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THE TRANSPORT ECONOMIST

Volume 23 Number 2
Summer 1996

The Journal of the Transport Economists' Group

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Editor
Laurie Baker, London Borough of Camden

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PRICING AND FINANCING OF URBAN PUBLIC TRANSPORT

Paul Buchanan, Halcrow Fox

In August 1994 Halcrow Fox were awarded the contract by DG VII to investigate the potential for achieving a mode shift from private to public transport in urban areas through pricing. It is only over the last three years that the EU (European Union) has become interested in urban transport. Until then it had always been viewed as a responsibility of national or local governments.

There were two distinct phases to the work:

- (i) The data collection phase for the first three months leading to the Theoretical Framework for the study and a review of elasticities.
- (ii) The scenario testing phase concentrated on using the data collected to test the different pricing tools, involving a number of models.

The Theoretical Framework

The Theoretical Framework (TF) considered the economic basis, looking specifically at the external costs of transport and why it is thought that there is market failure. The TF identified the environment, social/planning objectives and methods of increasing marginal cost for private cars and reducing it for public transport. The TF looked at the pricing tools available for government intervention that could be tested, identifying five:

- car ownership charges
- fuel taxes
- parking charges
- public transport subsidies
- road pricing/congestion charging

Before testing different urban transport pricing strategies a number of objectives were set out. These were:

- pricing at marginal social cost (setting the right price)
- ease of use (low transaction costs)
- making costs explicit (low information costs)
- flexibility
- ease of enforcement (low collection costs)

Review of Elasticities

Evidence on elasticities on each of the pricing tools identified in the TF was reviewed. The review concluded that:

- charging car use/ownership is more effective at generating a mode shift from private to public transport than subsidising public transport;
- public transport subsidies generate a high proportion of additional trips transferred from walking and cycling;
- charges at point of use are more effective than annual charges or other charges not related to usage;
- the most effective charges at achieving a mode shift are those levied on trips where there is a public transport alternative, hence charges on radial trips to/from city centre are the most effective; and
- long-run responses to price changes tend to be twice the short-run response¹.

The findings of this review were critical to the assessment of pricing policies. Paul Buchanan attempted to summarise the findings in a single diagram which shows the price elasticity of the five pricing tools and the modal shift towards public transport (see figure 1).

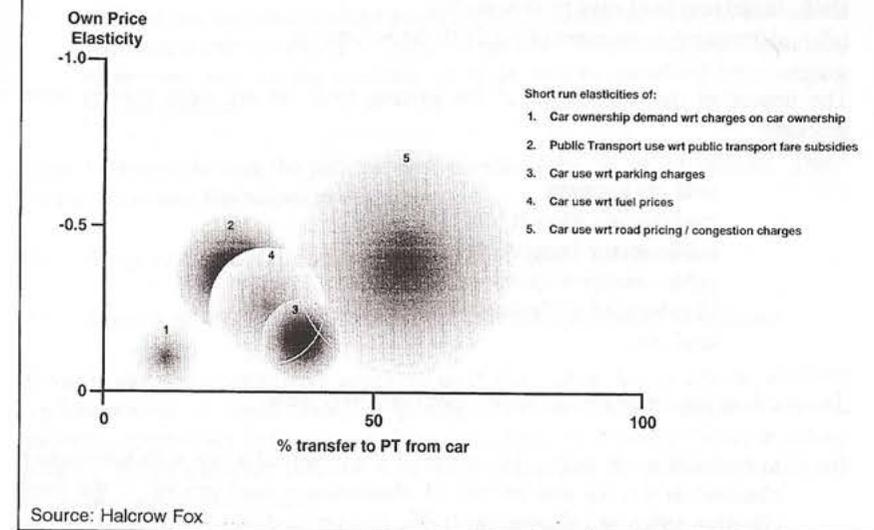
Three conclusions can be drawn from the diagram:

- (i) Car ownership charges are a very ineffective toll at encouraging a mode shift from private to public transport: they achieve the lowest impact on car use and the lowest proportional switch to public transport.
- (ii) Public transport fare subsidies, parking charges and fuel taxes achieve a relatively similar impact on overall mode shares, and specifically:
 - changes in price of public transport have the most impact on public transport demand but the lowest proportion of that change switching from car use;
 - changes in parking charges have the lowest proportional impact on car demand but a higher transfer rate to public transport.
- (iii) Road pricing or congestion charging has the highest own-price elasticity and produces the highest transfer to public transport. This tool is the best

¹ SACTRA also came to this conclusion - see *The Transport Economist* 22(3), Autumn 1995, p 10-15.

targeted pricing mechanism since it targets trips where external costs are at their highest and for which public transport is at its most competitive.

Figure 1: Typical Elasticity Characteristics of Different Pricing Tools



Appraisal of Pricing Policies

The testing of the five pricing policies drew on information from:

- a multi-modal urban transport model developed for Manchester;
- a spreadsheet model of financial aspects developed specifically for this study; and
- a review of other relevant studies.

The Manchester multi-modal model was most appropriate at assessing detailed mode shifts in response to short-term changes in the generalised costs of travel.

The spreadsheet model was specifically developed to investigate the financial impacts of different pricing policies and to identify who gains and loses between local authorities, national government and public transport operators. This model provided useful insights into the financial implications of different charging policies. Increased public transport subsidies not only have a significant initial cost to government they also lead to reductions in revenues from parking charges

and fuel taxes. On the other hand, policies that increase the costs of car use will expand revenues and reduce the amount of public transport subsidy.

The three other studies reviewed were:

- TRL Impact of transport policies in five cities
- DoT Initial results of road pricing studies
- LT Alternative assessment of road pricing in London

The impact of the application of the pricing tools on six main criteria were assessed:

- total car journeys
- total public transport trips
- public sector financial support
- public transport operator finances
- likelihood of implementation
- land use.

