INDEPENDENT TRANSPORT COMMISSION

Britain's independent research charity for transport and land use policy

www.independenttransportcommission.org.uk

'ROAD TO RAIL' CALL FOR EVIDENCE

WRITTEN SUBMISSIONS: May 2012

Contents:

CALL FOR EVIDENCE

Road to Rail: Factors Affecting Trends in GB Car Traffic and Rail Patronage

Background:

A number of factors suggest that we are experiencing a major shift in British road and rail traffic trends:

- There is growing evidence that the historic growth in road traffic in Great Britain since the Second World War has been stagnating over the past decade. This is particularly the case for car traffic: since 2000 car travel has first stabilised and then declined, falling in each of the three years 2008-10.
- Fewer younger people are driving. Between 1992 and 2007 the proportion of 17-20 year olds who held licences declined from 48% to 38%; while over the same period the proportion of licence holders in the 21 to 29 year old age group declined from 75% to 66%.
- On the other hand light van traffic has seen a huge increase over the past decade, rising 28.6% by vehicle miles travelled between 2000 and 2010
- At the same time we are seeing Passenger Rail demand at levels unprecedented since the Second World War. The number of rail passenger journeys increased by 42% between 2000 and 2011, to levels not seen since the 1920s, in spite of above-inflation fare increases.
- Observations indicate that road traffic growth is also slowing in other developed countries, including Germany, Japan and the USA. At the same time, many of the same countries are seeing strong growth in passenger rail travel.
- The Government's transport forecasts have, over the past decade, consistently overestimated road traffic growth and underestimated passenger rail demand. These trends have continued even during this period of extended recession, and in spite of continued population growth.
- The factors underlying these trends are uncertain and disputed, and no compelling case has yet been devised to account for the phenomenon. We urgently need to research these trends to understand what is causing them and to plan properly for our transport needs over the next generation.

Trends in Traffic Project:

The ITC is commissioning a major new policy study, in partnership with the Office for Rail Regulation, the RAC Foundation and Transport Scotland. The project will be led by Professor Peter Jones (UCL) and a team of transport experts at Imperial College and the University of Leeds. The underlying aim of this study will be to identify the factors that seem to be causing both this levelling off in car traffic and the sustained growth in rail ridership, thereby enabling better estimates to be made of future car and rail demand under different assumptions.

This study will examine current data and identify the variables behind these trends, providing insights into the causes of the stagnation in car travel and the rise in rail demand. Analysis will be undertaken to explore the degree to which these phenomena are the result of demographic shifts, behavioural changes, and policy factors. The output of the study will be a major report offering insights into the reasons behind these trends, the prospects of their continuation, and the implications for forecasting and future policy.

In order to inform this important study, the ITC is promoting a call for evidence from business, industry, local government, interest groups and members of the public. Please circulate this document to other interested parties. We welcome submissions as soon as possible, and before the deadline of 18 May 2012.

Call for Evidence Questions:

This call for evidence seeks input in the form of ideas, evidence and suggestions from all organisations and individuals with an interest in the question of trends in road and rail traffic.

The key questions on which we are inviting comment are listed below. These are by no means exhaustive, and we would welcome comments on related issues that you think we should consider:

1. **What are the reasons behind the recent levelling off in UK car travel?**
2. **Why are we seeing such a strong rise in UK rail travel demand?**
3. **Are the increase in rail travel demand and the stagnation of car travel connected?**
4. **Are these recent trends in car and rail travel demand likely to continue?**

Submissions:

We prefer to receive written submissions as a response to the questions above. These are welcome as either email or postal submissions, and should be delivered **before the deadline of Friday 18 May 2012**. Please send your responses by email to secretary@theitc.org.ukor by post to: The Secretary-General, Independent Transport Commission, 70 Cowcross Street, London, EC1M 6EJ, UK. Please keep submissions to a maximum of four pages.

Written submissions will be published on our website, and we would like to invite a number of those submitting evidence to take part in hearings to be held in London on 8 June 2012 (travel expenses will be covered). Please inform us if you do not want your submission to be made public or to participate in the spoken evidence sessions. If you are submitting information on behalf of an organisation, please include details of the relevant person to contact should we wish to discuss issues raised in your submission.

If you have any questions about this call for evidence, please contact secretary@theitc.org.uk

About us

The Independent Transport Commission (ITC) is Britain's leading pan-transport think tank and research charity. Our goal is to generate better transport and land use policy through a better understanding of the key challenges we face. We achieve this by commissioning groundbreaking research studies, promoting public debate through seminars and lectures, and encouraging new ways of thinking about critical issues in transport and land use policy

For more information on the ITC please visit our website at www.theitc.org.uk.

Issued: 10 April 2012
Updated: 30 April 2012

Submission A

FIRST GROUP – GILES FEARNLEY

Introduction

FirstGroup is pleased to respond to the invitation from the Independent Transport Commission calling for evidence to four questions as set out below. FirstGroup is the one of the world's leading surface public transport operators, moving over 1.54 billion passengers per annum in the UK. This means we are well placed to provide informed evidence to the ITC on the questions it raises. However, we believe the scope of questions should be expanded to include the role of bus travel which has influenced some of the changes in travel behaviour identified in these questions. Our response uses both UK Government statistics and data from our rail and bus operations plus additional market research conducted by FirstGroup.

1. What are the reasons behind the recent levelling off in UK car travel?

The Department for Transport's National Travel Survey (NTS) indicates both the number and distance of car trips has decreased between 2005 and 2011. However, these changes have not occurred uniformly across the UK, with increases in journey distance affecting the North East, Scotland and Wales being offset by decreases elsewhere as car ownership in these areas caught up with the rest of the UK. There are also historic differences in car usage relating to different journey purposes, with a reduction in commuting, business, education and shopping trips by car being partially offset by increases in personal business and holiday related trips. The NTS and other data sources show that these reductions in car trips have been partially offset by increased usage of public transport. A number of factors have contributed:

- **Fuel prices**: Figure 1 uses data from the Department for Transport and Office of National Statistics to illustrate that fuel prices have risen at a faster rate compared with gross average earnings. Fuel prices fluctuated between 2001 and 2009 although the overall trend broadly matched the change in earnings. However, since 2009, fuel prices have increased by 40%, whereas earnings rose by just 4% and, therefore the affordability of fuel has been reduced. More fuel efficient cars have partially offset these increases. Higher fuel cost has also been a major contributory factor to an increase in bus fares since 2004.

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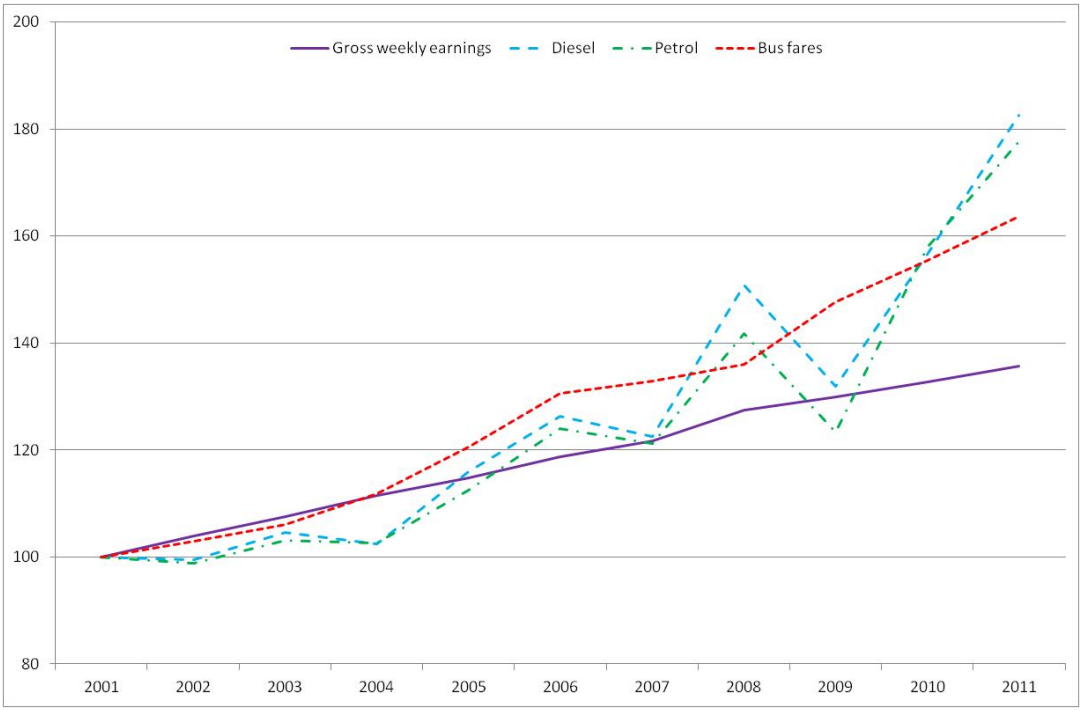
Figure 1: Comparison of Gross Weekly Earnings, Fuel Prices and Bus Fares



Source: Department for Transport, local bus fares index October 2011, fuel prices per litre (September 2011) and Office of National Statistics Patterns of Pay 1997-2010 ASHE

- **Car ownership:** DfT data indicate that the long term trend of increased car ownership has levelled off, with about an average of 0.61 vehicles per adult since 2005. The percentage of households without access to a car has also levelled out at 25% following earlier reductions. Rising fuel costs, plus other motoring expenses may have contributed to this outcome and is consistent with the reduced usage highlighted earlier;

- **Congestion levels:** DfT monitoring data indicate average vehicle speeds reduced, especially in the North East, South West, London, East and East Midlands between 2006/07 and 2010/11. Longer journey times will reduce the attractiveness of car travel, particularly as a small increase in traffic can lead to a dis-proportionate change in speeds and increased journey time variability, especially when networks are congested;

- **Employment data:** analysis of ONS data indicates there has been a significant rise in the number of professional jobs between 2001 and 2011, with a smaller increase in service sector jobs. The changes affecting these sectors have been partially offset by the reduction in manufacturing employment. The types of jobs tend to be more concentrated in main centres where commuters have wider travel to work choices;

- **Role of local bus services:** the development of Quality Partnerships with local authorities has delivered many significant improvements in local bus networks including more frequent and more reliable services with new vehicles and extensive bus priority, such as the Greater Bristol Bus Network covering ten major corridors in the conurbation which has seen significant growth in bus use;

- **Role of rail services:** as part of its contractual commitments, FirstGroup has delivered a range of improvements to rail services as set out below which are examined in more detail.

2. Why are we seeing such a strong rise in UK rail travel demand?

A number of factors have contributed to the continued rise in UK rail demand. Patronage increased by 6% during 2011/12, indicating that the demand for rail travel is influenced by factors other than changes to GDP. These increases have affected all market segments including commuting to the principal employment centres and longer distance trips to London and between other major cities.

The substantial growth in the number of jobs categorised as 'professional' has boosted travel demand to the principal cities. In addition many cities have seen regeneration schemes in central areas, which have acted as a catalyst for employment growth. Rail is an attractive mode for these trips and the proximity of railway stations to these employment centres has resulted in strong patronage growth during the last five years to a number of cities including Bristol, Manchester, Liverpool, Sheffield and Leeds.

Major cities have also benefitted from significant investment in rail services. Since 2004 First TransPennine Express has achieved higher growth compared with the national average (84% versus 40%), with new rolling stock, more capacity and a range of timetable improvements between the main stations it serves has contributed to this outcome. Our market research indicates the reliability of these services (93.3% of trains on time) have attracted car users from the congested parallel motorways, both for commuting and business purposes.

FirstGroup has also delivered other enhancements to support passenger growth on its other franchises. These includes extra rolling stock to lengthen or operate more frequent trains, station improvements, additional car parking and innovative measures to disseminate information. The DfT and Network Rail has also invested to help fund other rail improvements.

Furthermore, FirstGroup has expanded the coverage of the 'Plus-Bus' ticketing system by collaborating with bus operators to provide an integrated and seamless public transport offer. This innovation has helped to expand the catchments served by each station which is particularly beneficial if car parking at the station is constrained.

FirstGroup has also expanded its application of advanced fares, particularly to support growth during the off-peak period, coupled with greater internet services. For example, advanced purchase tickets account for 18% of revenue at TPE. The availability of these fares has reduced the overall impact of above inflation increases affecting non-regulated fares.

As well as commuting flows to the main cities, the number of longer distance rail trips has also increased. There are several contributory factors including increased use of advanced purchase tickets using the internet, availability of wi-fi enabling business passengers to be more productive during their journey, and recovering the weekend travel market following extended periods of engineering works. Higher fuel prices and congestion on strategic routes have also helped to boost demand for longer distance flows. Improved frequencies and faster journey times have strengthened the competitiveness of rail with regional air services on some corridors. TPE has achieved 135% growth on Anglo-Scottish services from Manchester Airport to Edinburgh / Glasgow, whereas the number of daily flights has been more than halved. The benefit of productive time spent on the train, together with convenient rail access to the city centre, has helped to support patronage growth.

3. Are the increases in rail travel demand and the stagnation of car travel connected?

There seems to be a strong link between the factors influencing increased rail demand and those reducing car use; in particular, changing economic and spatial policy affecting some employment sectors and increasing private motoring costs. There is a shortage of detailed market research which examines the relationship between these variables in more detail, but it appears there are some new emerging trends.

There is some connection between the change in rail demand and car usage, although others factors which have contributed to the overall change in travel patterns are independent. For example, the changes noted earlier affecting fuel costs, congestion and car ownership levels are largely mutually exclusive from the contributory factors which have affected the increase in rail demand.

Furthermore, some of the factors influencing the growth in rail demand have emerged in response to specific initiatives which are not affected by changes to car travel. For example, some improvements to rail services have been delivered independently, including measures to boost off-peak demand through the deployment of advance purchase tickets. Secondly, the development of longer distance rail journeys including increased competition with air has mainly occurred independently of the changes affecting car usage.

In late April 2012 FirstGroup launched the Eclipse bus service in Hampshire. This uses state of the art vehicles to link Gosport and Fareham on a dedicated busway, significantly reducing the variability of journey time by bypassing the congested A32 route. It is this type of innovative, high quality, bus based scheme that has the potential to encourage a step change in the level of bus use by persuading car users to make a change of mode and use their time and money more productively. Initial results indicate a dramatic increase in patronage of the new service, and examples similar to this will help to maintain this downward trend in car use.

4. Are these recent trends in car and rail travel demand likely to continue?

FirstGroup has identified a number of possible factors which could help to reinforce these recent trends noted earlier. However, the importance of these issues will be determined by both Government policy and private sector investment to progress various innovations. Many of these factors will also influence the demand for bus travel as part of an integrated public transport offer.

- **Future spatial policy -** recent city centre employment growth has helped to stimulate wholly new rail demand. A land use policy focussed towards transit orientated development with multiple trip generators and attractors located on a corridor will help to boost public transport demand (both bus and rail), helping to make the case for future investment. These development patterns will also reduce the reliance on car travel to access these locations;

- **Public transport fares and fuel costs -** as noted earlier, fares have increased at a significantly lower rate compared with the change in costs for using private vehicles. The forecast changes in fuel prices have been examined and there is a strong likelihood that further significant rises will occur. These increases are considered likely to reinforce the recent reductions in car use;

- **Overall investment in rail services –** rail has benefited from significant investment in infrastructure and rolling stock to improve services and support recent patronage growth. Further investment is required to deliver the next step change in capacity, particularly in the main regional cities. These improvements are needed to help unlock network bottlenecks, improve performance and support future growth, which will reinforce the demand for rail;

- **Parking supply and cost -** the cost and availability of parking provision influences wider travel choices. Simple measures such as restricting the availability of free or cheap on street parking, and implementation of parking policies that control the volume and cost of parking supply whilst actively reducing the proportion of long stay spaces, can have significant impact on modal split when combined with complementary measures to improve local public transport. Similar to the change in fuel prices, a significant increase in parking costs would deter some car drivers, particularly commuting and some discretionary trips. Future development pressures in the city affecting some surface car parks located on the periphery of the city centre could increase, especially as the economy recovers. The development of these sites to offices or other uses would reduce parking availability and may lead to further price rises, potentially reducing the attractiveness of car. [This para would be better above the demand management para]

- **Demand management measures -** continued use of these measures to manage car use and congestion will have a major influence on both bus and rail demand. The introduction of a local work place parking levy, or other demand management mechanisms will have a significant impact on the relative attractiveness of car compared with other modes. This will influence the continuation of recent trends in car use, particularly for commuting or business travel;

- **Ticketing and passenger information -** FirstGroup continues to examine the potential for Smartcard and EMV ticketing, which is being rolled out across the UK Bus Division by autumn 2012, and to deliver innovative solutions for multi operator and multi modal ticketing and dissemination of passenger information The further roll-out of these solutions will help to strengthen the wider role for public transport, versus alternative modes;

FirstGroup's Vision for Buses over the next 10 years outlines our 'promise' to deliver 'Better Journeys for Life'. Delivering attractive, viable bus services will help to build a better future for our economy, the environment and our communities. The delivery of this 'promise' will help to promote sustainable development , to connect people more efficiently, reduce congestion through mode transfer from other modes to buses and cut carbon emissions from travel.

FirstGroup has identified several themes which will underpin its future rail franchise submissions. These include measures to address punctuality, reliability, integration, quality and affordability. This combination will help to strengthen the role of public transport versus private car travel.

Conclusions

FirstGroup has used a range of data and its considerable experience to respond to the four questions presented by the ITC. There is some overlap to help explain the change in traffic growth by car and the recent increases in rail patronage, but many of the contributory factors identified are independent. The likelihood of extrapolating these recent trends forward is somewhat dependent on external factors, but First considers that with appropriate interventions in policy both nationally and locally, and strong private sector investment, the role of public transport will increase significantly during the next 5- 10 years.

Submission B

IAM – NEIL GREIG

Road to Rail: Factors Affecting Trends in GB Car Traffic and Rail Patronage

The IAM (Institute of Advanced Motorists) directly influences the driving and riding of more than 160,000 road users a year (full members, associates and commercial clients) in the UK and Ireland.

Established in 1956, the IAM is today best known for the advanced driving test and the advanced driving course. The IAM has grown to become the UK's largest road safety charity, dedicated to raising driving standards, engaging with the road-using public and influencing road safety policy. The commercial division of the IAM operates through occupational driver training companies IAM Fleet UK, Drive & Survive and IAM Fleet Ireland.

In January 2007, the IAM Motoring Trust was established as the policy and research division (PRD). The PRD undertakes research projects, consultation responses and run campaigns, which assist in the understanding of road safety issues, inform the development of road safety policy, raise the IAM's profile in the media and increase the IAM's ability to lobby at a senior level. It also provides an expert comment function to raise the IAM's profile in the media and develop positive relationships with journalists.

The IAM's responses to the consultation questions are laid out below. All IAM reports referred to in this response are available at iam.org.uk.

IAM believes that the levelling off in UK car travel and the significant increase in demand for UK rail travel are closely linked. Whilst there are a number of contributory factors, the situation may be summarised thus. The cost of owning, maintaining, using and parking a car has risen sharply in recent years and whilst rail travel costs have also increased, rail is now competitive, especially where only one person and perhaps even two people are making the journey.
The steady increases in the cost of insuring, taxing, maintaining a car, coupled with the significantly increased price of fuel and the availability and price of medium to long term parking at the destination appear to have reached a point where even the most enthusiastic motorist recognises the need to assess not only the necessity of the journey, but also the means of travel. Whereas comparatively recently the car was the default option for a car owner facing a journey, that is no longer the case. Despite the continuing increase in both local and long distance rail fares, rail travel, either as a daily commute to work, or inter-city travel for business or leisure, has become a more viable option, albeit the often crowded conditions and comparatively high fare prices frustrate and even anger many rail passengers.
The downturn in the economy has also contributed;

- The levelling off and even reduction in personal disposable income will have either deterred individuals from buying a car which they are confident will get them from A to B reliably, or swayed the decision to choose rail travel albeit reluctantly as a less expensive, if less comfortable, option.

- In an effort to manage and if possible to cut costs, companies have reviewed and continue to review their fleet policy. The fleet [company] car, albeit bought or leased at a substantial discount compared to that available to the private purchaser, is no longer seen as a necessarily cheaper alternative to public transport and either fleet vehicles/company cars tend to be less readily offered as part of a salary package, or a cash alternative is offered and often accepted by the employee as a salary augmentation.

- The impact of local government finances may further deter work related car travel. Road pricing, largely pioneered by the Mayor for London, has not been widely adopted, largely due to the significant set up and operating costs. However the introduction of a workplace parking levy scheme in Nottingham, promises to be both simpler and considerably less expensive to operate, placing, as it does, the onus on medium and large employers to pay an annual 'levy' on each of the parking spaces they provide for employees, or which are used by employees whether or not they are provided for their use. Although the WPL is paid by the employer, early indications are that employees will be required to accept a pro-rata reduction in pay for their use of the bay.

  Progress of the scheme will be watched with interest by City authorities throughout the UK as a potential source of revenue.

IAM believes that the levelling off in car travel and increased rail patronage will continue as long as the combination of increased and increasing costs of car ownership and use and lack of disposable income, or revenue in the case of business, continue.

Submission C

Institute of Transport Studies LEEDS – PETER MACKIE

Contribution from Peter Mackie, ITS Leeds

Q1

The answer to this question needs to be rooted in trends in population, household formation, income,prices, car ownership and kms per car which need to be considered separately and together. At this top level, the question to ask is-- over the last ten years, how different has the outturn been from what NTM would have predicted based on actual trends in population, income and fuel prices? I believe the DfT considers their elasticities to be fairly robust ie the errors in forecasts have been due to errors in population, income and fuel price forecasts, failure to predict the global financial crisis etc rather than to errors in elasticities. The ITC study could usefully address that question.

Below that level, there are some more micro issues which could be addressed relating to changes in the market for travel

-- are the annual ownership costs of motoring (eg insurance costs) adequately represented in NTM? The trends in licence holding by age group are clearly indicative of something happening here.

-- are the data on travel robust? For example travel during holidays is considered to be underrepresented in NTS, and foreign travel on UK roads excluded. How confident are we the data is right and that the trends in the data are right?

-- Has for example the Ryanair generation, the Amazon phenomenon, the OCADO lifestyle, the urban renaissance caused substitution from UK car travel? Are there any tax reasons promoting increased use of vans for private use?

-- assuming the poor winters of 2010 and 2011 had an impact on car travel in those years, how much of a bounce back should be expected from a mild winter such as 2012?

-- what indicators are there of congestion levels and trends? The Bates model of traffic growth (RACF 2002) posited a significant congestion feedback to traffic levels. Is this happening?

Q2

I think this is the 64$ question. I am not convinced that road traffic trends have been particularly surprising GIVEN what has happened to income and prices. Trends in rail traffic are naturally harder to explain because they are only 7% of the market and they are concentrated in particular sub-markets.

I think it is essential to look at the trends in London, Inter-City and the rest separately because they may not be the same.

I conjecture that London GDP has held up better than the national average and that some sort of shift and share analysis will account for part of the story. Peripheral region GDP may be down most and rail travel be least important in such areas. Has central London GDP done better than London region GDP?

I would like to see a thorough investigation of trends in revenue per trip, particularly on Inter-City. OK, particular regulated fares may have risen a bit in real terms but what has happened to the total fares basket?

I conjecture that rail capacity has improved and that there are some instances where GJT has fallen as a result. Maybe Transpennine , Thameslink, even ECML half hourly to Leeds and Newcastle.

I'm pretty sure rail fares in cities have risen more slowly than bus fares-- this could affect rail trips in metro areas.

It would be better to tell the story over say a 20 year period because events like Hatfield had a big effect on particular years and lagged effects subsequently because of trackworks ; also the WCML has only been fully operational since ??? following the upgrade.

Q3
The above leads me to say--- might be some connection between the two but modal split could not possibly be the whole story even arithmetically. If even a quarter of rail traffic growth came from relative rail/car GJT change (non-fare) I would be a bit surprised. I think we are looking to the study to answer question 2 and out of that answer comes your answer to Q3.

Q4
This question is possibly easier to answer for car than for rail but in both cases there is a need for a reference case and some scenarios.

For car I conjecture that cars per 1000 pop is somewhere close to saturation level and that growth comes from population increase and trends in kms/car which relate to use costs of car travel (time and money). If recent trends in income, real price of travel and population continue then my answer on car is yes. Obviously for the 2020s there is a scenario in which electric cars achieve market lift-off, electricity continues to be taxed at 5% and the real cost of motoring falls appreciably. In that scenario, a resumption of car traffic growth is likely raising questions of the supply capacity of the infrastructure system. In the scenario of slow economic recovery coupled with relatively high cost of motoring then what has happened in the recent past is a good guide to the future.

For rail I look forward to your explanation of what has been going on. My suspicion is that more of the growth is accounted for by trends in revenue per trip than you would get from regulated fare indices. If that is true and if RPI plus 1 for regulated fares drags up unregulated fares, then growth should slow. But we need the answer to Q2 first.

Submission D

LONDON ASSEMBLY TRANSPORT COMMITTEE Preliminary Information

- **LAURA WARREN, SCRUTINY MANAGER**
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The Chair of the London Assembly's Transport Committee, Caroline Pidgeon, has passed on to me the ITC's email to her calling for evidence for its inquiry entitled 'Road to Rail: Factors affecting trends in GB cartraffic and rail patronage'. I provide support to the Transport Committee so I'm providing an initial response to the call for evidence.

As it's currently the pre-Mayor and Assembly elections period, it may be difficult for the Transport Committee to provide a formal submission by the deadline of 11 May. I'd therefore be grateful if you could advise if it would be possible to provide a formal submission beyond this date should, post the elections, any newly formed Transport Committee wish to make such a submission.

In the mean time, I've set out below some information on the most recent Transport Committee publications relating to road and rail demand in London which might be of interest and relevance to the inquiry. Please do let me know if you require any further information about any of these pieces of work or the London Assembly's Transport Committee in general.

