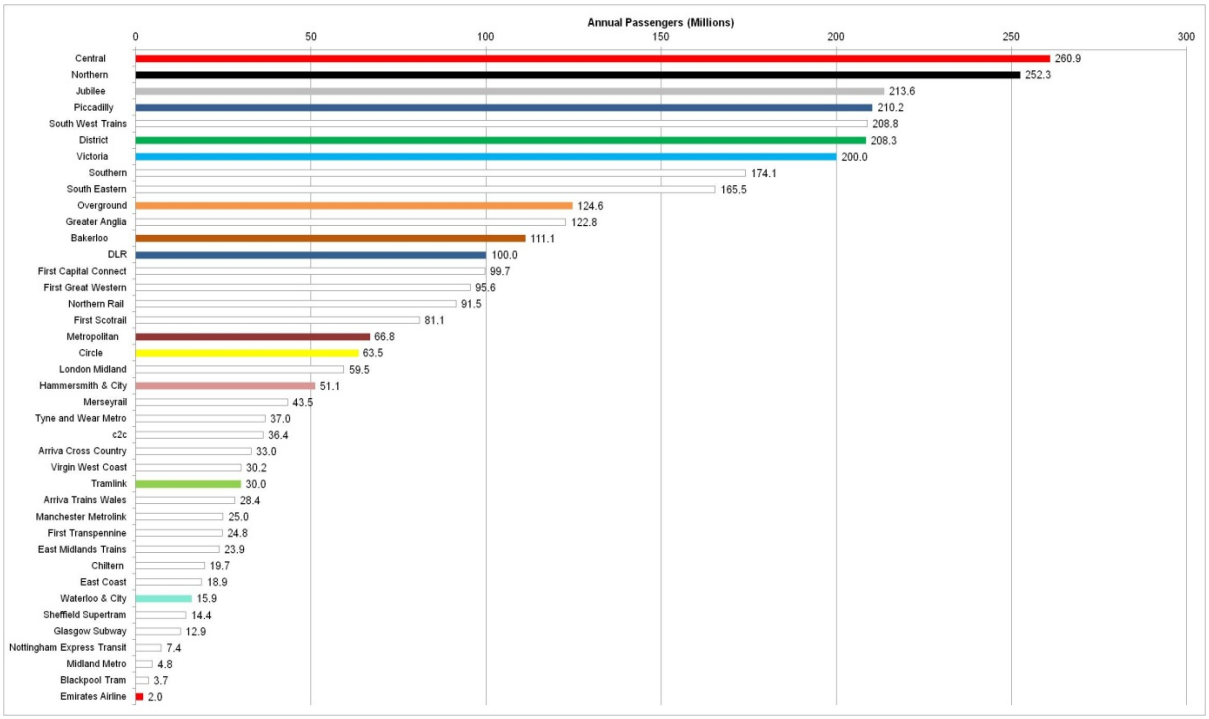
TEG TRANSPORT ECONOMISTS' GROUP

The Transport Economist

The Journal of the Transport Economists' Group



Editor Peter Gordon

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Details of meetings are provided on our website at

http://www.transecongroup.org/meetings.htm

TEG TRANSPORT ECONOMISTS' GROUP

AN ANNIVERSARY …

The Transport Economists' Group was formed forty years again and a lot has changed in those years. There are any number of topics that we could have looked at – privatisation, deregulation, technological advancements, economic and social developments, globalisation, concerns about the environment, problems with supplies of energy and raw materials – the list is endless. It is fascinating to watch a programme like Thunderbirds, which is only a few years older than TEG, and to see if the future is anything like predicted. Some areas like computing have developed faster than anyone predicted, others like nuclear aircraft are unlikely to happen soon.

Your editor is travelling to Tokyo in the new year and a glance at the 1973 ABC World Airways Guide made him realise how much slower getting there was then, even in the early age of the 747. Rail timetables have certainly changed and not necessarily in the way you might have predicted. Gregory Marchant has written an article detailing how railway services have developed in this country in the last forty years. I would like to start a sweepstake on what a 2053 timetable will look like although I will have to rely on developments in medical science in order to be around to judge it.

… AND A CELEBRATION

In recognition of the completion of forty years, the Group will be holding an informal reception upstairs in the Jeremy Bentham immediately after the meeting on 22 January 2014.

For those who are not familiar with the Jeremy Bentham, it can be found at 31 University St, London WC1E 6JL.

Changing times

A railwayman looks back at train services over the life of the TEG

Gregory Marchant

November 2013

PROLOGUE

In 1973, when TEG was founded and this author was only five years into his career with British Rail, the railway industry was very different. The concept of InterCity was less than ten years old, the InterCity 125 High Speed Train project was still in development, and the Passenger Demand Forecasting Handbook (PDFH) had yet to be assembled.

My chosen way of looking at how things have changed is to compare train services and timetables over the life of TEG. Until 1974 BR public timetables had been issued on a regional basis. Not having all the earlier regional books, I am only able to look at changes starting with the first All Systems Timetable commencing in May of that year.

From my somewhat random collection of timetables, I have sampled at roughly 10 year intervals to give an idea of how changes have affected the various routes. As far as possible the results of my labours are shown graphically. **Solid lines represent Median Journey Times, hashed lines show Minimum Journey Times.** The journey pairs I have chosen are London to/from selected cities on the East Coast Main Line, West Coast Main Line and Great Western Main Line. I have yet to complete my analysis of services on other intercity routes.

Since I suspect most readers are predominantly interested in the results, I have set out these first. My methodology is covered in a section at the end. Suffice it to say that the analysis only covers Summer weekday timetables and excludes “Friday Only” or short-dated trains. All numbers of trains are for **both directions added together** and not every train has been included for reasons outlined in the footnote, my “effective service” test.

FIRST IMPRESSIONS

Train numbers. The number of through trains on all the routes has increased dramatically, in many cases more than doubling. Except for Anglo-Scottish services, all the major destinations included have at least half-hourly services to and from London. This must surely rank Great Britain as having the most frequent intercity train services in Europe. As the original authors of PDFH realised, perceived journey time is a function of frequency as well as speed: how we all remember the effect of the roof-top model and the calculation of “Q”.

Length of the working day. The first daytime trains, particularly to London (Up Direction), have become earlier over the years. Similarly, the last daytime Down trains have become later, with arrivals in major provincial cities after midnight not uncommon, but with journey times comparable with those in the middle of the day. This obviously has an impact on the availability of routes for overnight maintenance.

Journey times. Major journey time improvements tend to happen as discontinuous steps. The advent of HSTs on the GWML and ECML, and Pendolinos on the WCML represent such steps. Popular wisdom is that, following such reductions, journey times over subsequent years tend to get longer due to additional stops and performance allowances. There is considerable evidence for this on the GWML, although times to/from all destinations analysed are still much shorter than in pre-HST days. Journey times on the WCML (Chester excepted) were certainly longer in 2003 than in 1974 but, as the graphs show, times had varied substantially between each set of timetables analysed.

Variations in journey times. Despite the introduction of standard formation unit trains, significant differences between the minimum and median journey times have continued. Headline-grabbing journey times still have their attractions for railway managers. A further task might be to look at whether the Standard Deviation in journey times has reduced over the years. As discussed later, I do not have sufficient information to analyse changes in seating capacity over the years.

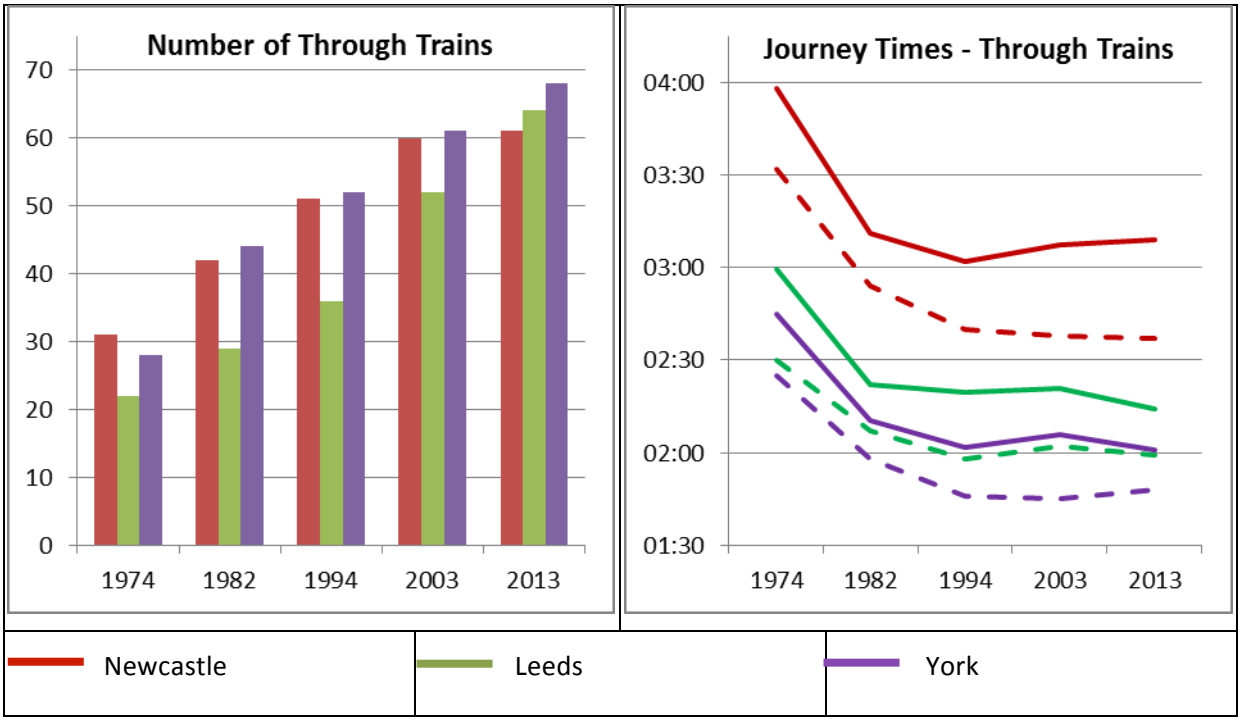
Scotland. Services to/from Scotland are an interesting special case and are reviewed separately from other destinations on the ECML and WCML. The advent of ECML electrification brought pre-nationalisation competition back to London-Glasgow services, now effectively abandoned with the introduction of Pendolinos.

EAST COAST MAIN LINE (EXCLUDING SCOTLAND)

Today there are almost three times the number of through trains between London and Leeds compared with 40 years ago: 22 in 1974, 64 in 2013. The other major destinations on the route have also seen similar, if not quite so spectacular, increases. Trains between London and York have increased over 140%, and between London and Newcastle have almost doubled. The graph indicates a steady increase in train numbers over the years rather than any major step changes. Managers on this route have always been a bit ambivalent about strictly regular timetable patterns.