The six most important results arising from the study were:

- (i) In terms of mode shifts, the results of the appraisal agree with information obtained in the TF and review of elasticities - road pricing is the most effective policy at reducing car traffic and persuading car drivers to switch to public transport.
- (ii) Fuel taxes achieve a similar or slightly lower reduction in car use but a lower switch to public transport.
- (iii) There is an enormous difference in the public sector financial impact between adding to the costs of private motoring and subsidising public transport: subsidies are a very expensive way of changing mode shares whereas additional charges on motorists are a very profitable way of achieving similar effects.
- (iv) The financial impacts on public transport operators are all positive but depend critically on the distribution of the mode shifts between peak and off-peak periods, particularly in situations where fares are controlled by the public sector. In this respect more general increases in the costs of car use such as ownership costs and fuel costs may be more beneficial to operators than those which target peak period trips such as road pricing and parking charges.

- (v) The problems of political acceptability of changing existing pricing policies are severe and form a major constraint to the introduction of a more efficient charging policy.
- (vi) The real costs of a radical change in transport pricing will not be the equity impacts but the adjustment costs required to move from a situation where land use has developed within a system of subsidised transport to one where transport is charged closer to its full social cost. Residential, car-dependant, commuter areas on the outskirts of cities will be penalised by changing pricing policies.

Table 1 attempts to rank the policies against each of the evaluation criteria. There are two important limitations to this table:

- (i) Being unweighted, they are all treated as of equal importance.
- (ii) There is no indication of the absolute difference between the rankings.

Nevertheless, the comparative appraisal table does show key problems affecting implementation or urban transport pricing. The best policies score worst on political acceptability and appears to have been the most important factor in setting policies: urban transport policies have been dominated by political expediency rather than economic efficiency.

Impact on	Parking Charges	Fuel Taxes	PT Fare Subsidies	Road Pricing
Car mode share	3	2	4	1
Public transport mode share	3	4	2	1
Economic efficiency	4	3	2	1
Public sector finances	3	1	4	2
Equity	2	3	1	4
Environment	3	1	4	1
OVERALL AVERAGE	3	2.3	2.8	1.8
Political Acceptability	2	3	1	4

Note: 1 = best

Conclusions and Recommendations for Further Research by EC

Five main conclusions emerged from the study:

- (i) Travel in urban areas is underpriced;
- (ii) Taxing car use is more effective than subsidising public transport.
- (iii) Introducing road pricing or increasing fuel taxes are the most effective tools available for intervention.
- (iv) Long-term land use changes must form an important part of the strategy.
- (v) Non-pricing policies are also important.

The study also recommended that EC research should be targeted onto:

- (i) Quantifying the external costs of car use in urban areas.
- (ii) Price elasticities, particularly for fuel taxes and road pricing.
- (iii) Investigating the equity impacts of public transport subsidies.
- (iv) The financial impact on public transport operators.
- (v) Land use responses to pricing changes.

The speaker sees the pricing of urban transport as the cure to many of our current problems and that effective pricing policy could achieve three objectives:

- (i) make public transport operations and capital projects financially viable which would lead to a dramatic improvement in the quality, quantity and choice of public transport available;
- (ii) it could produce a significant contribution to environmental improvements within urban areas by reducing the external costs of car use; and
- (iii) it could revitalise city centres and halt outward sprawl that seems to be the inevitable consequence of subsidised transport.

In the speaker's view, not only could a new pricing system achieve these three goals but it could do it without public sector financial support. In fact, it could significantly reduce public sector expenditure on transport provision both public and private.

Discussion

James Young (Colin Buchanan & Partners) began by suggesting that firms may respond to the introduction of road pricing by relocating. PB countered by saying that lower journey times will increase accessibility thereby reducing the attraction of relocating.

Aileen Hammond thought that responses to restrictions on private transport would depend on the quality of the public transport alternative, to which PB agreed.

John Cartledge (London Regional Passengers Committee) remarked that the Harrow experiment gave public transport users the option of a pre-paid fare card instead of Travelcard. Fare policies vary over Europe and it is difficult to discover why, questioning whether there is a logic behind fares and subsidy policies. PB thought that these policies are politically driven, responding to public attitudes.

Don Box put four points:

- (i) are public transport subsidies (infrastructure and operation) necessary?
- (ii) are public transport subsidies equitable? adding that surely the poorest in society are the group worst affected by road pricing, especially if public transport is not subsidised; company car users will be the least affected;
- (iii) marginal social cost in pricing of transport has foundered, being immeasurable and too expensive for the Treasury;
- (iv) were physical restraints on car use considered?

PB replied:

- (i) subsidies are a second-best solution although there are grounds for infrastructure subsidy;
- (ii) agreed, the poorest car owners would be the worst affected;
- (iii) techniques are developing and price can be changed incrementally - as a policy instrument it can be more flexible than land use changes; and
- (iv) physical restraint measures were outside the terms of reference for the study.

Chris Bainbridge (Transport and Travel Consultancy) stated that road pricing can vary geographically, unlike fuel prices which can have indiscriminate effects on, for example, rural areas where there are few alternatives to the car. PB agreed, adding that there are strong arguments against fuel taxes since they are not very focused.

Fintan Geraghty (TecnEcon) asked if technical charging mechanisms had been looked at. PB: no, just pricing policies.

Aileen Hammond suggested that land use policies are very important as, e.g., in Cambridge. PB acknowledged their importance but they had been beyond the terms of reference.

John Cartledge pointed out that shifts from car to public transport in the peak and in the off-peak would result in much greater efficiency. PB agreed but added that total travel demand is too high because of subsidies.

Ian Gilliver (WS Atkins) asked what are the DoT and the Commission responses to the study? PB: no formal response from the DoT and the Commission had said very little although they were initially interested from the pollution angle.

