	£80m	£500m	£350m
Extra annual revenue in 2018	£25m	£200m	£20m	£130m	£80m

FARES REVIEW

The McNulty report in May 2011 recommended that DfT initiate a full review of fares policy, addressing regional imbalances, anomalies, relation between fares and the cost of enhancements, season ticket regulation, and the complexity of the ticket range arising from regulation. The recommendations in the report were not a proposal to increase the overall level of fares. The McNulty recommendation for a fares review was accepted by the DfT, who intend to consult on issues of fares and ticketing. This consultation is now due in “early 2012”.

DISCUSSION

Julie Mills (Independent Consultant) began the discussion by asking Dick Dunmore what policy he would pursue on fares if he had a completely free hand. Dick's first reaction was to acknowledge that the present situation was a mess. A clear vision of what the fares structure and balance of prices for different rail users should be in, say, 20 to 30 years needed to be set out. By steadily moving in the right direction, it should be possible to move gradually to a more economically sound basis. This could result in some non-peak fares being reduced over time, while fares for peak users rose.

David van Rest (Former member of the Midlands TUCC) felt that the present fares arrangements were unfair. In particular, there were opportunities for the clever traveller to save money by rebooking. Was there still a need to retain an anywhere-to-anywhere fares system? Dick said that at the time of privatisation, retaining anywhere-to-anywhere fares was seen as necessary to preserve cheaper through fares for passengers, compared with the more expensive option of rebooking. Subsequently, the development of advance purchase tickets had undermined the rationale for this decision.

Peter Gordon (Editor, *The Transport Economist*) noted that since some routes are less financially viable than others there must be an element of cross-subsidisation in the system. Was such an arrangement justifiable in economic terms? Dick said that average cost pricing was not justifiable in economic terms, and that any other approach might involve cross-subsidy between the most and least commercially-viable routes. Even where it was achievable, full cost recovery on a route would rarely be consistent with marginal cost pricing.

Jeremy Drew (Independent Consultant) had not seen anything in the presentation about how changing the fares structure might impact on the costs of operating the railway, either in terms of particular routes or the system as a whole. Dick said that, while the study had not examined costs, it had found that the potential savings from reducing capacity were few, but that there was scope to carry more passengers within existing capacity, potentially deferring investment.

George Muir (former CEO of ATOC) was doubtful about the notation of "fares simplification", which he felt was an illusory objective. What was it that caused the alleged complexity? The majority of customers were not aware of "complexity" as an issue, although this did feature in media reports. Was there any need to make radical changes to the existing

fares system? Dick sympathised with this view. There was an inevitable trade-off between a simple fares structure and maximising revenue.

Michael Schabas (Independent Consultant) observed that Sir Roy McNulty was not from a consumer industry background and had only looked at reducing costs and not improving value-for-money. He contrasted the remit of the study with the objectives set for London Underground, which was tasked with maximising social benefit within an overall defined financial limit. In his view no other railway in the world organised its fares system half as well as the UK. Dick noted that social cost-benefit analysis of fares levels and structures was poor at the local level. Appraisal techniques based on standard assumptions might be far from accurate in examining specific local changes.

David Starkie (Economics-Plus Ltd.) was interested in knowing the overall costs of administering the current fares system. **George Muir** and **Michael Schabas** commented that the current arrangements operated very efficiently, and that any changes to the system would inevitably lead to an increase in administration cost.

David Metz (Visiting Professor, University College London) observed that considerable effort and complexity went into cost-benefit analysis of capital projects, but little effort was made to assess the costs and benefits of operating subsidies. Did the study throw any light on this? Dick agreed that there is a disconnect between appraisal of capital expenditure and operating subsidy: fares-setting was not subject to social cost-benefit evaluation.

A member of the audience commented that any assessment of value-for-money involved a very complex trade-off among a large number of factors, including fares levels. Was anyone attempting to make such an assessment? Dick said that detailed assessments of costs and benefits are made when appraising projects, but the default assumption for fares in project appraisals is that they stay the same. Even if this happened, it would often not lead to the optimal outcome.

David Howard (Line-by-Line Consultancy) noted that fares regulation could lead to a significant discrepancy between the actions of long distance and short distance TOCs. Fares for journeys from A to B and B to C might be regulated while a fare from A to C was unregulated. Dick cited the example that the regulated peak fares from Swindon to Didcot and Didcot to London sum to less than the unregulated peak fare from Swindon to London. Operators may use the 5% flex to remove such

anomalies over time but, given the overall number of fares, removing some anomalies often results in others.