Where a step change did occur was in journey times. These reduced substantially after 1976 with the introduction of HSTs. However, over the last 30 years times have not changed much for most travellers from Leeds and York, although between 1982 and 1994 there was a marked improvement in the fastest services to/from Newcastle.

Figure 1: East Coast Main Line



WEST COAST MAIN LINE (EXCLUDING SCOTLAND)

This route exhibits a more diverse pattern of changes over the years than on the ECML. Readers may attribute this to differences in management philosophy. As a York-trained man I could not possibly comment.

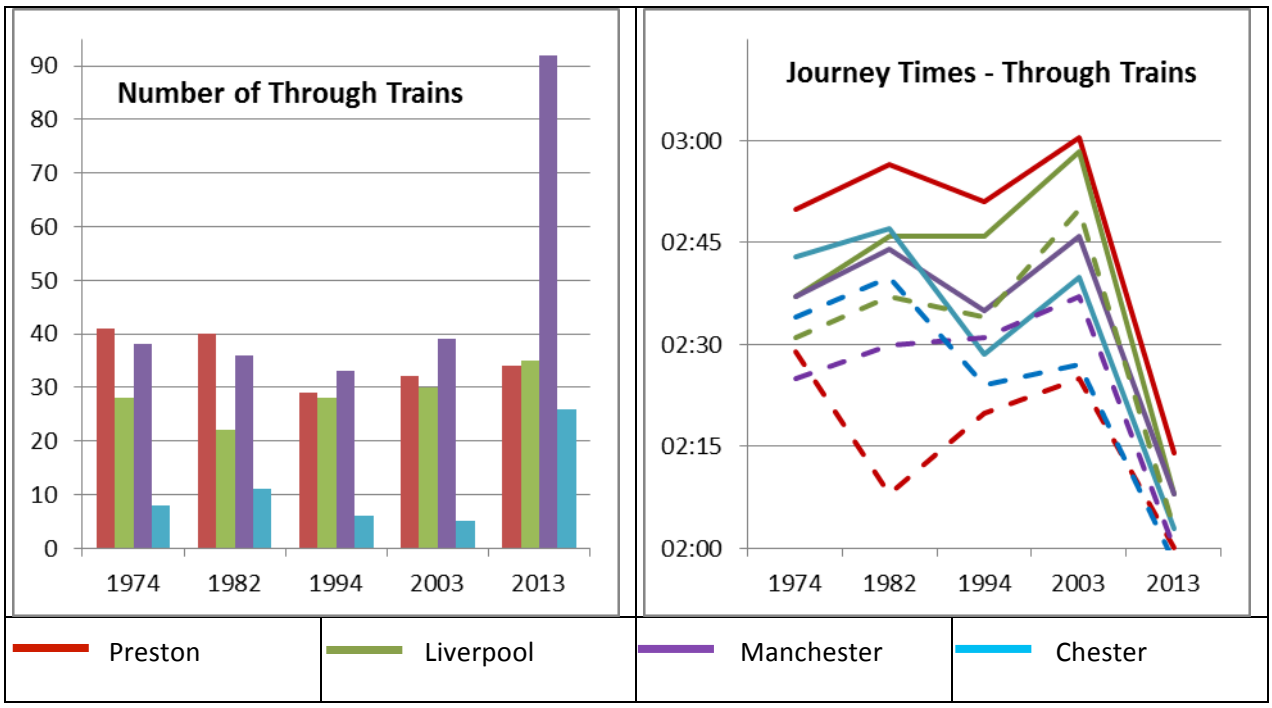
The most striking feature from the graph below is the number of trains between London and Manchester. In 1974 it was 38, almost 20 years later in 2003 it was 39 (not much change there), but by 2013 it leapt to 92, the result of Virgin's VHF timetable. Percentagewise this not as great an increase as between Leeds and London, but a staggering absolute number none the less. This is almost as many services as to/from Preston, Liverpool and Chester combined. Perhaps it says something about the economic geography of the North West.

In terms of journey times, Manchester passengers along with those travelling to/from the other WCML destinations analysed have had mixed experiences. The best timing in 1974 was 2h 25m, steadily lengthening to 2h 37m in 2003, but slashed to a headline grabbing 2 hours by Pendolino in 2013. Median journey times have been up and down like the proverbial dog's hind leg.

The other city to experience dramatic changes in services is Chester, now with 26 through trains a day (both directions) compared with a mere 8 daytime trains in 1974 and only 5 in 2003. Minimum and median journey times to/from this city have varied widely, but are now just a tad either side of 2 hours; some 40 minutes better than the low point in 1982. As overcrowding has now become a problem on this service, Virgin have obviously tapped a new market amongst the rich burghers of Cheshire and the Wirral that eluded BR.

By contrast, Preston now has fewer through trains than 40 years ago. In 1974 there were more trains to/from Preston (41) than to/from Manchester (38). Changing times. The blip in the minimum journey time for 1982 is, of course, the APT. The Down service was scheduled for 2h 08m as against exactly 2 hours for today's Pendolino. Interestingly the Up services in both cases are notably longer, 2h 13m and 2h 10m respectively. Could this be down to performance margins at the end of the journey?

Figure 2: West Coast Main Line



Analysis of services between London and Birmingham is tabulated below. This shows an interesting picture of steadily increasing numbers of trains and worsening journey times over 30 years, followed by dramatic changes in the Pendolino era. Birmingham certainly gets the honour of having the highest number of "effective" through trains per day on any intercity route.

Table 1: West Coast Main Line

London and Birmingham both directions			
	Through trains	Minimum journey time	Median journey time
1974	59	87 minutes	93 minutes
1982	57	94 minutes	102 minutes
1994	61	97 minutes	102 minutes
2003	65	97 minutes	102 minutes
2013	97	72 minutes	84 minutes

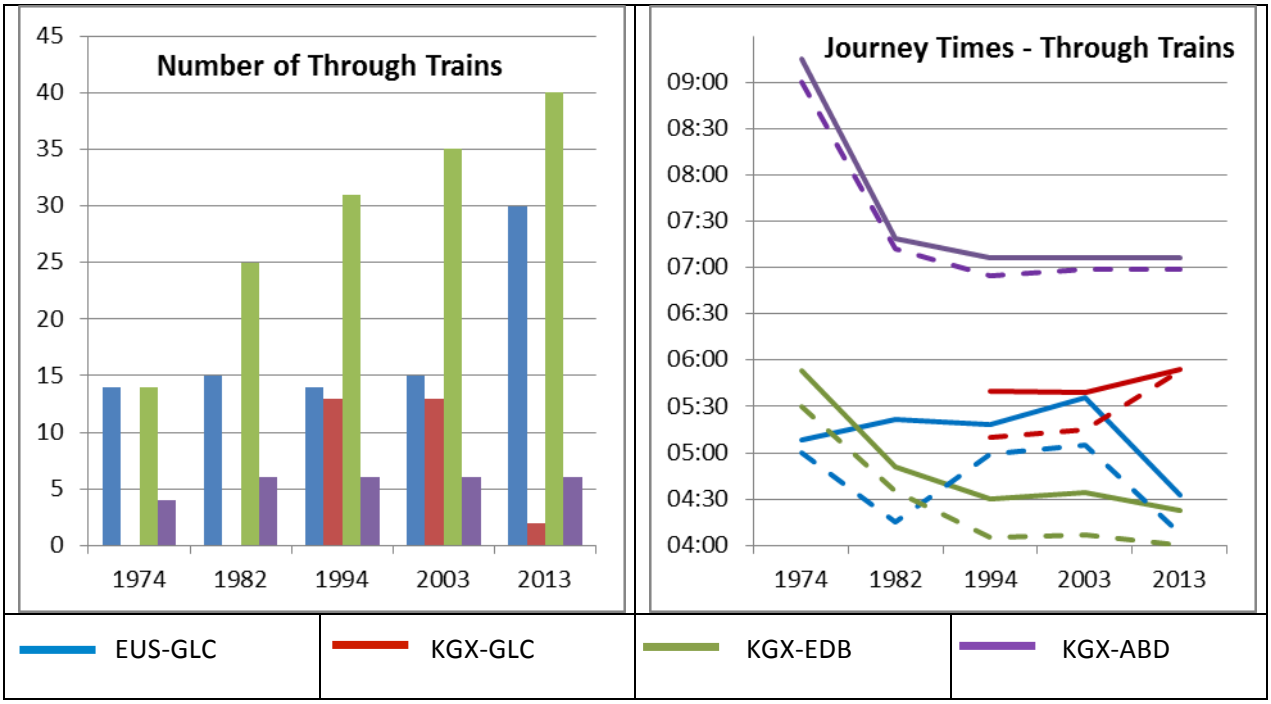
LONDON AND SCOTLAND

Steadily rising numbers of King's Cross-Edinburgh trains over 40 years contrasts with the static number of Euston-Glasgow trains until Virgin doubled that number. However, the substantial increase in the total number of London-Glasgow trains really occurred with electrification of the ECML, offering comparable through journey times by both routes.

London-Glasgow trains	1974	1982	1994	2003	2013
	14	15	27	28	32

Journey times offer another insight into management philosophies. Those between King's Cross and Edinburgh have broadly followed an improving curve, while those between Euston and Glasgow tended to get worse until the introduction of Pendolinos. In 2003 the median Euston-Glasgow Central journey time was almost half an hour longer than in 1974, despite the minimum time being only 5 minutes longer. Again the blip in 1982 is the APT; scheduled to make the run in 4h 15m, as against a Pendolino's scheduled timing of 4h 08m. King's Cross-Aberdeen is included for completeness. There have been just 3 through trains each way for the past 30 years, increasing from 2 in 1974. The introduction of HSTs knocked almost 2 hours off the 1974 median journey time of 9h 15m, which over the last 20 years has settled down to a steady 7h 06m. The best time is now a minute under 7 hours.

