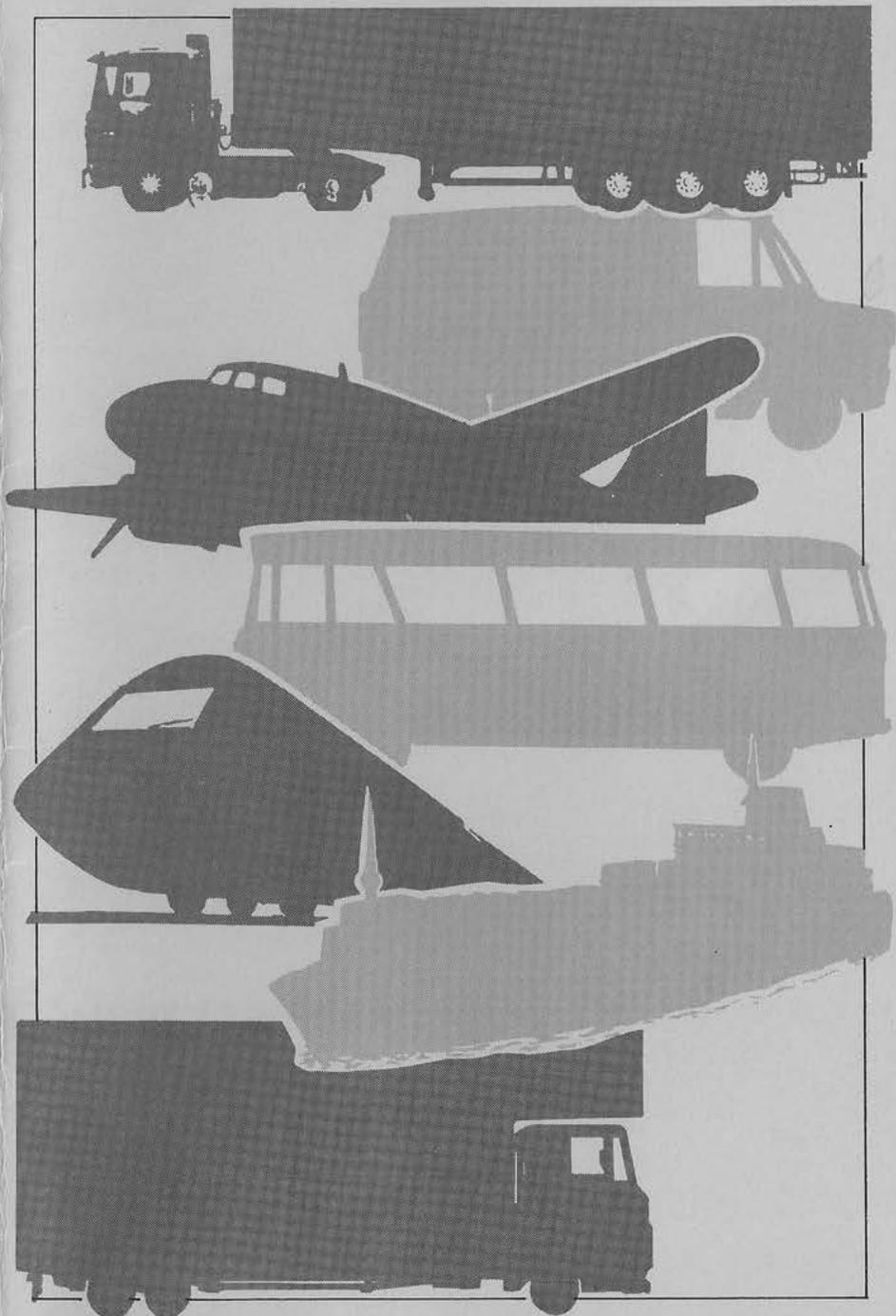


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ARTICLES

THE RYRIE RULES: AN UPDATE

Ernest Godward, Financial Appraisal Specialist, London
Underground Ltd.

Since the February meeting there has been development in relation to the use of the Ryrie rules in connection with Transport Investment.