Peter Jones (TSG, Westminster) said that subsidies are justified if marginal social cost declines for public transport, and that fuel pricing leads to changes in mileage, car use and fuel consumption. PB agreed up to a point. He thought it was a question of degree - subsidies would be unnecessary if private transport was charged at the full rate.

Report by Jo Martin, Transportation Department, Cambridgeshire County Council

Further Reading:

The report *Pricing and Financing of Urban Transport* can be obtained from Halcrow Fox for £20.

D. Maddison, et al (1996) *The True Costs of Road Transport* Blueprint 5. Earthscan, London

THE NATIONAL CYCLE NETWORK

Jayne Heggett, Project Engineer, SUSTRANS

Jayne Heggett is the Project Engineer for the Thames Cycle Route at SUSTRANS (Sustainable Transport), a civil engineering charity. She opened her talk by proposing that streets should be pleasant places. Instead they are congested and polluted in towns and cities, driving pedestrians and cyclists off the road. For example, 1 in 7 children suffer from asthma and 10 people are killed, on average, every day (32% are pedestrians and 5% are cyclists). The projection that traffic will double by 2025 (a threefold increase in the countryside) is unsustainable.

Banning the car is not the way forward but shorter journeys should be targeted for encouraging by cycle: 61% of car journeys are less than 5 miles.

SUSTRANS aim is to provide a 10,000 kilometre national cycle network in the United Kingdom which would be divided equally between on-road and off-road. The network will comprise minor country roads (42%), town roads, segregated or traffic calmed (7%), forest roads and tracks (12%), railway, canal, river and special paths (32%), and promenades and footpaths (7%). SUSTRANS will only construct 5% of the network itself, most being put in place by local authorities. SUSTRANS will help develop national standards and co-ordinate the whole project and its progress, providing specialists support services wherever these are required. The network will not only provide a safe, attractive network for cyclists but also a new facility for pedestrians and people with disabilities.

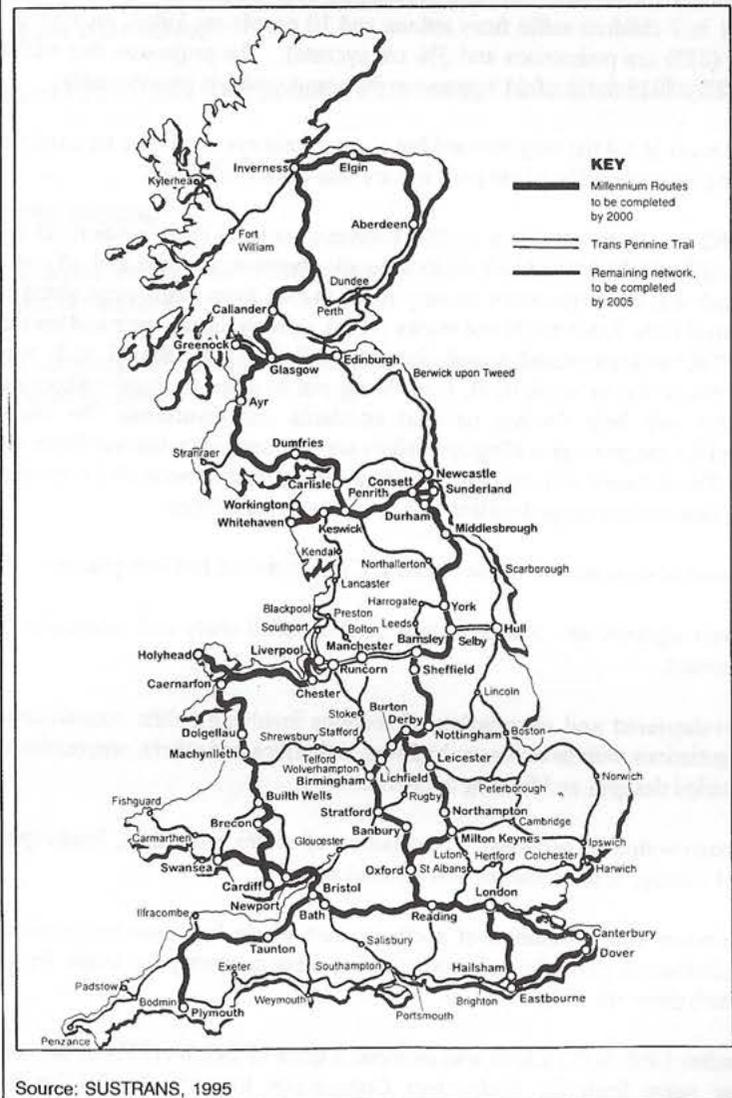
Development of each section of the National Cycle Network has four phases:

- (i) **Route agreement:** outline survey, more detailed study and submission of proposal.
- (ii) **Development and negotiation of sections** involving public consultations, negotiations with landowners, highway authorities and others, preparation of detailed designs, and funding approval.
- (iii) **Construction of sections:** construction of routes with links, landscaping and signing, road crossings, and on-road sections.
- (iv) **Opening and promotion of sections, and whole leg:** section openings, maintenance, publicity and promotion, opening ceremony for whole leg (of which there are 100).

In September 1995 SUSTRANS was awarded a grant of £42.5m (23% of the cost) over four years from the Millennium Commission towards the "Millennium

Routes", a network of 4,000 km to be completed by 2000 (see figure 1). Most of the grant (90%) will be allocated to local authorities which are partners to enable them to develop the network. Most use is expected to be for local and urban journeys with the added benefit of linking with the countryside.