Demand for road travel

- The Transport Committee published a report on the future of road congestion in London in June 2011. This report covered the future predictions of rising road traffic in London and called on the Mayor and TfLto set out how they would managed road congestion in the short and long-term. It included consideration of initiatives such as car clubs.

http://www.london.gov.uk/publication/future-road-congestion-london

Demand for rail travel

- The Transport Committee published its letter to the Office of Rail Regulation in response to the Rail Industry's Initial Industry Plan for future investment in rail in November 2011. This is the Committee's mostrecent publication about the rising demand for rail in London and the need for more investment in the capital's rail services to help meet this demand. The letter provides some information on: the predictions for future rail demand in London; the specific raillines where more capacity is most urgently required; and the need to improve more rail stations in London.

http://www.london.gov.uk/sites/default/files/Response%20to%20IIP%20on%20rail%20Nov%202011.pdf

This letter follows on from previous Committee work on demand for rail in London including a report into rail overcrowding (The Big Squeeze) in February 2009. This report mapped the 20 busiest rail routesinto London and identified the worst pinch point stations on these routes. This report is available at: http://www.london.gov.uk/who-runs-london/the-london-assembly/publications/transport/big-squeeze-rail-overcrowding-london

Submission E

Dr KIT MITCHELL

Road to Rail: Factors Affecting Trends in GB Car Traffic and Rail Patronage

Statement of evidence by Dr C G B (Kit) Mitchell

Introduction

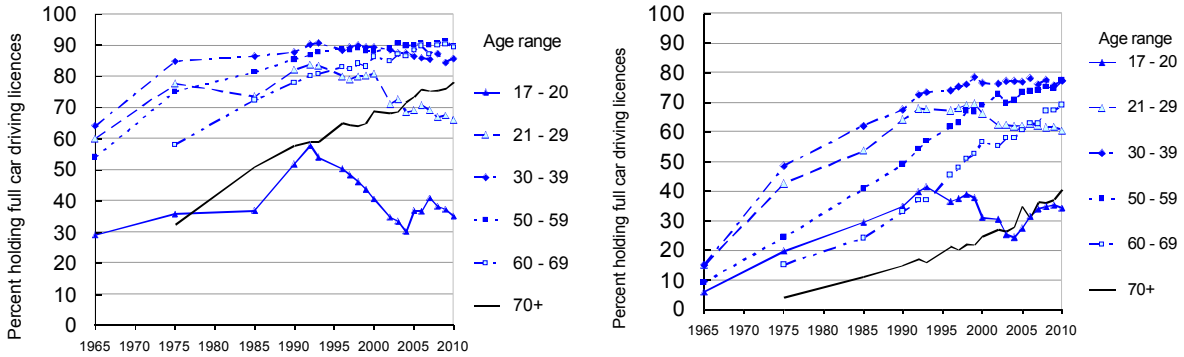
The Independent Transport Commission has called for evidence on a number of topics. This note focuses on the levelling off of car travel in Britain.

The Transport Statistics User Group recently held a seminar on 'peak car'. This submission is based on a presentation prepared for that seminar. The presentation was based largely on data from the National Travel Survey.

The main conclusion is that changes in driver licence holding, car ownership and car use vary considerably with age group, gender and residential location. To understand what is happening, analysis must be disaggregated at least with respect to those factors.

Car driving licence holding

Licence holding by teenagers collapsed in the 1990s and has only partly recovered. This reduction has spread to people in their 20s and, for men, in their thirties. The changes are less for women than men. There has been no analysis by area of residence.



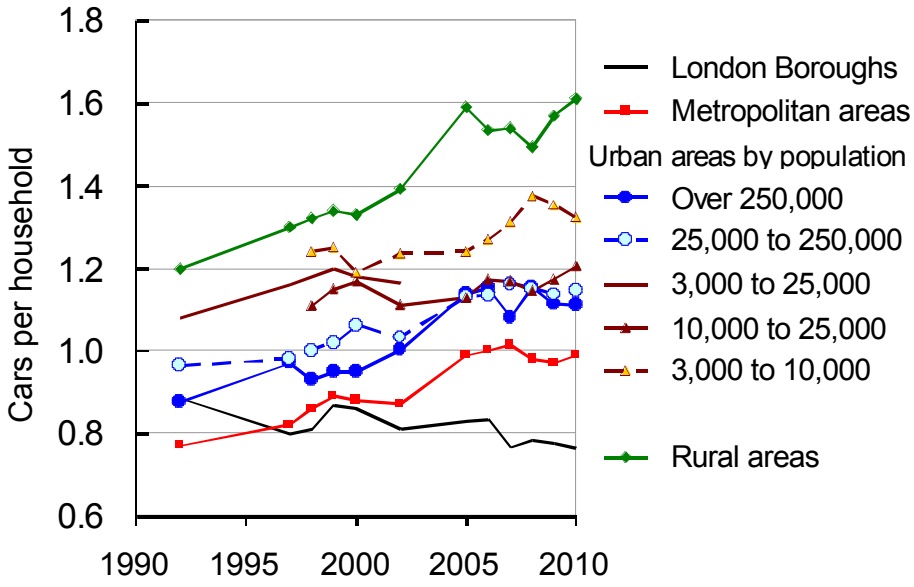
Men Women

Trends in car driving licence holding by age and gender (National Travel Survey)

Similar trends are found in USA, although the data on driver licensing is less robust, as it is based on administrative data, not surveys.

Car ownership

Despite the national increase in car ownership, ownership has been falling in Greater London for at least twenty years both on the basis of cars per person and cars per household. More recently, car ownership has ceased to grow in large cities and the metropolitan conurbations



Cars per household by type of area (National Travel Survey)

Car ownership is still growing strongly in rural areas, less strongly in towns of 3 – 10,000 population, and slowly in towns of 10 – 25,000 population.

The patterns shown by plots of cars per person and cars per household are also shown in plots of the percentages of households with no car, one car and two or more cars. Again, the differences between rural areas and large urban areas is marked.

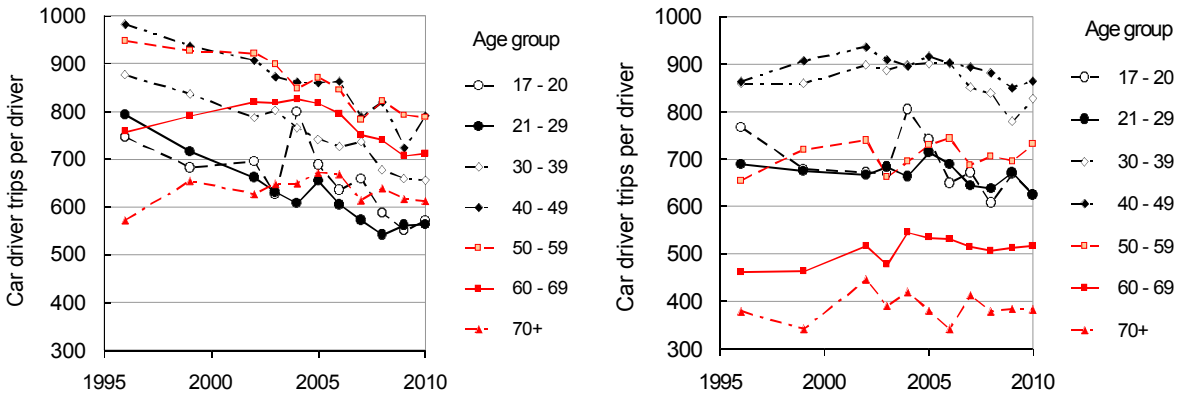
Car use

Car use can be measured as the number of car driver trips per licensed driver and the car driver miles travelled per licensed driver. For all licensed drivers, the number of car driver trips was steady at just over 600 per year from 1990 to 2005, but by 2010 had reduced to about 550. The miles driven were steady at about 5,200 per year from 1996 to 2002, but had reduced to about 4,650 by 2010.

Perhaps more importantly, men in age groups less than 60 years old have reduced their number of car driver trips between 1996 and 2010. Men aged 60 – 69 increased their car driver trips between

1996 and 2004, but subsequently reduced the number of trips. For men in their 70s, the number of car driver trips was steady from 1999 to 2006, but then started to reduce.

For women, the number of car driver trips per licensed driver has been relatively steady for all age groups between 1996 and 2010.



Car driver trips per year per licensed driver (National Travel Survey)

Male car drivers have always driven more miles than female drivers, but the difference is reducing, particularly for drivers aged 20 to 29.

There has been no analysis published of car driver trips or miles driven by area of residence.

Conclusion

The National Travel Survey shows that trends in the holding of car driving licences, car ownership and car use are changing. These changes vary with age, gender and type of area of residence. Licence holding has changed most for men aged under 30. Car ownership trends have changed most in London and major urban areas. Car use has reduced most for men aged under 60, and particularly for younger men. Any analysis of these trends must be disaggregated by age, gender and residential location.

The trends in licence holding and car use in USA are similar to those found in Britain.

The National Travel Survey data tells us that car ownership and use are changing, but very little about why this is happening. A thorough study of the causal factors behind the observed trends has the potential to explain what is happening, and give more confidence to any forecasts of future trends.

Submission F

MOTT MACDONALD – ROBERT FICKLING

In the furtherance of research into the recently seen strong growth in (regional) rail demand and the reasons about it and it's likely continuation or not, we would like to provide the following response to your recent "Call for Evidence", in particular relating to the two questions:

2. Why are we seeing such a strong rise in UK rail travel demand?
4. Are these recent trends in car and rail travel demand likely to continue?

Mott MacDonald (along with Transportation Research Group, University of Southampton and Eden Business Analysis) undertook the Northern HLOS Growth Study on behalf of DfT Rail between Autumn 2009 to Spring 2010 examining the reasons behind the major growth in rail demand into the five key HLOS cities (Liverpool, Manchester, Leeds, Sheffield and Newcastle). The study built upon evidence and analysis within the earlier MVA Regional Rail Demand Study, but examining data in far greater detail.
The study examined the effects of using more disaggregate data for both origin and destination ends of the rail journey, as well as issues of crowding, reliability and train delivery. Even with these factors included, a gap was still evident between best PDFH forecast and observed demand growth. Therefore additional factors were examined, based on detailed regression work, with economic structural change parameters (shift to white-collar-sector urban employment) and variables related to car parking supply best explaining the gap.
The revised forecasting methodology was used to generate corridor-specific growth factors covering Control Periods 4, 5 and beyond. The work also derived MOIRA service-group-based growth factors, and has been used to inform the urban demand growth for the Network Rail Northern Route Utilisation Study. Additional work has subsequently been commissioned by Greater Manchester PTE to test the impact of more detailed future growth forecasts upon rail demand in the Manchester area.

Subsequent to this study further analysis has been made as to the impact of limited rail capacity upon rail demand growth on behalf of ATOC (Additional Rolling Stock Study) during summer/autumn 2011. This assessed the suitability of Passenger Demand Forecasting Handbook (PDFH) guidance on the effects of increasing train capacity on travel demand on crowded rail corridors. The study included detailed back-casting analysis of case-study and control corridors and innovative use of the new MOIRA2 to assess the predicted effects of historic de-crowding measures on demand at origin-destination level. The purpose was to establish the characteristics of routes where PDFH provides robust forecasts, and to identify those where alternative methodologies are needed, because traditional forecasting has itself failed - as above all in the North of England. Study outputs have provided revised guidance to be included into the next edition of the PDFH, in particular over instances where rail demand would be expected to far outstrip traditional forecasts and what factors should be expected to lead to this.

Both of the above studies are confidential but with contacts as below:

DfT Northern HLOS Growth Study - Andrew Nock - Andrew.Nock@dft.gsi.gov.uk

ATOC Additional Rolling Stock Study - Ian Smith - Ian.Smith@atoc.org

Submission G

NOTTINGHAM BUSINESS SCHOOL – JOHN DISNEY

Road to Rail: Factors Affecting Trends in GB Car Traffic and Rail Patronage

Submission to the ITC by Dr John Disney, Nottingham Business School, Nottingham Trent University, Nottingham NG1 4BU
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This submission will concentrate upon emerging trends in the travel habits of young people (aged 17-25). It is based upon secondary data published by DfT and other bodies. No primary research has been undertaken for this report.

Levelling off in UK Car Travel

High fuel prices and congestion (which also increases fuel consumption) are major factors across the population but for young people there are other significant factors

1. Very high insurance costs for inexperienced and young drivers. In many cases annual insurance costs are double (or more) the value of the vehicle and these are a fixed cost irrespective of mileage, although some insurers are now investigating the use of telematics to offer "pay as you go" insurance. Deferring the starting age for driving reduces these costs.
2. There are fewer young people in well paid employment. This is due to the rising student population; youth unemployment and the low minimum wage for under 21's. It is difficult to justify spending 50% of your income on a car, especially if it is not necessary to access employment.
3. University students not only have financial hurdles to overcome to run a car but also face major problems with parking. Many University campuses have now banned Undergraduate students from parking on the campus due to limited spaces which are often prioritised for staff and students on full cost short courses. City centre universities have always had restricted parking and many on- street spaces around universities are now time limited and metered.
4. Young person's lifestyles have changed and no longer revolve around car ownership; they now prefer to spend their disposable income on electronic devices such as laptops and smartphones and socialising. They now regard drink driving as completely irresponsible (apart from a tiny minority) so the car no longer figures in their social life; after a late night of drinking and entertainment they will use taxis, late night buses (a growth area in many cities with some routes serving areas of student residence operating 24/7) or stay over in the city and return home the following day.

Rise in UK Rail Travel

Rail travel is extremely attractive to young people for a number of reasons

1. With the Young Persons Railcard (no longer restricted just to students) and Advance Fares, rail travel can be very attractively priced especially if booked in advance and with flexibility over the time of travel. As most of these journeys are Visiting Friends & Relations (VFR),

they are price sensitive rather than time sensitive. Young people have grown up with Advance Fares booked via the Internet (as for airline journeys) and do not hold the prejudices against these which some commentators such as Doe and Wolmar frequently vent. If you don't own your own car then the only options are public transport or a lift; the latter is usually at the convenience of the driver so they accept that if they miss a booked train their ticket will be invalid.

2. Young people are more accepting of the need to wait for connections or delayed trains. University life often involves queuing and waiting whilst the unemployed have an abundance of time so journey time is not a major factor for young people. 3 to 4 hours for a 100 mile door to door cross country journey is perfectly acceptable to a young person but would be considered very slow by most car drivers. They are also less security conscious than older people when travelling.
3. Rail travel suits the lifestyle of Young People. They can use mobile gadgets en route to provide in travel entertainment and may even be able to recharge them on the train. They can consume their own refreshments on the train (including alcohol on most journeys) and have access to toilet facilities.
4. Young people are usually physically capable of carrying their own luggage on and off trains; across footbridges at stations and to and from the station. They have fewer problems stowing luggage on board as they can reach overhead racks more easily.

Conclusions

There is a definite link between increased rail and decreased car travel especially amongst young people. It is also the case that since Free Concessionary Elderly Bus Travel was introduced many young people consider bus travel to be the mode for the elderly and will therefore choose train over bus where choice exists.

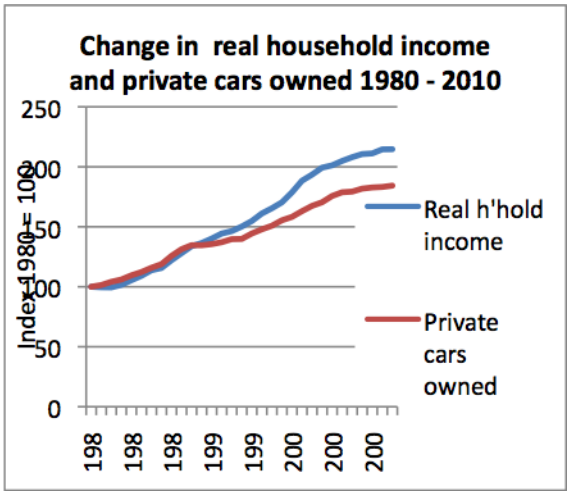
These are welcome trends and ATOC are recommended to consider offering a new Railcard to existing Young Persons Railcard holders when they pass the current age limit allowing 20% off Advance and Off-Peak fares (to avoid abstraction from Business travel) for a £100 fee valid up to the 30th birthday to encourage young people to continue travelling by train.

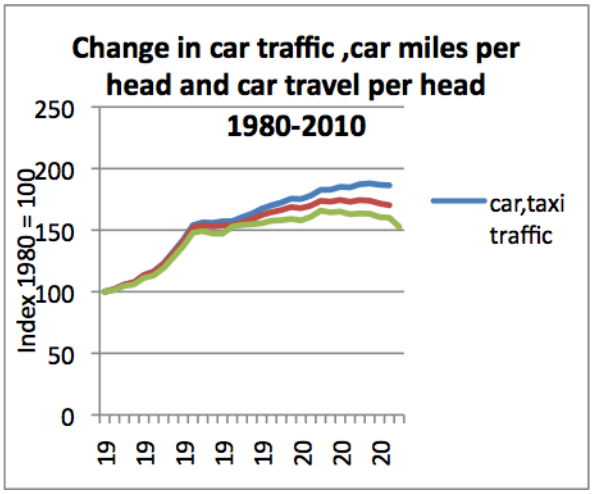
Submission H

OXFORD BROOKES UNIVERSITY – PETER HEADICAR
INDEPENDENT TRANSPORT COMMISSION
'Road to Rail : Factors Affecting Trends in GB Car Traffic and Rail Patronage'
Evidence submitted by Peter Headicar, Department of Planning, Oxford Brookes University

Introduction
This submission addresses the first question on which evidence is invited, viz 'What are the reasons behind the recent levelling off in UK car travel?' It sets out to highlight the significance of the spatial distribution of the population as a contributory factor in the overall volume of car travel and to draw attention to changes in this distribution and its links with planning policy.

The 'levelling off in car travel'
Firstly it is necessary to place changes in the volume of car travel in an appropriate time-frame. The levelling off in overall car *traffic* (ie vehicle miles) is a relatively recent phenomenon compounded by the effects of the latest economic recession but a reducing rate of growth in car *travel* (ie person miles) has a longer history.
Until the late 1980s car ownership, car travel and car traffic all followed a very similar growth trajectory directly related to incomes. After the recession of the early 1990s car ownership continued to rise, but at a slower rate than incomes. With more of the population having personal use of a car (and more cars being second cars in a household) proportionately more car travel was undertaken as a driver than a passenger. Car traffic grew at a slower rate than car ownership, car travel at a slower rate than car traffic and (with the total population rising slowly) car travel per head at a slower rate still. With further increases in population per capita car use can be said to have begun 'levelling off' from the early 1990s. Provisional figures for 2010 in fact show that it has now dropped back to 1993 levels.
Explanations for the changed behaviour therefore need to be sought throughout this 20 year period.





The significance of the spatial distribution of the population

Studies of the relationship between land use and transport in GB have long shown that the per capita volume of car travel (average trip distance x mode share) is a function of settlement size and density[1]. According to the National Travel Survey car driver miles per person in Greater London are currently only 27% of those of residents of small rural settlements, with a steady increase through the various levels of the urban hierarchy in between. Some of this difference is due to socio-economic characteristics but statistical analysis has shown that, controlling for these other variables, settlement type retains a strong influence on per capita car driver miles[2].

With such a large difference across the urban-rural spectrum the way in which the population is distributed between the urban size categories clearly has a major influence on national volume of car travel. Changes in this distribution arise primarily through additions to the building stock (including via redevelopment) and through migratory movements of the population. By definition these changes are marginal but will have a cumulative effect over time. They therefore merit investigation as one of the contributory factors to travel trends.

Background – the process of counter-urbanisation

The growth in car use throughout the 20th century was essentially a product of a combination of rising incomes and car ownership on the one hand and an expansion of urban areas on the other. During the second half of the century the traditional process of suburbanisation (peripheral extension of individual towns) was compounded by counter-urbanisation – a 'cascading' of the population downwards through the urban hierarchy from London, the provincial conurbations and larger cities to smaller freestanding towns and rural areas. There are several explanations for this[3] including

- Longer distance commuting (essentially an extended form of suburbanisation, often prompted by a combination of household 'overflow' from major cities, house price gradients and restrictive planning policies such as Green belts)
- Residential preference for non-metropolitan areas
- Economic change in favour of peripheral areas
- Employment decentralisation

Net population losses from the larger cities totalling some 3m people occurred during the period 1961-1991. Smaller towns and rural areas gained by this amount plus a further 2.4m, due to a net increase in the national population, mainly in the 1960s[4] . However by the 1980s the national population had stabilised and the losses from the cities had begun to diminish, particularly from London. This was due partly to a reorientation in public policy initiated by the Inner Cities White Paper of 1976 and continued through the 1980s by innovations such as Urban Development Corporations and Enterprise Zones.

Planning policy geared to sustainable development

In the mid 1990s, in pursuit of the then novel concept of 'sustainable development' planning policy was further reorientated to promote urban regeneration, reduce the requirement for 'greenfield' land and lessen car use[5]. Of particular significance for the distribution of the population were policies giving primacy to development in or adjacent to existing urban areas with good accessibility by non-car modes, to the re-use of previously developed ('brownfield') land and to higher housing densities. As a consequence between 1997 and 2008 the proportion of new dwellings built on brownfield land (typically concentrated in older inner urban areas) rose from 56% to 81%. In addition the post-1997 Labour Government established an Urban Task Force whose findings informed the publication of an Urban White Paper aimed at promoting an 'urban renaissance'[6]

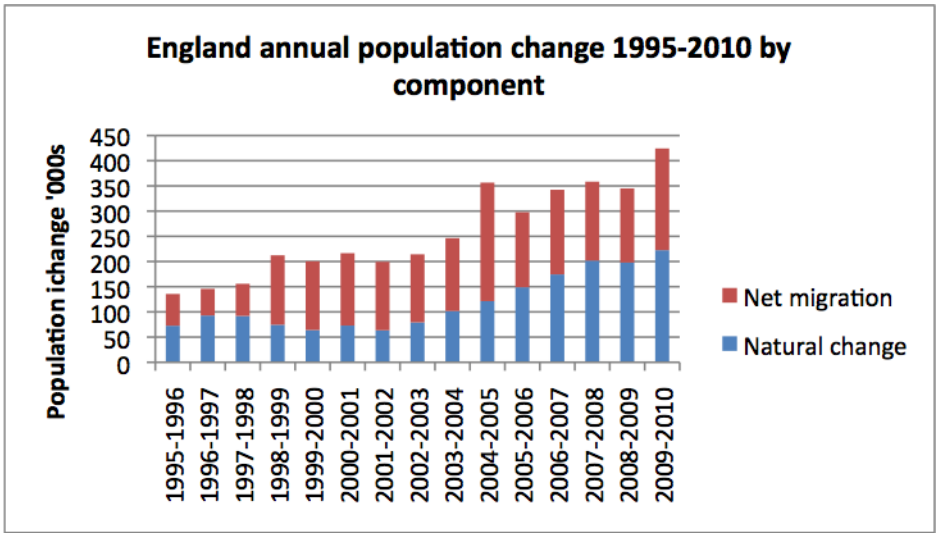
Recent changes in the distribution of the population

Changes in the distribution of the population during the 1990s have been examined exhaustively using data from the 2001 Census[7]. Broadly this shows the process of counter-urbanisation continuing, but with a further recovery in the fortunes of the major cities, especially London. As well as the establishing the pattern of change in aggregate its components were analysed in terms of

- Net natural increase (births over deaths)
- Migration within individual city regions
- Inter-regional migration, and
- Net international migration

The experience of individual cities nevertheless varied considerably according to their role as 'gateways' for international immigration, their economic success and offer of employment opportunity. The latter was particularly important in influencing cities' ability to retain graduates who had originally migrated there to attend university. (The rapid expansion of higher education increased the significance of this component). Overall it was concluded that "there has been little alteration in patterns of within-UK migration as they affect the larger cities. Instead it is found that trends in international migration provide the main key to understanding the upward shift in the growth rates of larger cities in recent years, together with a more selective role for natural increase".

This conclusion provides a valuable pointer to understanding the changes that have taken place since 2001 during which time natural increase and international migration have assumed even greater importance. Over the last decade these have doubled in size and currently add over 400,000 a year to the national population.



Pending publication of the 2011 Census establishing the contemporary spatial distribution of the population is necessarily somewhat speculative, having to rely on the annual ONS mid-year estimates[8]. These are published for local government administrative units which only provide an approximation to the 'real-world' boundaries of urban areas. Nevertheless the broad scale and direction of change appears clear enough and follows the pointers identified from the 2001 Census. The table below shows the net change in population within England by 11 area types (following the classification adopted for the 1991 Census) for the periods 1981-2001 and 2001-2010. The signficance of this division is that the national growth in population during each period was the same (5.6%). Hence if the pattern of change as between the area types was stable the figures for each period would be the same. They are not, and by a large margin.

District type	% pop'n 2001	% change 1981:2001	% change 2001:2010	difference
England	**100**	**5.6**	**5.6**	**0**
1 Inner London	5.8	12.1	10.0	-2.1
2 Outer London	9.0	4.9	7.7	2.8
3 Principal Met Cities	6.8	-5.9	6.1	12.0
4 Other Met Districts	15.3	-3.4	2.4	5.8
5 Large non-met cities	4.7	-2.1	6.7	8.8
6 Small non-met cities	4.0	5.4	4.2	-1.2
7 Districts with Industry	12.0	4.5	4.2	-0.3
8 Districts with New Towns	5.2	13.2	5.8	-7.4
9 Resort, Port & Retirement	6.6	11.3	4.5	-6.8
10 Urban and mixed urban/rural	20.1	10.4	6.3	-4.1
11 Remoter mainly rural	10.6	15.8	8.6	-7.2

Inner London (with the lowest level of per capita car use) currently has the highest rate of population growth, albeit slightly lower relative to the national average than prior to 2001. At the

other end of the scale the most rural districts are also continuing to grow faster than the national average but at a much reduced rate relative to it. Three of the other less urbanised area types (8-10) show a similar relative reduction. The greatest change though has taken place in the reversal of decline in the principal cities of the metropolitan areas and in the larger non-metropolitan cities. These, together with Outer London are currently growing slightly faster than the national average. Overall therefore counter-urbanisation has not been reversed (in absolute terms the annual rate of growth in area types 10 and 11 has increased a little) but its relative significance is much reduced. This is because the 'counter-urban cascade' which characterised the 1970s and 1980s (ie of a continuous shift down the urban hierarchy) has been replaced with a bi-polar pattern with London and the larger cities enjoying a significant renaissance. Of particular interest in terms of travel behaviour is the link between the migratory movement of younger adults from home and abroad to these larger cities, the falling rates of licence-holding and car use generally amongst this age group and the low level of car use in these places. Meanwhile there remain other categories of urban area (4, 6 and 7 in the table above) which together contain over 30% of the population. Although these areas are now growing overall (reversing decline in several met areas) they are doing so more slowly than the national average and hence their share of the total is continuing to fall over time.

Notes and References

1. See for example ECOTEC Research and Consulting Ltd 1993 *Reducing Transport Emissions Through Planning* Report for DOE and DTp HMSO – based on an analysis of NTS data and which informed the seminal revision of PPG13 in 1994

2. Arup and WSP 2005 *Impacts of land use planning policy on transport demand and congestion* Final Report to DfT Contract no PPAD 9/151/1 Table 2.1

3. As considered by Cross D 1990 *Counter-urbanisation in England and Wales* Avebury, Aldershot

4. Breheny M 1995 'Counter-urbanisation and Sustainable Urban Forms' in (eds) Brotchie J et al *Cities in Competition* Longman Australia, Melbourne

5. As articulated in revisions to Planning Policy Guidance Notes 3 (Housing), 6 (Retail and Town Centres) and 13 (Transport)

6. DETR 2000 *Our Towns and Cities : the Future – Delivering an Urban Renaissance* TSO Cm 4911

7. Champion T, Coombes M, Raybould S and Wymer C 2007 *Migration and socio-economic change* Report commissioned by the Joseph Rowntree Foundation, The Policy Press, Bristol

8. The figures quoted are the revised 2010 mid year estimates used for the ONS 2010 base population projections published in October 2011

17.5.12
INDEPENDENT TRANSPORT COMMISSION
'Road to Rail : Factors Affecting Trends in GB Car Traffic and Rail Patronage'
Note supplementing the evidence submitted by Peter Headicar, Department of Planning, Oxford Brookes University

Introduction

This note reports further work undertaken to establish the significance for car mileage of the changing volume and spatial distribution of the population identified in the evidence submitted previously.