Figure 3: London and Scotland

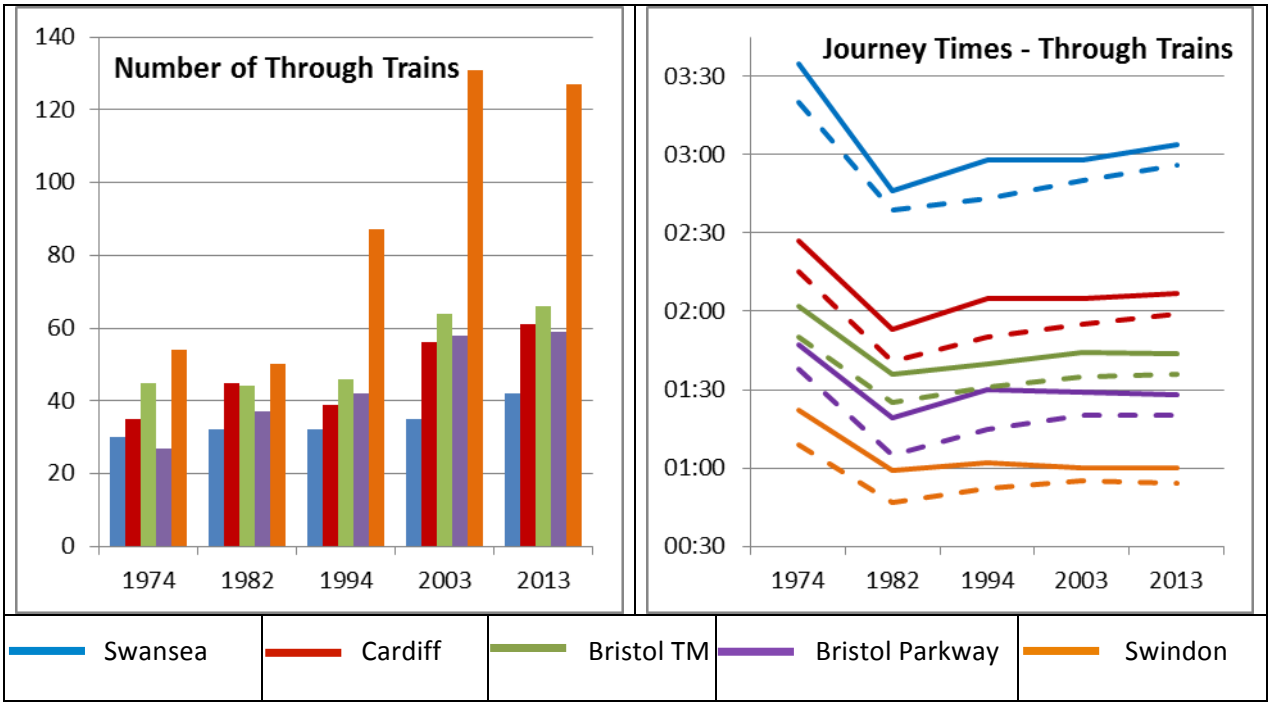


GREAT WESTERN MAIN LINE

Yet again a different picture. Only Swindon and Bristol Parkway have experienced a more than doubling in the number of through trains over the last 40 years – 135% more to/from Swindon and 118% more to/from Bristol Parkway. Numbers of through trains to Swansea, Cardiff and Bristol are also up, but the increases over 1974 are relatively modest: Swansea 40% more, Cardiff 74% more, Bristol Temple Meads 47% more. Interestingly, in 1974 12 South Wales trains did not stop at Bristol Parkway, compared with today when all South Wales trains stop at Bristol, two via Temple Meads the rest via Parkway.

Both minimum and median journey times to Bristol Temple Meads, Bristol Parkway, Cardiff and Swansea are longer than 20 years ago. The minimum journey time between Paddington and Parkway is 15 minutes longer today than in 1982 (a 23% increase), Temple Meads 11 minutes longer (13% more) and Cardiff 18 minutes longer (18% more). Median times have not increased quite so much, but are still well down on 30 years ago. These changes are undoubtedly a reflection of the additional stops at Swindon and Didcot, plus padding in the public timetable to improve right-time performance.

Figure 4: Great Western Main Line



METHODOLOGY

As indicated in my Prologue, I have taken a highly subjective approach to analysing the timetables. My approach has been to identify “what trains an experienced Enquiry Clerk would suggest to an ordinary passenger travelling midweek in early or late summer”.

Only what I perceive as “daytime” trains have been included. In times past, overnight services tended to be timed either for the primary benefit of carrying Royal Mail and/or newspapers with long station dwell times, or at a reduced speed for the comfort of Sleeping Car passengers. First and last daytime trains have become earlier and later over the years, so I have avoided setting any fixed cut-off times for my definition. Again my subjective judgement is that an arrival at 02:00 is a late daytime service, whilst an arrival after 04:00 is “overnight”. (Brighton & Hove City Council allow their concessionary bus pass holders to be out and about until this hour.)

More importantly, I have omitted trains which leave only a few minutes after a previous train to the same selected destination but arrive much later, and conversely ones which leave much earlier but arrive only a few minutes previously. Similarly, any trains which are overtaken on route are omitted. Whilst it could be argued that this approach denies any trade-off between price and journey time, a quick check on the National Rail Journey Planner shows that some slow trains are actually more expensive than a faster train departing somewhat later, but arriving only minutes behind. In the great fares jungle there appears to be no correlation between speed and price.

To avoid complications and to simplify the analysis I have also omitted Mondays Only, Fridays Only and any other trains which run only on odd days or for short periods of the timetable. Surprisingly, “dated” services are still very much in evidence on all three routes.

These subjective rules are what I have termed the **“effective service”** test. Any direct computer analysis of the timetable database will give different results both in terms of numbers of trains and of journey times. My test is aimed at looking at services as perceived by passengers, sorry customers.

Reporting the minimum (or maximum) journey times is straightforward. However, this leaves the question of what is a typical journey time. Even with supposedly regular interval timetables there are variations of a few minutes either way between one hour and the next. My concern about

reporting the **Mean Journey Time** was that this could be unduly influenced by one or two exceptionally fast or slow trains. Also, the mean does not represent an actual train. Thus, I have reported the **Median Journey Time** identified from the totality of trains in both directions between London and each city. In practice there are only a few occasions where the mean and median are appreciably different.

CAPACITY

Numbers of trains and journey times are only part of the story. There is also the issue of the numbers of seats being offered. A typical train formation in the 1970s would include at least one brake vehicle to carry parcels and mail, plus one or more catering vehicles used only for the service of meals or buffet snacks. Even the 8-coach Deltic-hauled 'High Speed Train' sets operated on the ECML in 1974 with their service of meals at seats to First Class passengers included two catering vehicles and half a coach for mail and parcels, leaving only 5½ vehicles for conveying passengers.

If any members of TEG have access to historic information on train formations, I would be very interested to see this and compare the overall capacity being offered today with that 40 years ago.

FINAL THOUGHTS

Great Britain may not have the fastest intercity trains in Europe, but it certainly has the most frequent. A quick check using the very helpful DB Journey Planner shows that there are just 44 through trains between Paris Nord and Lille (both stations, both directions). There are exactly the same number between Paris Gare de Lyon and Lyon Part Dieu (the city centre station). On both routes the off-peak frequency is hourly: half-hourly in the peaks. Makes one think about HS2.

Shipping – boom, bust & beleaguered banks

Jean Richards, CEO, Second Wind Shipping Ltd

Arup

24 April 2013

INTRODUCTION

The speaker started by asking how the industry can tell the public more about itself as it is the most important mode in terms of tonne-kilometres. Shipping only makes the news when there is an accident. The industry is not always in line with the general economic cycle. It is also susceptible to fashions and to keeping up with the Joneses. If one owner orders a large ship, then others will do the same.

She went on and said that the problem was that ship owners didn't commission enough research. Reports were passed around the industry and were often out of date.

The major driver is dry cargo and bulk with products such as iron ore. The benchmark was an annual tonnage growth of around 3.4% but it was now around 6%.

The speaker believed that the key to resumed high economic growth was cheaper energy prices. There was high growth in the 90s when energy was cheap and it was unlikely to resume until prices came down which she thought they would.

The shipping industry was very much one of boom and bust as shown by the Baltic Dry Index – the cost of chartering bulk carriers – peaking at 12,000 in 2008 before declining back to around 1,000.

China imported a lot of coal from 2000 but later kept it for itself and instead started importing a lot of iron ore. It accounted for 6% of the world's import of iron ore in 1991. This has increased to 67% by 2010. The corresponding figures for the EU were 42% and 12% respectively. Steel production has doubled over this period with China's share of world production going from 17% to 60% and the EU's reducing from 33% to 17%.

Peak ordering has always occurred at the top of the market.

Just over 5,000 ships were ordered in 2007, this had reduced by over 75% in 2012. All classes of ships were affected as yards can change the type of ship that they build. The price of Panamax ships trebled in three years.

The total deadweight of the world shipping fleet increased from 500 to 600m tonnes from 1985 to 2004 an annual increase of around 1%. It has doubled in the last years an average increase of 8%. Owing to a large number of new orders there is now a very young fleet.

The excess of ordering resulted in a growth of the Capesize fleet of 94.5% in May 2008. The market collapsed in autumn 2008 and the excess tonnage ordered resulting in current earnings for a Capesize dry bulker of $6,044 per day. This was not enough to cover operating, let alone capital, costs. There was generally no backhaul traffic owing to the imbalance of world trade flows, whereas a few years ago it might have been 50% of the outbound level as there is negligible steel European traffic. Owners now have to contribute to fuel for the return leg, a negative rate.

Most new ships are financed by banks. Their strategy was to grow their books by 10% per annum. The shipping margin was 110% of value of the underlying asset and the rate was 0.4%, which was virtually giving the asset away. This was financed in part by tax breaks for German banks. Several major banks such as Deutsche Shiffsbank/ Commerzbank, the Bank of Ireland, Natixis and Santander are running off their shipping portfolios. Others such as HSH Nordbank, RBS, Société Générale, Lloyds Bank and Calyon are looking to sell or close part or all of their shipping portfolios, while BNL Paribas and Unicredit are rumoured to be about to do so.

Lenders hope to see a 5-6% EBIDTA on asset-based finance. Charterers are willing to walk away when the market collapses. In many cases bad debt has been spun off into Fanny Mae style companies. However restructurings agreed between 2009 and 2012 will expire or fail again. The principal outstandings are higher than vessel values, and freight revenues are not sufficient to cover debt service. Owners' cash reserves are low or rapidly disappearing. As a result, defaults are increasing so there is no new lending. There are still performing loans, but this can only go on for so many years.

The last bad shipping recession was in the 1980s but banks had plenty of funds then and had no trouble writing off assets. This is not the case

now, so they have to keep ships on their books. Rates are now up to 2-3% and ships should be able to cover their operating costs.

The banks have a number of challenges:

- Foreign lending was cut as governments bailed out banks
- New lending is cut as banks repair their balance sheets
- Non-performing loans are transferred to specialists or sold at a discount
- Credit departments get increased powers
- Relationship managers and sector specialists are cut or have taken early retirement
- Return requirements and funding costs are increasing
- Basel III has increased reserve limits and stress tests loom

Lending to shipping is no longer fashionable, so no new lending is likely, and the number of banks doing so is likely to shrink.

Banks are having to restructure existing loans and refinance balloon payments. They had to finance the existing order book and bail outs, but often couldn't. They will eventually take write-offs: maybe this year or next. Shares will lose value and bank equity will get wiped out. Banks need around £56 billion for the new building order book this year and $33 billion for subsequent years. New money is restricted to the new popular sectors such as liquid natural gas, offshore and new eco-friendly tonnage which is in compliance with IMO emission standards.