Figure 1: The National Cycle Network



In London the Thames Cycle Network is being developed with London Cycling Campaign which will be 70 km of traffic-free routes from Hampton Court to Dartford due to be completed in 1999. Added to this is a north-south route from Gatwick via Greenwich foot tunnel to the Lea Valley. Both these are complementary to the London Cycle Network, 2,000 km of signed cycle routes funded by the Department of Transport, local authorities, the Traffic Director for London and other sources.

The Safe Routes to School initiative between Sustrans and three local authorities will provide a national demonstration project in York, Colchester and Hampshire. These are to encourage children to cycle to school by providing traffic-free routes, traffic calming, bicycle security, environmental education and awareness-building. It is hoped to reverse the trends whereby 7-8 year olds travelling to school on their own fell from 80% in 1971 to 10% in 1990. It is also estimated that 20% of cars in peak-hour traffic are taking a child to school.

Economic Benefits of Increased Cycle Use

Sustrans estimates that there will be economic benefits with a reduction in the use of the private car and a swing towards more sustainable forms of transport. These benefits have been divided into eight groups:

- **Reduction in congestion:** the cost to business is estimated at £15 billion annually over the whole country with £7 billion accruing in London (112 million person hours wasted).
- **Improved health:** with a more productive workforce and less absenteeism (reduction estimated at between 14 and 80%).
- **Jobs created by construction:** twice as many jobs as the less labour intensive road building per pound spent, with an estimate of 600 construction jobs.
- **Knock-on effect in creating jobs** from tourist and retail industry with cyclists staying longer and spending more money than motorists.
- **Reduction in costs of road accidents:** with less hospital treatment and fewer days off work.
- **Benefits to local economy with improved environmental quality:** premises in areas of traffic restraint have higher turnover and higher rateable values.
- **Reduced land used for transport:** car parks take up a lot of space which could be developed for more profitable use, and cars take up massive

amounts of space, eg 85% during rush hour in London.

Improved environmental conditions: reduced air pollution, noise, global warming, water pollution and waste disposal.

Table 1 shows the estimated annual costs of motorised transport with table 2 showing the estimated annual cost savings from a shift to cycling.

Cost of Item		Cost (£m)
Congestion		15,000
Roads	Capital expenditures	3,000
	Repairs and maintenance	2,153
	Cleaning	100
	Administration	146
	Research, design, safety	32
Death and Injuries		4,803
Policing		400
Licensing costs		150
Company car subsidy		2,400
Pollution	Air pollution	2,500
	Global warming	657
	Noise	2,100
Total cost of motoring		34,091

Road Costs		Level of cycle use	
		20%	50%
Congestion		725.0	2,515.1
Roads		38.7	134.2
Accidents	Pedestrian/cyclist	132.5	459.7
	Motorist	58.6	220.3
Policing		58.6	220.3
Pollution	Air pollution	94.0	326.0
	Global warming	23.9	82.9
	Noise	22.3	77.2
Health Benefits			
Heart disease		22.6	82.3
Working days lost	General	108.0	408.0
	CHD	86.4	320.4
Total Savings		1,311.9	4,626.1

The speaker then produced an estimate of the costs of cycle promotion if there was to be a £2 billion programme over the next ten years (i.e. £200m per annum), being about 5% of UK road spending in 1992. Table 3 shows the breakdown of the costs of a 10 year cycle development programme:

Provision	Cost (£m)
Installation of two million cycle stands	400
Installation of 30,000 km of cycle lanes/tracks, including appropriate treatment at all junctions	750
20,000 km of traffic calming measures	700
Major cycling and health campaign	150
Total cost over 10 years	2,000

Discussion

Peter White (University of Westminster) opened the discussion by asking if the speaker had a view about the exclusion of cycles in the centre of Cambridge. JH thought that most cyclists are sensible which tends to lead to self-regulation; her first reaction is not to impose a ban.

Nigel Harris (The Railway Consultancy) asked what is the level of investment required to begin to influence cycle use? The worry is that most journeys will not use the cycle network. In reply, JH stated that once a path is built it becomes popular with the local authorities providing links. NH suggested that it should be possible to do research to obtain such information.

Don Box enquired if the cost of provision of the network included ongoing maintenance and who will be responsible for the national network? JH: the local authorities will not be obliged to maintain with the vast majority coming from other sources.

Nigel Harris asked what happens if it is suggested that converted railway lines return to railway use? JH: not against this in principle although there may be practical difficulties.

Peter White suggested that the value of time could be better for short trips which is very often the largest single element of normal evaluation. JH thought that this is likely to be important since cycling is very often quicker for short journeys.

Nigel Harris suggested that the calculation should also include the time originally spent in the gymnasium to keep fit! He also suggested that reduced absenteeism could be measured at "in work" value of time rate.

Report by Laurie Baker, Principal Transport Planner, London Borough of Camden

Further Information may be obtained from:

SUSTRANS, 35 King Street, Bristol, BS1 4DZ, Tel: 0117-926 8893

and in London from

London Cycling Campaign, 3 Stamford Street, London SE1 9NT. Tel: 0171-928 7220

ESTIMATES OF THE FINANCIAL EFFECTS OF RAIL PRIVATISATION

Peter White, Transport Studies Group, University of Westminster

Considerable interest has been expressed in the outcome of rail privatisation, but as yet few attempts have been made to put the various elements together in order to estimate the net impact on public spending. This paper provides an attempt to do so, now that 8 of the 25 franchises have been announced. It is my intention to update this work as further data becomes available, and readers' comments will be welcome.