Methodology

Although a lot of detailed calculations have been made the basic methodology is necessarily rather crude and involves a number of pragmatic assumptions. Hence although the broad scale and direction of change identified is considered sound the figures quoted should be regarded as approximations.

The methodology utilises the following data sources:

- Resident population by English local authority from the decennial Censuses for 1971-2001
- The categorisation of local authority area-types using cluster analysis first developed from 1991 Census data. [This categorisation has been retained for all years for each local authority so as to facilitate comparison although in practice the categorisation could change from one census year to another].
- Mid-year estimates of population by local authority published by ONS for the years 2001-2010
- The ONS 2010-based population projections for 2020 and 2030
- Per capita mileage by urban size category from the National Travel Survey for individual years since 2002/3 and for selected years previously back to 1975/76
- A more detailed tabulation of per capita mileage by urban size and individual metropolitan area from the 1985/86 NTS produced specially for the study undertaken by ECOTEC (1993)

Interpolations have been made between NTS dates by reference to national travel figures reported annually in TSGB to produce estimates of travel (car driver) behaviour in Census years.

The basic approach follows that pioneered by Breheny (1995). It involves matching each of the local authority area types (for population data) with one or more of the urban size categories (for travel data). The estimated national total of car driver mileage (factoring the NTS per capita average) is used as an overall control against which the sum of the estimated mileages by area type is compared and the individual area totals adjusted.

There are two inherent limitations with this method that need to be recognised:

i) There is wide variation in the extent to which the administrative boundaries of individual authorities reflect local settlement geography. In practice some authorities comprise territories

which contain more than one urban size category – but only one (considered to be the most characteristic) can be assigned. For example York is categorised as a small freestanding city even though its boundaries include some mixed urban/rural areas outside the main built-up area. Conversely West Berkshire is categorised as mixed urban/rural area although its boundaries include some of the outer suburbs of Reading (ie functioning as part of the city). The travel figures generated for individual authority areas will therefore only be a rough approximation (there will be variation within any NTS category anyway) but when aggregated nationally it is reasonable to assume that a broad balancing of swings and roundabouts occurs.

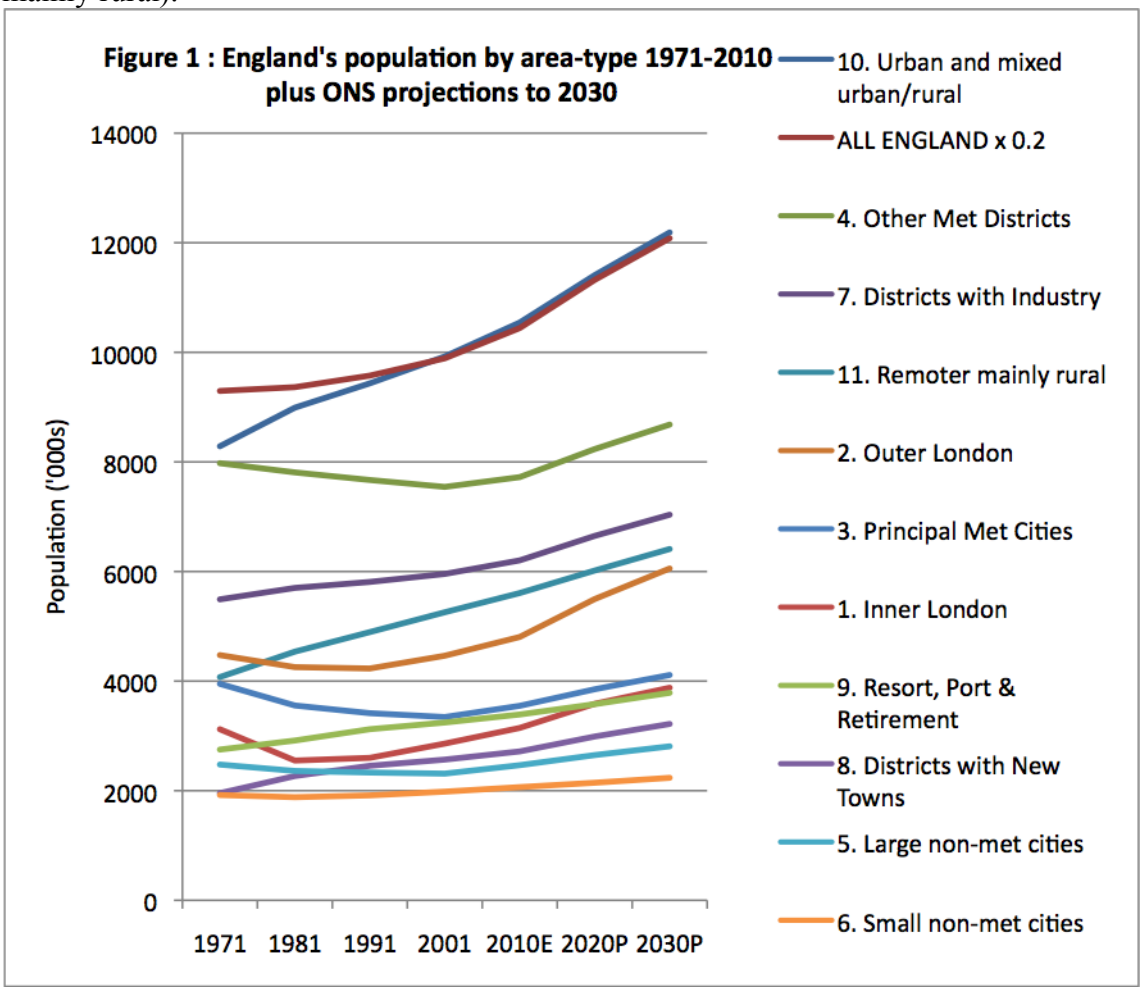
ii) This study of spatial distribution can only identify changes which result from shifts of population between individual authorities (or more correctly between individual authority types). It cannot identify the changes resulting from shifts *within* individual authorities (eg between inner and outer suburbs, or between these and nearby dormitory villages if they are within the same jurisdiction). In essence therefore it can be considered a study of the effects of 'counter-urbanisation' (and responses to it) as distinct from the effects of 'suburbanisation'. The latter would require detailed investigation using Census data for urban and other output areas for which contemporary information must await publication of the 2011 Census.

Population change

The information on population distribution submitted previously has been extended back to 1971 on the one hand and forward to 2030 on the other using the ONS population projections. However it should be emphasised that the latter implicitly assume that the balance of housing and employment opportunities as between local authority areas remains the same. They can be differentiated from what are often termed 'planning' forecasts (eg as used for DfT's TEMPRO data base and National Transport Model) which additionally incorporate the effects of expected local changes in development). However the current TEMPRO forecasts were produced using data available in 2008 and therefore do not incorporate the latest ONS projections. They will also require significant revision to take account of the effects on the development industry of the post 2008 recession.

The changes in population by the 11 area-types are shown in Figure 1. Broadly these types are in the form of an urban hierarchy with Inner London (1) at one extreme and 'Remoter, mainly rural' (11) at the other. Typically types 1-6 (here referred to collectively as 'conurbations and cities') have per capita rates of car driver mileage below the national average whereas the less intensely urbanised 'town and country' group (types 7-11) have rates at or above it. Roughly half of England's population falls into each of these two main groups.
The Figure shows that all the less urbanised types exhibit continuous growth throughout the 60 year period. Each also has an almost constant absolute rate of increase which is remarkable in itself and for the fact that this is despite the national growth rate (shown at the top of the graph) rising very considerably over the same time. Significantly the most populous area-type (10 Urban and mixed urban/rural) is the one which has the fastest growth rate. However whereas during the 1970s and

1980s this was well above the national rate it is currently almost exactly equivalent to it (ie its relative importance has declined). Similar comments apply to the least urbanised type (11 Remoter, mainly rural).



By contrast the more urbanised types show a common pattern of initial decline which has subsequently been reversed. The reversal has occurrred at different times between 1981 and 2001 with Inner London beginning in the 1980s but several others including cities and other districts in the metropolitan areas (3 and 4) only during the last decade. The growth of population in Outer London (2) is projected to be especially strong in the period to 2030.

These figures can now be combined to show the net 'counter-urban' shift and its relationship with the national growth rate (Figure 2). Intuitively one might have expected that, as the national rate increased, the proportion of the population migrating or 'overspilling' to the less urbanised areas would increase also. In practice the reverse is the case. During the 1970s when the national population was barely growing at all a net 1.5m people moved from the conurbations and cities to the less urbanised areas. Conversely over the coming decade during which the national rate is projected to rise to more than 8% (equivalent to 4 million people) the projections anticipate a small shift in population *towards* the conurbations and cities.

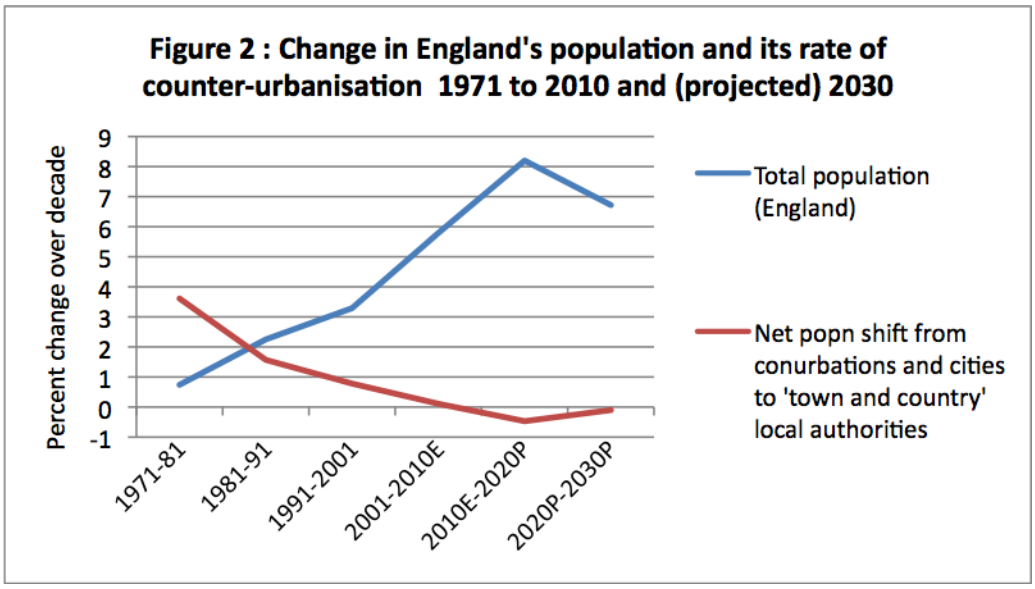
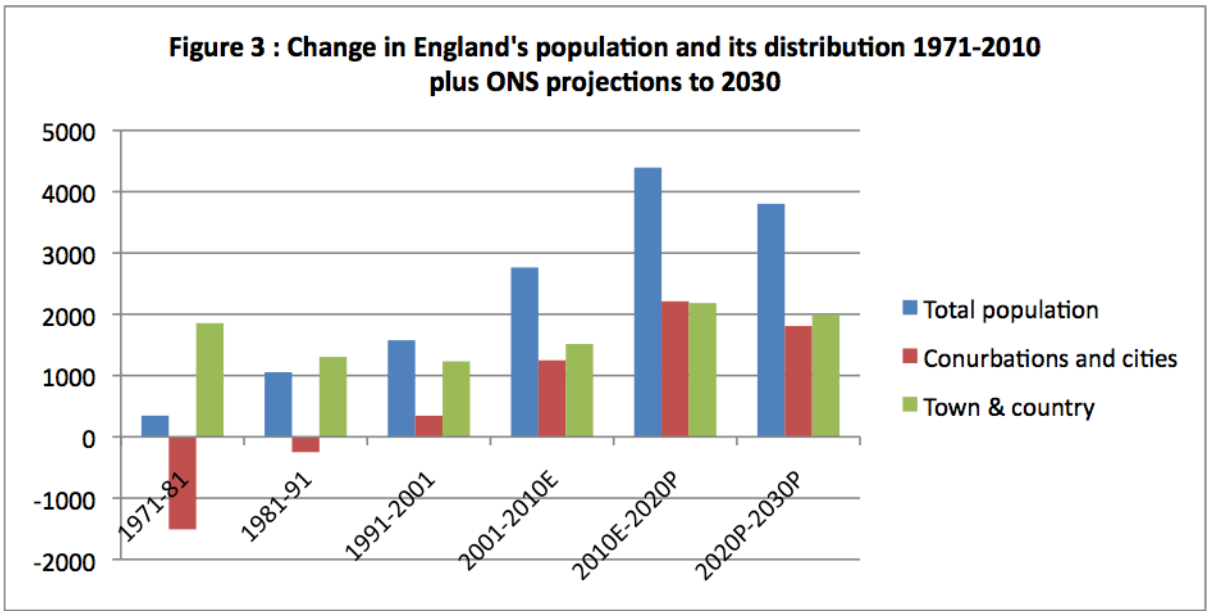


Figure 3 illustrates the effect of these changes in terms of absolute population numbers. It can be seen that from the exceptionally unbalanced situation of the 1970s growth in the less urbanised areas has remained at a lower but almost constant amount during the 30 years since 1981. Meanwhile population in the conurbations and cities has recovered over time taking a progressively larger share of the nation's additional population. Over the coming decade the two main groups of areas are projected to contain almost the same number of additional people, although in absolute terms these are twice as many as during the last decade.



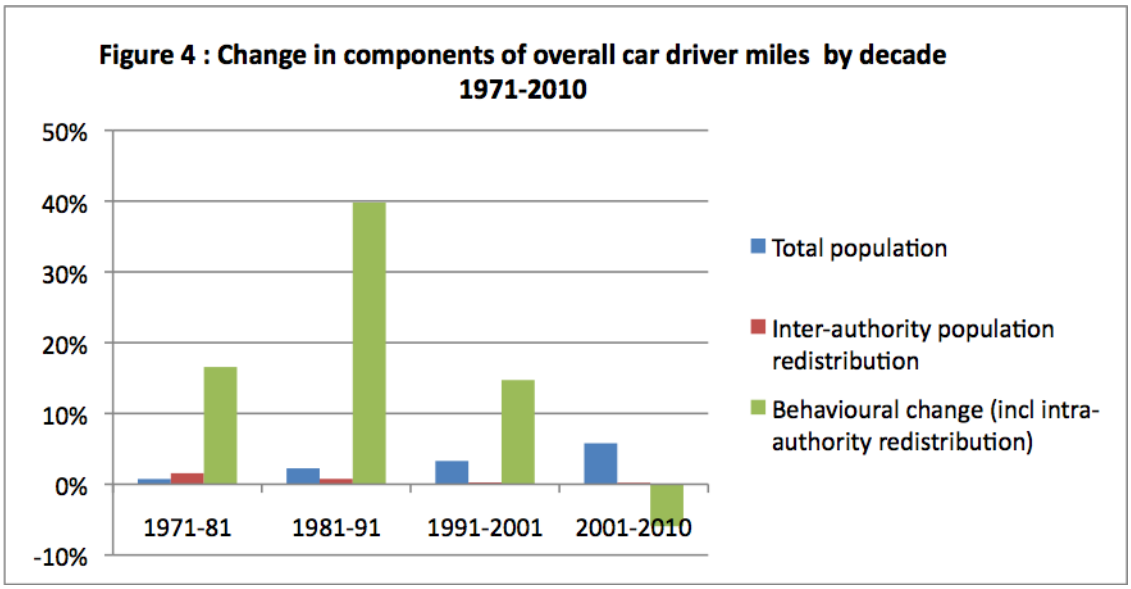
Impact on car driver mileage

Even when counter-urbanisation was running at its highest rate the impact on overall car driver mileage was quite small in absolute terms. This is because the change is marginal in two senses

i) the vast majority of the population continues to be distributed in the same way as before

ii) even those who relocate only increase their car driver mileage by a proportion - .in particular the effect of shifts between area-types within the middle of the range (eg types 3-6 to 7-9) is not great.

The effect is even smaller in relative terms during periods when car ownership and use itself is rising quickly. For example between 1971 and 1991 car miles increased by 72% overall to 150bn miles. Population growth contributed 3.1% to the increase and inter-authority redistribution 2.8% (equivalent to 4bn miles) but behavioural change (including the intra-authority spatial change noted previously) amounted to 62%. Over the last 20 years because of the reducing net shift from the conurbations and cities the effect of inter-authority redistribution is lower still – a further 1.3%. In all over the 40 year period the effect of counter-urbanisation (ie comparing actual outcomes with those which would have resulted from the population remaining distributed as it had been in 1971) is estimated to be 7bn miles out of the 2010 total of 174bn.



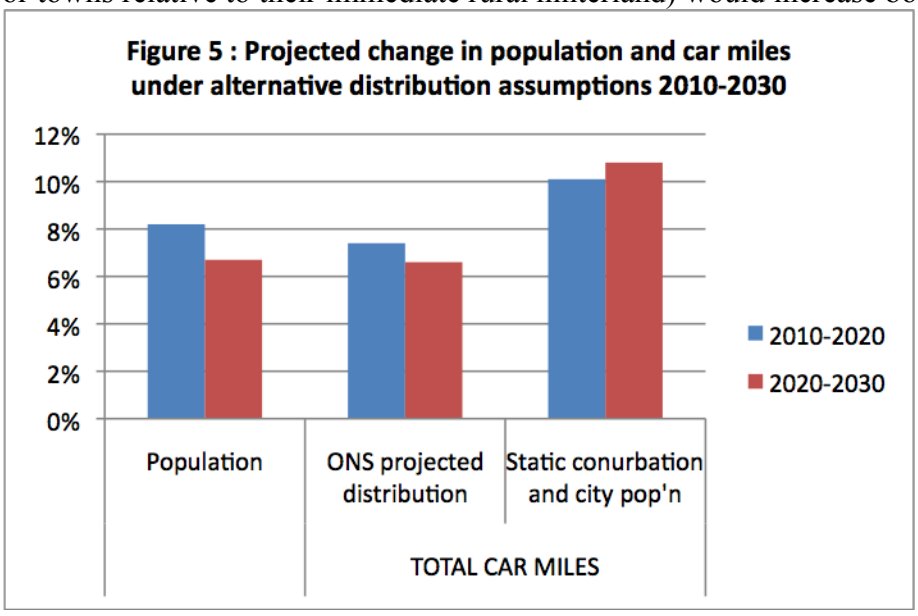
Possible impact in future

The fact that we have currently arrived at a virtually neutral position as far as counter-urbanisation is concerned may give the misleading impression that the issue is of little importance. Given the number and strength of the forces which continue to foster counter-urbanisation (higher incomes and car ownership, better telecommunication, growth in household numbers relative to population, easier 'greenfield' development, space and privacy as 'superior' goods etc) it can be considered remarkable that the decline of the cities has not merely been halted but substantially reversed. (Changes in public policy are not the sole explanation – arguably these are more in the nature of a necessary but not sufficient condition).

However planning policies may be – indeed are being – revised. Lifestyles and social preferences concerning home location are likely to change. The spatial distribution of the ONS population projections is in a sense only a representation of the potential source of future demand for housing

accommodation. In practice this demand may shift if, relative to the recent past, it proves easier or more attractive for employers, housebuilders or landlords to invest in less urbanised areas.
There is also the question of how far it is practicable (economically or politically) to continue to 'densify' development in the more urbanised areas. At a time when the national population is growing quickly is it reasonable to anticipate that conurbations and cities can continue to accomodate their same share of the total rather than simply maintain the numbers that have been achieved so far? Over the past decade these places have absorbed an additional 1.2m people. The ONS population projections imply accomodating a further 4m over the next 20 years. What are the implications for travel if they do not?
To explore this the effect has been calculated of population numbers in the conurbations and cities remaining at their 2010 level with the shortfall (relative to the projected demand) met instead by additional growth in the less urbanised areas – split between them pro rata to their projected growth rates. (As a neutral assumption per capita car driver mileage is assumed to remain at its 2010 level in each of the area-types throughout the next 20 years). Figure 5 illustrates this scenario compared with the impact of the ONS projected population distribution. The effect would be for an additional 2.7% car miles between 2010 and 2020 and a further 4.2% to 2030. In all car mileage would increase by 33.3bn miles (19.1%) as compared with the base projection of 25.2bn (14.5%). Any change in intra-authority distribution (lessening the significance of inner versus outer urban areas, or towns relative to their immediate rural hinterland) would increase both these figures.

Figure 5 : Projected change in population and car miles under alternative distribution assumptions 2010-2030



Submission I

ADRIAN SHOOTER, CBE

In responding to your call for evidence,I will firstly set the context within which I make this contribution.

I was born in 1948 and, therefore, was brought up in the 1950's and 60's at a time of significant change and economic growth after WW2. I can just remember my Father buying his first car in 1951 at a time when cars were strictly rationed because of the need to focus on exports. Gradually,cars became much more freely available and represented a very significant opportunity for ordinary people to taste a level of freedom which was unprecedented bearing in mind that the previous 30 years had comprised the depressed 1930's,the War, then post war austerity. A car represented the opportunity to travel when and where you wished with your family. This was a huge change from dirty,slow,overcrowded and late trains which, with a few exceptions, were the norm. Additionally, the roads were pretty empty and unrestricted. The overall feeling, which I clearly remember was an emotional one of freedom and the ability to escape from the regimented world of the recent past.

With this in mind, it is hardly surprising that my generation could not wait to get some "wheels". I and all my friends took our driving tests as soon after our 17th birthdays as possible and found plenty of cheap prewar cars. My first car cost £5, but what was possibly more significant was that insurance cost me £13 for a year ,at age 17,with no track record. That was about one and a half weeks pay. Petrol in the late 60's was 4/- and 9 pence a gallon. Not expensive. Even though I was personally interested in cars and trains, I went almost everywhere by car simply because of the feeling of freedom and control of ones destiny that was possible.

The 50's and60's,then had seen huge changes in the availability of cars,and also rapid improvements in quality. Railways, on the other hand had not moved with the times and,with the exception of some electric services and the new DMU's being introduced in the early 60's were decidedly yesterday's mode of transport. This was accentuated by all the commotion that surrounded the (very neccessary) Beeching Report. Thus it is not, in the least, surprising that railway passenger numbers were declining at a time of economic growth when you might expect the reverse.

Against this background, you might well ask why I joined British Rail in 1970. The answer is that I had seen enough in the often forgotten forward looking part of the Beeching Report to see a glimmer of what could happen. 42 years later very many things are different: The young are not so excited by the prospect of owning and driving a car. Both Dad and Grandad had one,for goodness sake. if they want one, they face a different level of costs. There are no £5 cars (or their inflated equivalent). You can't do all your own repairs as I and my friends did, either because of the fact that cars are much less DIY friendly or because the young learn IT rather than DIY skills. Fuel is proportionally more expensive than in the 60's.That, however pales into insignificance when compared to Insurance costs which can easily be £3000-£4000 for a 17 year old.

In those 42 years, the quality of the entire rail journey has been changed out of all recognition. This was started, slowly, by BR, principally guided by Chris Green and a few others and then accelerated rapidly since privatisation.

Almost everything has changed, and nearly all for the better:

It is very easy to get timetable information from the web or App's. Trains are much, much more frequent. Trains are clean They run on time. There is good information. The trains are much newer and of better design. They are more convenient. Journey times are shorter. Stations are hugely improved. Staff are friendly and helpful. These are generalisations, but I firmly believe that on average they hold good. Of course, these attributes don't only apply to the young. All ages of the population benefit. The importance of the surge in younger travellers, which has been seen in recent years, is that it holds the clue to the question "Are these recent trends in car and rail travel likely to continue?"

In my view, the answer is "yes" if the Industry and Government is committed to a process of continuous improvement.
A further social factor which encourages train travel is the proliferation of portable communication devices of one sort or another. Very difficult to use as you drive.

In conclusion, I hope these views are useful in putting together the whole picture.

I would be very interested to see you report when it is available

Submission J

TRANSPORT FOR GREATER MANCHESTER – JOHN LAIDLER

Call for Evidence: Factors affecting trends in GB car traffic and rail patronage – response by TfGM

General comments

The idea of a demand curve for travel - in which demand (measured by distance travelled) is inversely related to the generalised cost of travel - is a useful framework for considering all of these questions.

Another (related) idea is the constant travel-time budget, which is alongstanding behavioural constant. The average amount of time per person per day spent on travel has remained roughly constant in the UK for at least the past one-hundred years.

A third important idea is the presence of lags in the demand for travel, by which changes in travel demand continue to take effect long after the event that caused the change. Traditionally in the UK, the demand for travel has often been estimated by methods that amount to little more than extrapolation of past trends.

Typically, the possibility of a trend change is not allowed for, and the uncertainty inherent in forecasting the future is not fully acknowledged.

Q1.What are the reasons behind the recent levelling off in UK car travel?

Generalised cost

UK car travel demand (measured by distance travelled) has levelled off in large part because the generalised cost of car travel has increased relative to alternatives. Specifically:

- Increased car-insurance costs, especially for young drivers (and also more enforcement of the legal requirement for car-insurance) leading to lower car-ownership and hence less car travel.
- Increased car-fuel costs, which has been only partially offset by more fuel-efficient cars.
- Car travel has become slower, or else the rate of increase in car-speed has fallen, for reasons that include: a reduction in road-building; reallocation of roadspace in urban areas away from cars; speedcameras; past growth in traffic leading to more traffic congestion.
- Free bus fares for over-60s have had a substantial effect on demand and some of the generated demand will have been abstracted from car.

Constant travel-time budgets

The constant travel-time budget is a useful way of understanding some of the other drivers of car-traffic growth. Higher-income people use their travel-time budgets to make longer trips, by using faster but more expensive modes such as car. The recent increase in the proportion of young adults in full-time education has led to lower incomes for that age-group, and hence less car travel and more use of slower modes such as walk and bus. For other agegroups, incomes have continued to rise (until 2008) and this will have at least partly offset the factors causing car travel to decline. The increased popularity of inner-urban living, especially among younger people, will have led to shorter car trip-lengths as travellers maintain their constant travel-time budgets, because car travel is slower in inner-urban areas. Increased urban living has also led (in inner-urban areas) to more use of modes suitable for shorter trip-lengths, such as walk, cycle, and bus, and hence less use of car.

Lagged demand responses

After the lifting of the restrictions on car-use – including petrol-rationing - that applied in the 1940s, car travel increased rapidly. However, perhaps because of the difficulty of acquiring a driving licence, the initial change in travel behaviour was confined mainly to young adults. As those young adults aged, they continued to drive, as did new upcoming generations. Therefore the growth of car travel caused by the lifting of 1940s restrictions was lagged over many decades as the ageing of the post-war cohort of young adults led to the largest growth in car ownership being exhibited in successively older agegroups. This cohort effect is now largely a spent force and that is another important cause of the recent stagnation of car travel.

Q2.Why are we seeing such a strong rise in UK rail travel demand?

Generalised cost

UK rail travel has increased in large part because its generalised cost has fallen relative to alternatives. Specifically:

- In the post-privatisation period, many rail fares fell in real terms due to fares regulation: this contrasted with the decades before privatisation when they increased substantially in real terms. Only in recent years have real-terms increases in rail fares resumed.
- The introduction of yield-management on longer-distance train services has enabled spare capacity to be filled by price-elastic trips.
- There have been many improvements in rail in-train times and service frequencies, partly in response to higher demand.
- The digital revolution has led to more possibilities for using in-train time efficiently and enjoyably (e.g. phoning; texting; web-browsing) and these activities are mostly not consistent with driving a car at the same time. This represents a reduction in the generalised cost of rail travel.