However, before explaining the changes it is perhaps worth explaining what the rules are. They were first used in 1981 and they cover the funding of public sector projects by private sector finance. For every £1 of private finance found for the project the Government reduces the public sector funds by £1.

In 1981 the rules stated that:

1. The provision of funds for investment should be on a similar basis to funding provided wholly by the private sector, and
2. benefits should be commensurate with the costs of raising risk capital on the financial markets.

In 1985 the rules were modified to take account of the rapidly developing enterprise culture developed by Mrs Thatcher's governments. Paraphrasing the rules they now read:

1. The government welcomes the use of private sector capital in the funding of public sector projects.
2. Private sector financing must be more cost effective than public sector financing.

3. Additional resources greater than would have been available under public sector financing must not be created.
4. Projects would not receive priority just because of the private funding.
5. The options of private and public financing should be compared using standard techniques to assess
 - (a) financing cost,
 - (b) transfer of risks (between taxpayers and private financiers,
 - (c) project overrun risks, and
 - (d) efficiency that could be achievable using private sector resources.
6. Private sector finance should not be used as a back door method of expanding public sector activity. Special cases would be allowed on a case by case basis when the government would intervene to increase expenditure limits, and
7. Assets acquired under finance leases should be capitalised.

After a number of criticisms recently by experts in the field, John Major (Chief Secretary to the Treasury) announced on 5th May 1989 a significant relaxation in the rules in respect of Road Infrastructure Projects. The relaxation was seen as a direct bid to attract private sector financing of major road schemes. The Sunday Times on the 7th May 1989 also carried a report suggesting that various rail schemes could also benefit by this relaxation. These schemes include the high speed rail link to the Channel Tunnel and schemes emanating from the Central London Rail Study. A number of provincial Metro schemes may also benefit.

NEW RAILWAYS: THE CHICKEN AND THE EGG?

Nigel G. Harris, London Underground Ltd.

Railway development in Britain has been distinctly limited in the last 50 years, despite changing demand patterns leading to the creation of a number of markets large enough to sustain a railway. Airport traffic is a classic example. It was not until 1977 that Heathrow was connected to Britain's railway network at all, an event which cannot be blamed entirely on railways being out-of-fashion. Even in the 1980s, when road congestion has become a significant factor in the railways' favour, railway development has largely been in electrification (stimulated by savings in operating costs) and in new stations, often funded by local authorities. Where are the new lines? The lack of them cannot be blamed entirely on new line construction being beyond transport modelling capability or outside the range over which known elasticities might be expected to hold good.

The real problem stems from a 'Catch 22' situation relating to the inter-relationship between public transport and land-use planning. If railways are built and operated to stimulate demand, operating losses are incurred (at least initially), whilst if railway construction only occurs after demand has materialised, it may be found that passengers have made arrangements to use other modes. We can examine each of these in turn.

Building and operating before demand:

Operating before demand has fully materialised means poor load factors, which are unprofitable. This problem occurs with all

public transport modes, but the larger the unit of capacity, the more severe the problem. Rarely will it be possible to time completion of railway and development simultaneously, unless the two have been deliberately developed together; even then, it depends on developments being fully filled as soon as they are opened. The Docklands Light Railway is an example of operating before demand; it has indeed made a loss in its first years before the demand has developed (yet demand is fairly certain in the medium term because road congestion militates against the private car in inner London).

Waiting and letting passengers make their own arrangements: The problem is that potential passengers take public transport provision into account when making other household decisions e.g. car purchase and home location. Thus potential rail passengers tend to locate themselves along existing rail routes (hence LRT (1988) showed how workers in Central London tend to live on the same side of London as they work, so most City workers live in East London and Essex, whilst most South Bank workers live on lines with direct services to Waterloo, and so on). This means that schemes that look good on a map may fail because there isn't enough unfulfilled demand along the axis to be served to justify development, at least in the short term.