As owners default, yards keep their deposit and ship, and there is often a three to four year litigation period. Yards are often forced into Ownership or Tripartite sale/bareboat/charter deals and will often go on and sell the ship at a lower price, possibly still at a profit. Yard loans are restricted either to large ticket projects for major owners, or to support national fleets taking over local yard defaults.

The banks had a number of alternatives:

- Bond finance (corporate and high yield): but this had largely disappeared
- Bareboat charters with purchase options

- Sale and lease back: Governments were looking closely at this
- Tax driven leasing models, KG and KSs: this was possible in Norway but dead in Germany
- Finance from yards, local banks and export credit
- Islamic finance

The reality was buying of cheap distressed assets from banks and yards investing in new projects for major players. Private equity will dominate, together with a mixture of lease finance and joint ventures, apart from the very large companies with very large, specialist market deals.

While the number of ships being scrapped had increased in recent years it was not enough to reduce capacity to the required level.

The number of ships laid up had also increased but was much lower than occurred in the early 80s.

The number of new deliveries peaked in 2011. This level of building encouraged new shipyards which are still out there.

Order books are still large with China still active. Japan is still the largest operator of ships.

Table 1: Fleet order books

Flag	**Fleet on order**		**Fleet by owner**	
	2004	2012	2004	2012
Greece	7.7	12.4	51	75
Germany	11.8	4.8	31	65
China	2.7	11.1	29	64
Japan	12.5	8.0	52	86
Norway	2.8	6.2	26	34
USA	1.6	4.6	32	52

Millions of CGT, Source Clarksons

China is now the largest shipbuilder in the world.

During the 1980s slump Japan built for their own account and yard capacity did not decrease until 1988. In the 2009 slump China

maintained its steel mills and built ships for their own account. Yard capacity will therefore not decrease immediately.

India is playing catch-up, with a rapidly increasing steel production, while the export of iron ore is decreasing. At the same time China is starting to slow down.

The oil trade is starting to cause concern. The increase in US shale gas production may, over a period of time, cause the Saudi Arabia to US trade route to close, and there are too many very large crude carriers out there. Currently medium range tankers are earning almost $20,000 per day more than VLCCs.

The speaker noted the following:

- The developed world GDP and import growth would remain sluggish
- Chinese growth rates have fallen below 8%
- Freight rates remain near or below operating expenditure
- Ship yard capacity has not reduced
- Asset prices have more than halved since 2008
- Shipping banks are unable to maintain forbearance
- Chinese banks continue to increase lending to shipping
- New buildings show better returns than second hands, so investors keep building
- Container operators think that big is better, so keep on building
- New size fashions for dry cargo keep yards busy and prolong the freight market slump
- Demand for gas ships keeps yards busy and overbuilds the gas fleet
- Demand for oil rigs keeps yards busy and overbuilds the rig fleet
- Introduction of eco-designs to comply with IMO emission legislation keeps yards busy and again overbuilds fleets

In other words, the biggest danger is excess yard capacity creating oversupply, not the fact that shipping banks are not lending.

Cash is still king, leading to new opportunities for new investors to buy new or second hand and for owners to take advantage and expand. However, at today's low market prices, only some owners have enough of it!

JeanRichards@SecondWindltd.co.uk

DISCUSSION

Peter Gordon (Editor, *The Transport Economist*) noted that there had been a continued move towards larger container ships. Is this trend likely to continue? Jean replied that the big is beautiful view is overdone. Part of the problem was that, once one line ordered larger ships, others felt that they had to follow. Ships will have to call at a large number of ports and even then it might not be possible to use all the capacity. There is a high cost of fuel and lubricating oil. The container industry is out of cycle with the world economy. The industry over-ordered in 2005 and received a large number of ships in 2007. There is now a slump and the price for new ships has collapsed.

Stephen Bennett (Retired) said that he recently visited a shipyard in Bremen and it was only building shipping vessels as it was just not economic to build cargo vessels. Is this the solution? Jean said that Japanese and Korean yards did not have the skills required to build passenger vessels. She also believed that UK shipyards had gone done the wrong road by pulling out of building passenger liners during the 1980s.

Robin Whittaker asked how much it was costing to adapt ships to operate on low sulphur fuels. The speaker replied that the savings from slow steaming were more than offsetting the cost of this. The requirements to use low sulphur fuel only applied near ports and a separate fuel tank was needed for this, which added to complexity. Some owners were trying to use the legislation on using low sulphur fuels to void orders. It was simpler to use one tank for low sulphur fuel: it was cheaper than using diesel.

Robert Cochrane (Independent consultant) asked if warrants were still nailed to the mast when arresting ships? Jean replied that she had been asked to arrest ships where it did not make economic sense. There was a company with a varied fleet of 49 ships. There were ships worth

around £50,000 but there was a £7 million deductible on the insurance policy. Jean said that it was not worth going after a yacht as the owner will generally resist arrest and they are generally in a very poor state when recovered. Indeed many ships that are arrested are in a very poor state.

Dick Dunmore (Steer Davies Gleave) noted that most of the recent growth had been in China. Did the speaker see change in world production and what were the likely changes? What will the effect of widening the Panama Canal be? Jean replied that only 5% of trade goes through the Panama Canal and that the new fees will be key to the usage. It could be significant on the East Coast South America to West Coast South America route. Nearly every ship is slow steaming now. Congestion in China is reducing. If the EU picks up there may be less imbalance in trade.

David Starkie (Economics Plus) asked whether more use is likely to be made of the Artic route using ships with strengthened hulls. The speaker said that there was some container traffic from Korea using the route, but that it sailed seasonally.

Brad Woodworth (Interfleet Technology) asked if with slow steaming it would be cheaper for cargo from China to the U.S. East Coast to go via the Panama Canal rather than be railroaded from West Coast ports. Jean said that the US has significant labour problems, particularly for coastal shipping which had to use US ships which were the most unionised. Most of the flows were currently via the West Coast.

Robert Barrass noted that the speaker had said that many buyers would sacrifice their deposit. Did this make sense? Jean said that if a ship had been ordered for $50 million with a £10 million deposit but was now worth only $30 million then it made sense to abandon the order. A builder might go on and sell the ship for $30 million and might actually make a profit on the $40 million.

Report by Peter Gordon

Devolution of local rail services to Transport for London

Carol Smales, TfL

Arup

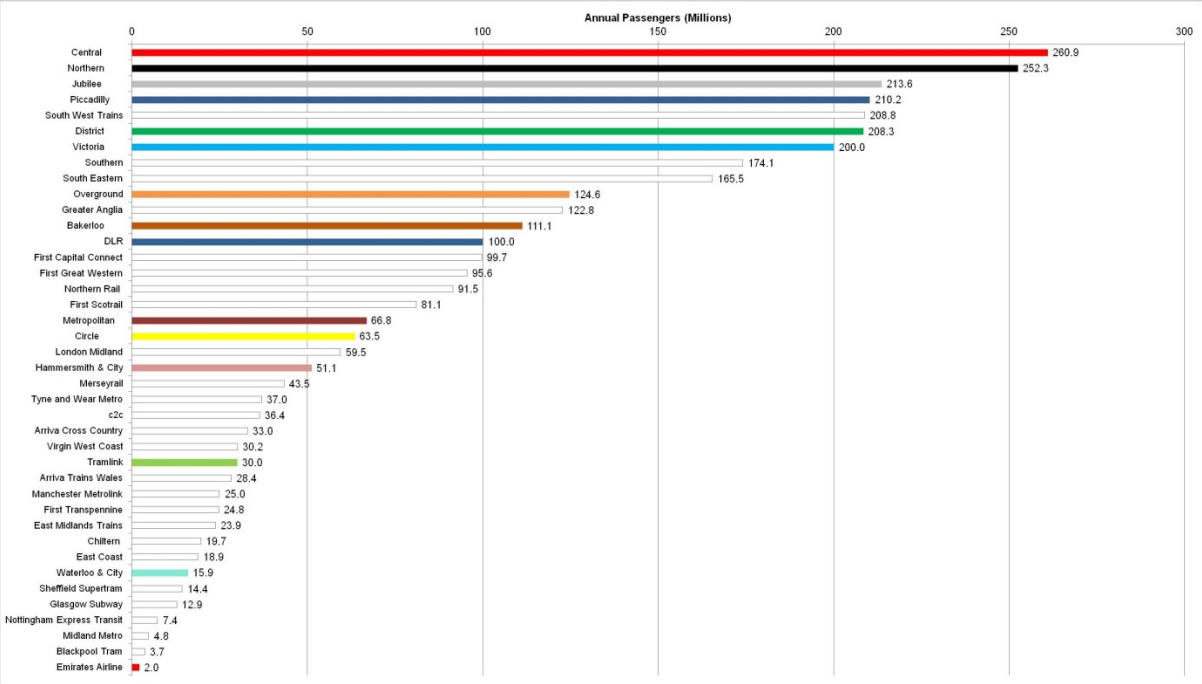
25 September 2013

LONDON'S RAILWAYS

Carol began her presentation by explaining how London is more dependent on rail than other UK cities. In 2011/12 there were 66 trips per head of population in London, compared with 11 for England outside London. In contrast the net cost to government for the London and South East network is only 4.8p per passenger mile compared with 7.3p for Long Distance services and 31.1p for Regional services.

Employment and population growth projected in the London Plan is anticipated to increase rail use even further. Between 2001 and 2011 London's population grew by a million to 8.2 million and is expected to reach 10 million by 2031. With employment growth concentrated in central and inner boroughs, but residential growth more diffuse, the Plan anticipates 25% more trips per day on public transport and a 14% increase in road congestion.