The higher generalised cost of car travel will have caused some switching to rail.

Constant travel-time budgets

Rail travel has also benefited from income growth, which causes people to spend their travel-time budgets on faster, more expensive modes. In particular, there has been a growth in long travel-to-work trips to city centres, which are particularly suitable for rail, as has happened in Manchester.

Q3. Are the increase in rail travel demand and the stagnation of car travel connected?

The increase in rail travel demand (measured by distance travelled) and the stagnation of car travel are connected, especially when one recalls that most transport mode-choices also involve choices of trip origin or destination. The factors causing car travel to stagnate will have had a substantial effect on the quantity of rail travel because the car market is large and the rail market is relatively small. For the same reason, the factors causing rail travel to increase will have had a lesser effect on the quantity of car travel. However, the connection between the two is only partial. For example, possibly the biggest cause of the stagnation of car travel – the reduction or levelling-off in car-speeds - has probably led mainly to car trip-lengths being shorter than they would otherwise have been, with only a moderate effect on the quantity of rail travel.

Q4. Are these recent trends in car and rail travel demand likely to continue?

Forecasting the future by extrapolation of recent trends is unlikely to yield accurate predictions. Factors affecting the quantity of car and rail travel can change: a recent example is the resumption in real growth of rail fares after a period of falling real fares. The rail travel generated by yield-management is likely to be a one-off gain. National and local government policy has a 4 substantial effect, and that can change. Recent policy and investment decisions have been more favourable to pt and active travel than in previous decades, and that will affect car and rail travel demand in the next few years. However, trends in travel behaviour tend to be long-lasting: an important reason is that travel behaviour change often lags behind the cause of that change: the "cohort" effect - by which the lifting of 1940s restrictions on car ownership and use took effect over many decades – is one example. Another lagged response which causes trends in travel behaviour to be longlasting is the response of land-use to changes in transport technology. Towns and cities in Britain developed rapidly at a time when most trips were made by walk, tram, or bus. Car travel generates much lower-density and dispersed urban forms, but the long life of buildings, together with resistance from the planning system, meant that the adaptation of towns and cities to mass car travel took effect over a long period – and is still continuing. The presence of this lag in the system means that previously-active constraints on car travel are still being dismantled: this process could be accelerated by recent changes to planning law (or the interpretation of that law).

The delayed response of land-use to much earlier changes in transport technology is likely to be a continuing powerful force working against the recent stagnation of car travel. Some of the factors referred to in this response as leading to reduced car travel and/or increased rail travel could generate a lagged demand effect and hence a long-term trend. The investment that has led to reduced rail invehicle times and higher frequencies has been in large part a response to higher demand: the resulting reduced generalised costs from that investment could stimulate a continuing virtuous circle of higher demand and falling generalised costs (this is an example of the Mohring Effect, which results from the quality of public transport being related to the quantity supplied). The "digital generation", comprising young adults of the early twenty-first century, is likely to continue to make more use of rail travel and this behaviour is likely to be replicated by successive upcoming generations that acquire digital skills and habits, leading to a "cohort effect" analogous to the delayed growth of car travel following the lifting of 1940s restrictions. With many conflicting factors, the future growth (or decline) in the quantity (measured by distance travelled) of both car travel or rail travel looks very uncertain. Many of the factors listed here are affected by government policy (and not just transport policy) which will have a large effect on the outcome.

Submission K

TRANSPORT FOR LONDON – Colin Shepherd

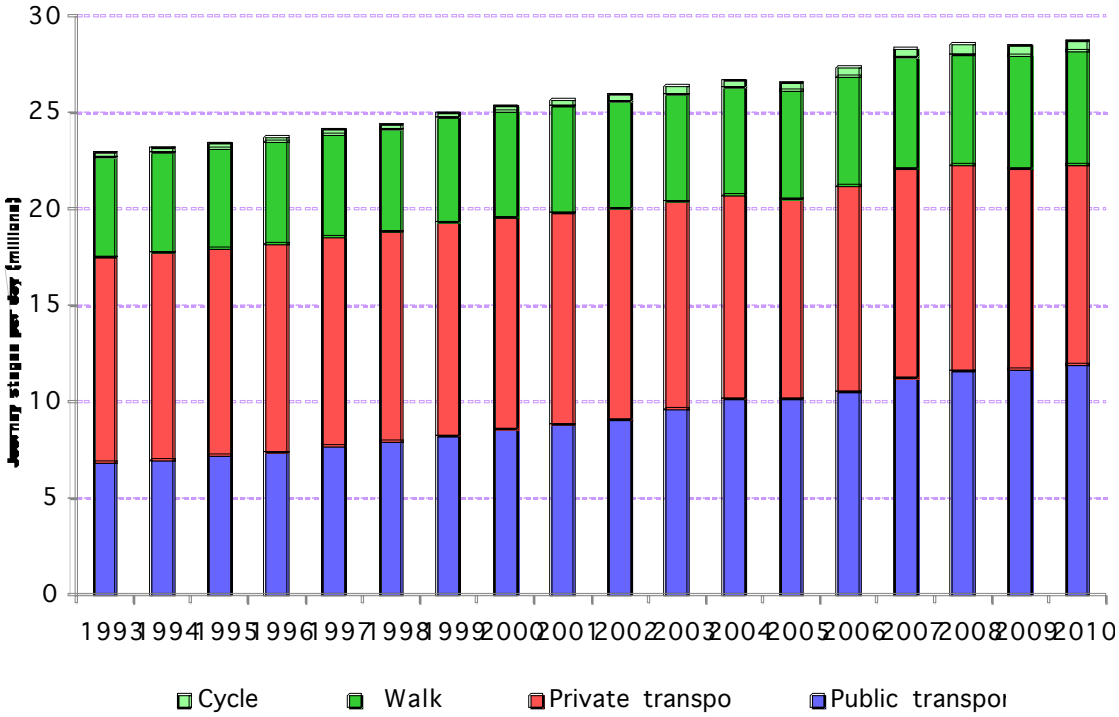
Independent Transport Commission: Call for Evidence
Road to Rail: Factors affecting trends in GB car traffic and rail patronage
Submission by Transport for London (Planning Directorate)
Introduction

Transport for London (TfL) is the integrated body responsible for London's transport system. As such, it has a close interest in the findings from this project, and is able to collaborate by contributing data and insights on travel and related trends in London.

TfL recognises the trends that are the focus of this project. Our annual Travel in London reports (http://www.tfl.gov.uk/corporate/about-tfl/publications/1482.aspx) provide a good summary of the way that these have developed in London over the last two decades.

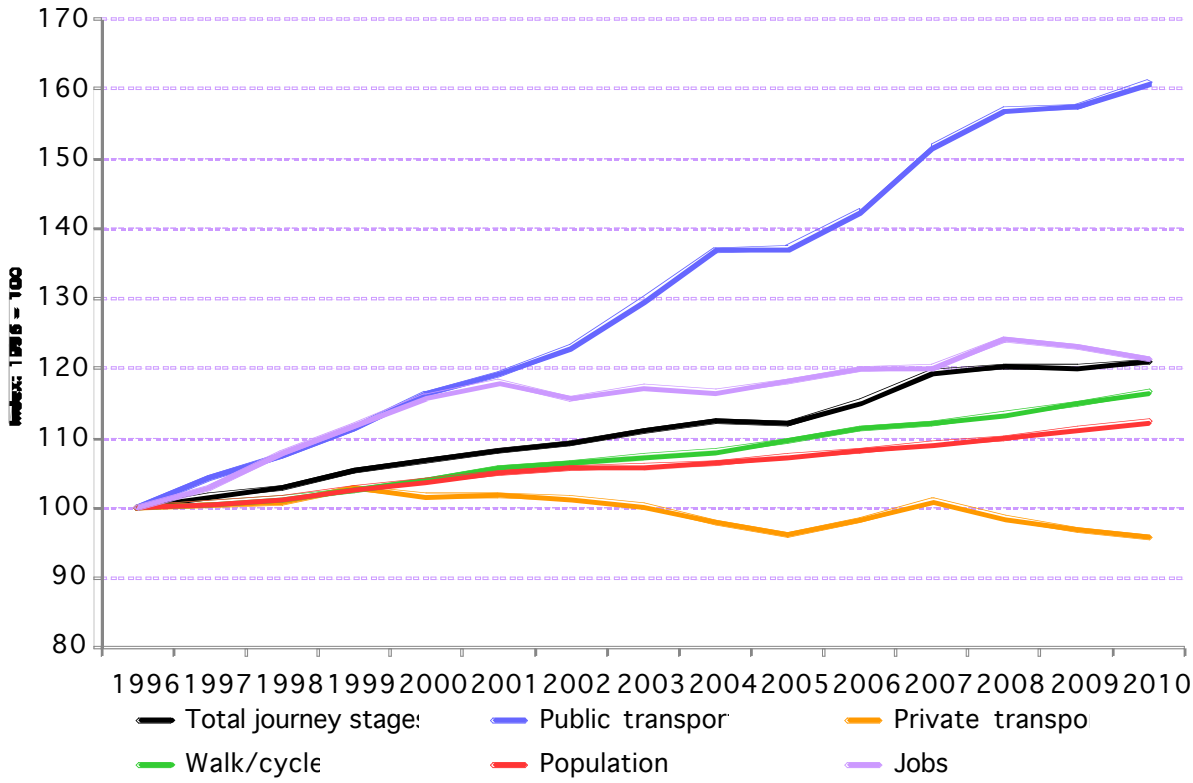
- Total travel demand (both trips and journey stages) has tended to increase year-on-year, with average daily journey stages increasing from 23 million in 1993 to 28.7 million in 2010, although this growth has slowed in recent years (Figure 1).
- At the same time, there has been a sustained shift in mode share away from private car travel towards public transport, walking and cycling, with a 7.5 percentage point increase in public transport mode share between 2000 and 2010, and a corresponding 7 percentage point decrease in the share of private transport.
- This has been reflected in a 7 per cent reduction in total road kilometres driven in London between 2000 and 2010, despite an 8 per cent increase in population and a 5 per cent increase in jobs.

Figure 1 Total travel in Greater London: daily average number of journey stages.



Travel demand has increased at a faster rate than population, with total journey stages in 2010 21 per cent higher than in 1996 (Figure 2). Employment also grew by 21 per cent over the same period, while population growth was lower at 12 per cent, suggesting that the increase in demand may be due to workers commuting in from outside London. Figure 2 also shows the difference in growth between public and private transport in London, with public transport use in 2010 61 per cent higher than in 1996.

Figure 2 Trends in travel, population and employment in Greater London



Road traffic trends

Road traffic in London peaked at 32.7 billion vehicle kilometres in 1999, and has been steadily declining ever since to stand, in 2010, 7 per cent below the 1999 peak, at 30.3 billion vehicle kilometres. By contrast, road traffic in Great Britain as a whole increased up until 2007 but has since fallen - superficially replicating the established trend in London. It is tempting perhaps to see London as being 'ahead of the national trend' but this is of course unproven and potentially misleading. It is necessary firstly, for example, to understand the extent to which the recent national decline reflects possibly temporary economic factors (recession, fuel prices), although these factors appear to have had little effect on the direction and scale of the aggregate trend in London (Figure 3).

Figure 3 Road traffic trends, annual vehicle kilometres London and GB.

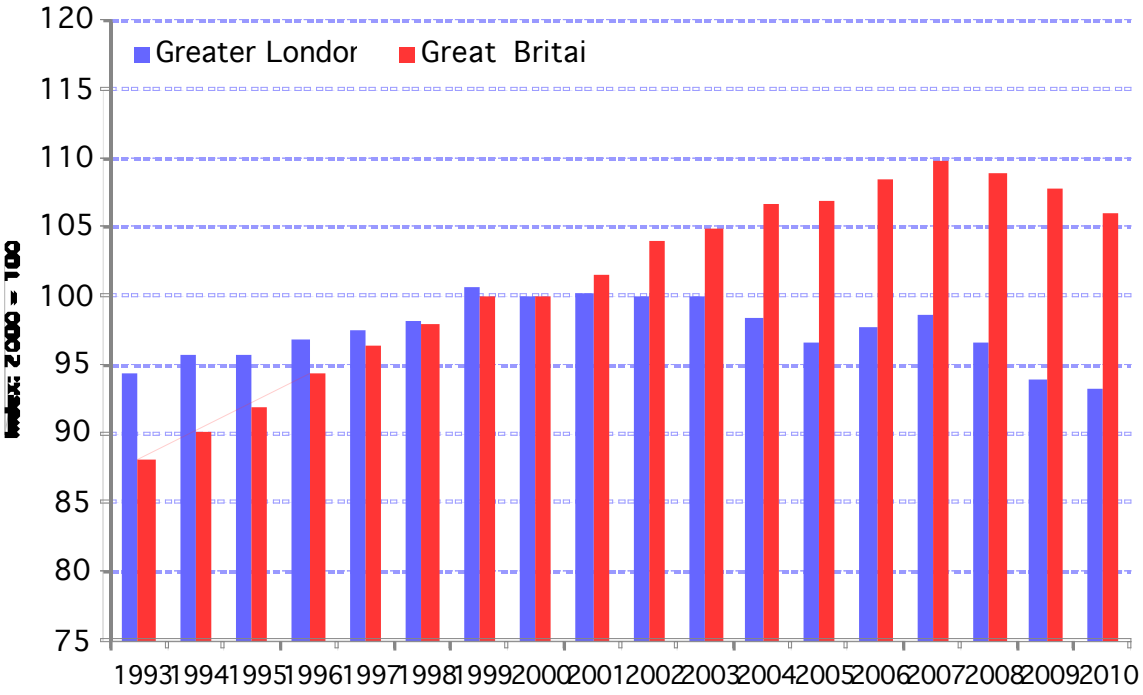
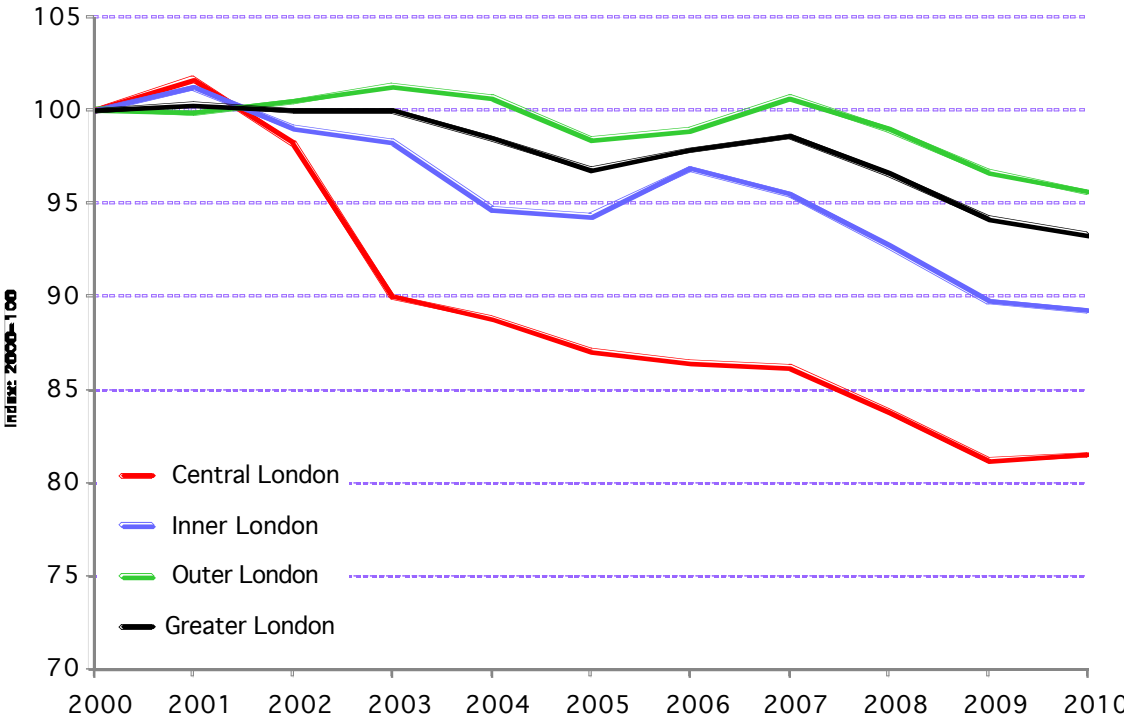


Figure 4 Road traffic trends, annual vehicle kilometres in central, Inner and Outer London.

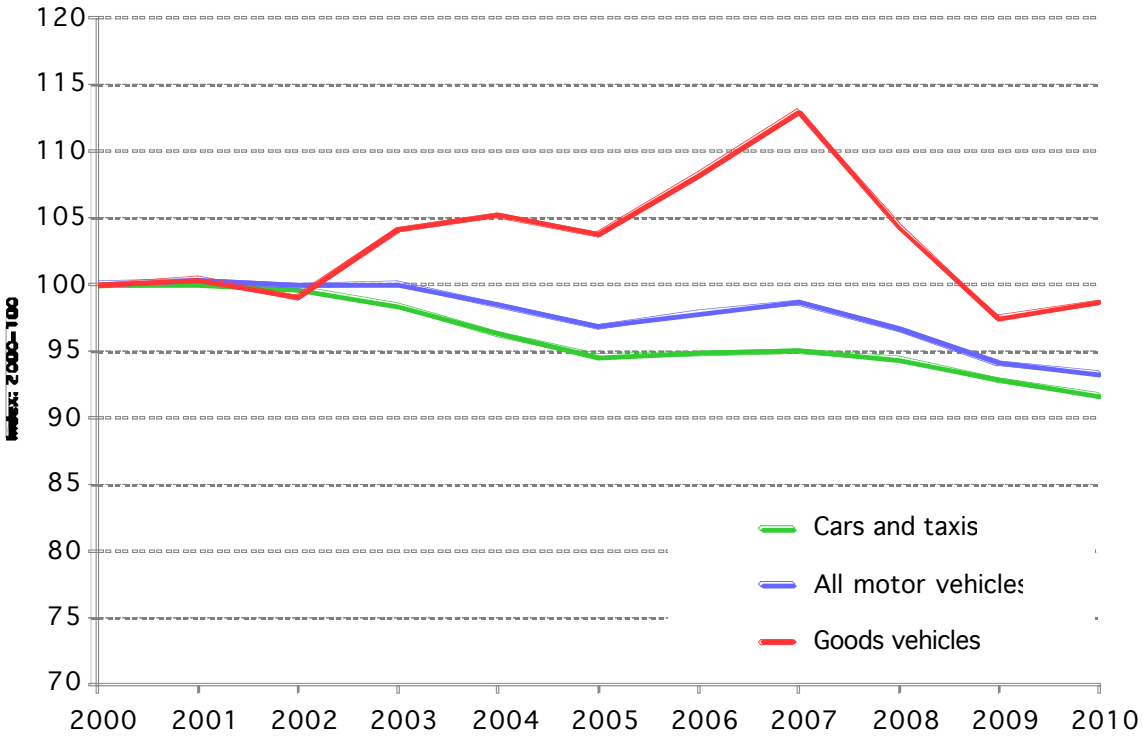


Note: For traffic statistics, central London is defined as Westminster and the City.

This trend in declining road traffic in London has been markedly different across different areas of London (Figure 4). Traffic levels peaked in central London in 2001, but have been falling ever since, and are now 18 per cent lower than in 2000. Traffic in Inner London followed a similar pattern, and is 11 per cent below the 2000 level. However, trends in traffic levels in Outer London (which accounts for 70% of all traffic in London) are more similar to those for Great Britain, with a continual decline only starting in 2007. Traffic levels in Outer London are now 4 per cent lower than in 2000.

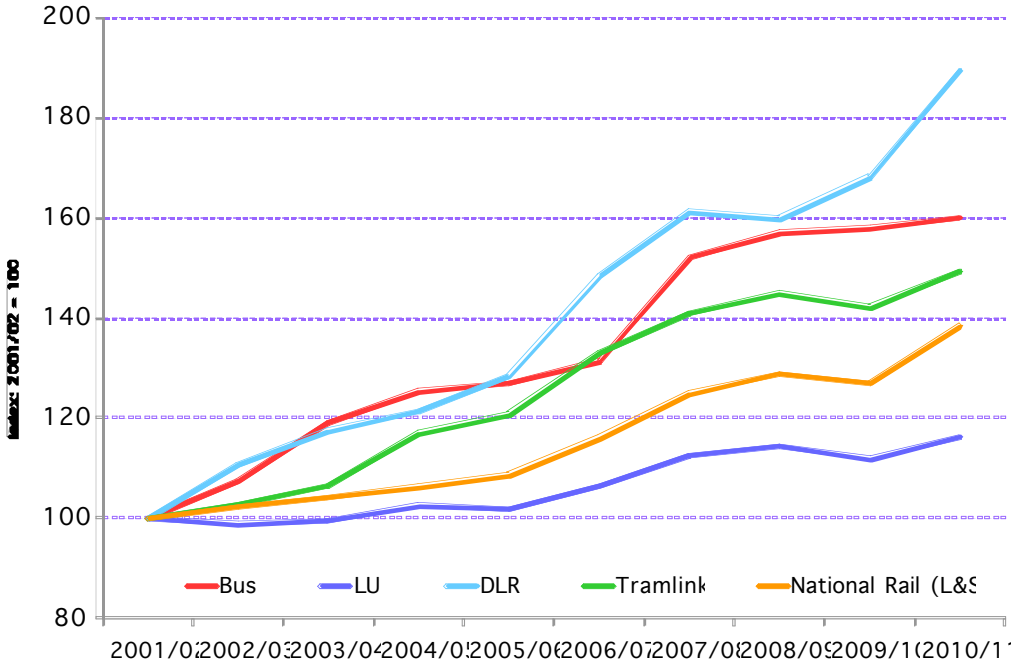
Cars account for around 80 per cent of traffic on London's roads. The most significant vehicle type after cars is goods vehicles, which make up around 15 per cent of all traffic in London. Goods vehicle traffic grew by 14 per cent between 2002 and 2007, although since the economic recession, goods vehicle traffic has fallen below the 2000 level. (Figure 5).

Figure 5 Road traffic trends, annual vehicle kilometres by vehicle type



Public transport provision

Figure 6 Growth in patronage of principal public transport modes in London (2001/02-2010/11).



These trends demonstrate that London is distinguished among major UK metropolitan centres, and is apparently demonstrating a more sustainable accommodation of travel demand arising from economic and social development. London is also of course distinguished by the scale and diversity of public transport provision, with all public modes (National Rail, London Underground, Bus, Docklands Light Railway, London Overground and Tramlink) offering, at some level, alternatives to the car and all sharing in the growth in use of public transport (Figure 6).

The general picture of strong growth in public transport patronage has in part reflected increased infrastructure and/or service supply - and continued enhancement of public transport has been a key part of Mayoral transport policy. For example, bus kilometres operated increased by about one-third, Underground train kilometres by 8 per cent (in the context of a fixed network), and National Rail train kilometres (L&SE, from 2003) up by 20 per cent. At the same time all key indicators of service quality have improved, with many indicators of service performance now at 'best ever' levels.

By contrast, car travel now makes up just 35 per cent of journey stages in London on an average day - down from 43 per cent in 2000.

Supply-side factors: Highway capacity and demand

Supply-side factors affecting the road network in London are not entirely the same as those at the GB level. Recent TfL investigations have focused on the role of reduced road network capacity (see in particular Travel in London report 4, section 4.13). The basis for this is the observation that traffic congestion in London continued to increase throughout much of the last decade despite reducing traffic levels - and the hypothesis that there was a dependency between these two trends. The general thrust of road network policy in London over this period has been towards

interventions that remove capacity for 'general' traffic, in favour either of specific groups of road users (buses, cyclists, pedestrians), particular policy goals (eg road safety, local amenity), or to accommodate increasing development activity and (in particular in London) utility replacement works. At the same time there has been little significant new road capacity (infrastructure) in London.

Figure 7 summarises a key part of this analysis, showing the reduction in effective highway network capacity in central/Inner/Outer London that is implied by the observed relationships between traffic speeds and flows (volumes). The effect has been most pronounced in central and Inner London, with implied reductions of up to 30 per cent in central London, with Outer London following more recently.

At the same time there has also been an implied reduction in underlying demand for road travel (the traffic that would use the road network if traffic speeds remained unchanged). Falling traffic speeds, partly caused by reduced highway capacity, will deter some drivers from using the roads. The underlying demand reflects the combined effect of many factors other than congestion - such as (in central London) the congestion charge and (more widely) the public transport improvements described above (Figure 8).

Figure 7 Index of London's highway capacity (1996 = 100).

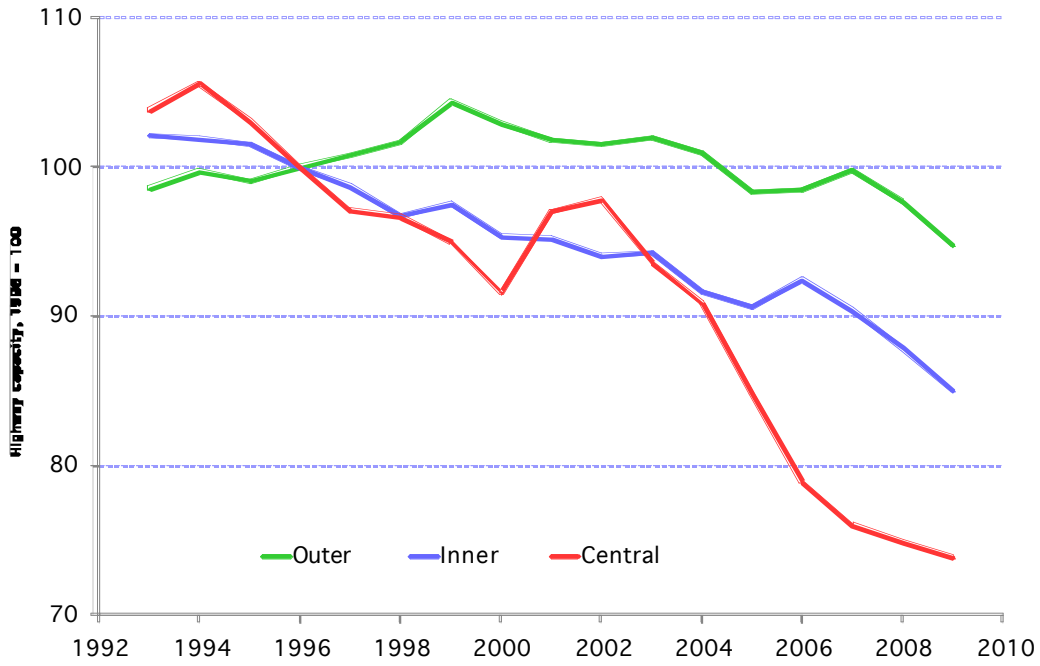
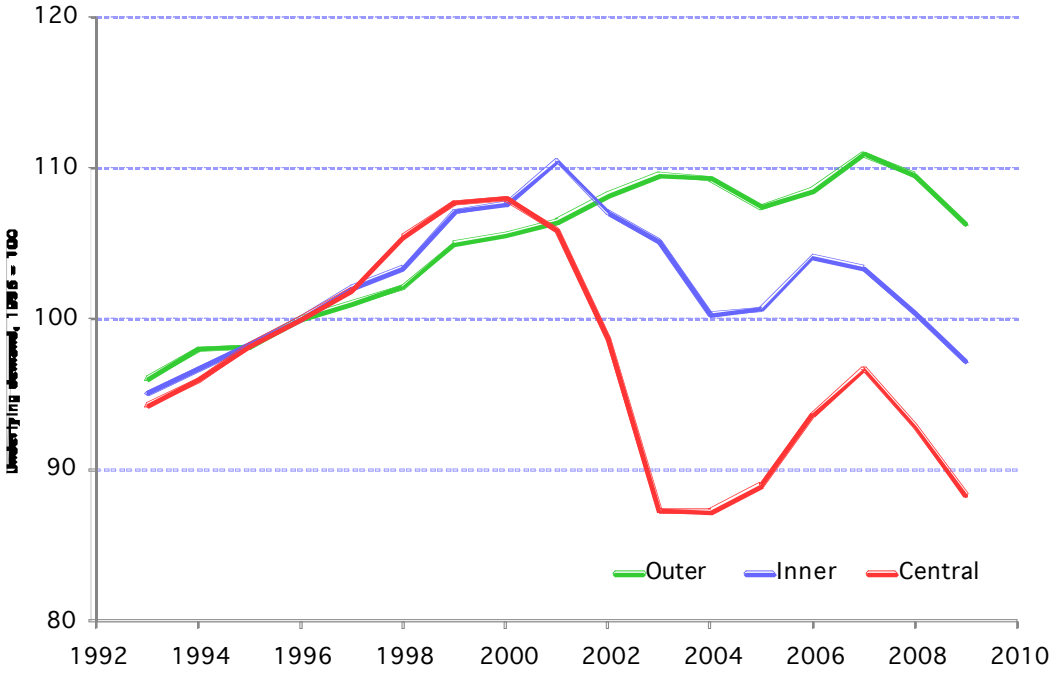


Figure 8 Index of London's underlying highway demand (1996 = 100).