This apparent chicken-and-egg conundrum does, however, have solutions, hinted at above. The first solution is that of cost-saving development. A classic example of this is BR's Thameslink services, linking suburban networks North and South of the river. A major justification for this was the elimination of terminal time at two stations less than a mile apart. Other similar examples of through-running, reducing costs as well as the

interchange disbenefits to passengers, can be found all over the BR network, particularly in the Provincial sector. However, should the network be split up, the opportunities for cost saving from these sorts of measures would be reduced.

The second solution may be found in using development gain as a funding mechanism. The London Docklands Development Corporation has been legally able to buy up land at cheap rates, and sell it at a profit once plans for the DLR have been developed and made public. The nationalised railways (both BR and LUL) are not able to do this, however.

But what of the claims made in a number of recent publications (e.g. Gritten (1988)) that new railway companies would engage in massive railway development if BR's monopoly was ended? Can Britain really expect new railways to sprout up all over the country, in the wake of the Channel Tunnel?

The Channel Tunnel itself is an interesting case. Future tunnel traffic levels depend on a great deal of traffic being abstracted from two other PUBLIC transport modes (air and sea). Eurotunnel expects to be able to break mode shares held by the other modes because their product is anticipated to be so much more convenient (and hence superior), whilst the base level of traffic is so huge as to be able to support a new entrant into the market. There is currently talk of offering private companies a chance to build (and, perhaps, operate) an improved rail connection between London and the Channel Tunnel. But is this scheme really representative of other situations? Surely not, because there is no private mode competition, which there will be for virtually every other case for railway development in Britain.

Although newly-constructed railways have advantages of being purpose-built (as opposed to converted from previous systems designed to serve other flows) and of having modern equipment, there is one thing they cannot have, by definition: existing operating costs with the potential to be reduced. Despite the availability of development gain financing, then, the presence of the private motorist and the lack of operating cost savings means that new railway development is less probable than the Government would like. On the other hand, permitting the nationalised railways to operate more commercially might have the desired effect.

References

- Gritten, A. (1988) Reviving the Railways: a Victorian Future?, Centre for Policy Studies Policy Study No. 97.
 LRT (1988) Analysis and Use of Rail OD Data for the Central London Rail Study, LRT Operational Research Note 88/30.

The views expressed in this article are those of the author and not necessarily those of London Underground Limited.

RECENT MEETINGS

THE NATIONAL TRAVEL SURVEY

Dr Mike Collop, Department of Transport
 (London, December 1988)

The December 1988 meeting provided a topical review of the recently-published 1985/86 National Travel Survey (NTS)*, the fifth such study since the 1960s. An unusually long gap had occurred since the previous NTS in 1978/79. Survey work was carried out by OPCS on behalf of the Department of Transport in 1985/86 (and 1972/73): the 1975/76 and 1978/79 surveys had been carried out by private firms, but better response was obtained by using OPCS (over 70% in 1985/86).

About 10,000 households gave data each for a sample week, these being spread over the year July 1985 to June 1986. The Postal Address File was used to select the sample, rather than the Electoral Register used for previous NTSS. 720 Postal Sectors were sampled as the Primary Sampling Units, stratified by region, population density, car ownership and the proportions travelling to work by car. 21 households were selected in each PSU to give the initial sample of households.

* The main findings are given in 'National Travel Survey 1985/86 Report - Part 1, An Analysis of Personal Travel'. HMSO April 1988, 8.80; Further details of the survey methods, types of data held, etc. may be found in 'Part 2, a Technical Guide', HMSO

Data were collected by interview and a week-long travel diary for each individual. Households were classified by their access to facilities and public transport, composition, social and economic factors, and vehicle access. Data were also collected on household gross income. Individuals were classified by personal characteristics (age/sex), social and economic characteristics, travel difficulties, access to motor vehicles, use of special tickets and passes, and travel to work. The 'travel difficulties' section is an innovation in the 1985/86 NTS and will enable the problems faced by disabled users to be better understood.

Each journey is classified by structure, purpose, time, distance, speed and mode used. Each journey stage (ride in vehicle, or non-motorised link) identified by mode, travel time, distance, speed, occupancy, and private or public transport details.

Vehicles used by households are classified by characteristics, availability, usage, (mileage run and fuel bought), and the types of benefit and support received, for example from employers.