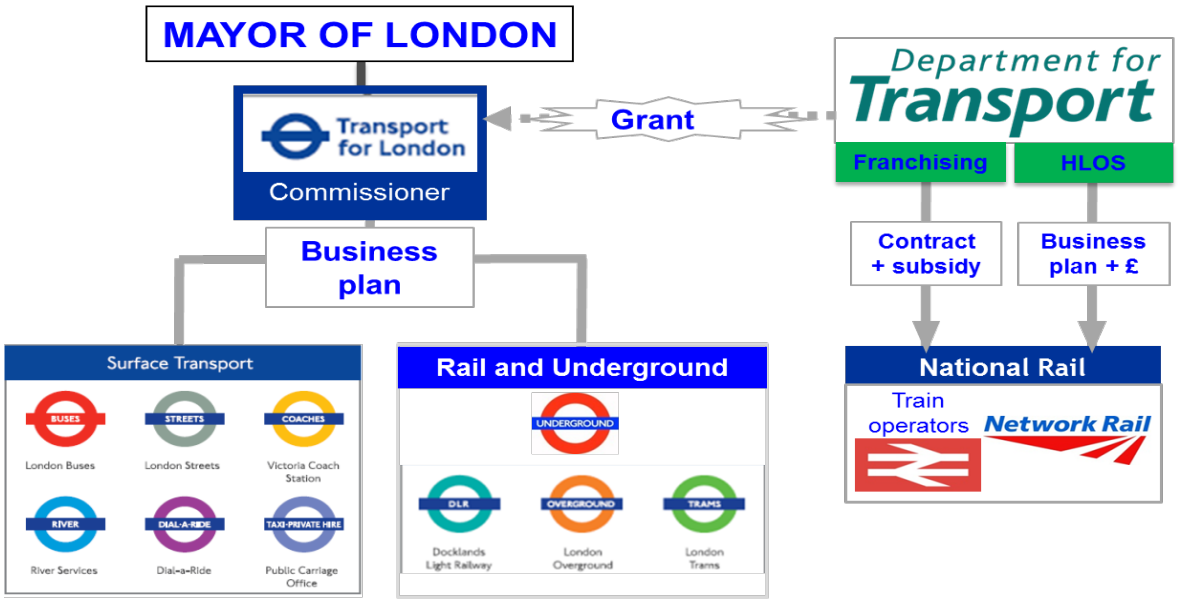
Figure 1: Annual passengers on various services



The current scale of rail use in and around London is well illustrated in the chart, above, of annual passenger journeys (2011/12 and 2012/13 data). The solid lines represent journeys on TfL services.

Responsibilities for rail services in London are currently split between DfT and the Mayor/TfL as shown below. TfL under the Mayor's Transport Commissioner, Sir Peter Hendy, also has an input into DfT's High Level Output Statement (HLOS).

Figure 2: Responsibilities for services



LONDON OVERGROUND CONCESSION

The TfL concession for London Overground services began in November 2007. The concession was let to London Overground Rail Operations Limited (LOROL), a joint venture between Hong Kong MTR and Deutsche Bahn (DB). Expansion since then has created an orbital route around London, which has led to changing journey patterns, with higher than expected growth in orbital journeys. The concession has now been extended to 2016.

Allocation of responsibilities between the operator and the sponsor in the London rail concession is significantly different from that for a DfT franchise.

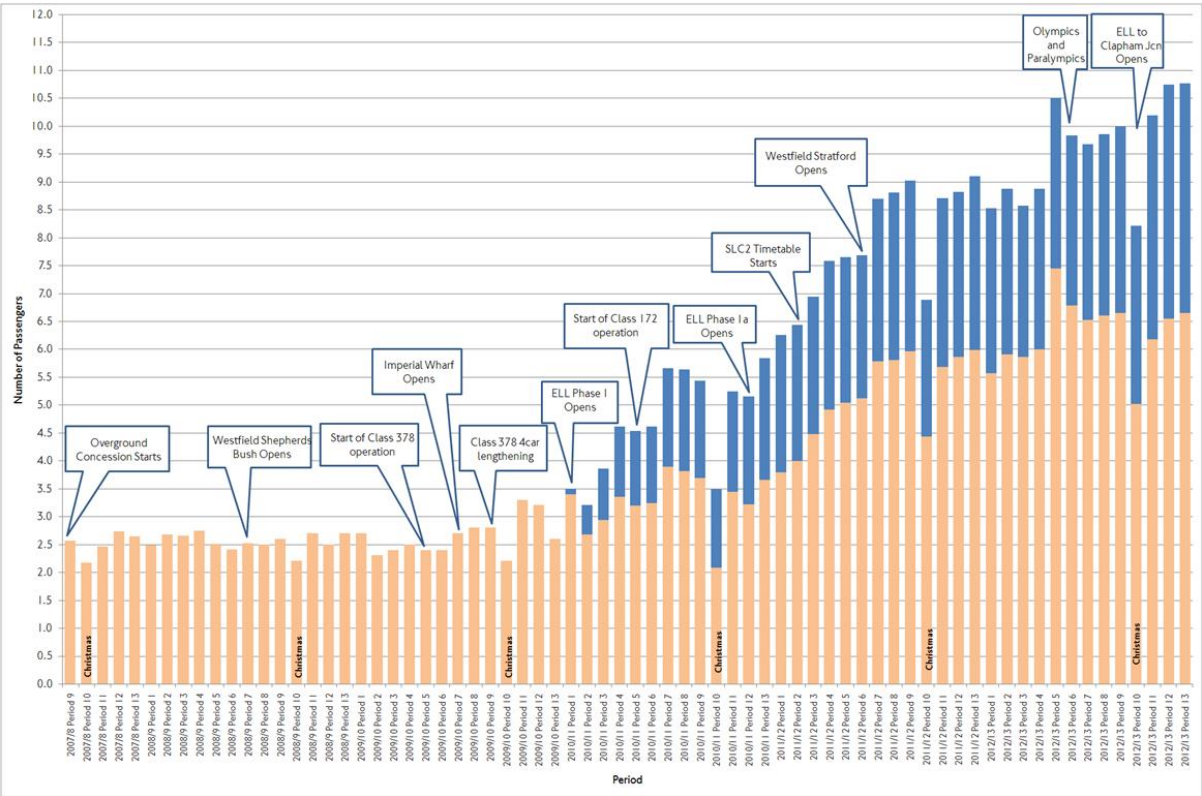
Since 2007, London Overground has shown substantial improvement across all the main performance indicators monitored by TfL. Ticketless travel has dropped from just over 10% to around 2-3%; the proportion of customers either fairly or very satisfied (as measured by Passenger

Focus through the National Travel Survey) has risen from under 60% to over 90%; the trend in the Public Performance Measure has increased from around 93% to almost 98%; while passenger journeys on the expanded London Overground network are now over four times as great as in 2007.

Table 1: Responsibilities on the Overground

	LOROL	TfL
Operating Trains and Station	✓	
Daily Performance	✓	
Timetable Development	✓	✓
Planning and Development		✓
Project Delivery		✓
Fares and Ticketing		✓
Marketing		✓

Figure 3: Overground boardings (millions, by four weekly period)



The blue segments in Figure 3 show boardings on the East London Line since services started in May 2010. The Westfield shopping centres at

Stratford and Shepherd's Bush have proved to be major demand generators, particularly for evening and weekend travel.

Since taking responsibility for the concession, TfL has been able to apply to Overground stations standards similar to those that passengers are accustomed to on the Underground. These cover items such as Real Time Information; Oyster Pay-As-You-Go, staffing for the whole of the traffic day, multimodal information and signing, shelters and seating, CCTV and lighting, plus the station fabric, structures and finishes.

A new fleet of 57 Class 378 4-car emus, leased directly by TfL at a total cost of £260 million, has been introduced, together with eight new 2-car diesel units for the Gospel Oak-Barking line, leased by the operator. To increase capacity on London Overground, 57 more vehicles are on order to lengthen the emus to 5 cars. TfL plan to introduce longer trains on the Gospel Oak line when it is electrified in 2017. TfL also have a £20 million programme underway to provide station capacity relief.

RAIL FRANCHISING AND DEVOLUTION

In November 2012 the Government consulted on devolving decision-making about local rail services. 70% of responses to the consultation document were in favour of this move. The Mayor of London had committed to devolution in his manifesto. During the same period the Government commissioned a review of rail franchising.

Richard Brown's report on franchising had much in common with TfL's views on devolution for London rail services. Amongst his conclusions were that:

- Government should plan to devolve further responsibility for franchises to regional authorities
- Franchise terms should be determined by circumstances and usually be limited to 7-10 years (a view supported by TfL, noting that issues facing urban railways are different from those for long distance railways)
- Having fewer, larger franchises is not attractive to bidders (TfL feels that it is not true that larger franchises deliver better services or that they exhibit economies of scale)
- Franchisees should not be responsible for risks they cannot control
- Bids should be scored for service quality

The Mayor's vision set out the case for devolution in London:

- Franchise arrangements must be consistent with the broader localism agenda
- There should be a local focus on services through a democratically elected Mayor
- Value for money is expected to improve
- Devolution should focus on routes with most stations in London and which were due for refranchising in the near future

West Anglia and South Eastern inner suburban services were proposed for devolution.

In particular, the Mayor felt that no "one size fits all" franchising approach to railways was appropriate. Although longer, less prescriptive franchises improve TOCs' incentives to invest, for some London routes commercial incentives are weak, unlike with longer-distance services which tend to have much clearer economic incentives. Historically, inner suburban routes have been relatively neglected by franchisees, yet are key to the wider transport and economic objectives for London.

Other alternatives to devolution considered were for the Mayor to specify "Increments and Decrements" on a franchise or for "One Franchise, Two Specifications". The former was felt to apply to too limited a range of attributes, while the latter offered scope for conflicting priorities. Hence, the "Standalone TfL Concession" is the preferred model for devolution.

The TfL concession model is based on gross cost contracts, in which TfL takes the revenue risk. London operators, unlike long distance operators, have little influence over revenue. On London's railways there is only a limited amount of discretionary travel; demand is mainly driven by the economy and employment. In addition, many fares are set by the Mayor and capacity constraints leave little flexibility for timetable change. TfL already takes £3.5 billion revenue risk and is better placed to take such risk (which increases with longer franchises) than owning groups.