Summary and potential next steps

London recognises the trends that are the subject of this investigation. It has a specific set of supply and demand factors that offers the potential for unique insights in the wider national context. TfL has a substantial data resource that can be applied to this investigation, together with developing insights arising from our operational and strategic planning functions. TfL welcomes this investigation and has a keen interest in the outcomes.

Submission L

UCL - PHIL GOODWIN

Note to Independent Transport Commission Phil Goodwin 11.5.2012 1

Road to Rail: Factors Affecting Trends in GB Car Traffic and Rail Patronage Phil Goodwin Emeritus Professor of Transport Policy, UCL and UWE

Introduction

The questions addressed in this project have been the subject of much active discussion in the last ten years. It is true to say that the answers are not fully understood, but there is nevertheless a very substantial body of empirical research, practical experience, and controversy. The project will need to engage fully with the content and controversies, to ensure that new research is well focussed, does not 're-invent the wheel', and adds value to the work of other researchers. To give a feel for the scale of this, I consider the substantial research on the four topics taken together has a published literature of something like a thousand studies, divided between the academic journals and the official, local, stakeholder and sectoral media for which the formal journals are rarely good sources.

I would also stress that this is an international literature, since many of the trends are similar in many countries. I do not think 'stagnation' of car use is the right word at all. It does not accurately describe the complex, profound, dynamic changes that have been happening, and is also loaded and emotive. It is change that needs to be explained, not stagnation.

1. What are the reasons behind the recent levelling off in UK car travel? It would be more accurate to say 'rather long-standing levelling off, and recent fall'. Note that this topic in particular has been discussed internationally, since similar trends have been seen in many countries. Reasons which have already been suggested (with at least some evidence on all of them) include:

1. general economic conditions,

2. fuel prices, cost of learning to drive, acquire and run cars,

3. travel time budgets, especially in the context of natural saturation level,

4. improvements in public transport,

5. pedestrianisation and associated improvements to walking conditions,

6. support for cycling,

7. new trends in urban land-use planning, population density of redeveloped areas, and preferences for inner-city living,

8. parking conditions and policy,

9. the application of 'smarter choices' programmes,

10. congestion charging,

11. reallocation of road capacity away from cars,

12. cultural and psychological shifts including a cooling or disappearance of the 'love affair with the car',

13. greater concern with a set of motivations less favourable to the car (notably environmental impacts and personal health),

14. various different forms of e-commerce (tele-commuting, on-line shopping, virtual conferences and meetings) and e-leisure (social networks, virtual worlds) especially associated with mobile commuting.

15. social changes such that the driving license as a key rite of passage into adulthood no longer has the universality it had seemed to be acquiring,

16. decline of the status, fashion, social esteem, implicit sexuality and 'buzz' of car ownership and use, and their replacement by other products and icons,

17. a shift of certain categories of what has traditionally been considered as 'personal' travel to 'commercial' travel, notably in home delivery of some goods that have previously been transported by car,

18. changing demographic structures and lifestyles, including those which affect the longevity of particular life-cycle stages and the locations where people prefer to spend them,

19. the growth of immigrant numbers (in the broadest sense) who bring different cultural attitudes and habits of travel to their new homes,

20. a shift in the direction of transmission of attitudes, ie from children to parents,

21. shifts of some travel from car to air, and from air to train,

22. spin-off effects of changes in regulation and funding of company cars,

23. a reduction in traditional forms of car dependence, including by development of new patterns of car use moving away from traditional ownership to various sharing, leasing or renting schemes.

My reading of the evidence is that some of the interim conclusions which had formed received wisdom on these topics in the 1990s have now shifted. Mobile commuting in particular has changed things in a way that the previous generation of desk web-based activities did not. Note that there are also some suggestions that the phenomena are not real, but artefacts of data collection and definition. There are active debates and disagreements about the relative importance of these causes, with an emerging evidence base cited in support of widely varying arguments. Broadly the debate seems to be crystallising into two groups, one of which says that the phenomenon is fundamentally economic in nature, driven by costs and the economic situation, and the other which sees the economic influences as only one subset of a broader and more complex interaction including all or most of the social, cultural and psychological aspects listed above. The 'economic' view is most frequently cited in support of a view that the changes are temporary, though this link is not inherently necessary.

2. Why are we seeing such a strong rise in UK rail travel demand?

Of course all the aspects above will have some effect on rail use also, and this also needs to be seen in an international perspective. There is now a strong (and unsurprising) view that rail services which are affordable and high quality will be well used. There has been a long tradition in UK public policy to underestimate the demand elasticities for public transport travel1, mostly connected with an excessive reliance on equilibrium analysis which mis-specifies the dynamics of travel choice. Recent work on churn, short-run/long-run elasticities and the effect of marketing in forming and changing habits and indeed in changing the elasticities themselves are starting to correct this. Note that some of the most important increases in rail demand internationally have been in urban tram and metro systems, not only in long distance rail, and while this has been less pronounced in the UK (because of less investment in new tram systems) nevertheless it has important potential impacts.

With the exception of concessionary fares, whose elasticity has tended towards overestimation.

3. Are the increase in rail travel demand and the stagnation of car travel connected?

Yes, they are connected, but not on a one-for-one basis. This may be demonstrated by the fact that the recent reduction in car use has been some four times larger than the increase in all other modes over the same period. It may be the wrong question: the change away from car use has not primarily consisted of the same journeys being shifted to a different mode, but a changing pattern of origins and destinations (including different journey distances and radial versus multi-direction orientation) which has facilitated different modes but for different journeys. There are some particularly close connections. One is the fact that mobile computing whether by phone or other devices, lends itself well to train use and badly to car use. Another is that in-town and especially central area destinations are more easily served by train and cannot be well provided by car. There is an emerging policy connection in a rather strong argument that when wider economic benefits are sought from transport investments, the empirical evidence more plausibly supports the existence of such benefits from rail investment, especially urban services, than roads, which has some consequent effect on demand. Car and rail are of course not the only modes, and they both exist in the context of travel which is done by walking, bicycle, bus, coach, and air. Because activity patterns, destinations, and purposes can change, all of the modes compete with all the others: competition is not confined to ‘suitable distances’.

4. Are these recent trends in car and rail travel demand likely to continue? The touchstone for future expectations of travel trends in the UK is the forecasts made by the Department for Transport, and it is difficult to see how this question can be addressed without also addressing the technical and policy assumptions in those forecasts (which, as you will know, are not currently commanding a professional consensus). Thus the question of making forecasts of long term trends in car use and rail use must also get to grips with, for example: the assumption that future price elasticities will come down as income increases (for which there is little empirical support); the assessments of the role and rollout of smarter choices which are currently disputed; recent changes in rail forecasting assumptions and methodology; the treatment of short run and long run effects and the trajectory between them. It is not possible to make an assessment of the future trends without coming to a view on these elements, whether it is implicit or explicit.

The core question now being discussed is whether car use will recommence its previous pattern of growth when economic conditions improve (as currently maintained by the Department for Transport and the RAC Foundation), or whether this is an important structural change which will

have lasting effects. The 'lasting effects' school is itself divided into two different hypotheses, namely that there may be a continued stable level (not 'stagnation') due to reaching a natural saturation level (as suggested by Schipper, Metz and others) or that there may be a trend reversal to a longer term declining trend as happened after 1918 for rail demand and after 1950 for bus use (a hypothesis that I have been paying most attention to). This will be a central question for the study. There is particularly relevant evidence in how the same issues have recently been investigated in (at least) the UK, Germany, France, Netherlands, and USA at national level, and the differing experiences of large cities, towns with an active sustainable transport policy programme, and rural areas at local level. At the heart of this question is the technical issue of identifying *when* the shifts in trend have occurred, since this affects the attribution of causes. I would argue strongly that the methodology to be adopted must be disaggregate (at least by age, socio-economic category, employment status, gender, and income, as well as core spatial differences especially urban/rural, density, quality of alternative modes, and prevailing transport policy). There will need to be a longitudinal element to it. The reason for this is that the question of when trends started to shift cannot be seen at the aggregate level (which is an average of early and later shifts) but only after the groups who have changed and those who have not, have been identified and separated. Similarly, the question of the future impact of active policy interventions (smarter choices, subsidies, restraint, allocation of road capacity, pricing, etc) can only be made after an analysis of how big an impact those aspects have had in the recent changes. There is evidence to suggest that turning points were not of very recent origin, but go back to approximately 1989-1995, and probably more precisely about 1992-4. Therefore such exercises as back-casting and scenario modelling need to consider a longer time frame if they are going to be helpful. Most of the above relates to car use trends directly, and therefore to rail use only insofar as the same factors apply. However, there is an additional factor about rail use trends which is that they form a significantly smaller market share of travel overall. This means that small changes in car use can magnify into proportionally greater ones in rail use, and it also means that rail use can (and, in my view, will) continue to grow even if car use starts to regrow. A crucial caveat is that what trends are likely to do in the future is not independent of what policies are adopted in the present. The trends are influenced by what we choose to do.

Further work This is obviously a short note prepared without a great deal of time, and it hardly scratches the surface of what has already been done. I would be happy to help the project in a more formal way if this is of interest. In any case, work on this topic will be my main research activity over the coming year (including on some of the ideas listed above), and I look forward to hearing more about your own work in due course.

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Submission M

UNIVERSITY OF OXFORD TRANSPORT STUDIES UNIT – GORDON STOKES

Road to Rail: Factors Affecting Trends in GB Car Traffic and Rail Patronage
Response to call for evidence from the ITC by the
Transport Studies Unit, University of Oxford

11th May 2012

1. What are the reasons behind the recent levelling off in UK car travel?

This submission has been based on a comprehensive and thorough analysis of the National Travel Survey data, concentrating on annual analysis of access to a car and miles driven per person between 1995 and 2010. Some analyses (especially on access to a car) cover 1988 to 1995 in addition to the more recent period. The research has been carried out as an individual initiative without funding. Only bullet points and summarised findings are presented here, with some ideas and interpretations made arising from the analysis. The full analysis is too lengthy to fit into a short call for evidence. A working paper on the analysis is being prepared as a Transport Studies Unit Working Paper, and for journal articles. Many of the ideas were presented at a Transport Statistics Users Group meeting in April 2012.

Trends noted for stabilisation of car use

- The pattern of change is complex and it does not seem possible to cite any one factor as being the main cause.
- The levelling off of car driver miles per person cannot be pinned down to a specific time, though 1995 could be described a 'turning point' in trends for both access to a car and mileage driven, with trends for certain groups showing a steady fall since 1995.
- It is important to separate the downturn in traffic since about 2007 from the levelling off which started at least a decade earlier.
- While international analysis has not been carried out for this study, other evidence points to a levelling off in most developed countries and a fall in car use by younger adults.

Explanations for these changing trends

- The overall stagnation in growth of car travel is made up of falls in access to a car and driver mileage for certain groups (most notably men under the age of about 30, and people living in London and some other large cities), combined with a continued rise in access to a car and mileage for other groups (notably older people, and those living in smaller cities and rural areas).
- There seems to be a pattern of older people retaining their cars while younger people are gaining licences and cars at a slower rate than used to be the case.
- Older people are continuing to keep cars, and are driving them at about the rate they used to (although retirement age correlates with a large fall in driver mileage).

- Men aged between 30 and 60 are reducing the mileage they do, while women of the same age group are increasing slightly.

Other findings include:

- Those in higher income groups are reducing mileage, with most of the reduction accounted for by men. It is only the lowest income quintile of men who are increasing mileage. For women, those in the highest two income quintiles have stable mileage, while it is increasing for those on lower incomes (but the levels of mileage are much lower than for men).
- Men living in cities have reducing mileage, while it is stable for those in rural areas. Interestingly, for those in small rural towns (3000 to 25000 population the mileage is stable or falling too). For women, mileage in rural areas is increasing, falling in London, and roughly stable in larger cities.
- By employment status, only retired men are showing an increase in mileage. Reductions for those in work and for students are marked. The unemployed and 'others' show slight reductions. For women most of the groups show stability.

Corroborating evidence from the 2010 NTS Report – Tables NTS0203 and NTS0204

- Younger people who are not learning to drive are most likely to say that the cost of learning, insurance and buying a car is the reason they are not. For older people, the availability of other modes, nervousness and a lack of interest in learning are much more likely. (However, these reasons are based on one attitudinal question and cannot be taken to be accurate).
- 40% of those aged 17-20 say they expect to learn to drive in the next year, and 90% in the next five years. The expectation to learn falls rapidly with increasing age. After 2008 the reported likelihood of learning in the next year fell rapidly for those aged under 30. (Again, these are aspirations based on a simple question).
- For all age groups the annual mileage driven is much greater for those who learnt to drive before they were twenty compared with those who learnt later. There is a steady fall off of miles driven with increasing age of learning. For those aged 40 to 60 in the 2002-2008 surveys, mileage for those who learnt around age 30 was about one third less than those who learnt before they were 20.

2. Why are we seeing such a strong rise in UK rail travel demand?

Here we have reviewed the evidence from the NTS over the same time period

- Using an analysis of numbers of surface rail journeys recorded per person per week in the NTS, it seems that different breakdowns show fairly similar increases in rail use. Variables

tested include age group, gender, size of settlement, income quintile, employment status, and access to a car.

3. Are the increase in rail demand and the stagnation of car travel connected?

We do not have much evidence on this but

- The finding that those with differing degrees of access to a car show similar increases in rail use seems to point to a lack of strong relationship between the stagnation in car use and increase in rail use. That younger people, and those in London also show similar increases to other groups also points to a lack of a relationship.
- This rather implies that the rise in rail demand may be one of the factors contributing to the peak in car demand, but not that levelling off of car use is a major cause of rising rail demand.

4. Are the recent trends in car and rail travel demand likely to continue?

One means by which this possibility can be investigated is through an age cohort analysis of possible future trends based on current behaviour of the different age cohorts

- If current trends continue, because car ownership amongst women is a relatively recent phenomenon, we can expect the amount of car mileage by women to increase, especially amongst those aged over 30.
- But younger women are now acquiring licences and cars at a similar rate to men, so it is quite likely that mileage by younger women will not increase.
- The evidence on miles driven falling with increasing age of learning implies that many who have delayed learning may never learn, and if they do are likely to drive less than those who have already learnt.
- A simple model which assumes that people will carry on behaving much as they do now, but taking ageing into account and future population by age forecasts, suggest that by 2033 there would be about 17% more car mileage than at present (if nothing else changed).
- The model shows that quite small changes in propensity to gain a car, and mileage driven per year can have large effects on the total mileage of all.

5. Comments on these trends and hypotheses for future car use

The change in trends seemed to take place about 1995. If so this transition is much earlier than many have suggested, and it is before the interest in greenhouse gas emissions and global climate change, and it predates the 2008 economic downturn, but it does coincide with a previous period of slow economic growth and 'high' oil prices (in the 1990s). Travel decisions are made on a daily basis, but many of these macro economic changes and other factors would take a much longer period of time to have an effect.

It should be noted that some of the trends are counter intuitive, particularly the income effects which seem to suggest that higher income people are driving less, but some low income people are driving more? This convergence effect by income over time and less difference between locations

(except for rural women) are two issues for further investigation. Questions here might relate to household structure, and whether this has changed over time. There is an interesting observation about peak travel by gender and age – men = 57 years and women = 37 years.

Some of these trends are listed below with comments on their plausibility and likely future prospects. It should be pointed out that most of these can be thought of as having some effect, and, by implication, none can be thought of as being an over-riding factor. The reality is likely to be a combination of different factors that do not remain constant over time – it is too simplistic to be looking for one simple explanation. It would also be important to move away from just looking at the average, so that change can be identified. Net effects conceal many interesting changes.

- *A "blip" in the data*. This seems rather implausible as the trends have continued for over 15 years
- *High fuel prices* have had an effect in since around 2008, but before then prices generally kept in line with, or below inflation (with variations)
- *The economic downturn* has almost certainly had an effect, at the same time as higher fuel prices since around 2008.
- *Cheap air flights* may have had some impact with substitution of travel, but this is likely to have a limited effect as UK NTS data only covers travel within the UK
- *The fall in the numbers of company cars* may have had some effect
- *The increase of immigration, focussing on major cities by people with low incomes* may have had some effect
- *Cost of learning* and insurance for young drivers has almost certainly had a major impact on learning to drive by younger people
- *Environmental awareness* rose rapidly in the mid 1990s and may be associated with the changes, though there has been little research done on this
- *Policy to reduce car reliance* may also have been effective, starting as it did around the mid 1990s. Again there is little research evidence to support or reject this.
- *Congestion* has probably had an effect
- *ICT substitution and working from home* may have reduced mileage but most research so far had shown that journey substitution is more likely than a reduction in travel
- *The "love affair with the car" may be over,* with smart phones and i-pads taking the place of the car as a visible status symbol
- *The limit to 'utility' from extra driving* may have been reached with saturation of supermarkets and other service outlets, leading to little benefit from driving greater distance.

These explanations can be broadly grouped into 'hard' and 'soft' factors, with costs and economic factors being placed in the hard group, and the more environmental, social and psychological factors being placed in the soft group.

Apart from the age based cohort analysis, it might also be informative to group the travel patterns of cohorts of people, so there is a breakdown of car (and rail) travel by heavy car users, medium and

light users. There might also be some interest in looking at whether the same types of trip patterns are being undertaken now and over the last 20 years – say by purpose or mode to establish whether distance "peaking" is happening across all activities – most of the analysis here has been structured by social variables.

These, and other hypotheses, are many, interrelated and largely un-researched. The interplay between them is complex and it would be difficult to isolate the impact of one factor from another in order to quantify them. Even more complex would be to predict what the future for each might suggest, and the impacts they each might have in relation to each other.

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Submission N

ATOC Submission

Thank you for the opportunity to contribute towards this investigation into the factors affecting car traffic and rail patronage in the UK. We apologise for the delay in sending this response to you. This submission contains ideas and suggestions from the Train Operating Companies (TOCs) which have been collated by the Association of Train Operating Companies (ATOC). Many of these hypotheses have not been research and we would be happy to offer support, through reasonable access to relevant data and related research, should the ITC wish to investigate any of the points raised.

1. What are the reasons behind the recent levelling off in UK car travel?

Car insurance - One of the significant factors limiting car travel is increasing overall costs of motoring, particularly insurance costs for young drivers which is creating a barrier to entry into car ownership and may be reducing the penetration of driving licences. Whereas Passenger Demand Forecasting Handbook (PDFH) models the impact on fuel price increases on modal choice between car and train, many people can no longer afford to own a car, and so have the choice of travelling by train or not making the journey. It is not clear how this can be modelled, although we are certainly seeing strong growth in travel using 16-25 Railcards in comparison to other railcard types and to full price tickets.

Fuel costs - Whilst in the medium term the motor industry and consumers can adapt to fuel costs by producing and buying more fuel efficient cars, in general (and specifically in the short term) rising fuel costs favour railways. Fuel costs don't rise consistently and are subject to periods of rapid increase which have a substantial "shock" effect on motorists. Overall the trend is above the cost in rail fares. This is arguably set to continue until alternative fuel technologies are available, have fallen in cost and are accessible to the consumer. Whilst the fuels and the vehicles are starting to be marketed, they are still some way off in both technology and cost. Also, the large sunk costs element of a car are often disregarded so the marginal changes from fuel price movements are exaggerated.

Road congestion - Road congestion, particularly in major urban areas is a barrier to growth in road traffic. Congestion charging in London obviously further favours rail on a cost basis. In general rail is disadvantaged against road due to lack of equivalent network coverage; where rail is strongest (and enjoys is highest market shares) is in linking and providing access into the centre of larger towns and cities and these are exactly the flows that are most heavily affected by road congestion. Road congestion also creates unpredictability in road journey times.

Other possible factors - Recessionary impacts on car ownership and employment; People substituting the number of trips made (i.e. fewer short trips) for longer distance travel; Increase in awareness of environmental impact; Potential shift of jobs to central locations (agglomeration benefits of city centres); National success of transport planning policy – emphasis on sustainable

transport, travel planning, movement away from car centric planning system; Media coverage of fuel price/tax and vehicle related costs leading to people becoming more aware of the marginal cost of car travel. Also, changes to car-parking costs (city centres, stations etc.) will impact on rail demand into centres.

There has been reduced car park occupancy at some stations, even where rail demand is rising. We have not done any research into the causes, but assume a combination of: Passengers more willing to seek cheaper alternative car parking or use free on-street parking; More passengers walking/cycling to the station (or being dropped off if the household no longer has a second car); More price competition from alternative car parks (this may be partly as a result of the reduction in car travel reducing their customer base).

2. Why are we seeing such a strong rise in UK rail travel demand?

Rail Ticketing - During the early years of rail privatisation fares regulation drove season ticket prices downwards in real terms, in recent years this has been reversed and the government may adopt a more aggressive policy going forward. However despite headlines to the contrary real prices are not that much greater than they were under BR. The other factor however, is that whilst the prices of certain rail fares have been increasing the rail operators have also been offering lower fares at off-peak times and greater flexibility to use them as well using new retail channels such as the internet and adopting yield management practices. Therefore from a cost perspective rail has been becoming more competitive than an examination of average ticket prices might suggest.

Agglomeration in major cities - Economic growth in the last two decades has been strongly concentrated on Central London and business districts in key regional cities such as Leeds, Manchester, Bristol, Cardiff, Glasgow and Edinburgh, often at the expense of smaller towns and led by service industry. These industries derive advantages from locating in close proximity and in terms of land requirements have a small footprint. They have had the ability to grow within restricted geographical areas due to the ability to build upwards and the availability of brown field sites vacated by traditional industries. Road networks serving these areas are harder to develop and improvements at one bottleneck often shift issues to another location. With urban road networks unable to cope with the additional demand rail becomes the obvious alternative.

Further scope for rail growth will come from increasing market share further (which providing we have capacity is feasible) and further agglomeration and growth. The recession has obviously hit these business and slowed growth, but arguably the need to exploit the advantages of agglomeration and the ability to acquire prime sites is greater in recession. Also new developments such as the Shard in London show that the ability to build upwards still exists. Until this ability is exhausted, or technology, economic or social factors lead to change in direction, the process seems set to continue.

Rail congestion and service development - The ability for rail to continue to grow is ultimately limited by the number of seats (or standing space) available and continued growth in relation to the roads will in part be restricted by the ability of the network to take more trains and the availability of rolling stock (both of which are being addressed to some degree). The other factor in recent years

has been the ability of the rail industry to manage capacity utilisation, which has steadily been improved through innovative operational approaches, improved data management and modelling and the adoption of yield management approaches to spread demand. However such solutions can only delay the need for more trains. Rail services on some routes have improved radically over the past few years (e.g. the West Coast Mainline upgrade in 2008), and so we believe that some of the growth is attributable to the release of latent demand following the introduction of what is effectively a new service.

Rail growth and privatisation have delivered more services, greater frequency and improved network links. In the 1980's and 1990's there were substantial programs of station building, particularly in the metropolitan counties, reversing Beaching cuts and providing the infrastructure for growth and in the early years of privatisation operators increased the number of services and extended the times at which they ran. Growth drives service improvement which drives further growth etc. Many of these journeys are removed from the roads.

Wealth and social factors - The affordability of cars since the 1940's has meant that car ownership has increased steadily, which certainly in the 1950's, 1960's and 1970's led to both the absolute and relative decline of rail. Arguably car ownership is now close to saturation. Whilst car ownership was traditionally restricted principally by wealth, the trend towards fashionable urban living in larger cities has lead to a generation of young urbanite professionals who have no use for a car (in fact security and parking issues make cars a liability). They are therefore orientated towards public transport in general and rail specifically, not only for local but also long distance journeys.

Other social changes are the emergence of long distance commuters who often split their time between working from home and office or seek to compress their working week and the potential for home working generally, given changes in communication technology. Whilst both exist, arguably such arrangements have not taken off in the manner once envisaged and their impact on the travel market overall has remained comparatively small, but this could change. In general such arrangements would be negative for both rail and road, but whilst they reduce frequency of travel they extend distances, which in relative terms favours rail.

Green factors - Rail benefits from being seen as green, but whether this has as yet significantly altered behaviour is debatable. Whilst the travelling public are aware of the environment and like to take a positive view that they are being green, arguably other factors (particularly during a recession) have been higher up their agenda. Significant adoption of greener behaviour tends to be driven politically or economically. The motor industry can potentially adapt faster than rail and has more opportunity to improve its green credentials (starting from a worse position).

European migration - Increasingly mobile foreign population movements where more people are coming from (particularly) EU countries for shorter or longer periods. They are likely to be more mobile (e.g. not house owners, looking for jobs) and less likely to own cars (just arrived and/or not knowing how long staying), so they are likely to generate more (non-commuting) trips than an average person.

Other competition - longer distance rail journeys (and road journeys) suffered significant

competition from domestic airlines in the 90's and early 00's. Fuel costs and added security measures have in recent years seen this trend reversed. Obviously this benefits both rail and road but in answering the question it should be remembered that rail does not compete with road alone.