1. The privatisation of rail services under the 1993 Railways Act in Britain produces two contrasting financial effects :
 - (a) Additional costs incurred by TOCs¹ due to the high access charges paid to Railtrack and the ROSCOs.
 - (b) Income to the state through the privatisation of Railtrack and the ROSCOs, whose profitability is in turn a consequence of such charges being levied.
2. These calculations are concerned only with franchised passenger services, whose track access charges represented 86% of Railtrack's income in 1995/96² and to which all ROSCO charges are related. The privatisation of freight services is not considered, not that of subsidiary companies (such as track maintenance, telecommunications, rolling stock maintenance, etc.) which could have taken place without the Railtrack/ROSCO structure being set up.
3. As a simple starting point, one could take the estimates in the House of Commons' Transport Committee report of 1995³, which suggested extra costs of about £600m per annum (p.a.) vis à vis the previous financial structure of BR, resulting from the additional payments to ROSCOs and Railtrack via the TOCs (see figure 1 of HoC Report). While these remained in public ownership, the resultant profit was then paid back to the state, resulting in an

¹ Definitions of all abbreviations are given at the end of the paper.

² Railtrack Mini Prospectus, May 1996, p 6

³ House of Commons' Transport Committee, Fourth Report, Session 1994-95, HC206-I

approximately neutral outcome. Privatisation of the businesses would then produce a 'one off' gain to the state in the year(s) in question. The scale of payment may be compared with TOCs' total passenger receipts of £2,153m in the year to 31 March 1995, of which about £374m related to PTE supported services. In that year the TOCs paid £1,955m to Railtrack¹.

4. The £600m p.a. would continue to be required (in the absence of changes in Railtrack charges affecting TOCs' operating costs, etc) for an indefinite period. In this calculation a range of 15 years is considered (i.e. equivalent to the longest current franchise), although for investment appraisal purposes a period of 25-30 years would be normal (e.g. for electrification schemes).
5. Taking the base year as 1995/96 (i.e. that in which the ROSCOs were sold), a 15-year cash flow at £600m p.a. equals £9,000m. Offsetting this would be the ROSCOs sale in 1995-6, and Railtrack in financial year 1996/97. For example, if these grossed £3,600m, then the net extra cost would be about £5,400m.
6. However, the normal practice would be to discount such cash flows (this is known to be followed by OPRAF in comparing bids). At the real discount rate of 8% p.a. applied in recent years to transport infrastructure projects, £600m p.a. over 15 years corresponds to £5,160m. Sale proceeds should also be discounted: in this case, the first year (1995/96) is not discounted, and hence the ROSCO sales are taken at face value. The Railtrack sale is assumed to be at the start of financial year 1996/97 and discounted for one year. It is assumed that the benefit of the 'circular cash flow' of approximately £600m p.a. profit from the ROSCOs, and also Railtrack, was lost from mid-1995/96 in the case of ROSCOs, and the start of 1996/97 in respect of Railtrack.
7. A lower discount rate may also be appropriate, given that long-term Treasury bond yield is now around 8%, and inflation around 2½%. The effect of a 6% real rate has also been calculated - this will of course increase total costs since greater weight is thereby placed on future payments to TOCs.
8. The issue is confused by the notional value placed on Railtrack of £6,500m in setting the original profit targets (at 5.6%, some £364m p.a.). This was an artificial 'replacement cost' value - a practice not followed in any other industry. The actual sale price (reflecting anticipated profits and the

¹ Mini Prospectus, op cit, p 17

price:earnings ratio) is the relevant figure so far as public sector cash flows are concerned. There was also a notional debt borne by Railtrack of £1,229m, written off shortly before flotation along with other adjustments¹, which may be likewise treated as irrelevant.

9. In addition to central government payments via the TOCs, a large extra sum was needed in respect of payments via the seven PTEs, since their services covered a lower share of costs than the average, so that increased rolling stock and track charges had a relatively bigger effect on the net support required. This was £222m in 1995/96², offset by a special Metropolitan Railway Grant (MRG), subsequently subsumed in the Standard Spending Assessment (SSA) calculation and general support payments to authorities in the areas concerned (a value of £200m p.a. is assumed here from 1996/97 onward). This is assumed to include the extra £70m p.a. in Scotland "... from the DoT to meet the burden of supporting rail services as a result of restructuring"³, i.e. payments to Strathclyde PTA.
10. The original 'circular cash flow' in respect of Railtrack would also be affected by the 2% p.a. reduction in track access charges imposed by the Rail Regulator in January 1995. If no changes in costs took place, this would reduce net profitability of Railtrack by the same absolute figure (and also the total costs for TOCs). The effect on state finances would thus be neutral while Railtrack remained in public ownership, but the sale value of Railtrack would be affected by lower profitability. The reduction applies each year until 2001, after which constant charges are assumed in these calculations.
11. The high charges imposed by Railtrack and ROSCOs result in around 65-70% of TOCs' costs being determined by them, leaving only 30-35% directly under TOCs' own control (train crew, diesel fuel and electricity, local stations, etc.). This would suggest limited scope for reducing net franchise payments vis à vis those found under BR control. In practice, somewhat greater reductions have emerged in the franchises allocated to date, clearly indicating assumptions about revenue growth as well as cost reduction, notably in the case of the ECML⁴. These may give an indication of the likely outcome for the process as a whole. However, some of the franchises

¹ Mini Prospectus, op cit, p 12

² Transport Committee Report, op cit, para 54

³ Cm2814: *Serving Scotland's Needs. Expenditure Plans 1995/96 to 1997/98*, table 3.20.

⁴ see *Modern Railways*, May 1996, pp 289-290

allocated so far may be the more attractive - they do not include any PTE or regional services, for example. Intercity services on East Coast and Midland main lines are likely to have more scope for revenue growth than regional services. The WCML, with its needs for infrastructure renewal, is also excluded to date. In order for the discounted total costs and revenues to the state to balance, substantial reductions in franchise payments would be needed in any case, especially in the first few years (given the effect of discounting at 8%).