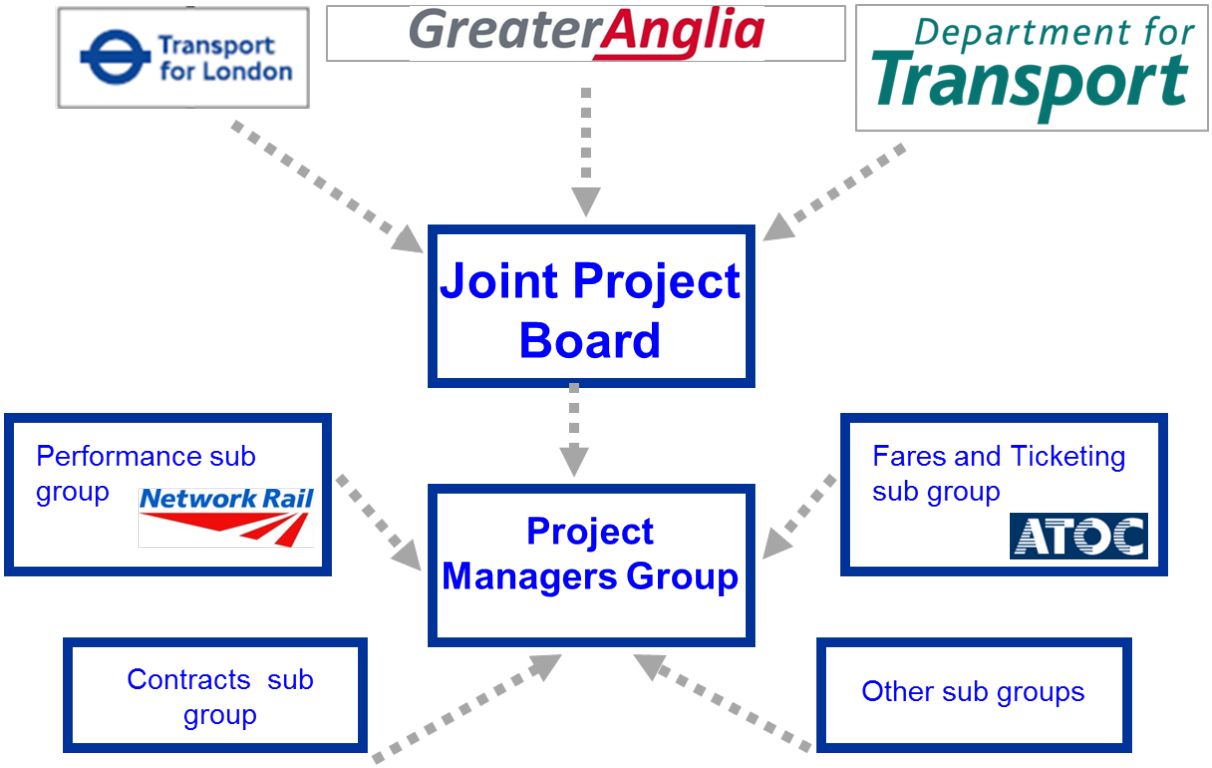
It is often argued that TOCs need to take the revenue risk in order to be incentivised to collect fares. However, as seen above, on London Overground fares evasion has been substantially reduced. TfL initiatives such as gating and staffing, provision of better ticket buying facilities, and incentivising the operator through the concession contract, have all proved effective means of reducing ticketless travel.

WEST ANGLIA DEVOLUTION

The business case for devolution was based on an assessment against HM Treasury's "5-Cases" model covering each of the Strategic, Economic, Commercial, Financial and Management aspects. Ministers have now given approval in principle for devolution of the West Anglia inner suburban services to TfL. These services are expected to transfer in 2015 and will, in future, be managed as a TfL concession. Currently a joint project is underway to enable separation of existing operations from the rest of the Greater Anglia franchise, while the terms of the transfer have yet to be agreed.

TfL constructed a separate business case for the envisaged enhancements using its own BCDM (Business Case Development Manual) methodology. Passenger benefits are anticipated to flow from improved reliability, and better stations, staffing and reliability. These will be funded through revenue generated from higher service quality, a reduced risk premium compared with franchising, reduced fares evasion and TfL's own business plan. There will be no demand for additional funding from central government.

Figure 4: Organisation for West Anglia devolution



The "other sub-groups" will cover issues such as ticketing and performance, with representation appropriate to the issue.

The West Anglia services included in the devolution scheme are those from Liverpool Street to Chingford, Enfield Town and Cheshunt via Seven Sisters. All but two of the stations are in London and 23 of the 25 stations would transfer to the TfL concession. The services carry around 20million passengers per year. Governance arrangements for the devolution process are illustrated below.

Operationally the West Anglia inners and outers are largely self-contained but there is some inter-working, especially in the peak. The key principle is to minimise trading between the concession and the franchise. Thus, a small number of additional vehicles and drivers may be required to deliver separated services. TfL is to procure such additional resources, although some of this may be done on its behalf by the Greater Anglia franchise operator. A detailed diagramming and timetabling exercise is being undertaken to plan the separation, together with an assessment of stabling and depot requirements.

As part of the concession the West Anglia inner services will have the same performance regime as London Overground, which through investment and management focus has resulted in LOROL being the highest achieving TOC in terms of right-time arrivals. The TfL performance regime is in addition to Schedule 8, and TfL believes the same approach will lead to a better Public Performance Measure for West Anglia. Contrary to the argument for larger franchises, there is no evidence that splitting or combining franchises affects performance.

The challenges ahead in order to deliver the concession include:

- Timetabling and diagramming
- “Virtual shadow running” accounting exercise
- Operational separation
- Contract separation
- Staff transfers
- Agree Terms of Transfer between DfT and TfL

The envisaged, but yet to be agreed, timescale foresees joint work by TfL/DfT/Greater Anglia continuing until around mid-2015, with virtual shadow running from early 2014, followed by actual shadow running from early 2015. Mobilisation and transfer to TfL is expected to take place during mid- to late-2015. TfL plans fairly small scale improvements

for the West Anglia inner services, with nothing on the scale of the investment and change so far experienced on the other London Overground routes.

FUTURE TFL SERVICES

Crossrail is currently under construction and will also be a TfL concession, beginning in May 2015. Services on these routes will then be introduced in stages between 2015 and 2019.

COMMENTS AND QUESTIONS

Jeremy Drew (Independent consultant): After devolution of West Anglia services to TfL, what next? **Carol Smales**: TfL has expressed an interest in taking over responsibility for the inner suburban services of the South Eastern franchise. However, DfT decided that the time was not right. TfL is currently focusing on having sufficient resources to undertake the letting and management of concessions, which has to fit with the national franchising timetable.

John Cartledge (London TravelWatch): The bid to take over responsibility for South Eastern services failed because of political pressure from Kent County Council. An alternative model had been adopted in PTE areas, where the PTEs have taken over responsibility for managing the stations but not for the train services. **Carol Smales**: Taking responsibility for stations might be a possibility in some instances, however TfL was keen on having responsibility for the whole operation. Kent County Council were fearful that longer distance services might lose paths or have additional stops inserted, even though TfL has no ability to make such changes. This emphasised the need for close involvement of all stakeholders. TfL already has a good working relationship with Hertfordshire County Council over such issues as the Croxley Link.

Peter Gordon (Editor, *The Transport Economist*): Network Rail continues to have responsibility for the infrastructure on London Overground. How does this work? **Carol Smales**: The relationship is similar to that for franchises. TfL is prepared to fund infrastructure improvements which it considers necessary if Network Rail cannot justify them.

David Metz (University College London): There seems to be emerging a notable distinction between the models of privatisation of buses and

railways in London and elsewhere in England. The TfL model appears to be successful. Are there lessons here for other city regions? **Carol Smales**: The TfL model could be extended to other areas. However, other cities may not be in a position to take on the equivalent degree of revenue risk.

David Starkie (Case Associates London): TfL claim that London Overground has some of the best train service performance in the country. Investment has had a part to play in this, but there has been some padding of the timetable. In 1994 (the last BR timetable) trains took 52 minutes between Stratford and Richmond, now they take 62 minutes. **Carol Smales**: Some of the extended journey times are due to padding. However, London Overground is not alone in experiencing this change in the approach to timetable construction. David then commented that padding does not make for efficient use of network capacity. **John Cartledge**: Timetable padding is about not promising more than you can deliver. Reliability and predictability come top of user priorities.

David van Rest: What is TfL policy on toilets? **Carol Smales**: TfL policy is to keep station toilets where these already exist, but it is not planning to make any additional provision at stations currently without toilets.

Melvin Oben (CH2M Hill): What was the Benefit Cost Ratio for devolution? **Carol Smales**: For West Anglia the BCR for devolution was positive. A separate BCR was assessed for the proposed package of enhancements which exceeded TfL's 1:1.5 hurdle rate.

Larry Fawkner (Cogitare): Was the format of the concession contracts informed by Peter Hendy's experience with contracts for London bus services? **Carol Smales**: The first London Overground contracts pre-date Peter Hendy's appointment as Transport Commissioner. However, TfL's experience of bus and rail contracts did help inform the development of the contracts for more recent concessions.

Tom Worsley (University of Leeds): It would be very helpful if more information on BCR and other evaluations was put into the public domain. TfL seems very reluctant to publish information on its forecasts and comparisons with actual outcomes. **Carol Smales**: It is difficult to construct a post-event BCR although TfL does publish post project evaluation reports. TfL is interested in making more information available for study.

Peter White (University of Westminster): Whilst there are now some good interchanges between orbital and radial services, there are other points where the routes cross but there is no interchange available. **Carol Smales**: Interchange between radial and orbital routes is something TfL considers very important and wishes to examine more closely. There are proposals to improve arrangements between Hackney Downs and Hackney Central, and between Walthamstow Queens Road and Walthamstow Central.

John Segal (Independent consultant): What is driving the higher growth in passenger numbers on London Overground compared with other LSE services? **Carol Smales**: Growth appears to be driven by new journey patterns and passengers choosing new routes. No large changes in journey purpose have been detected from TfL surveys.

Dick Dunmore (Steer Davies Gleave): It is likely to be difficult and expensive for London Overground to extend train lengths beyond 5 cars. Has TfL considered any forms of demand management if growth continues to put pressure on capacity. **Carol Smales**: TfL does not favour direct forms of demand management. Overcrowding does have an indirect effect on managing demand, although it is not an ideal way of doing so.

David Starkie (Case Associates London): The nominal capacities of the new Class 378 and the previously used Class 377 units do not appear to be markedly different. **Carol Smales**: The capacity of the London Overground trains is similar to trains with 2+2 transverse seating. However, the longitudinal seating and wide gangways do encourage passengers to distribute themselves more evenly along the train.

David van Rest: London Underground is extending its use of automatically driven trains. Is London Overground contemplating anything similar? **Carol Smales**: The new rolling stock on London Overground will have a life of around 30 years and TfL is not looking at automation within the foreseeable future.

There being no further questions the convenor, Dick Dunmore, thanked Carol for here excellent presentation and responses, and closed the meeting.

Report by Gregory Marchant

Costs and benefits of concessionary travel policies in England

Andrew Last, Minnerva Ltd

Arup

23 October 2013

BACKGROUND

Andrew Last introduced his talk by explaining that he last presented to TEG two years ago on concessionary travel policy, setting out some insights into behavioural impacts. Tonight he would be focusing on the economic benefits generated by concessionary travel compared with its costs. The analysis presented was undertaken for a Chartered Institute of Logistics and Transport (CILT) working group on concessionary travel policies. Andrew takes sole responsibility for the results reported here, but is grateful for advice provided by Roger Mackett, Peter Mackie and Tom Worsley.

The concept of concessionary travel is of free or low cost public transport fares for certain target groups. In Great Britain, statutory half bus fares have been available for older and disabled passengers since April 2001. Free travel for older and disabled persons was introduced in Northern Ireland in 2001, Wales and Scotland in 2002, and England in 2006.