Other drivers of rail growth may include

- Reliability as well as absolute value of door to door journey time;
- Relevance of improved rail customer information for planning and in real time;
- Increasing propensity to shop online;
- Most rail franchises are now established within their respective markets creating certainty for passengers who can relate service routes/quality to specific TOCS;
- Commercial awareness of rail operators, improved customer service and marketing arising from the involvement of private operators focused on succeeding within their own particular market is also likely to have had a positive impact on growth.

3. Are the increase in rail travel demand and the stagnation of car travel connected?

As the thoughts above suggest, we believe that the increase in rail demand and the stagnation of car travel are connected. The attractiveness of competing transport modes, particularly in terms of price, is a major influence on rail demand. Price and quality (including comfort, convenience and journey time) of different transport modes are two key determinants of modal choice, and changes in these factors will affect modal share (as well as the frequency and locations of travel). In addition, some of the factors making rail more attractive are likely to stimulate 'new' rail journeys as an alternative to other leisure activity and/or encourage visits to attractions or shopping expeditions further afield.

4. Are these recent trends in car and rail travel demand likely to continue?

These trends seem set to continue, but could ultimately be brought to an end by further changes in socioeconomic direction, technology or lack of rail capacity.

We believe that there is a fairly complex series of factors at play here, which have been working to greater and lesser degrees since the 1980's. The PDFH has needed to evolve as circumstances have changed, and there will be further changes in the future. Rail has prospered as roads struggle to cope with demand and social, economic and demographic trends have favoured rail geography. The rising cost of car use, yield management reducing cost of rail travel for some passengers, and improved quality of rail's product have also favoured rail over car travel.

Any subsequent research will need to reflect the full costs of motoring (not just fuel prices) and be segmented by age group, journey purpose and journey length. On the rail side, rather than using average fares, we think it is important to consider actual fare paid, as there is such variation for specific journeys with advance purchase and railcard discounts for example. It would be instructive to understand whether rail is doing relatively better than other public transport modes as people

abandon cars. Congestion, costs and regulation have made driving less pleasurable and aspirational than it used to be.

It would also be instructive to understand whether individuals are making an informed choice for rail travel, or if there is a perception of a lack of choice due to congestion levels on the road network/current car ownership costs. Also, is the perceived stagnation of car travel a product of the recession, and is it likely that traffic growth will be rebased but follow the previous trend or has there been a long term change in travel behaviour?

Submission O

NETWORK RAIL response (James Angus)

1. What are the reasons behind the recent levelling off in UK car travel?

At a high level, it seems likely that the growth in car travel since the 1950s has been mainly driven by supply side trends, in particular the growth in car ownership and the expansion / improvement of the road network.

These trends appear to be coming to an end, with car ownership approaching saturation and little public or political appetite for a return to large scale road-building, despite the level of road congestion. On a long term view, it is this that appears to be mainly responsible for the levelling off in car travel, although other factors (e.g. the increasing cost of fuel and car parking) will also have played a part.

2. Why are we seeing such a strong rise in UK rail travel demand?

In broad terms there are two reasons for the growth in rail demand.

First, the competitive position of rail against car travel has improved significantly over the last 15 years or so. The increasing costs of motoring, and high levels of road congestion, were noted above. By contrast, rail services are in some cases faster and in many cases more frequent; punctuality is at an all-time high; large amounts of new rolling stock are in service; and stations are starting to receive significant investment. Also, the rapid spread of mobile devices (e.g. laptops, i-phones) has meant that rail travel time can be used more productively than in the past.

These factors have led more people to choose rail for their journey; and investments in train and network capacity have meant that the rail industry has been able to accommodate the resulting growth in demand.

Second, there are a number of wider economic, political and social trends that have worked in rail's favour. Such trends include:

- increasing employment in city centres, as (in relative terms) manufacturing declines and service / knowledge industries continue to grow;
- redevelopment of city centres generally, for residential and leisure purposes as well as for business, both increasing travel demand and in many cases reducing the space available for car parking;
- planning policy restricting the development of green-field sites, encouraging re-development of brown-field sites, and requiring developments to be more oriented towards public transport where possible; and

- people living further from their family and friends, for example as a result of increasing participation in higher education, or the need to relocate for work-related reasons.

All these wider trends encourage travel demand into or between city centres, and/or over long distances, markets in which rail has natural advantages. These trends generally have effects over longer timescales than the "competitive position" factors, as many of them affect medium- and long- term decisions such as the location of homes, businesses and other generators of travel demand. There is also some synergy between the "competitive position" factors and the wider trends, as improved rail services make it more realistic for developments to be planned with public transport in mind.

The level of economic activity *per se* (e.g. as measured by GDP or employment) is often used in models as a driver of rail demand. There are evidently some direct linkages between such variables and rail demand – for example, if employment falls, then commuting will fall. But to a significant extent such variables act as proxies for the kinds of wider trends described above. This has become apparent in the recession(s) of the last few years, when rail demand has either (in some markets) continued to increase, or (in other markets) declined by much less than would have been predicted based on the reduction in economic activity. This is because although economic growth has reversed during the recession(s), the trends described above have not.

3. Are the increase in rail travel demand and the stagnation of car travel connected?

They are connected in the sense that most growth in rail travel is at the expense of car travel or potential car travel (with the exception of access to Central London, particularly during the commuter peak, where public transport has long held a near-monopoly). It would be interesting, as part of this ITC study, to see whether there is any relationship between trends in car travel and rail demand in different markets, or different areas of the country.

However, in simple quantitative terms, the stagnation in car travel has not been wholly, or even mostly, offset by increased rail travel; total travel demand (per person) has also levelled off. It therefore appears that most of the stagnation in car travel is due to other factors, such as the saturation in car ownership and the end of the era of large scale road-building, mentioned earlier.

4. Are these recent trends in car and rail travel likely to continue?

The underlying causes of recent trends in car and rail travel can broadly be divided into two groups.

Some of the underlying causes are wholly or largely outside the control of the transport industry or of national governments. It appears likely that these will continue, for example:

- the increasing emphasis on service / knowledge-based industries, as globalisation continues and countries concentrate further on industries in which they have competitive advantages;

- growth in car ownership will continue to slow, simply because more and more people already have access to cars if they need it;

- fuel costs appear unlikely to decrease in the long run; and

- the ability to use travel time productively is likely to increase.

Other underlying causes, by contrast, are either explicit decisions for, or at least can be strongly influenced by, the transport industry and/or government (more often the latter than the former). The extent to which these continue to drive car and rail demand is therefore largely a matter of policy. However, we believe that future policy both should continue in the direction of recent years, and is in fact likely to do so, given the goals that are widely shared across the political parties and in public opinion. Examples include:

- the emphasis on public transport in planning policy is likely to continue, as concerns about quality of life issues and the environment continue or increase;

- a return to large scale road-building appears unlikely, partly due to environmental concerns, but also because although trunk roads can (and in some cases will) be widened, it is hard to see how congestion issues in urban areas could be solved by road building;

- improvements in rail services are likely to continue, partly because of the contribution rail makes to key policy goals (such as supporting the economy and reducing carbon), but also because greater usage of rail itself leads to both greater political support for improvements and more fares revenue to pay for them; and

- greater participation in higher education is unlikely to reverse – and even if there is no further growth in participation, the effects of recent changes will take several more decades to feed through fully into patterns of travel demand.

In summary, therefore, the trends in car and rail demand, over the last 15 years or so, appear likely to continue for some time.

It is inevitably more difficult to predict the extent to which demand will be affected by factors that are either new, or have not had a material effect in the past. However, one can envisage several scenarios in relation to long term developments in transport and transport policy, for example:

- if electric cars were widely adopted this would reduce the environmental advantage of rail (although it would obviously not reduce congestion, which probably has more of an impact on day to day decisions on mode of travel); and

- if road pricing were widely adopted (as a response to road congestion) this could have significant effects on both car and rail demand. Although at first glance the effects would be to increase rail demand at the expense of car, in practice the position would be more complex than

this, depending for example on whether other motoring taxes / duties were changed at the same time, and on whether the rail system had the capacity to accommodate additional demand.

Issues that the ITC study might address

All of the issues described above are likely to be relevant to the study. However, it would be particularly useful for the study to investigate the wider economic, political and social trends affecting car and rail demand. These trends are not as amenable to econometric analysis as some of the more traditional "mode share" variables, and therefore have tended not to be analysed in as much detail. However, it appears that they have played a major part in the trends in car and rail demand over the last 15 years.

Independent Transport Commission: 'Road to Rail' Study

Submission by Dr David Metz, Centre for Transport Studies, University College London

Rail Redux?

Since the low point of annual rail trips that occurred in 1994, rail passenger usage has increased by 80%. For reasons of history, the UK rail system is largely centred on London, with some 70% of journeys starting/concluding in London and the South East. The buoyancy of rail demand is therefore likely to be associated with what is happening in London.

The findings of the National Travel Survey (NTS), which covers all modes except international travel by air, show that the average distance travelled has stabilized at about 7000 miles per person per year since about 1995 (with a dip in recent years, likely due to the recession), even though incomes have continued to grow. This indicates that income growth is no longer a driver of travel demand. I have proposed that this cessation of per capita growth is due to demand saturation. The argument, in brief, is that the purpose of daily travel is to gain access and enhance choice; that access and choice increase with the square of the speed of travel; and because choice for the most part is subject to diminishing marginal utility, saturation of demand is to be expected [1]. There is empirical evidence that high levels of choice of daily travel destinations are generally available [2].

What now drives the increase in travel demand is mainly the growth of the UK population, currently projected to increase by 8m over the next 15 years. Much depends on whether the additional population is housed on greenfield sites or on brownfield. Greenfield housing is associated with car use and its expansion would increase traffic congestion as well as strengthen the case for construction of additional road capacity. However, dwellings constructed on brownfield sites in existing urban areas, where the scope for additional carriageway is usually very limited, are best served by public transport.

It was the policy of the previous Government to increase the proportion of new housing built on brownfield sites, setting a target of 60% - in practice overachieved, with annual outturns of 80%. The Coalition Government, in its new National Planning Policy Framework, has withdrawn the specific target but maintained a degree of preference for brownfield, the impact of which remains to be seen.

The relevance of planning policy for transport can be seen from the experience of London over the last two decades during which the population has grown by some 0.8m, housed entirely in existing stock or new brownfield construction.

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[1] Metz, D. Saturation of demand for daily travel. Transport Reviews 30(5), 659-674, 2010. Available at http://www.limitstotravel.org.uk/documents/

[2] Metz, D. Mobility, access and choice: a new source of evidence. Journal of Transport and Land Use (forthcoming). Available at http://www.limitstotravel.org.uk/documents/

Over this period car use has declined from 50% of all trips in 1993 to 41% currently (see Figure 1), with the Mayor's Transport Strategy projecting continuing population growth with car mode share falling to 37% in 2031.

Figure 1

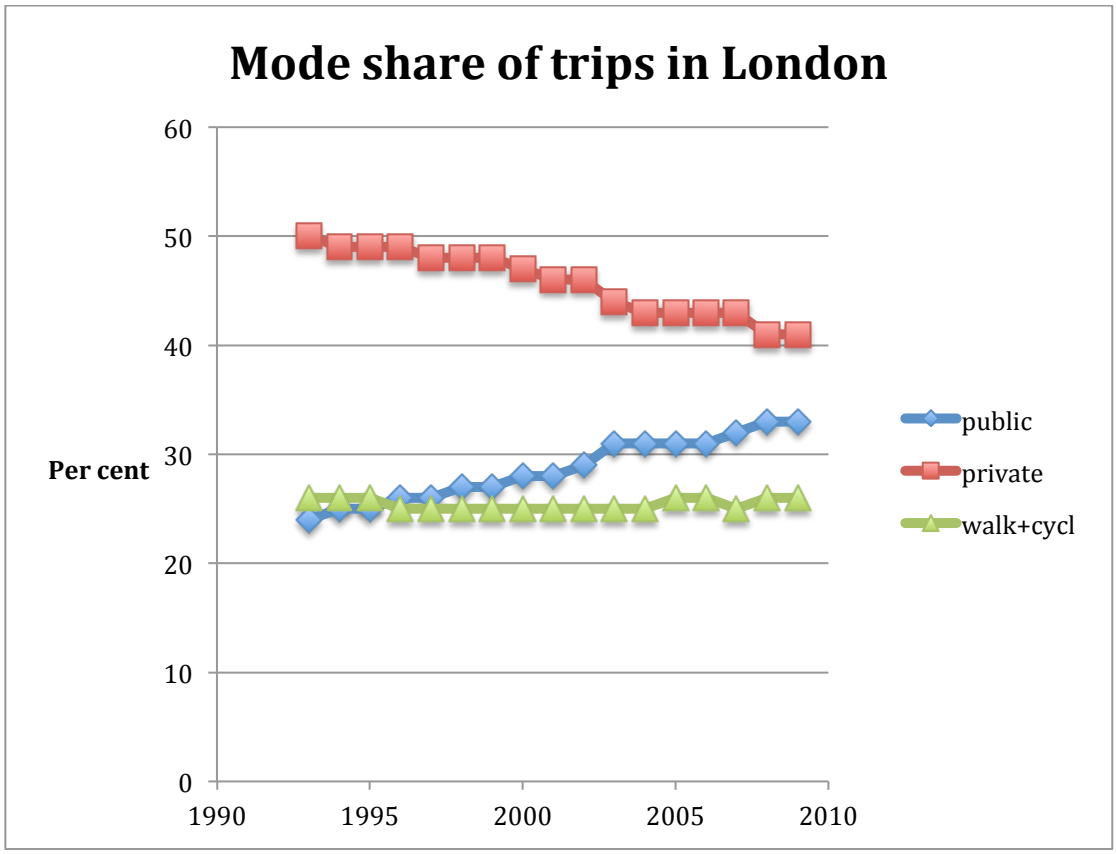
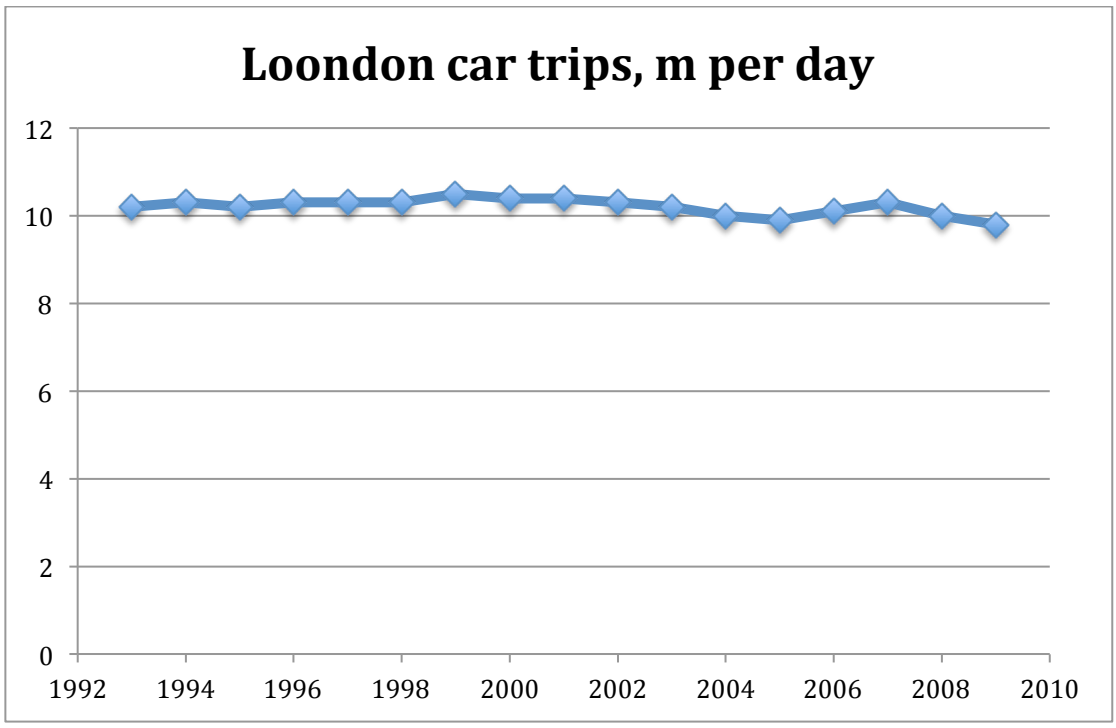


Figure 2 shows that car trips in London (driver plus passenger) have held steady at about 10m a day since 1993, hence the declining mode share is due to population growth, as the 10m represents a smaller proportion of all trips year on year. The invariance in the absolute number of daily car journeys, when both population and incomes have be increasing, indicates a supply side constraint – a fixed road network, bus and cycle lanes, parking constraints and the central congestion charging zone.

Not only has car mode share been declining in London, so has car ownership, from 0.81 cars per household in 1995/7 to 0.76 in 2009/10, whereas in the South East Region (of comparable average household income), ownership rose from 1.20 to 1.35. 43% of London households had no car in 2009/10, compared with 19% in the SE Region.

Figure 2



Declining car use and ownership in London over the past two decades runs counter to the historic and global trend for these parameters to increase with increasing incomes. Likely contributory factors include: a revival of urban living for which the car is less central; the cost of car ownership, particularly for younger motorists; increasing population density resulting in smaller catchment areas, whether for schools or supermarkets, which in turn allows readier access by walking, cycling and public transport; a perception amongst the young that the technology du jour is the iPhone/Pad, more affordable in tough times than the GTI.

Population growth in London, together with declining car ownership and use, are likely to be important drivers of the growth of inter-urban and commuter rail travel. Londoners without cars would be very likely to use rail for trips to other cities. Londoners with cars who use rail for commuting may be more likely to use inter-urban rail than those who live elsewhere and use the car for the journey to work. The rail system is, for reasons of history, centred on London. This system is therefore well suited to London as a world city with a growing population that is making less use of the car.

There is scope for the rail industry to increase its market share of the demand for daily travel, notwithstanding overall saturation, given that this is at present only 3% of trips and 9% of distance. Rail can offer surface travel unimpeded by the car, an offering that will be increasingly attractive as population density increases. City centre roads cannot cope with increased traffic, which means that successful cities will need to invigorate and extend rail-based transport – classic rail, metros, Underground, trams, and including Bus Rapid Transit (which

functions like rail). Trunk road congestion will not be relieved by further carriageway construction on account of induced traffic (the longer trips made at higher speeds) and road pricing seems unlikely to be adopted generally. So rail market share could be increased by the offer of travel that is speedy, reliable, safe, sustainable (being based on electricity), and seamless. Seamless travel would require integration operationally across the network, urban and interurban, through timetabling and interchanges; integration of ticketing by means of an Oyster Card type technology; and integration of passenger information, routes and timings, in real time and prospectively. The concept of 'integrated transport', while hard to achieve generally, is feasible for the rail system.

Continued growth of rail use would help relieve pressure on the road system and increase the likelihood that 'Peak Car' (ie a decline in car mode share) will become a general phenomenon beyond London. However, growth of rail will require continued investment.

The economics of the rail industry are such that it cannot cover both capital and operational costs from fares. Public subsidy, particularly of new capital schemes, is therefore necessary. In cities, the economic rationale for urban rail investment is to allow the city to function effectively. White-collar workers are willing to use rail-based transport for work-associated journeys, despite overcrowding, since this mode is fast and reliable. It is much harder to get them out of their cars on to buses that are slow, unreliable and full of schoolchildren and poor people. So large cities without rail systems suffer from severe traffic congestion.

The standard economic appraisal methodology, which supposes the main benefit of transport investment is the saving of travel time, cannot capture the benefits of urban rail. For instance, the Docklands Light Railway and the Jubilee Line Extension, which are proving essential to the regeneration of East London, could not be justified on the basis of time-savings benefits. In reality, average travel time has remained unchanged at about an hour a day for at the least the past forty years. The benefit of investment has been taken the form of greater access and choice of destinations that result in land use changes, in particular commercial and residential property development.

The focus of transport appraisal in the UK on aggregated time saving has tended to favour road investment, based on time saving to road users, rather than urban public transport which may trigger larger-scale but more complex and diffuse benefits, dependent in part on complementary actions in urban regeneration. Thus many provincial cities in continental Europe, especially in Germany, enjoy a genuinely integrated style of transport and land-use planning, favouring compact, liveable cities supported by high levels of public transport investment. The focus on time-savings has led to the dominance of roads and neglect of urban public transport in the UK from the 1960s onwards [3]. This has driven

[3] Wenban-Smith, Transport and urban spatial policy, Town Planning Review, 79(4), pp vii-xiv, 2008.

detrimental cycles of physical dispersion, social polarization and loss of economic critical mass in UK cities. London is the exception because it enjoys a comprehensive public transport network, built before the dominance of roads and of the evaluation methods that favour them.

Given that the trunk road network is mature, that the scope for urban road construction is limited, and that the benefits of marginal improvements to the road network are modest in relation to the costs involved, it would be desirable to review the DfT's economic appraisal methodology to ensure that the benefits assumed correspond to those that actually arise, and that there is no bias against rail investment.

9 June 2012

Submission Q

Campaign for Better Transport

CBT submitted this report which they consider relevant for the ITC Call for Evidence

[PART 2 OF]
HEYSHAM – M6 LINK ROAD (HM6L) WRITTEN REPRESENTATION
CASE REF. NO. TR010008. UNIQUE REFERENCE NO: 10015179

(associated with interested party North West Transport Roundtable)
CASE REFERENCE NO. TR010008. UNIQUE REFERENCE: 10015179)

These comments are relevant to Questions 1 & 27 put by the Examining Authority in its examination timetable (rule 8 letter) of April 12, 2012. We would request these issues are considered further at the Issue Specific Hearing on traffic flows scheduled for July 12/13

1. PART 2 EVIDENCE SUMMARY

1.1 Campaign for Better Transport believes that this examination should include consideration of a future 'low traffic scenario' in its assessment of the level of need for the Heysham to M6 Link Road (HM6L).

1.2 In order for this consideration to take place, we request that an updated transport case for the road and a remodelling of the scheme is carried out by Lancashire County Council and a further appraisal of the scheme is undertaken with a model that uses a 'low traffic scenario' with future traffic levels entered into the modelling that are significantly lower than the estimates available from the current National Transport Model (NTM).

1.3 Evidence is given in the detailed submission for the following points to back up the call for lower future traffic growth to be considered:

1) Baseline traffic growth forecast in the Major Scheme Business Case for HM6L at programme entry in 2005 had not materialised by the time revised modelling was carried out in 2008.
2) National road traffic forecasts, derived from the NTM have consistently over-estimated traffic growth over the past 22 years.
3) There is now a near consensus among academics and transport and planning bodies that the methods and assumptions underlying the NTM need to be revised.
4) There is also evidence that road freight traffic and economic growth have decoupled.
5) Many diverse organisations are looking at this issue and will be producing new evidence over the course of the next few months.
6) Highways Agency estimates for traffic growth on the M6 near the proposed HM6L also show lower growth rates than national forecasts. The HA confirmed to CPRE it would not be carrying out more than minor improvements to junction 34 without the proposed scheme and the agency is not bearing the cost of the modifications.

1.4 In addition, the Government is producing a new Roads Strategy which is likely to emerge in draft before the end of the current examination. During this period, the DfT will itself be looking at the NTM. It can be reasonably predicted that a lower estimate of future traffic growth will emerge from this process. Therefore we are also calling for the new Roads Strategy and its likely conclusions with respect to traffic growth to be considered as an important and relevant matter throughout the examination.

Sian Berry, Public Transport Campaigner, CfBT, May 8, 2012 E: sian.berry@bettertransport.org.uk

PART 2 – UNABRIDGED EVIDENCE FROM THE CAMPAIGN FOR BETTER TRANSPORT

1. Introduction

1.1 To supplement the submissions by other interested parties on factors affecting local traffic flows, Campaign for Better Transport would like to add some points relating to both local and national traffic forecasts against a background picture of falling traffic levels.

1.2 Because of these issues, Campaign for Better Transport believes there is a strong case that this examination should include the consideration of a future 'low traffic scenario' in its assessment of the level of need for the Heysham to M6 Link Road (HM6L).

1.3 This would reflect good practice in assessing the uncertainty of model forecasting (as set out in WebTAG unit 3.15.5[1]) and would also take account of likely new national policy changes that will emerge during the examination process.

2. Consistently wrong local and national road traffic forecasts need revising

2.1 Comparison of predicted 2010 Do Minimum traffic flows from the 2005 Major Scheme Business Case[2] with validated baseline screenline flows in the 2008 revised business case[3] shows that that traffic growth forecasts for the area in 2005 had not in fact materialised and this reflects a general trend seen at a national level.

2.2 Looking first at the local case. It is pertinent to compare the diagrams of the 2001 baseline and the 2010 'Do Minimum' (DM) with 'Do Something' (DS) taken from the 2005 Local Model Validation Report (LMVR), which is Annex C of the *HM6L Major Scheme Business Case* 2005, with figures 3.2.4, 3.2.5 and 3.2.7 from the *Environmental Statement* (ES) Vol. 1 part B which is document 6.2 of the current application (from the 2009/10 modelling exercise).

2.3 The comparison shows that there were some absolute declines in baseline traffic volumes between 2001 and 2008 on several key routes e.g. The Lune bridges, Morecambe Road, Lancaster city centre gyratory, A6 south of city centre and A683 east of M6 junction 34. There are also, though, routes where baseline traffic increases, e.g. The A683 Caton Road west of M6 J34, the A5105 Coastal Road, the A683 link to Heysham Port and the M6 itself.

2.4 When the comparison is made between the 2008 baseline and the 2010 DM growth forecast (from 2005 modelling) the discrepancies are significant on most routes. (N.B. The volumes in the 2008 baselines are lower than the 2005 modelling predicted they would be in the DM scenario for 2010).