John Dodgson (Independent Consultant) found it interesting that the revenue gains resulting from the various options studied were quite small in relation to the overall income from passengers. However, might there not be bigger economic effects if hefty fares rises, particularly for longer distance commuting, influenced where people lived? There could be large changes in house prices. Dick noted that the number of longer distance commuters is relatively small and they tend to be richer. In effect they are cross-subsidised by poorer short distance commuters. Also, by consuming constrained peak capacity, commuters are cross-subsidised by off-peak travellers consuming spare off-peak capacity. It would be desirable for fares to signal the long run cost of commuting and for homebuyers to be aware of the costs to society of their location decisions.

Tim Elliot suggested that the country might be split into a limited number of zones to simplify the task of setting fares. He also pointed out that some fares did not allow passengers to terminate their journeys short of destination, which seemed illogical.

Michael Schabas, taking up the discussion, explained that in practice only a limited number of some 400-500 key fares were actually set manually. The remainder were iterated by computer as adjustments to these key fares. In effect fares were set on a zonal basis and overall the system was very efficient. Dick Dunmore noted that there was a difference between how operators set fares in practice and how fares were presented to staff and passengers. The prohibition on alighting short of destination only applied to advance purchase fares: without it, it would be difficult to offer discounts on long journeys without extensive abstraction from short ones.

The meeting concluded with a general discussion on the benefits or otherwise of having all long-distance fares on a zone-to-zone basis.

Report by Gregory Marchant

The complete study is published at
<http://www.rail-reg.gov.uk/upload/pdf/rvfm-sdg-fares-280211.pdf>

Reviews

The views expressed are those of the reviewer and should not be attributed to the Transport Economists' Group

Routes, Roads and Landscapes

Edited by Mari Hvattum, Britta Brenna, Beate Elvebakk and Janike Kampevoll Larsen

Farnham, Ashgate, 2011: £65.00

This unusual book is a collection of papers from the Norwegian Research Council funded project Routes, Roads and Landscapes: Aesthetic Practices en route, 1750-2015. The eighteen contributing authors come from seven countries, and include three from the UK, and represent a range of disciplines, with geography, art history and archaeology predominant. Some of the seventeen chapters concentrate on matters artistic, aesthetic and philosophical, but this review emphasises those relating to transport economics and geography.

Vittoria Di Palma from Columbia University discusses the economic history of British rivers and canals. She cites at length William Gilpin's 18th century survey of the Thames, which was inspired by his vision for it to become a tourist route, although its "aesthetic inadequacies", notably below London, determined the survey's abandonment, after which he concentrated on the more promising River Wye. Di Palma then addresses the subject of roads as routes and the limitations of strip maps, such as John Ogilby's 17th Century Britannia, which emphasize corridors, but ignore wider topographies.

Finola O'Kane, University College Dublin, outlines the growth of Irish road networks from the interactions of localised routes fanning out from individual country houses, which subsequently joined together to form wider networks. From the 18th century, this new accessibility encouraged the development of tourism in Ireland. Estate landlords sought to enhance access-providing road infrastructure, although issues of visual intrusion and severance arose too.

Contemporary art, notably C.F. Vogt's painting of a busy and well-built road at Krokkleiva, is cited by Tjorild Gjesvik of Bergen University, to show how good roads have been viewed as status symbols by politicians and industrialists, as well as being of economic benefit.

Chapters follow on the botany of landscapes, travel writing, visual impressions gained from travelling by different transport modes, landscape photography and the driving experience of German and American parkways: roads constructed more to attract tourists than to perform conventional transportation functions. Chapter 10, by Christine Macy and Sarah Bonnemaïson from Dalhousie University, Canada, examines Benton MacKaye's concepts of social planning, which influenced the Tennessee Valley Authority, USA, in the 1930s. MacKaye saw – but, as a pioneering environmentalist, did not necessarily support – a new breed of highways, bringing urban populations out to the countryside, in contrast to the inward attraction of rural citizens to emerging cities in the earlier era of industrialisation.