12. It may also be the case that some optimistic projections have been made which may not be sustained in practice, and that low price bids have been made to enable entry into the rail franchise market. However, in contrast to bus industry deregulation and privatisation, it may be argued that the inability to control most of their costs does at least push the TOCs in the direction of quality improvement and revenue gain, whereas most bus operators concentrated almost wholly on cost reduction in the first few years after deregulation as their means of improving financial performance.
13. The table shows a range of assumptions for these outcomes. Columns cover the years from 1995/96 to 2010/11, the first being the first full year under the new regime, with payments via Railtrack and ROSCOs. Eight and six percent discount factors are shown for each year separately (back to 1995/96 as base year, which itself is undiscounted).
14. If ROSCO and Railtrack profits are taken as £310m and £316m p.a. respectively¹, then the net (undiscounted) total annual cost (once privatised) will be £626m p.a. The ROSCO sales produced £1,800m in November 1995, and in addition a half-year profit would have been returned to the state (about £150m), plus the Railtrack profit, giving a net gain to the state of £1,650m. This matches quite well the negative EFL for 'national railways' of £1,715m (prior to passenger service support) shown for 1995/96 in the latest government estimates². In 1996/97, Railtrack was privatised (assumed to be as from the start of the financial year) with sale proceeds from flotation of £1,950m. However, shareholders have also been given a dividend of £69m from the period when Railtrack was still in public ownership, reducing the net gain in 1996/97 to about £1,880m. It is assumed that the entire £626m 'circular cash flow' is lost from this point.

¹ Transport Committee Report, op cit, figure 1

² Transport Report 1996: Government Expenditure Plans 1996-97 to 1998-99, HMSO, February 1996, p 23

15. The net discounted total for each year to 2010/11 is then shown on these assumptions, plus the aggregate discounted figure - a net cost to the state of £4,462m. In other words, to 'break even', further discounted total savings of this figure would be needed (in the form of lower access charges and/or franchise bids than subsidies presently received). At 6% discount rate, this becomes £5,384m.
16. However, the level of access charges initially set by Railtrack, based on the £6,500m notional replacement value was found unacceptable by the Regulator, who imposed an 8% reduction in 1996/97 (from the 1995/96 base), and 2% p.a. thereafter to 2001. The effect is a reduction in access charges by £158m in 1996/96, and £193m in 1997/98, rising to £297m in 2000/1, and £330m in 2001/2¹. Thereafter, it is assumed that a net saving of £330m p.a. is held constant (undiscounted), awaiting the further review from the Regulator at the end of the first period (i.e. 2001). These savings should be reflected in lower franchise bids than would otherwise be the case. The total saving from this process is £2,690m (at 8% discount rate) or £3,164m (at 6%). The effect would be to reduce the net cost to the state to about £1,775m (at 8%) or £2,220m (at 6%).
17. If no efficiency gains took place, then the Railtrack profit would be entirely wiped out (for the year ended 31.3.95 this was £305m before interest and tax). However, the Regulator assumed not only that the requirement for a return on £6,500m was unreasonable, but also that efficiency gains of about 3% p.a. could be attained². On this basis, a stable profit would be maintained, but of less than £300m³.
18. Data are now available from the first eight franchises, all of which are for at least seven years: data are available for Gatwick and LTS for 15 years, and MML for 10. GW is a ten-year franchise, but with data shown only to year 7 (2002/3). For Gatwick, a net payment, increasing in each year, is made to OPRAF, and for ECML the subsidy falls to zero in 2002/3. For MML there

¹ these estimates being based upon a revenue received by Railtrack of £1,955 million from passenger franchise operators in 1995/6 - *Mini Prospectus*, op cit, p 6

² *Railtrack access charges for franchised passenger services: the future level of charges: a policy statement*. Office of Rail Regulator, January 1995

³ in practice, Railtrack reported a profit before interest and tax estimated at £296m for year ended 31.3.96

is a shift from net subsidy to net payment, which is close to balance in 2002/3.

19. The sum of the eight franchises falls from a spending of £316m in 1996/97 (similar to the existing BR level for the corresponding services), to £122m in 2002/3, a fall of £194m, i.e. more than halving. However, almost half of the reduction is accounted for by two franchises -ECML and NSC - comprising £105m of the £149m (54%). Furthermore, on a discounted cash basis, the effect is less dramatic, since the 7-year aggregate total would be £1,538m if a constant subsidy of £316m p.a. were paid (discounted at 8% p.a.), which falls by £808m, or by 52%. At 6% the 7-year total would be £1,769m, which falls by £602m (by 34%).
20. The first seven franchises represented 40% of the system by turnover¹, and assuming that their share of track access charges for the whole passenger network is the same, then the fall of £137m p.a. in network-wide track costs between 1996/97 and 2001/2 would cause a drop of about £60m p.a. in the combined costs of the first eight franchises. It thus forms a substantial proportion of the £193m saving in 2001/2 vis à vis 1995/96 (about 30%), before considering further cost savings and/or revenue gains assumed by the franchise holders as such.
21. If the £808m discounted net saving from the first seven franchises is considered (of which about 30% is due to access charge reductions, leaving about £565m due to proposed actions of the TOCs), this still compares poorly with the £4,464m saving needed to 'break even' (see above). If the remaining seventeen franchises to be allocated produce a proportionate saving by turnover, then a network total saving of about £1,720m will be obtained to the year 2001/2, at the 8% discount rate (of which about £1,200m would be due to TOCs' actions).
22. This leaves about £2,800m further (discounted) savings to be obtained by 2010/11. Projections for the Gatwick and LTS franchises to 2010/11 suggest a doubling of the net payment to OPRAF for Gatwick, and further halving of the LTS sum needed, but the extent to which this could be extrapolated to the network as a whole is highly uncertain.