Expenditure on concessionary fares in Britain was £1,255 million in 2011-12, 73% higher in real terms than in 2004-5. The introduction of free travel was almost entirely a political initiative: it was not appraised prior to introduction, and in England, it has not been evaluated in any depth following implementation. The scale of free travel on buses has made concessionary travel a major influence on the bus industry. In England 2012-13, concessionary passengers comprised 36% of all passengers, and reimbursement payments formed about 20% of total bus operator revenues.

APPROACH TO ASSESSMENT OF ECONOMIC BENEFITS

The analysis assumed as a starting point that reimbursement leaves operators “no better off and no worse off”, which is the objective set by

legislation. Calculating reimbursement requires assumptions about how demand for travel would vary with different fares, and the cost of carrying "generated" concessionary passengers. Hence reimbursement models can be used to carry out conventional cost-benefit analysis by predicting impacts on journeys and reimbursement of different levels of concessionary fare, and assessing the change in consumers' surplus associated with changes in the concessionary fare.

The approach used was to take high-level data on reimbursement and concessionary journeys, then to calibrate a national demand and cost model that reproduces known reimbursement payments. This model was used to assess options, and in particular, to contrast current "free fare" and other policies with a "full fare" (i.e. no concession) scenario.

Table 1: High-level data 2012/13, England excluding London

Older and disabled Concessionary journeys, local bus	709m
All concessionary journeys on local bus services	819m
Older and disabled bus Concessionary travel reimbursements	£694m
Total passenger journeys on local bus services	2,296m
Implied non-Concessionary passenger journeys	1,477m
Passenger fare receipts for local bus services	£1,947m
Implied average revenue per non-Concessionary journey (includes commercial child fares)	£1.318

Source: DfT

The demand curve used in the model is a "damped exponential" model form with elasticity values as built into the DfT Reimbursement Calculator:

$$D = \exp (\beta * F^{\lambda})$$

Marginal operating cost is assumed to be directly proportional to the number of generated passengers.

At a national level, neither the average fare forgone used for reimbursement calculations nor the average additional cost rate per generated passenger are known, but if one of these is known, the other can be inferred by working backwards from total concessionary journeys and reimbursement payments.

The following were used as starting points for the calibration:

- Proxy for average fare forgone (the average fare that would be paid by concessionary passholders if there was no concession): average revenue per non concessionary journey. This will tend to underestimate the average fare forgone

- Proxy for additional cost rate: rate estimated by DfT Reimbursement Calculator, using DfT default values for inputs. While the DfT model is unlikely to be appropriate for additional costs at a national level, it is currently the only practical way of approximating to this value.

Table 2: Model calibration

Inputs and outputs to model calibration *(all values relative to 2012-13 prices)*	2012-13		
	Option A	Option B	Option C
	Only average fare flexed	Only additional cost flexed	Average fare flexed against average of additional cost values
Lambda value	0.673		
Beta value in Reimbursement Year prices	-0.608		
Average revenue per non-concessionary passenger journey	£1.318		
Additional cost rate implied by DfT Calculator with default input values	£0.210		
Assumed commercial fare that would be paid by passholders in the absence of the scheme	£2.432	£1.318	£1.751
Assumed Average Marginal Cost per generated passenger	£0.210	£0.664	£0.437

Author's note: it should be emphasised that neither these average fare values, nor the additional cost rates, should be interpreted as meaningful estimates of these quantities in their own right. They simply provide a mechanism through which estimates of the impact of changes in concessionary fare policy can be derived with orders of magnitude that are correct at a national level. They should not be quoted outside this particular context.

From anecdotal experience of use of the Calculator for individual authorities, the average fare forgone with option A is too high and the additional cost with option B "feels" too high. Option C gives values between these extremes, but is also higher than expectations. This may imply that many authorities are making more generous payments to operators than the Calculator would suggest. Option C is assumed to be a reasonable representation of reimbursement practice.

ANALYSIS

The analysis suggests that a change from free fares to a 20% fare (about £0.35) would:

- Reduce concessionary journeys by 26%
- Reduce reimbursement payments by £264 million (38%)

Table 3: Alternative concessionary fare scenarios

Calculations of costs associated with different hypothetical scenarios (commercial fare = £1.751 and additional cost rate = £0.437)	Current situation - zero fare	Scenarios of concessionary fare as a proportion of commercial fare			Scenario of no concession
Assumed concessionary fare as % of average commercial fare	0%	**20%**	**25%**	**50%**	**100%**
Fare for concessionary passholders	£0.000	£0.350	£0.438	£0.875	£1.751
Change in concessionary journeys from zero-fare concession	0.0%	25.9%	29.4%	42.6%	58.8%
Reduction in concessionary journeys (m)		184	209	302	417
Journeys continuing to be made (m)	709	525	500	407	292
Reimbursement for revenue forgone (m)	£512	£328	£293	£156	£0
Reimbursement for additional costs (m)	£182	£102	£91	£50	£0
Total reimbursement (m)	**£694**	**£430**	**£384**	**£206**	**£0**
Change in reimbursement payments from zero-fare base (m)	n/a	-£264	-£310	-£488	-£694

The change in consumers' surplus between, for example, the no concession and free fare scenarios, was assessed using DfT elasticity parameters, with Option C estimates of the average fare forgone and additional cost rate. Additional costs were measured by applying the cost rate to estimated generated passengers. A Sugden correction was necessary to make adjustment for the difference between cost to the taxpayer and untaxed expenditure on bus fares.

The consumers' surplus measure of benefits was the only measure of benefit included in the calculation, reflecting only those benefits perceived by concessionary passengers as reflected in the volume of

bus journeys. Other benefits, such as those arising from enhanced independence and activity by pass holders, or secondary benefits from greater participation and transport benefits to other travellers, were not included, largely because data is not readily available.

FINDINGS

The costs and benefits under different concession scenarios, in relation to a 'no concession' scenario, are set out in Table 4.

Table 4: Benefits and costs

Change in economic benefit relative to No Concession (commercial fare = £1.751 and additional cost rate =£0.437)	With concession				No Concession
Assumed concessionary fare as % of average commercial fare	**0%**	**20%**	**25%**	**50%**	**100%**
Fare for concessionary passholders	£0.000	£0.350	£0.438	£0.875	£1.751
Journeys (m)	709	525	500	407	292
Reimbursement payments (£m) **[A]**	£694	£430	£384	£206	£0
Increase in Consumers surplus relative to no concession (£m) **[B]**	£713	£507	£466	£267	£0
of which increase in CS from non-generated journeys (£m)	*£512*	*£410*	*£384*	*£256*	
and CS from generated journeys (£m)	*£201*	*£97*	*£82*	*£11*	
Operating costs for carrying generated passengers (£m) **[C]**	£182	£102	£91	£50	
Net benefit of concession (£m) **[D = B - C]**	£530	£405	£375	£217	
Change in indirect tax revenues arising from shift between untaxed and taxed expenditure (£m) **[E]**	£120	£74	£66	£36	
Net cost to taxpayer of concession (£m) [F = A - E]	£574	£355	£317	£170	
Benefit Cost Ratio relative to no concession					
Benefits to passholders (£m) **[B]**	£713	£507	£466	£267	
Cost to Government (£m) **[F]**	£574	£355	£317	£170	
Benefit Cost Ratio [=B/F]	**1.241**	**1.426**	**1.467**	**1.566**	
Net Social Benefit (£m) [= B - F]	£138	£152	£148	£96	

Author's note: during the discussion, a question was raised about the calculation flow shown in this table. To clarify, operating costs are reflected in the reimbursement payments [A] and hence impact on the net cost to the tax payer from which the Benefit Cost Ratio (BCR) is calculated. It is shown separately in line [C] to enable the net benefit of the concession to be calculated in line [D]. This is an alternative measure of net benefit to the Net Social Benefit, which reflects the cost to Government. It is understood that the latter measure is more closely analogous to the measures of economic performance used by Government in general transport appraisal.

The headline result is that the current zero fares policy provides a net social benefit of £138 million, with a benefit:cost ratio of 1.241. The overall benefits to passholders are £713 million, of which the largest element (£512 million) is a transfer of the cost of travel from passholder to taxpayer, at a net cost to the taxpayer of £574 million.

A hypothetical policy of a 20% concessionary fare, with an average concessionary fare of £0.35 per journey, would see a 26% (184 million) reduction in concessionary journeys, a 38% (£219 million) reduction in net cost to taxpayer and a 9% (£13 million) increase in net benefit relative to zero fare. The resulting benefit: cost ratio would be 1.426.

Overall, the BCRS are not large. To get a BCR of 2 at zero fares, additional benefits per generated passenger would need to be of the order of £1, or less at non-zero fares. This could be possible once account is taken of the non-quantified benefits referred to earlier.

The detailed results are sensitive to choice of concessionary fare and additional cost rate, for example:

- With a higher fare forgone, a lower cost gives more net benefits at zero fares, but these fall off more rapidly at higher (less generous) concessionary fares

- With a lower fare forgone, a higher cost rate gives much lower net benefits at zero fares, but somewhat lower benefits at other concessionary fares

Andrew noted that, since the largest part of benefits is a transfer payment, care should be taken on the equity balance between taxpayers and beneficiaries. There is a very skewed distribution of use of the concession by passholders: about half of passholders make no concessionary journeys, whereas less than 10% make more than 50% of all concessionary journeys.

The indications from the results are that:

- Concessionary bus fares for older and disabled passengers deliver net benefits to society as a whole. The benefits estimated here exclude many that are likely to be significant but cannot be measured. More research is needed to confirm the scale and incidence of benefits not included.

- The largest component of benefits is a transfer payment from taxpayers to passholders. The equity case is not self-evident,

since the characteristics of the most frequent users among concessionary passholders are not known. The average benefit per passholder is likely to be quite low, if the skewed pattern of use of the concession is taken into account.

- Substantial savings in the cost of the policy are possible if non-zero concessionary fares introduced. Proportionate reductions in expenditure would be greater than proportionate reduction in benefits. The statutory ring-fencing of zero-fares reimbursement is likely to be distorting local authority decisions on the balance of funding between concessionary fares and other public transport support mechanisms.

DISCUSSION

Peter Gordon (Editor, *The Transport Economist*) asked whether the marginal cost of travel was really likely to be less post 0930, as was implied by this being the normal threshold for concessionary travel. Andrew wasn't aware of work in this area, but noted that, while local authorities could be more generous in their policies if they chose, there was not much difference in the resulting payment arrangements. A further question was raised on whether the concessionary travel policy improves the viability of bus services to the benefit of other users. Andrew considered that this probably does help in making the case for more frequent services. Payments to operators do reflect in part the additional costs of adding extra capacity.

Peter White (University of Westminster) welcomed the study and asked about distribution effects, citing work in Salisbury that identified that high-frequency bus users tended to be low-income with no car. Is there are intermediate group of infrequent bus users who might use bus as an alternative to car, providing greater transport benefits but lower equity benefits? Andrew agreed that National Travel Survey data can be valuable in identifying such groups, as can smartcard data, to which many local authorities have access.