Even Smith Wergeland from Bergen University addresses mobility utopias from the perspective of an art historian, in a contribution that shows how quickly new visions of the future become outmoded. The contribution of Tim Cresswell, Royal Holloway, University of London, on the politics of mobility is conceptually strong, a worthwhile “thought piece”. Migration theory is criticised for concentrating on movement, “when it was really about places”, with “moorings” as important as “mobilities”. Transport studies are censured for considering “time in transit as 'dead time', in which nothing happens”. Mobility is considered as having three aspects: physical movement; how it is represented or experienced (e.g. as adventure, tedium, educational or threatening); and as a practice (drive, walk, etc). The user's experience will depend on characteristics such as whether the journey is undertaken voluntarily or has it imposed on them. The politics of mobility is classified as comprising six elements: why does a person or object move? How fast? In what rhythm (e.g. regularly, occasionally)? By what route? How does the experience feel (affected by person, trip purpose, etc)? When and how does the journey stop?

The last facet is, perhaps surprisingly, more concerned with frictions en route (enforced and voluntary intermediate stops, impediments to access such as boundaries and borders, and factors relating to the travellers themselves, such as the likelihood of being stopped and searched), than with the ultimate destination. Thus, the matter of how best to cover “the last mile” between transport terminal and final destination is not addressed.

Further chapters cover the Norwegian Tourist Route project, visitor infrastructure (of particular value to anyone with an interest in roadside toilets), the aesthetics of road design, and one of the book's most entertaining, informative and readable chapters, Peter Merriman of

Aberystwyth University of Wales on the geography of the M1 corridor. Merriman addresses the absence of social and cultural studies of the impact of motorways, compared to the numerous technical treatises, and focuses on “the topological and spatial patterns associated with the linear, nodal, material, imaginative and discursive geographies of motorways”. He characterises them as “turbulent spaces”, constantly forming and reforming as the user travels along them; and thus approaches them as “places” rather than “non places”. He shows how the construction of new arteries brings about new geographies of place, with new towns, cities and facilities placed alongside them (such as Milton Keynes, the expanded Northampton and Daventry International Rail Freight Terminal, DIRFT), with the M1 serving as a “barometer and shaper of fortunes” in the corridor.

Opposition to motorways is considered to have been limited, with greater emphasis on the economic benefits brought about by extended metropolitan influences (e.g. more visitors to Woburn), although new severance has arisen, resulting in redrawn boundaries (e.g. land swaps between farms). The benefits of improved accessibility have been countered by disadvantage to localities bypassed without access by tunnels and corridors, a forerunner of the 21st century opposition to HS2 in the northern Home Counties.

The role of Watford Gap as a corridor for successive north-south routes, canal, rail and road, is discussed. Links between the M1 and popular culture are cited, including the publication of guidebooks, use of the new service stations as meeting places by young adults, and spin-offs such as motorway-oriented books and games for children.

Routes, Roads and Landscapes concludes with Gernot Böhme of Darmstadt University, Germany on “Landscapes on the Road”. Böhme contrasts natural and man-made landscapes and the perspectives of static and mobile viewers, and questions whether transport routes open landscapes up to viewing, or destroy them, and asks whether the view of the rail or car traveller constitutes alienation from the landscape, or reveals it to a panoramic, film-like view.

Routes, Roads and Landscapes is not primarily aimed at economists, but it contains much which transport economists will find of use, both in addressing economic principles and in widening their perspective. The chapters on which this review has concentrated are particularly recommend.

Reviewed by Martin Higginson

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5 March 2012

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The Transport Economists' Group, formed in 1973, provides a forum for people involved in transport economics to meet regularly and discuss matters of mutual interest. Membership is open to economists working in transport and others whose work is connected with transport economics.

The aim of the Group is to improve the quality of transport management, planning and decision making by promoting lectures, discussions and publications related to the economics of transport and of the environment within which the industry functions.

Meetings are held every month from September to June (except December) at Arup's Central London HQ at 13 Fitzroy Street. The meetings consist of short papers presented by speakers, drawn from both within the Group's membership and elsewhere, followed by discussion.

The Group's Journal, "The Transport Economist", is published three times a year reporting on meetings and other activities of the Group. It reviews recent publications of interest and contains papers or short articles from members. The Editor welcomes contributions for inclusion in the journal, and can be contacted at petersgordon@blueyonder.co.uk.

The current membership of over 150 covers a wide range of transport modes and types of organisation. Members are drawn from transport operators, consultants, universities, local and central government and manufacturing industry. All members are provided with a full membership list, updated annually, which serves as a useful source of contacts within the profession. Applications from people in all sectors are welcome.

Applications for membership should be made on a form obtainable from the Membership Secretary at gregorymarchant.teg@btinternet.com.

Alternatively, an application form can be downloaded from the Group's website: www.transecongroup.org.

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Details of meetings are provided on our website at

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