The figures (all AADF) are:

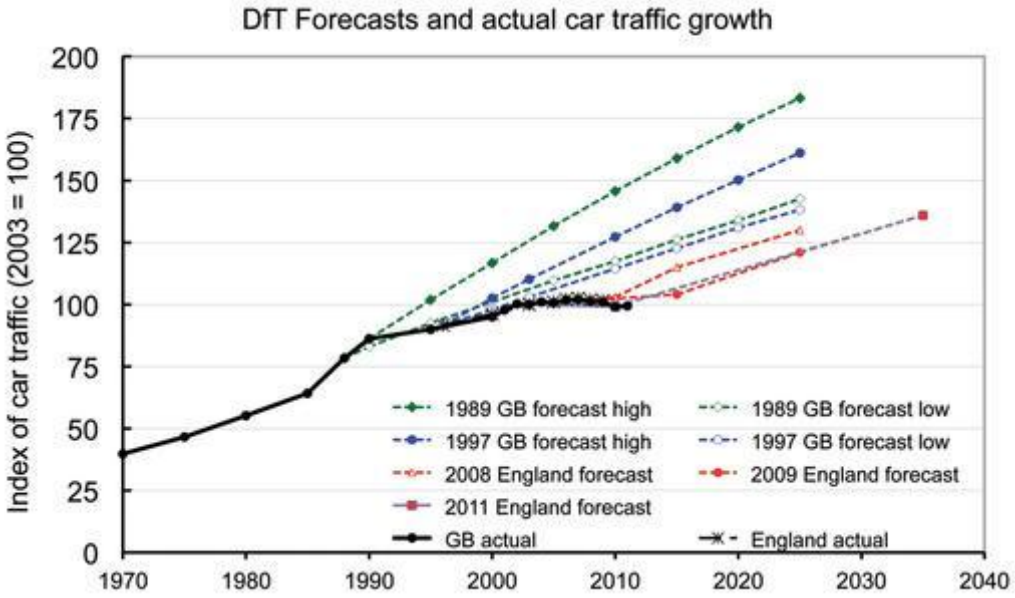
- Greyhound Bridge forecast **24700**, 2008 baseline **20200**
- Skerton Bridge forecast **25300**, 2008 baseline **21400**
- Morecambe Road (at Scale Hall) forecast **32300**, 2008 baseline **25400**
- A683 west of M6 J34 forecast **24900**, 2008 baseline **23200**
- A6 Bolton-le-Sands forecast **24300**, 2008 baseline **13400**
- City Centre gyratory northbound forecast **19500**, 2008 baseline **14900**
- City centre gyratory southbound forecast **18100**, baseline **17800**

[1] http://www.dft.gov.uk/webtag/documents/expert/unit3.15.5.php
[2] http://www.lancashire.gov.uk/environment/env_highways/roads/heysham/ltp.asp
[3] http://www.lancashire.gov.uk/corporate/web/?siteid=6092&pageid=35663&e=e

- M6 south of J34 forecast **72600**, 2008 baseline **63800**
- M6 north of J34 forecast **66400**, 2008 baseline **58400**

2.5 There are just a few links where the 2008 baseline is higher than the 2010 DM forecasting. One example is the A5105 at Bare – which is somewhat anomalous as the 2010 DM is higher on the same route on both sides of the Bare figure. Another is the A683 Heysham Port link – which is also anomalous as the DM figure on the A683 at White Lund is higher. In the instances where the baseline is higher than the forecast, the difference is generally much less than vice versa, as shown in the list above.

2.6 Moving to the national case. There is clear evidence that national traffic forecasts for the UK have consistently over-estimated traffic growth. The chart below, reproduced from a recent article by Professor Phil Goodwin of UCL/UWE[4] shows this very clearly in a comparison of the actual traffic levels seen in England compared with forecasts made from 1989 to 2011.



2.7 This record of forecasts being proved wrong over several decades has now led to a near consensus among academics and transport and planning bodies that the methods and assumptions underlying the National Transport Model (NTM), which underlies the DfT's road traffic forecasts, need to be examined and revised in order to make the model and forecasts more accurate.

2.8 Writing recently on this subject, Keith Buchan, Transport Planning Society Chair, said: [5]

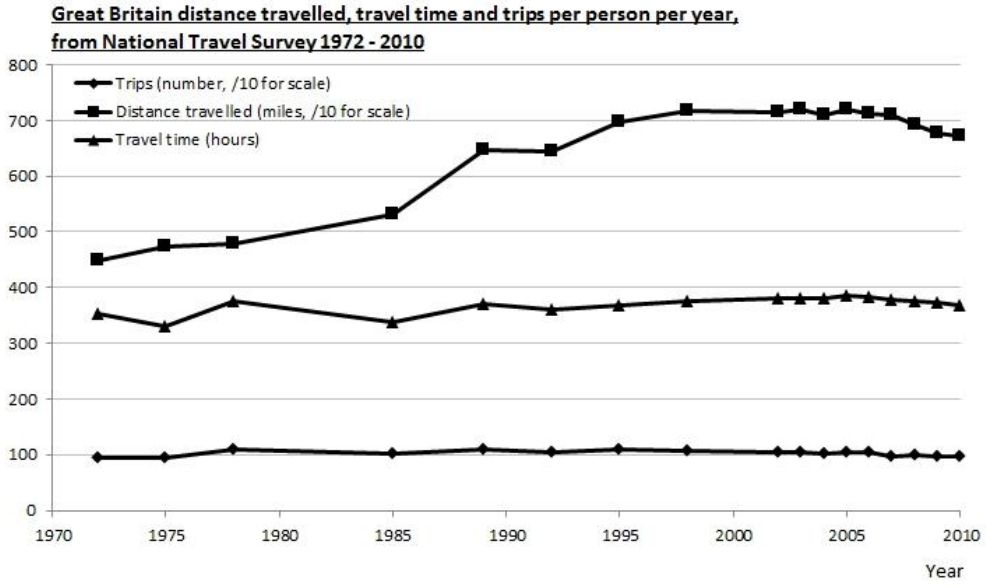
> *"The NTM is now so far away from reality that there must be an urgent review of how this has come about. For example, the results of TfL's modelling for the Mayor's strategy shows economic growth and population growth but no growth in car trips in Greater London between 2006 and 2031*

[4] *Due diligence, traffic forecasts and pensions*, Goodwin P, LTT April 2012, http://www.bettertransport.org.uk/campaigns/roads-to-nowhere/ltt-130412 (free) and http://www.transportxtra.com/magazines/local_transport_today/news/?id=30378 (subscription)
[5] *TPA Chair calls for reform of National Traffic Forecasts*, Buchan K, LTT March 2012, http://www.tps.org.uk/main/news/id/0424/

The NTM covers a slightly different 25-year period, 2010 to 2035, but predicts a 43% rise in London's road traffic. This difference is so huge it is nowhere near being explained by the DfT using last year's economic growth forecasts which had GDP rising 13.5% between 2010 and 2015. We should be so lucky – the Office of Budgetary Responsibility's most recent forecast is 9.7%."

2.9 David Metz of the Centre for Transport Studies at University College London has also argued – most recently in May 2012 – that with personal daily demand for travel having reached a peak in in the UK, future determinants of road traffic levels would depend principally on demographic and land-use factors.[6] His analysis of results from the annual National Travel Survey has found that growth in travel demand per-person across the population reached a plateau in around 1995, despite subsequent increases in income and economic activity.

Chart based on National Travel Survey 2010 (data from table 0101)[7]



2.10 Metz also points to a decoupling of economic growth from road freight transport – again preceding the current recession – and attributes this to saturation effects from the high level of access already provided by the UK's road system and diminishing returns from additional capacity, casting further question marks over the growth in freight traffic predicted by the National Road Transport Forecasts (these currently predict a 43% increase in HGV traffic between 2010 and 2035). Metz says:[6]

"In effect, the development of the modern trunk road system allowed improved access to outlets for the freight distributors, a process in which returns inevitably diminish, leading to demand saturation."

2.11 New work is currently being commissioned by diverse organisations including the Independent Transport Commission, Campaign for Better Transport and the RAC Foundation to examine

[6] *Demographic determinants of daily travel demand*, Metz D, Transport Policy May 2012 http://www.sciencedirect.com/science/article/pii/S0967070X1200008X

[7] *National Travel Survey 2010*, Department for Transport, July 2011 http://www.dft.gov.uk/statistics/releases/national-travel-survey-2010

these issues. The results will be submitted to the DfT for use in developing its Roads Strategy later this year, (see point 2), and in future revisions of the NTM and traffic forecasts.[8]

3. The government is producing a new Roads Strategy & re-examining its forecasts

3.1 At a central government level, following on from a recommendation in the Cook Review of the Strategic Road Network,[9] which was published in November 2011, the Department for Transport is currently producing a Roads Strategy[10] and, as part of this, we understand that the Department is looking closely at its current traffic forecasts and examining their basis and assumptions in a similar vein to the complementary work being carried out by the individuals and organisations above.

3.2 The new Roads Strategy is expected to be ready in September or October this year. According to the current timetable for this examination, this will be after the examination period and during the period when the Examining Authority's recommendation on the scheme is being prepared. We therefore believe that the strategy should be regarded as an important and relevant matter throughout the examination because it is a highly relevant emerging new policy and its conclusions with respect to road traffic forecasts can be reasonably predicted.

3.3 We also request that the current examination process should consider the impact of these likely changes to national traffic forecasts on the need for this scheme.

- This should include examining an updated transport case and a re-modelling of the scheme by Lancashire County Council, taking into account the changes to traffic forecasts that have taken place since the last time this was done in 2009

- In addition, a further appraisal of the scheme should feature a model that uses a 'low traffic' scenario, in which future traffic levels over the appraisal period are significantly lower than the 'low' estimate in current traffic forecasts

- The likelihood of this scenario coming about should also be considered by the Examining Authority, taking into account the current work being carried out at the DfT as well as any relevant evidence that emerges to support the likelihood of low or negative traffic growth in England in the future

- The implications of these new models can then be discussed as part of the Issue-Specific Hearing on traffic flows

4. HA forecasts for M6 show low background traffic growth in the more local area

4.1 The Highways Agency (HA) has recently confirmed to the Campaign to Protect Rural England (CPRE) North West Regional Group that the agency would not be contemplating anything more than minor improvements to junction 34 of the M6 without the proposed scheme, and that the agency is not bearing the cost of the modifications necessary as part of the scheme (responses provided in

[8] *Road Transport Forecasts 2011*, Department for Transport, January 2012 http://www.dft.gov.uk/publications/road-transport-forecasts-2011/
[9] *A fresh start for the Strategic Road Network*, Department for Transport, November 2011, http://www.dft.gov.uk/publications/strategic-roads-network
[10] See table 2A in *Infrastructure Cost Review*, HM Treasury, April 2012 http://hm-treasury.gov.uk/d/iuk_cost_review_report2012_230412.pdf

February 2012 in reply to questions from CPRE, both within a meeting of the HA's joint Northern Environment Committee/ Road Users Committee on March 22 and before and afterwards in written answers to questions). (See Appendices 1 & 2). These responses clearly imply that the Highways Agency cannot foresee a substantial level of traffic growth in this part of the country in the near future, with or without the scheme.

4.2 Evidence to support this conclusion also comes from the HA. Its responses to CPRE include a table of specific figures for modelled traffic flows on the M6 itself, which were prepared for the HM6L Forecasting and Economics Report published in 2011.[11] These figures are reproduced in the table below, to which percentage increases in traffic for each scenario between 2015 and 2030 have been added.

4.3 From this table, it can be seen that traffic on the M6 itself around junction 34 is forecast to increase by between 12% and 19% between the opening year (2015) and design year (2030) in the Do Minimum scenario.

4.4 The 'Do Something' scenario can also be compared for these two years and show 10% to 23% growth over this 15-year period.

Table 1 – M6 Modelled Traffic Flows through junction 34 - data from HA

M6 Junction 34	2015 AADT		2030 AADT			
	Do Min	Do Something	Do Min	Do Something	Growth 2015-2030 Do Min	Growth 2015-2030 Do Something
NB, south of junction	34,200	36,500	39,900	43,300	16.7%	18.6%
NB, through junction	26,800	25,900	30,100	28,500	12.3%	10.0%
NB, north of junction	31,800	35,500	36,500	42,100	14.8%	18.6%
SB, north of junction	29,700	31,000	34,400	36,800	15.8%	18.7%
SB, through junction	24,400	24,100	27,700	27,000	13.5%	12.0%
SB, south of junction	32,500	33,800	38,500	41,700	18.5%	23.4%

4.5 These increases are much lower than the equivalent national forecasts for traffic growth and show again that increasing traffic in the local area – even at levels calculated using current forecasting methods – is not an problem that requires urgent road-building, but could be tackled in many other less destructive ways.

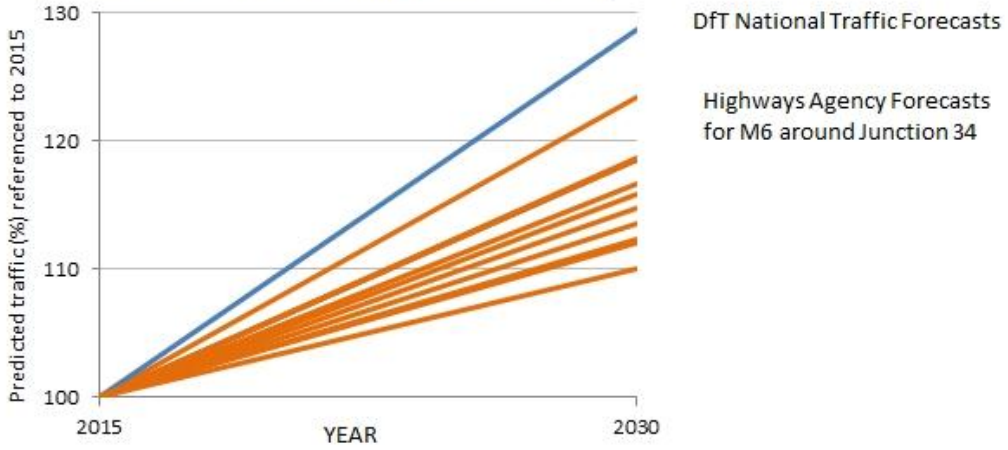
4.6 For comparison, data from Table 4.1 of the DfT's Road Transport Forecasts 2011,[8] is shown below, with percentage growth rates added. The forecast national growth rate in traffic between 2015 and 2030 is 28.6% – much higher than that forecast for the M6 around Junction 34.

[11] *Heysham – M6 Link Road Forecasting and Economics Report,* Lancashire County Council, February 2011, http://www.lancashire.gov.uk/corporate/documents/heysham/Heysham%20Forecasting%20Report.pdf

Table 2 – DfT National Transport Forecast traffic growth rates:

England	Year	Traffic (billion vehicle miles)	Growth vs 2015
Central Forecast	2010	261.2	
	2015	**275.9**	
	2020	303.7	10.1%
	2025	333.0	20.7%
	2030	**354.7**	**28.6%**
	2035	375.6	36.1%

Forecast Traffic Growth - Junction 34 M6 and national traffic
(Sources: HA communication with NW TAR and reference 6)



May 8 2012

Sian Berry
Campaign for Better Transport

Campaign for Better Transport's vision is a country where communities have affordable transport that improves quality of life and protects the environment. Achieving our vision requires substantial changes to UK transport policy which we aim to achieve by providing well-researched, practical solutions that gain support from both decision-makers and the public.

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APPENDIX 1

M6 to Heysham Link Road
Questions raised by the CPRE / HA Response
February 2012

Q1. *What impacts are expected on the M6 if Lancashire County Council were to build the revised version of the M6 to Heysham Link Road which has just been accepted by the IPC? (Latest modelling figures please and kindly reveal the date the modelling was carried out and which model was used).*

HA Response: In 2008, a new SATURN highway traffic model with a Base Year of 2008 was developed. The model was developed to support the design, appraisal and continuing funding bid for the proposed Heysham – M6 Link Road. The model simulates, in detail, the movement of vehicles through the network and calculates the effect of the traffic on queues and delays at junctions. The model was developed using survey data collected in May/June 2008. The development and validation of the Base Year model is detailed in the Local Model Validation Report (LMVR), published in April 2010.

Future Year models were developed using the validated 2008 Base Year model as the basis. The principal requirement of the Future Year models was to provide traffic forecasts for the Do-Minimum (Without-Intervention) and Do-Something (With-Intervention) scenarios for two years, namely the Opening Year (2014) and the Design Year (2029). The Forecasting and Economics Report, published in February 2011, describes the methodology and assumptions adopted in the development of the Future Year traffic forecasting models. It also presents the traffic forecasts for the design and appraisal of the scheme as well as the results of its economic assessment.

Both the Base Year model and Future Year forecasting models were developed in accordance with the latest guidance available at the time, provided by the Department for Transport (DfT) in the Transport Analysis Guidance (TAG) series of documents.

Since the development of the Future Year models, it has been recognised that the Opening Year of the Heysham - M6 Link Road is likely to be 2015 and, therefore, adjustments have been made to the modelled traffic flows in order to assess the impact at Opening Year 2015 and Design Year 2030. Table 1 summarises the Annual Average Daily Traffic (AADT) flows for the four M6 Junction 34 slip roads, and the sections of the M6 mainline north and south of the junction. The table includes Opening Year (2015) and Design Year (2030) Do-Minimum (DM) and Do-Something (DS) traffic flows.

Table 1 – M6 Modelled Traffic Flows

M6 Junction 34	2015 AADT		2030 AADT	
	Do Min	Do Something	Do Min	Do Something
NB Off-Slip	7,500	10,600	9,800	14,800
NB On-Slip	5,100	9,600	6,400	13,600
SB Off-Slip	5,300	6,900	6,700	9,800
SB On-Slip	8,100	9,800	10,800	14,700
NB, south of junction	34,200	36,500	39,900	43,300
NB, through junction	26,800	25,900	30,100	28,500
NB, north of junction	31,800	35,500	36,500	42,100
SB, north of junction	29,700	31,000	34,400	36,800
SB, through junction	24,400	24,100	27,700	27,000
SB, south of junction	32,500	33,800	38,500	41,700
Junction 34 Overall	77,100	86,900	91,500	108,400

With the proposed Heysham - M6 Link Road in place, it is clear that M6 Junction 34 will experience a change in traffic levels. The change is due to the effects of flow redistribution of the Heysham – M6 Link Road, and the increased traffic that the link road attracts as traffic to and from the M6 travels via the shorter, faster route. The proposed design improvements at M6 Junction 34 will assist in providing this traffic with a much safer connection to the motorway.

Q2. *It is understood that Lancashire County Council will be bearing the cost of the alterations to M6 J34 and the slip roads. Is this correct? Will there be any costs at all falling on the HA and, if there are, what are they anticipated to be?*

HA Response: The split between the HA and the county funding was discussed with the DfT in the early days of the scheme design and DfT's view was that, as their contribution would be sourced from the major schemes fund, there would be no point it then splitting it into HA and County payments, it would all go to the county to use. DfT are therefore, in effect, funding the slip roads. The £12m contribution from the county will go towards the rest of the scheme. The only costs falling directly to the HA are those costs for the time spent by our managing agents, Enterprise Mouchel, checking the design, attending progress meetings and the future monitoring on site, in so far as the scheme relates to the motorway junction. It is estimated that these costs will be in the order of £10k - £20k.

The HA and the County have also worked together to reduce the overall costs of the scheme by sharing traffic management during the survey / investigation phases of the project. That is, and where practicable, the County has undertaken investigations at those times when our agents, Enterprise Mouchel, have installed traffic management to carry out routine maintenance works. This arrangement will hopefully be reciprocated during the construction phase of the scheme.

Q3. *How long is the work of re-building the motorway junction and slip roads expected to take and how much is it estimated this particular aspect of the scheme will cost (regardless of who is funding it)?*

HA Response: It is estimated that the whole scheme will take approximately 2.5 years to complete. The final programme of works is yet to be determined but it is anticipated that the slip road works will continue throughout the duration of the contract. However, as far as reasonably practicable, full movements at the junction will be maintained throughout. The only exceptions will be the need for the occasional overnight and weekend closures of individual slip roads. The costs of the slip road works have not been determined in isolation as the scheme has been priced as a whole. However, based on our knowledge of the cost of constructing new junctions elsewhere on the network, it is estimated that the slip road works will cost in excess of £25m

APPENDIX 2

COMPLETION OF HEYSHAM TO M6 LINK
North West Transport Activists Roundtable (NW TAR)/ CPRE - Additional Queries
(April 2012)

Please note that, due to the complexity of some of the issues raised, the HA has required the assistance of the promoting authority (Lancashire County Council) to ensure a fully considered response.

Q.1: *The proposed new layout for M6 J34 was altered between 2005 and 2007 at the behest of the HA at an additional cost of £3.6m. However, in order to make savings, this now appears to have been modified to very close to what it was originally. (The main change was a significant lengthening of the southbound on slip which necessitated re-building the Grimeshaw Lane overbridge. This has now been altered back so that the slip road ends short of the overbridge – more or less where it was to begin with). It is difficult to understand why, if the changes were deemed necessary by the HA in the first place, they are no longer deemed to be necessary now. Is it possible that some light could be thrown on this state of affairs?*

HA Response: The original design of slip roads, as submitted as part of the planning application in 2005, complied with DMRB design standards current at that time. However, in 2006 a new design standard was issued, namely TD 22/06.

Traffic forecasts from the previous traffic model, when set against the new DMRB design standard TD 22/06, necessitated provision of a 'Type H' ghost island merge layout complete with auxiliary lane for both the northbound and southbound merges. They also necessitated a 'Type B' parallel diverge layout, again complete with auxiliary lane, for the southbound diverge. Junction 34 traffic forecasts from a new traffic model (see answer to Qu.4), however, are significantly lower and only necessitate provision of a 'Type C' ghost island merge layout, without auxiliary lane, for the northbound and southbound merges and a 'Type A' taper diverge layout (no auxiliary lane) for the southbound diverge. (Please refer to the attached for details of Type A, Type B, Type C and Type H Layouts)

Q.2: *The issue of precisely which highway authority is funding what is very confusing. Please clarify if the scenario below is correct.*
The HA appears to be saying that DfT scheme funding is paying for J34 and Lancashire County Council funds will be used elsewhere. However, LCC is now paying the 10% of total scheme costs that is the norm for LA major schemes, i.e. £12.325m on a scheme cost of £123.25m, therefore it is inescapable that the County is paying 10% of the costs of J34.

The previous quoted cost of the J34 upgrade was £19m which, as explained in point no.1 above, went up by £3.6m when the alterations were asked for circa 2005. However, they have now gone down by £1.78m. Scheme cost at the 2010 estimate was therefore £21.42m. With BAFB inflation this would be at most £23.13m outturn cost. Is this compatible with the HA's estimate of cost 'in excess of £25m' (and is this figure the current price or outturn cost)? To all intents and purposes, it appears from these figures that LCC's funding risk has risen by another £2m.

HA Response: The County Council is paying approx 10% of the scheme cost but it is entirely the Council's own decision to state where that contribution goes. They prefer to use it towards the cost of the link road, rather than the slip roads. As stated previously, the County Council has not produced a separate cost for the motorway junction in isolation and the cost of "in excess of £25m" is merely a guideline figure.

Q.3: *The Faber Maunsell report on Lancaster (2007/08) used a figure of £10m per slip as a budget cost for new motorway junctions, i.e. £40m for four completely new, fairly standard slip roads (at Galgate). Is this compatible with £25m for four far from standard slip roads at J34 (all very long due to chasing the gradient on the M6), including the cost of removing the off-slips and managing traffic?*

HA Response: As previously stated, an estimate for the new motorway junction in isolation has not been produced by the County Council. However, the HA would generally quote a typical cost for a new junction as, "in excess of £25m".

Q. 4: *The 2008/09 traffic modelling appears to be radically different from that used for the major scheme business case (MSBC) in 2005, not only in baseline volumes but in patterns of change between DM and the scheme. What is the explanation for this?*

HA Response: As stated above and as you are aware, the promoting authority for the Heysham to M6 Link Scheme is Lancashire County Council and it is their models that have been used to consider traffic flows / growth

throughout the scheme development. It has therefore been necessary to ask LCC to explain the intricacies of the models. Following this, I can confirm that a new highway traffic model has been developed by them using roadside interview data from May/June 2008, together with manual classified counts, car park interviews in the central areas of Lancaster and Morecambe and an extensive programme of journey time surveys.

This replaces the previous model which utilised roadside interview data from September / October 2001, with supporting data gathered, primarily, in 2002. The formal modelling base year has therefore advanced seven years, from 2001 to 2008.

The new SATURN-based traffic model is considerably more sophisticated than the previous TRIPS-based one. The modelling is now disaggregated by both vehicle type and journey purpose, and there is explicit modelling of junctions throughout the study area. At the traffic forecasting stage, explicit account is taken of a new set of planned developments. In addition, account is taken of four locations on the peninsula where development might be influenced by completion of the scheme. Variable demand modelling is again undertaken, but this time using the DfT-approved DIADEM software rather than the simple elasticity technique adopted previously. The formal forecasting years have each advanced four years: from 2010 to 2014 for opening, and from 2025 to 2029 for design.

It is also acknowledged that forecast growth within the previous model was above observed growth, both nationally and locally. Between 2001 and 2008 the previous model predicted growth of 10.6% across the study area. Over the same period the observed figures were actually much less at 5.9% (nationally) and 3.6% (locally).

Q.5: *The HA appears to have changed its reasoning for not contributing towards the scheme cost. Has it? The previous reason offered by the HA was that upgrading J34 was not a high priority, and the HA did not have the authority to contribute this magnitude of funding. The HA now appears to be saying that, as the source of the funding is the DfT in any event, it is not worth splitting the funding stream.*

HA Response: The HA's earlier comment regarding priorities and our response provided in March 2012 are not mutually exclusive and both remain pertinent.

Q 6: *Traffic growth forecasts in the previous model have proved to be far from accurate. Surely the figures quoted in response to the previous questions are also likely to need revision, especially in view of the latest DfT national road traffic forecasts that were released at the end of January?*

HA Response: Again, LCC confirm that the forecast growth at M6 J34 in the previous model, for the period 2001 - 2010, was far higher, at approximately 20%, than the actual observed national figure of 8.2%. However, it should also be noted that the National Road Traffic Forecasts (NRTF (Great Britain) 1997), current at that time, predicted rural motorway growth of 27.5% for the same period - a figure that was less accurate than the modelled forecast. With the new model, the Base Year 2008 to Opening Year 2015 growth prediction at the same location is approximately 5%.

The latest available forecasts from the Department for Transport (Road Transport Forecasts 2011, Annex tables) predict rural motorway growth in North West England of 6.8% for the 2010-2015 period. This translates to a year on year growth rate around twice the modelled forecast growth rate. Looking at the longer term forecasts, the LCC model Base Year 2008 to Design Year 2030 growth predictions are approximately 22%. By comparison, the national forecast for rural motorway growth in the North West of England is 38.6% for the 2010-2030 period. Again, this translates to almost twice the modelled forecast growth rate and this longer term modelled rate is exactly that observed nationally on rural motorways between 2001 and 2010.

Oxera

Agenda

Advancing economics in business

Fares fair? The economics of setting ticket prices

Regulated rail fares in Great Britain are set to rise by 3% in real terms for each of the next three years, while the entire approach to fares setting is about to be subject to formal review. There are important economic issues surrounding these changes, such as the empirical evidence on how passengers respond to fare changes, and the types of fares regulation that might be introduced

One of the many recommendations of the 2011 report from the Rail Value for Money Study is that the UK Department for Transport (DfT) should undertake 'a full review of fares policy',[1] which should encompass a series of issues relating to the level, structure and regulation of the fares paid by passengers to use railways in Great Britain (GB). The GB rail industry is also embarking on its planning for the five years from 2013, in the context of a comment in the Rail Value for Money Study report that the industry needs to move away from 'predict and provide' towards 'predict, manage and provide'.

According to the Study, passenger rail fares contributed £6.2 billion to the cost of running the railways in Britain in 2009/10.[2] Regulated rail fares (comprising approximately half of those sold) have been rising by an average of 1% per annum in real terms since 2004 (the most recent fares review being in 2003),[3] and the Chancellor of the Exchequer announced in autumn 2010 that these fares would rise by 3% in real terms for the next three years.[4] Given the close links between regulated and unregulated fares (in terms of passenger buying behaviour), unregulated fares are expected to increase in tandem.

Recent evidence suggests, however, that GB rail fares are already high in international comparison. Work published in February 2009 by the consumer group, Passenger Focus, found that GB rail season tickets were more expensive than those in seven other European countries—although train frequencies were also relatively high.[5] In addition, walk-up fares (those available just before travel) for long-distance journeys are comparatively high, but GB offers the cheapest advance-purchase fares.