¹ Parliamentary statement by Minister John Watts

23. It should also be borne in mind that all savings have been attributed to changes in Railtrack charges and action by franchise holders. In reality, further efficiency and revenue gains could have been expected under BR ownership, albeit less dramatic. One assumption is that a staff reduction of 3,000 p.a. at a gross cost of £20,000 each (a total of £60m) could be made on a cumulative basis from 1995/96 onward (furthermore, in such a phased programme, redundancy costs associated with the actual form of privatisation might have been avoided). Over the seven year period used to assess the existing franchises, this would produce a saving of £1,526m (at 8%). Added to the access charge reduction imposed on Railtrack, giving a discounted saving of £2,690m, a total saving of £4,216m could be made, of very similar magnitude to the £4,464m discounted net cost of privatisation estimated earlier.
24. Some gains might also have been made under BR control in terms of pricing and marketing initiatives, although one should be careful to exclude effects of real price increases which have been prevented by the terms applied to the franchises, notably in respect of London commuting fares, which previous strategy may have envisaged 'notching up' in real terms over this period.
25. The evaluation could be extended into a broader economic assessment, by inclusion of user losses and benefits (higher or lower fares, changes in service levels, etc.) and impacts on the labour force, but as yet there is no evidence from franchisees' performance to assess this.
26. It could be argued that the profit requirements imposed on Railtrack in particular reflect the opportunity cost to society of the capital tied up in railways. However, no such equivalent concept is applied to the road system despite estimates in the order of £100,000m as an appropriate figure (Newbery, 1996) and the issue is therefore not examined here.
27. There is also the issue of adequate replacement asset funding. In Railtrack's case an element of this is included in the charges made, but only the 'profit' element is considered in this calculation as an extra cost in terms of public spending. There are in any case questions about the adequacy of renewal provision both under the former BR control and Railtrack today. In the case of rolling stock, a surprising feature of the privatisation scheme is that the ROSCOs are under no obligation to provide for the replacement of assets, but instead this seems to come about through franchisees' themselves, some of the longer-term franchises being agreed explicitly on this basis (such as LTS

and Gatwick). This may imply that the ROSCOs will lose revenue and profits as leases expire and franchisees seek to secure rolling stock elsewhere. However, it is not clear whether this would result in any lower public spending than would have been the case through the ROSCOs.

Reference:

Newbery, David "The case for a public road authority" in F. Terry (editor) *"Transport in Transition: a reader"* Public Finance Foundation, London 1996, pp 45-54.

Acknowledgements:

Comments on an earlier draft from Bill Bradshaw (Wolfson College Oxford), John Preston (ITS, Leeds University) and Don Box (TEG) are much appreciated, and have been incorporated where possible in this revised version. All responsibility for calculations produced and conclusions drawn is that of the author.

July 1996

Definitions of terms in paper:

ECML	East Coast Main Line
EFL	External Financing Limit
GW	Great Western
LTS	London Tilbury Southend
MML	Midland Main Line
NSC	Network South Central
OPRAF	Office of Passenger Rail Franchising
PTA	Passenger Transport Authority
PTE	Passenger Transport Executive
ROSCO	Rolling Stock leasing Company
TOC	Train Operating Company
WCML	West Coast Main Line

SUMMARY TABLE

	£ millions discounted @ 8% p.a. to 1995/96 base year
Results are summarised as follows	
Additional public spending, after allowing for ROSCO and Railtrack sales, and assuming constant annual subsidies to cover increased rolling stock and track access charges, over 15 years	4,462
Savings due to reduced access charges imposed on Railtrack by the Regulator to 2001/2, and constant thereafter, over 15 years	-2,690
Net total	1,772
Further revenue gains/cost savings implied in first eight franchises, over 7 years (approx. £500m), grossed up to whole network, approx. £1,200m.	-1,200
Net total (Hence, this would equal the further savings needed to 'break even' over the remainder of the 15-year period.)	572
As alternative to franchising, assumed efficiency gains by BR, over seven years	1,526
Net cost to state assuming efficiency gain without franchising (and ignoring continuation of this gain after year 7)	246

BOOK REVIEW

Speed Control and Transport Policy

by Stephen Plowden and Mayer Hillman

Whilst many books and articles have been published on transport policy, little attention has been paid to the question of speed limits. This book fills the gap by discussing the links between speed and the effects of road traffic. The authors discuss the relationship between speed and road safety, fuel consumption and pollution, and noise. They come to the conclusion that reductions in speed would have beneficial reductions in these adverse effects.

With the usual attention to detail, the authors analyse how speed affects these environmental concerns despite the paucity of information. The authors seem rather cautious when considering the relationship between speed and travel distance but do come to the conclusion that increasing speed extends the distance that can be travelled in the same amount of time, and therefore the amount of traffic on our roads.

From the transport economist's point of view, there is a interesting section which looks at the elasticities required to produce changes in the apparent optimal speed limit depending on what motorists take into account: time costs and/or fuel costs. The appendices of the book provide a lot of the information that the authors have used in arguing their case.

The report makes 21 recommendations for reducing speed to be acted upon, mostly, by the Government. It includes a reduction in top speed limits, the installation of speed limiters in vehicles, a limit on the amount of mileage allowance given by employers, differential taxation for different types of vehicle, the routing of the most intrusive lorries to motorways and selected 'A' roads.

It is to be hoped that whilst the authors propose radical changes in speed limits this is not seen as a reason for rejecting their work. The book contains many useful ideas which should form the basis for moving transport policy towards considering and alleviating the harmful environmental effects of traffic and reduce the demand for ever more road space.

Published 1996 by Policy Studies Institute, 100 Park Village East, London NW1 3SR

TEG NEWS

MEETINGS PROGRAMME 1996/97

All meetings are held at 5.30 for 6pm in Room 205, University of Westminster, 35 Marylebone Road, London NW1 5LS. The building is on the south side of Marylebone Road, close to Baker Street Underground Station. People attending meetings must sign in at the entrance to the building.