David Leibling (RAC Foundation) asked whether there was any justification for putting a limit on the number of journeys made on concessionary fares. Andrew acknowledged that the potential to do this has been discussed by politicians, but the justification is not clear: it will depend on distribution issues and car availability.

John Bates (Independent consultant) questioned why frequent bus users are considered to have lower incomes than those in employment:

there are likely to be low income workers. Andrew responded that there is no evidence base to investigate this. In response to a query from **Andrew Mellor** (Steer Davies Gleave), he clarified that of the two DfT demand curves available, a weighted average of the PTE and non-PTE areas was used.

Eileen Hill (ex-MVA) commented on the skewed nature of usage, much of which is geographic. High users of bus services are those living where there are services to use. For example, in Wales she is aware that many people obtained a concessionary pass but rarely used it.

Jeremy Drew (independent consultant) asked whether fraud had been considered. In London it used to be possible to get hold of more than one freedom pass, for example. Andrew acknowledged that this would distort the figures and that he had not looked into it. There is likely to be some fraud taking place but the introduction of smartcards appears to have affected the volume of journeys recorded in some areas, so may be reducing fraud.

David Metz (UCL) commented that examination of equity issues should consider the life course, as it is likely that people will benefit less from concessionary fares as they get older. He asked whether the demand curve used was based on concessionary users or the whole population. Andrew clarified that the elasticities were based on analysis of the impacts of the introduction of free travel in 2006 and so should accurately reflect the target population.

John Cartledge (London TravelWatch) asked whether the analysis implied there was a linear relationship between usage and cost, which might be questionable because of the effects of the cost of fare collection, the marginal costs with respect to dwell time and fuel consumption. There would also be a step change in costs when demand increases, so that operators need to put on additional buses. Andrew agreed that these factors were relevant, but an extensive body of work went into the development of the additional cost component of the DfT Calculator, which is fully documented. This benefit:cost model simply takes a single number from the DfT calculations to generate an additional cost rate for generated passengers at a national level. A linear relationship certainly wouldn't be expected at a local level, but at a national level this is a reasonable approximation.

Mary Acland-Hood questioned how other benefits were considered and thought there would be substantial differences if analysis could be disaggregated by age and need. There are also advantages in having a

bus pass as a form of identification, and so some people have a pass just for that. Andrew agreed that he would like to carry out a lifecycle analysis by age: usage tends to peak up to the age of 70-75 and then drop off. There are societal benefits from an extension in the age of independent mobility.

Brad Woodworth (Interfleet Transport Advisory) had found, in work with DfT last year on usage by journey purpose, that concessionary travel could increase shopping trips, for example, by 20%.

Dick Dunmore (Steer Davies Gleave) highlighted a wider dysfunctionality that we appraise policies on benefit:cost ratios but leave the market to set prices. Why don't we regulate all other bus fares?

Gregory Marchant (TEG) remarked that some urban areas give concessionary fares on tram and light rail as well as bus: do they affect behaviours? Andrew commented that reimbursement policies are not always consistent. Without concessionary fares on metro and tram in certain cities, there would be a big switch to bus travel, which would increase the costs to PTEs. John Cartledge added that in London, where there is free concessionary travel on London Underground and light rail, concessionary users make up a relatively small percentage of travellers compared with on bus services.

Pedro Abrantes (PTE Group) explained that analysis carried out by PTEG was that boarding and alighting costs, taking generated travel into account, were 7p per passenger. A PTEG report last year considered the health benefits of concessionary travel, using some NTS analysis and a UCL paper that considered the impacts on activity levels, together with guidance from New Zealand on the health benefits of walking. This concluded that the health benefits of concessionary fares were around £20 million per annum in the metropolitan areas. Andrew commented that it was difficult to generalise these individual pieces of work at a national level. The public sector contributes much funding to concessionary fares but has no control over how the funding is spent.

Gregory Marchant (TEG) asked if it was known how much usage of concessionary passes is by those outside their home local authority. Andrew replied that, in PTE areas, perhaps 5% of journeys are by non-residents but this will be different in recreational areas. This information should be obtainable from the smartcard data now becoming available.

Report by Julie Mills

Reviews

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

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Mike Tovey (ed), Design for Transport: A User-Centred Approach to Vehicle Design and Travel.

Farnham: Gower, 2012, published price £75

This book comprises twelve chapters by authors from Coventry and other universities, under the editorship of Mike Tovey, Professor of Industrial Design at Coventry. The emphasis is on automotive design, but there are also contributions on transport planning, interchanges and integration by Stephen Potter from the Open University and on bicycle design. A good balance is maintained between meeting the need of students for basic facts and principles and of practitioners for informed analysis and insights.

Design for Transport starts with an introduction to the concept of transport design, skimming briefly over earlier history and mainly beginning with design for sustainability, characterised as originating in the 1960s and 1970s with the birth of the Green Movement and the new science of ergonomics, which facilitated person-centred design. This approach enables the presentation of case examples addressing aspects that transport studies often miss, such as the problems of overweight bus drivers and passengers, interactions between driving performance and behaviour, and the classifying driving tasks into primary (manoeuvring and controlling the vehicle), secondary (safety functions such as signalling) and tertiary (information and entertainment systems) tasks. "Creative dissatisfaction" is cited as a catalyst for advancement in design, a useful concept that can be applied across the range of stakeholders, from engineering and creative designers through manufacturers and marketeers to end users.

Four chapters are devoted to case studies of different vehicle types. A fascinating historical review of the evolution of the bicycle takes the reader from energy use by different modes of transport through the evolution of bicycle design, including the introduction of pedals and chains, the diamond-framed "safety bicycle" to contemporary case studies, majoring on Moulton and other small-wheeled and folding cycles. Two chapters (perhaps a little excessive) examine microcars and

microcabs, tracing design evolution from early models such as the Fiat 500 and bubble cars, whose origin is put down to oil shortages following the Suez Crisis of 1956. Contemporary models are discussed, ranging from sophisticated compact “normal” cars through ultra-small and ultra-cheap designs sometimes aimed at the developing world, to single-person vehicles such as the Segway. The chapter on the microcab is a detailed presentation on the technological and organisational progress with a still-ongoing project. Both chapters consider the continuing evolution of alternative propulsion systems. There are also valuable sections on the design of two mainstream cars, which clearly demonstrate the sequencing of, and relationships between, the design and engineering processes. The chapter on design for public transport does not meet the high standard of the rest of the book, being a very elementary and sometimes inaccurate canter through bus, rail and air transport, lacking the insights that characterise the rest of the work. There are numerous poorly prepared statements, such as “Boarding devices (required when [rail] platforms are not level) to enable wheelchairs to get onto vehicles more easily” and “During 1995-2000 the world population increased, on average, by 79 million”, to cite just two of the many jarring examples.

Although design for vehicles predominates, *Design for Transport* also addresses issues relating to transport planning, “Transport Interchanges and the Integrated Design Challenge”, and information design, a chapter devoted to maps, road signs and their recent migration to internet-based systems. The “Interchanges” chapter usefully breaks the subject into its component elements; locational, timetabling, ticketing, information, service design and travel generation, the theory and practice of each of which are summarised and critically assessed.

The fourth section of the book is a perceptive and well-informed overview of the designer's role, including the importance of integration between design and engineering. Tovey questions the role of market consultation via focus groups, hypothesising that this removes design risk and may lead to conservative designs, lacking a “wow” factor. The importance of “marketability” in automotive design shines strongly through: “manufacturers have to inject desirability”, “creative flair can transform a seemingly average vehicle into an icon”; and the perhaps ominous “concept of dynamic obsolescence.....to keep the car-buying public trading in their old cars for newer, more desirable models”. Relationships between market orientation and sustainability, de-materialisation (reduction in materials used) and “emotionally durable design”; and the contrast between automotive design principles and

public sector's love-affair with consultation, are debates worthy of further consideration.

The penultimate chapter, “Designing the Interface”, examines the importance of human-machine interfaces, concentrating on the spectacular rise in the use of telematics, which will continue to grow, in association with increasing buying in of externally manufactured components, and with alternative propulsion systems eating into the erstwhile duopoly of petrol and diesel engines. The growing influence is cited of the technologically literate “Generation Y”, persons born after the early 1980s, who already accounted for 40% of car buyers by 2012. The final chapter is primarily addressed to future generations of transport designers: students of transport design. The example of how students' interests in and hopes for a career in their chosen discipline is illustrated by examples of students' communications and thought processes, like how they discuss transport design with their families and friends, and of their enthusiastic involvement with the Car Design News website; a sensible and appropriately marketing-oriented approach with which to conclude a work on this most strongly marketing-oriented industry.

Overall, this book is a worthy addition to the “Design for Social Responsibility” series, presenting a well-balanced mix of facts, real-life examples and critical comment. It successfully balances outlines of the historical development of technologies and practices in automotive (and bicycle) design with providing clear coverage of the principles of transport planning, where there is stronger emphasis is on public transport systems than in the rest of the work. The public transport design chapter is the only weak link. There is a successful balance of appeal to readers at different stages in their careers, from students to experienced practitioners and academics and between engineers, planners and designers.

Dr Martin Higginson,
Visiting Fellow, Transport Operations Research Group, Newcastle University

Martin Higginson Transport Research & Consultancy,
5 The Avenue, Clifton, YORK YO30 6AS

01904 636704 / 07980 874126 / www.martinhigginson.co.uk

TEG Committee 2013-2014

Chair

Julie Mills

+44 (0)7956 405 003 Mills Consultants

julie.mills@millsconsultants.co.uk

Treasurer and Membership Secretary

Gregory Marchant

+44 (0)1273 621522 4 Seymour Square, Brighton BN2 1DP

gregorymarchant.teg@btinternet.com

Secretary, Webmaster and Programme Coordinator

Dick Dunmore

+44 (0) 7715 771321 Steer Davies Gleave, 28-32 Upper Ground, London SE1 9PD

dick.dunmore@sdgworld.net

Journal Editor

Peter Gordon

+44 (0)1895 678803 39 Haslam Close, Uxbridge, Middlesex UB10 8TJ

petersgordon@blueyonder.co.uk

Committee members without portfolio

Scott Clyne

Scott.Clyne@gmail.com

Gerard Whelan

+44 (0)7747 021 002 KPMG, 15 Canada Square, London E14 5GL

gerard.whelan@kpmg.co.uk

Tom Worsley

+44 (0)20 7226 7575 35d Gibson Square, London N1 0RB

tomworsleyx@aol.com

TEG TRANSPORT ECONOMISTS' GROUP

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

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

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

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

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

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

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

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Details of meetings are provided on our website at

http://www.transecongroup.org/meetings.htm

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