What is the evidence relating to the forthcoming fares increase, and how might the regulation of GB rail fares be adjusted to improve capacity utilisation? While there are numerous reasons why the government may wish to regulate the price of rail travel—for example, to encourage its use given its environmental advantages over road travel—rail fares regulation could also be used to improve capacity utilisation and to increase users' contribution to the funding of the rail network.

Existing regulation

Regulated tickets sold by GB passenger rail operators are subject to an overall price cap (RPI ± X), which is set by central government and covers all 'flows' (journeys from A to B) and a wide range of products. A 'basket' approach is used to set prices, in which the overall price of a basket of regulated products must not change by more than the national cap, although products within the basket are currently permitted to change in price by up to RPI + X + 5. Under the existing RPI + 1 framework, therefore, some ticket prices may rise by inflation plus 6%, as long as there are offsetting price reductions for other regulated tickets.

In practice, operators' prices are capped in relation to two baskets:

- a 'Commuter Fares' basket—containing designated commuter tickets (primarily, seasons and Anytime singles and returns) for all flows from which the operator derives revenue;
- a 'Protected Fares' basket—covering tickets outside commuter areas (typically, weekly seasons and Off-Peak returns).[6]

There is a 'halo' effect in relation to both of these baskets: because passengers can switch between ticket types to get a better deal, regulated tickets constrain operators' pricing of unregulated tickets. The precise degree of this constraint will depend on the availability of relevant alternatives for travel, which can be measured using diversion ratios (in this context, the rate at which people move between modes of transport in response to relative changes in aspects of service provision). In addition, operators do not necessarily set fares for all flows (the extent to which an operator can perform this function depends on whether it is the 'lead operator' on the flow), and different operators' baskets can overlap.

RPI + 3

One factor underlying the decision to allow higher rates of real-terms increases in regulated rail fares (from RPI + 1 to RPI + 3) is that the fare elasticities of the affected products are relatively small. If this assumption holds, the fare increases will raise revenue, since losses arising from a relatively small fall in demand following a price rise would be more than offset by the remaining passengers paying more for their travel. Indeed, the government has stated that the rise in regulated fares will cause the number of rail journeys to be 4% lower than it would otherwise have been by the end of the three-year period.[7]

The rise in regulated fares following the Chancellor's announcement will lead to formal change processes being triggered in existing franchise agreements. As a result of the franchise change clauses in the agreements, any additional revenue expected to accrue to the franchise operators will lead to reduced financial support, or increased premium payments. In other words, the DfT—rather than the franchised operators—will receive the increase in fares revenue arising from the fares increase. The change in national fares policy is thus used as a vehicle for increased user contributions to the cost of providing rail services in Britain.

The demand forecasting advice for fare elasticities used by the DfT to generate its expected revenue increases is somewhat dated, being based on a 2002 version of the GB rail industry's *Passenger Demand Forecasting Handbook* (PDFH).[8] The latest version of the PDFH, published in 2009,[9] contains updated evidence that suggests that fare elasticities are, in general, greater in absolute terms than those recommended in previous versions of the PDFH.[10] Season tickets, which form the bulk of regulated fares by value and are expected to contribute most to the revenue increase arising from the move to RPI + 3, typically display lower elasticities than other tickets. The assumption is that people commuting to work have fewer transport alternatives, and are therefore less likely than other groups to switch away from rail as a result of fares increasing. In the latest version of the PDFH, the season-ticket fare elasticities are up to 65% higher than in the 2002 version.

Indeed, recent research by Oxera and Arup for the GB rail industry (previously discussed in *Agenda*) has suggested that season-ticket elasticities in 2010 are even greater in absolute terms.[11] This evidence—that fare elasticities seem to have risen over time (between the 2002 and 2010 research) in absolute terms—should not come as a surprise. Common sense suggests that as fares rise (which they have done in real terms since 2003 for regulated products), all else being equal, people will become increasingly creative about choosing how they travel, finding alternative routes, tickets and modes to suit their needs.

On the basis of this evidence,[12] the DfT is unlikely to raise the revenue it expects from its RPI + 3 policy. It is too early to say that revenues might deteriorate (there are likely to be pockets of the market where even long-run elasticities are sufficiently small for the fare increase to generate revenue). However, the latest evidence suggests that the predicted shift from taxpayer- to user-funding of the railway might be less substantive than expected, and that this is likely to be accompanied by a considerable reduction in rail patronage compared with what would be expected without the change in policy.

Fares review

The proposed fares review is likely to cover several angles, including the level, structure and regulation of fares. A number of problems with the status quo are discussed in the Rail Value for Money Study report, including the following.

- As noted above, some GB rail fares are high in international comparison, and RPI + 3 will not change this.

- Fares are not linked explicitly (or, indeed, implicitly, except in limited circumstances) to the costs of service provision. While RPI + 3 aims to lead to users contributing more to the railway as it is improved, the national fares policy is not designed to reflect localised enhancements to the network. In addition, there are a number of structural aspects to fares that add to the lack of cost-reflectivity (including the fact that season-ticket fares per mile fall with distance), and regional imbalances in fares per mile that have nothing to do with the cost of service provision. This is in contrast to the situation in the Netherlands, where the fares of the largest passenger operator, NS, are linked to the access charges set by the infrastructure manager, ProRail.[13]

- The fares that passengers face are deemed complex, with 'low awareness [among passengers] of the different ticket types available and little understanding of the benefits or restrictions of each'.[14] However, this seems to suggest more of a market failure in the provision of intermediaries, which make the best-price tickets available for each journey, than in the tickets available. (Mobile-phone tariffs could be described in the same way, but in this area operators and other retailers have found ways of presenting complex information in terms of choices that customers understand.)

- Perhaps the most substantive issue raised in the review relates to the regulation of Saver, or (as they are now known) Off-Peak tickets. The availability of these tickets is restricted to after the morning peak, and, by some operators, also outside the evening peak. However, despite their likely appeal to leisure travellers, these tickets form part of regulated product baskets, causing 'the "peak" problem [to apply] to important inter-urban travel at times when regulated Saver fares apply'.[15] This issue is demonstrated in Figure 1, which shows the increase in crowding over one afternoon as restrictions on Saver tickets were removed from trains leaving Kings Cross station in central London.

In addition to the above points, Oxera's research into the passenger rail industry in recent years suggests that the following issues are relevant, particularly in relation to fares regulation.

Market failure?

In some cases, regulation can help to correct market failures. However, since the first passenger rail franchises were let after privatisation (with a form of fares regulation that has hardly changed since), relatively little attention has been paid to whether the products that are regulated today, in the geographies in which they permit travel, should still be regulated, and, if so, to what extent.

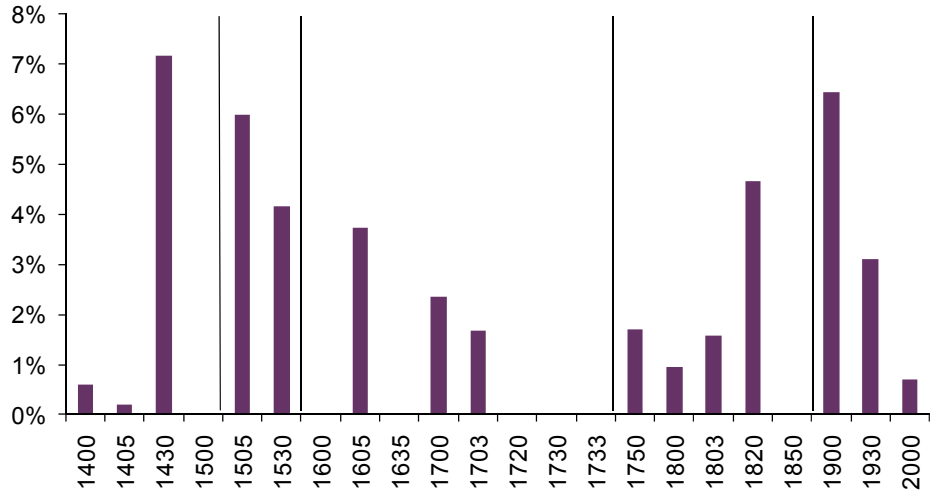
It might be considered counterintuitive to be regulating fares, particularly as the government is seeking to maximise the value of each franchise (and, specifically, to increase user contributions by exploiting any remaining market power that operators have). Fares regulation would be expected to reduce market power and the amount that operators are willing to pay to run franchises.

Model of regulation?

Assuming that there remain areas of the market where franchisees have market power (which would need to be tested on a case-by-case basis), the form of fares regulation needs to be considered carefully (particularly in light of the comments from the Rail Value for Money Study). Currently, the form of regulation is somewhat confused.

- The current fares basket approach includes products in the basket that, prima facie, should not be regulated—Off-Peak fares are one clear example (assuming that these are bought for journeys where the passenger has a wide range of travel

Figure 1 Illustration of crowding arising from the removal of ticket restrictions



Note: Percentage figures on the y axis are a measure of crowding (PIXC), where higher percentages mean greater crowding. The data is from a Friday afternoon (with times shown on the x axis), and the dips in crowding represent periods during which premium tickets are required to use departing trains.
Source: Oxera (2003), 'Review of Crowding Policy', prepared for the Strategic Rail Authority.

opportunities available), but the regulation of some Anytime tickets and weekly season tickets is no less unintuitive. One potential argument is that the current approach represents an approximation to Ramsey pricing (see box below), with low- and high-elasticity products included in the basket to enable operators to raise the prices of low-elasticity tickets, and lower the fares for products with high elasticities. Many baskets do not contain such a mixture of products, however, and this will mitigate the degree to which the welfare-maximising properties of Ramsey pricing can be achieved, and raise the question of why the selected products are being regulated. In addition, the empirical evidence suggests that the elasticities of some of the products that have been in baskets together have moved closer together. This is to be expected if operators have been pricing down the high-elasticity products at the expense of the low-elasticity products.

- An alternative would be to take a more scientific approach to fares regulation, in which products are regulated (potentially without the constraint of a basket) only if an operator has market power in relation to them. If an operator's product faced no actual or potential competition from other tickets, operators or providers of transport, regulation would apply. This economic regulation of rail fares would optimise regulation, focusing it on products where it was needed, and potentially enabling operators to price more flexibly to respond to competition in other parts of the market.

A potential issue with the use of Ramsey pricing is the extent to which the market is changing. It is becoming apparent that traditional mappings from typical journey purposes (commuter, business and leisure) onto ticket types are increasingly breaking down. Commuters are exchanging season tickets for the flexibility and convenience of Anytime (or even Off-Peak) tickets; business travellers are increasingly buying in advance (and eschewing first class to meet demanding new expenses policies); and large proportions of leisure travellers are taking advantage of advance-purchase options. The price discrimination that Ramsey requires (to enable lower-elasticity passengers to face greater price increases, and vice versa) is therefore becoming increasingly difficult. Regulators and operators can no longer assume that a product has a fixed price elasticity, since it might be being bought for one of several journey purposes.

Something that might come to the rescue is smart ticketing. A passenger buying a long-term ticket on a smartcard (which stores information about fares paid) will reveal much more than operators know today about that person's behaviour. They might commute into work only four days a week or they might work from different locations, and this information will be valuable to operators, which can use it to price-discriminate between trips with different price elasticities.

Smartcards are also a good way of making the best use of capacity. By giving passengers incentives to travel at different times of the day, or not at all, they can use passenger behaviour to smooth peaks in demand. At the moment, while season tickets enable operator cash flow, they provide journeys to passengers at zero (direct) marginal cost. Thus, there is no financial incentive to choose whether journeys are taken at the height of the peak period or at the lowest point of the off-peak period.

However, the operational benefits of smart ticketing will come at a cost, in terms of the cards, the readers, and, importantly, the back-office functionality to offer passengers the relevant prices for each journey.

What is Ramsey pricing?

In markets, such as rail, that are characterised by imperfect competition and very high fixed costs, setting prices equal to marginal cost is unsustainable because it does not allow firms to recover their fixed costs. In such situations, Ramsey pricing offers a second-best solution for efficient price-setting.

In markets where it is possible to price-discriminate, the Ramsey pricing result suggests that products with the most inelastic demand should have the highest price–cost mark-up, and vice versa. That is, where costs are the same across products, prices should be set higher for products with more inelastic demand.

The aim of Ramsey pricing is to recover a firm's fixed costs while maximising consumer welfare. It is based on the idea that increasing the price of a product is more effective at generating additional revenue the more inelastic the demand for that product is. As such, increasing the price of a product with elastic demand may reduce overall revenue as demand for the product falls. Increasing the price of a product with inelastic demand has a limited effect on demand—and the price increase will subsequently generate increased revenue.

By placing a higher price–cost mark-up on products with more inelastic demand, firms can therefore cover their fixed costs while minimising the overall level of price increases.

Source: Oxera (1999), 'The Application of Ramsey Pricing in Utility Regulation', *The Utilities Journal*, June, pp. 40–1.

Is the answer to increase flexibility?

The forthcoming GB rail fares review will need to consider both the level and the structure of fares, in the context of the government's objectives. If the objective is to make better use of capacity while raising revenue, increasing the pricing flexibility available to train operators may be a solution. This, in turn, would increase the value of the franchises for which the train companies submit bids to the government to operate, while not necessarily increasing the overall level of fares. As shown in the discussion above, this process could be achieved by implementing a more economic approach to fares regulation.

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[1] Rail Value for Money Study (2011), 'Realising the Potential of GB Rail', detailed report, June, p. 122.
[2] Ibid., p. 116.
[3] Strategic Rail Authority (2003), 'Fares Review Conclusions 2003'.
[4] HM Treasury (2010), 'Spending Review 2010', October.
[5] Passenger Focus (2009), 'Fares and Ticketing Study Final Report', February.
[6] Specifically, tickets formerly known as Savers, or, where Savers did not exist before February 2003, the equivalent full-fare return tickets.
[7] Hansard, November 10th 2010, c335W.
[8] Department for Transport (2009), 'Rail Passenger Demand Forecasting Methodology TAG Unit 3.15.4', p. 5. Association of Train Operating Companies (2002), *Passenger Demand Forecasting Handbook*, version 4.0.
[9] Association of Train Operating Companies (2009), *Passenger Demand Forecasting Handbook*, Version 5.0.
[10] The elasticities contained in more recent versions of the PDFH are clearly long-run; what are less clear are the time horizons covered by the elasticities in PDFH version 4.0.
[11] Oxera (2010), 'Why Do I Care about Forecasts if they are Always Wrong?', *Agenda*, August.
[12] Also, the rise in fare elasticities is not limited to the proportion of regulated fares that consists of season tickets.
[13] See Rijksoverheid (2005), 'Vervoerconcessie voor het hoofdrailnet 2005 – 2015', (the concession for passenger transport), Article 15 (2 and 3).
[14] Rail Value for Money Study (2011), op. cit., p. 118.
[15] Ibid., p. 119.

Oxera

Agenda

Advancing economics in business

Why do I care about forecasts if they are always wrong?

Economic forecasts play an important role in many industries, informing investment plans and government policy, among other things. However, the way these forecasts are produced often receives less attention than the forecasts themselves. A case study of the GB rail passenger industry, based on a recent Oxera study, illustrates what happens when the numbers change

Accurate forecasts are an important tool, whether you are taking commercial, policy or investment decisions. Forecasts of the demand for a product can inform all of these decisions, either in producing the most likely outcome according to a particular forecast, or in understanding risks arising from different downside scenarios.

There are many ways of producing demand forecasts, ranging from the relatively simple 'this is the best gut feel', to sophisticated and complex statistical and econometric models. In general, the more important the decision being based on the forecasts, the more sophisticated the model ought to be. For example, in industries where the level of supply cannot be changed easily or cheaply, such as rail or energy, using demand forecasts is particularly important for identifying future (capacity, demand management, other) policy requirements.

One common way of producing forecasts is to use elasticities. An elasticity describes consumer behaviour, reflecting how consumers respond to changes in the characteristics of the product, or of other products. An elasticity of demand is the percentage change in demand for a product in response to a percentage change in its price (own-price elasticity), consumer income (income elasticity), or the price of a different product (cross-price elasticity). Models using elasticities vary considerably in complexity, but essentially take forecasts of inputs (income, price, etc) and turn these into forecasts of outputs through mathematical relationships, by calculating the percentage changes in the inputs and applying the elasticities. In many sectors, such as transport, elasticity-based modelling is well developed.[1]

There are alternatives to elasticity-based forecasts, which use different statistical and econometric techniques; however, this article focuses on elasticity-based forecasting as this is one of the most widely used approaches.

Given the decisions that are taken based on economic forecasts, it is important to ensure that the evidence on which the forecasts are based is as robust as possible. This extends to any elasticities that are used. Here, an example is presented from recent analysis of the rail passenger industry in Great Britain, together with some thoughts on the general lessons that can be drawn from the study.

Revisiting the elasticity-based framework

The rail passenger industry in Great Britain has a long history of using elasticity-based models to produce forecasts of the demand for passenger rail travel, with the first version of the *Passenger Demand Forecasting Handbook* (PDFH) being published in 1986. (The PDFH is the key source of elasticities for estimating the demand for passenger rail travel in Great Britain.) In order to ensure that future policy choices are made as robustly as possible, and reflecting concerns that the forecasting framework was unable to predict the strong growth in rail demand towards the end of the last decade,[2] Oxera and Arup were commissioned to review and update the elasticities of passenger rail demand with respect to fares, income, demographics, and other transport modes (eg, cars) in Great Britain.[3] The final output is an alternative framework which can be used to forecast the demand for passenger rail travel in Great Britain. It is important to note that the research presented here is not official UK Department for Transport or industry policy.

The first step in developing this new framework was to undertake a detailed examination of the current state and historical developments of the passenger rail industry in Great Britain in order to inform the hypotheses which were to be tested in the remainder of the study; such as whether the relationship between different measures of income and demand varied between market segments. This stage also included a detailed examination of industry data sources.

The next step involved reassessing the underlying conceptual approach. This underlined the need for the research to explore issues such as:

- whether elasticities change over time, or along the demand curve;
- whether there is any evidence that demand in the passenger rail market is slowing relative to GDP growth due to the increasing impact of other factors, as has been seen in road traffic in Britain;
- whether the correct measures for certain demand drivers were being used; and
- the extent to which responses to certain demand drivers interact with one another (eg, as income rises, do people care more about journey times than fares?)

Within this conceptual approach, a number of issues could then be addressed, such as market segmentation, appropriate analytical techniques and data suitability.

One of the key enhancements made in this work is the treatment of the market segmentation. When estimating and using elasticities, the segmentation of the market between different types of user is important, as the elasticities reflect consumer behaviour. If this behaviour differs systematically within the market where demand needs to be forecast, the elasticities used to generate the forecast will be a weighted average across different types of behaviour, rather than capturing behaviour more precisely. In contrast, segmenting the market into parts within which the elasticities (for example, fare elasticities and journey purpose) are similar is likely to generate more accurate forecasts.

The analysis of how to segment the market consisted of a number of steps. The first was to analyse why elasticities might vary across markets—for example, relative income levels in different geographies might drive consumers to respond differently to changes in the rail offering. The second stage was to analyse the data graphically to understand some of the relationships within it. This was followed by the use of statistical techniques such as cluster analysis to test the hypotheses generated in the graphical analysis.[4] The final part of the process was to examine each of the clusters and determine whether there were particular patterns in the results. The resulting segmentation is a substantial change from that which currently exists in the industry, with potentially important implications for the production of forecasts.

The selection of the most appropriate analytical techniques for the study was carefully considered. This consisted of producing a shortlist of techniques from an initial 'long list'. Once this shortlist had been drawn up, preliminary analysis was conducted at an aggregate level to assess the strengths and weaknesses of different techniques. This process resulted in the selection of a particular econometric technique as being the most appropriate for the task (see the box below for details).

The final step before beginning the statistical analysis was to develop the dataset on which to base the analysis. The rail industry in Great Britain has many separate sources of data on, for example, demand, prices, journey time and performance, which, prior to this study, had not been collated in one place on a consistent basis. In addition, many other factors are expected to affect the demand for passenger rail travel, such as income, the cost of making an equivalent journey by car, and employment. The new dataset, known as 'The Oxera Arup Dataset' (TOAD), contains data at a number of levels of aggregation, and at both the origin and the destination of the rail route, all carefully matched to the other data sources. This dataset covers more than 20,000 rail routes, covering a period of 18 years, with over 60 explanatory variables.[5]

Results of the analysis

The outcome of this analysis is an alternative framework which can be used to forecast the demand for passenger rail travel. The key component of this framework is a set of elasticities, which in some cases are different from those that the industry has been using thus far, with potentially substantial implications for policy and commercial strategy. Table 1 provides some examples of the estimated elasticities. Due to

Analytical technique for panel data selected for the study

The analytical technique selected as the basis for the main analysis is the 'Blundell and Bond' estimator, which was designed for panel data.[1] Panel data exists where there are two dimensions to the dataset, and usually where multiple units (firms, routes, products, etc) are observed over a period of time. This distinguishes it from cross-sectional data, where multiple units (eg, firms) are observed at a point in time (a 'snapshot') and time-series data, where one unit (eg, a firm) is observed over time.

The Blundell and Bond estimator was designed specifically for cases where there are many cross-sectional units (in this case, rail routes) and a relatively small time dimension—ie, 'large N, small T' datasets. After consideration of the alternative approaches, this one was adopted and considered the most appropriate for the task.

Note: [1] Blundell, R. and Bond, S. (1998), 'Initial Conditions and Moment Restrictions in Dynamic Panel Data Models', *Journal of Econometrics*, **87**, pp. 115–143.

commercial confidentiality, it is not possible to present existing industry elasticities for comparison. The elasticity numbers in the table can be interpreted as the expected percentage change in the demand for passenger rail travel after three years, following a 1% change in the factor listed at the top of the column (fares, income, or car cost).

The main results of importance to the rail industry are that:

- the way the rail passenger market in Great Britain has been segmented previously may no longer be appropriate;
- there is evidence to suggest that passengers in most segments are more responsive to changes in factors such as income than previously thought;
- the preferred measure of income (on both conceptual and empirical grounds) has changed from GDP per capita to personal disposable income per capita;
- the cost, but not the absolute journey time, of travelling by car is important in affecting the demand for passenger rail travel;
- performance (ie, reliability) and journey time are important factors in the demand for rail travel;
- it is important to account for any changes over time in income, fares and other factors because passengers take time (approximately three years in most cases) to respond fully to changes in these factors, and hence forecasts which do not account for changes in the recent past are likely to be biased;
- changes in the level of car ownership have a smaller impact on changes in the demand for passenger rail travel than previously thought.

These findings are combined to form a general policy prescription, outlined below. The policy prescriptions presented here should not be taken to represent the views of the project funders. One of the most important observations is that there is limited evidence of market saturation (ie, demand remaining constant despite increases in income). This suggests that the demand for passenger rail travel is likely to continue to increase with rising disposable incomes. This in turn suggests that either the capacity of the network will need to be further expanded, or increased crowding will need to be tolerated on some parts of the network. This would be compounded if, as the analysis suggests, there is a considerable shift from road to rail, should the cost of using a car increase. In addition, passenger demand continues to respond to reductions in journey time and improvements in performance, suggesting that the current industry attention on these factors is justified, although there is clearly a discussion to be had about the relative costs and benefits of pushing for further improvements.

However, the higher fare elasticities suggest that there may be a limit to how far the balance of funding can be moved from the taxpayer to the passenger, as passengers appear to be more responsive to changes in fares than previously thought. This is particularly important given the previous government's intention to rebalance funding for the rail industry from the taxpayer to passengers,[6] and the recent statement by the Secretary of State for Transport that:

> the current fares formula is a reasonable and sensible approach. But it cannot be set in stone when all the other variables are vulnerable to change and to challenges. We will face some very stark choices and it would be irresponsible at this point to rule out even considering an increased contribution from the fare payer as part of the solution to protecting investment in the railways.[7]

Furthermore, the different pattern of fare elasticities (with more responsive season ticket holders than previously thought) may suggest that the current 'basket' system of fares regulation—whereby different tickets can be traded off against each other—may need to be reviewed.

To put these policy implications in context, Network Rail, which manages the rail network in Great Britain, is engaged in a programme of enhancements worth

Table 1 Elasticities from the study

Market segment	Elasticity with respect to fares	Elasticity with respect to income	Elasticity with respect to car cost
Core cities to London, the south-east and east of England, full-fare tickets	–1.41	0.77	1.81
Core cities to core cities, reduced-fare tickets	–1.16	2.01	n/a
Core cities to other, full-fare tickets	–1.71	1.63	1.42
London, the south-east and east of England to core cities, full-fare tickets	–1.27	1.06	1.59
Other to London, the south-east and east of England, reduced-fare tickets	–0.63	1.44	1.57

Source: Oxera and Arup's analysis.

approximately £7.7 billion over the period of 2009–14.[8] Any change in required capacity is therefore clearly putting a substantial amount of money at stake, and changes to demand forecasts have potentially large financial implications for the industry.

General lessons

To answer the question posed in the title of this article, the reason for caring about economic forecasts is that they provide a way of thinking through what is likely to happen in the future, and what the implications of those factors are, whether you are a policy-maker, regulator or commercial decision-maker. The fact that such forecasts are highly unlikely to be 100% accurate does not mean that it is sensible to do without them altogether. Rather, it serves to highlight the importance of planning for an inherently uncertain future.

Given the importance of the decisions taken on the back of forecasts, it is crucial that these forecasts are as robust as possible. This will include updating any elasticities used regularly.

A number of general lessons can be drawn from the case study presented above.

- Market segmentation and differences among types of consumer should be reviewed regularly.
- Elasticities are likely to change over time as product offerings, incomes and other factors change, and so may the 'received wisdom' in a sector.
- Capturing new data sources can lead to more robust parameter estimates for forecasting, and give a much richer picture of how demand is likely to evolve.

It is now possible, with sufficient data, to test multiple hypotheses about consumer behaviour—these can include elasticities changing over time and along the demand curve, dynamic effects, and whether the market for passenger rail travel is saturated.

In summary, changing forecasts can have substantial implications for business strategy and/or government policy, and new estimates may be seen as awkward or against 'the way things are', but updates can help avoid getting expensive decisions wrong.

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[1] See, for example, TRL (2004), 'The Demand for Public Transport: A Practical Guide', and Association of Train Operating Companies (2009), *Passenger Demand Forecasting Handbook v5*.
[2] See, for example, Steer Davies Gleave (2008), *PDFH Update: Phase 1*, June.
[3] The Oxera/Arup report was commissioned by the main funding bodies of GB rail (Department for Transport and Transport Scotland) and the Passenger Demand Forecasting Council, which is responsible for commissioning research into rail passenger demand on behalf of the GB rail industry.
[4] Cluster analysis is a statistical tool that allows groups of 'similar' observations to be grouped. Analysis of the observations in each group may reveal an underlying pattern in the observations.
[5] Access to the dataset is regulated by the Department for Transport.
[6] Department for Transport (2007), 'Delivering a Sustainable Railway', July, p. 127.
[7] Hammond, P. (2010), 'Speech to the National Rail Conference', July 8th.
[8] Office of Rail Regulation (2008), 'Determination of Network Rail's Outputs and Funding for 2009–14', October, p. 202.