20 November **Regulation in the Bus Industry.** Geoffrey Sumner, Monopolies & Mergers Commission

11 December **Harrow Smartcard Trial.** Roger Torode, London Transport

15 January **Transport to the Millennium Exhibition.** Roland Niblett, Colin Buchanan & Partners

19 February **Economic Implications of Parking Policy.** Mark Valley, Transport Studies Group, University of Westminster

TEG AGM

This will be held on 19 February 1997 at 5:30 pm at the University of Westminster (before the talk).

MEMBERSHIP NEWS

Looking through the names and circumstances of new members to the Group in order to prepare this issue of Membership News I was struck by the wide range of experience portrayed in the present crop (i.e. those enrolled during the past year or so). This range of experience is not only in technical knowledge of what is an ever increasingly complex profession but also in the length of time new members have been employed therein. Thus we have new members who are just starting in the profession and others who have as much as twenty five years experience behind them. Moreover, we have now reached the stage of having a number of retirements from employment each year, but it is gratifying that most of these remain members of the Group. This year Barrie Boyers of European Passenger Services has retired, along with Aubrey Benn of the CBI and Vincent Hogg from Washington DC but all have retained their membership.

The other aspect of membership on which I wish to comment is the dearth of members from the 'operations' side of the transport world. This, I know, has been commented on before, but the position seems to be worsening as this year there have been no new members from railways, road, air or other modes of transport undertaking, or from local or central government. Consultancy predominates, accounting for eleven of the thirteen new members. It is noticeable that an increasing number of consultants express a keen interest in rail privatisation, railway projects and other aspects of that particular mode of transport, which is inevitable, no doubt, with the British railway undertakings failing to do much of their research requirement 'in-house', in recent years - a process hastened by the fragmentation of the railway industry.

A trend within the consultancy profession is the growth of independent consultants (under various guises) in our ranks. This year we have David Bray as an 'independent' practising in South Australia and Jeremy Drew who is based in London. Andrew Spencer, formerly of The Transport Studies Group, University of Westminster, and a former committee members of the Group, is also now 'independent'.

Looking at the new recruits in more detail, we have no fewer than three new members from Ove Arup (Ian Birch - Transport Economist, James Reeves - Senior Economist and Andrew Jenkins - Transportation Planner). Halcrow Fox are responsible for two new members (Simon Milner - Consultant and John Nellthorp - Assistant Economist, at Edinburgh). Other well-known names in the consultancy business provide two more new members in Bryan Matthews as Assistant Economist at Steer, Davies, Gleave and Peter Harries as Transport Planner at Colin Buchanan & Partners. At a somewhat higher level in the management hierarchy, and reflecting longer experience in the industry, we have Chris Veasey as Director, Transport & Traffic Consultancy and Hugh Ashton as Principal Management Consultant with Coopers & Lybrand. Then with an expressed interest in highways modelling there is Stephen Moriarty as a Deputy Team Leader at Sir Alexander Gibb & Partners.

Changes in employment of members break-down into three main groups: from one consultancy to another; promotions; and movements to or within transport undertakings or public bodies concerned with transport.

In the first group: Konrad Aspinall has moved from Colin Buchanan & Partners to W.S. Atkins; C.P. Buchanan has moved from Halcrow Fox and is now Senior Economist with Sumonds Travers Morgan. In the academic field, Dr. Michael Asteris is now International Director at University of Portsmouth; Phil Goodwin is now Professor of Transport Studies at University College London; Professor Peter Hills is now Dean of the Faculty of Engineering at Newcastle and was awarded the

OBE in the New Years Honours List; and Torben Holvad is now in transport research and consultancy at the University of North London.

Returning to consultancy: Robert Bains is now Principal Economist at Steer, Davies, Gleave; Stephen Howard is now Director of Halcrow Transmark; Paul Murphy Principal Consultant at Oscar Faber; David Roberts Regional Manager of Wilbur Smith Associates; David Silcock Managing Director of Ross Silcock Ltd.; Nasir Hasan a Senior Transport Analyst at Ove Arup; and (with apologies to Pam for not reporting this before) Pamela Ventham-Smith tells me she has been Principal Consultant with Steer, Davies, Gleave for six years!

On the 'operational' side of the profession, Peter Collins, our Secretary, is now Head of Policy & Planning at London Transport; Barrie Humphreys is now Director of Government & External Affairs with Virgin Atlantic Airways and Andrew Newlove is Logistics Analyst with Federal Express at Newtown, Powys. In local government David Bull is now Principal Transport Planner at the Borough of Hammersmith & Fulham and John Cartledge Assistant Secretary of The London Regional Passenger Committee.

Other interesting movements include those of Ian Harris, who tells me he has been working in Hong-Kong; and Tony Flowerdew who will be researching in Japan from May this year through to the Spring of 1997.

Finally, Julia Clarke, of Rail Freight Group, tells me she is now on the Transport Policy Committee of the Institute of Transport and a member of the main board of Wisconsin Central, which recently bought the trainload freight business of British Rail.

I hope I have not omitted anyone who has news of their change of job etc. from this rather long list. The Membership List mailed with this Journal gives full details, or those which members wish to impart. If I have, inadvertently, omitted anything or, worse still, got something wrong, please let me know. My apologies for errors of the past. And, in conclusion, our congratulations to those who have gained advancement in the world of transport economics or received other awards.

Don Box
Membership Secretary

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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 usually on the third Wednesday of every month from October to June at the University of Westminster, Marylebone Road. They 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.

The current membership of over 160 covers a wide range of transport modes and types of organisation. Members are drawn from transport operators, consultancies, 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, Don Box, 73 Silverdale Road, Earley, Reading RG6 2NF. The current subscription of £16 should accompany the completed application form.