Major Results

Journey length: Taking all modes, including foot, a concentration on very short trips remains evident, despite the growth in motorised travel in recent years. About 30% are less than one mile in length (see diagram 1). The published report (Part 1) generally omits these trips under 1 mile, except where they are covered in a separate section. Females tend to make more short trips than males. Journeys of between 10 and 25 miles

in length account for the greatest proportion of travel per week by distance, especially when males are considered (diagram 2). The average distance travelled per person per week by all modes is close to 100 miles. Note that in the NTS 'long distance' was defined as trips over 10 miles in length (whereas the former Long Distance Travel Survey, LDTS, took 25 miles as the starting point).

Journey frequency: The typical person makes about 20-25 journeys per week, this rate falling among the elderly to about 10 per week. The frequency is very similar among males and females up to the age of about 50, but above this males make substantially more trips per week than females, (however, among the oldest groups the low absolute number of males may mean that they nonetheless account for a minority of total trips made).

Total distance per person per week shows a substantial difference between males and females, especially in the working age groups (20-65). The average trip length for males is thus substantially greater. This is associated with work trips in particular being longer than shopping and personal business trips, and also difference in the work trip length between males and females. In the working age groups, the typical male travels about 150-200 miles per week, the female about 100 miles.

Journey purpose: Journey purpose shows some interesting variations by length of journey. For short trips (up to 10 miles) work and education represent about 30%, and leisure a similar proportion (the balance being 'personal business'). As trip length rises, work and education increase to form about 40% of all trips in the range 10-50 miles, but for the longest trips,

leisure becomes predominant, representing over half of total trips above 50 miles.

Modal split also varies by length. Of trips under one mile, over 80% are on foot. Above this length, car is the most important single mode in all distance categories, but bus plays a significant role in trips of 1 to 5 miles (around 15% of all trips). Rail's share grows with rising trip length, forming nearly 20% of trips over 200 miles. Other public modes (air, coach, etc.) form a similar share at such distances. International journeys are included within the data analysed in respect of their sections falling within Britain as far as the terminal used - for example, a domestic air trip to interline at Heathrow would be included, but not the international journey beyond Heathrow.

Car occupancy varies by trip length, rising from an average of about 1.6 (for all purposes) at 1 mile, to about 2.0 at 100 miles and over. (This is somewhat lower than figures in the 1978 /79 NTS of up to 2.4 at over 100 miles. However, as pointed out in discussion this is consistent with the evidence from the LDTS in the late 1970s, from which an average of about 1.7 may be derived.)

Access to private cars for the population of Great Britain as a whole may be derived from the NTS. 'Main drivers' and 'other drivers' for each car were identified. Non-drivers within car-owning households are also identified separately from those without cars available at all. About 40% are 'drivers', with roughly 30% each in the 'non-driver' and 'without cars' categories. As one would expect, the last include children and

elderly people as major components.

Journeys per person per week by car access reveal some differences in frequency, although not necessarily as great as one might expect. For example, 'main drivers' in the 16-59 age group (male) make about 25 trips per week, of which almost all are by car, but those without cars make about 19 trips per week, split almost equally between walking and using other (non-car) modes. In terms of distance per week, car access has a greater effect. Taking all age and sex groups together, 'main drivers' travel about 180 miles per week, while those from households without cars travel about 50 miles per week. Average trip length is thus much greater for the drivers than other travellers.

Car access varies greatly by age. Of those 17-19 (male), only 20% are 'main drivers', but this rises to a majority of males between 25 and 69. Females are much less likely to be 'main drivers', their highest proportion being just under 40% in the 35-39 age group, and most being in the 'non-driver' or 'without cars' categories.

Putting these factors together, distance per person by mode varies considerably according to car access. For example, among men aged 16-59 'main drivers' travel over 200 miles per week, those 'without cars' about 70. Among women in the same age group the respective distances are about 160 miles and 60. For those aged over 60, in both sexes, the differences are less marked, but remain significant.

Car utilisation: Car utilisation appears to be affected by whether or not it is subsidised by an employer. Compared with

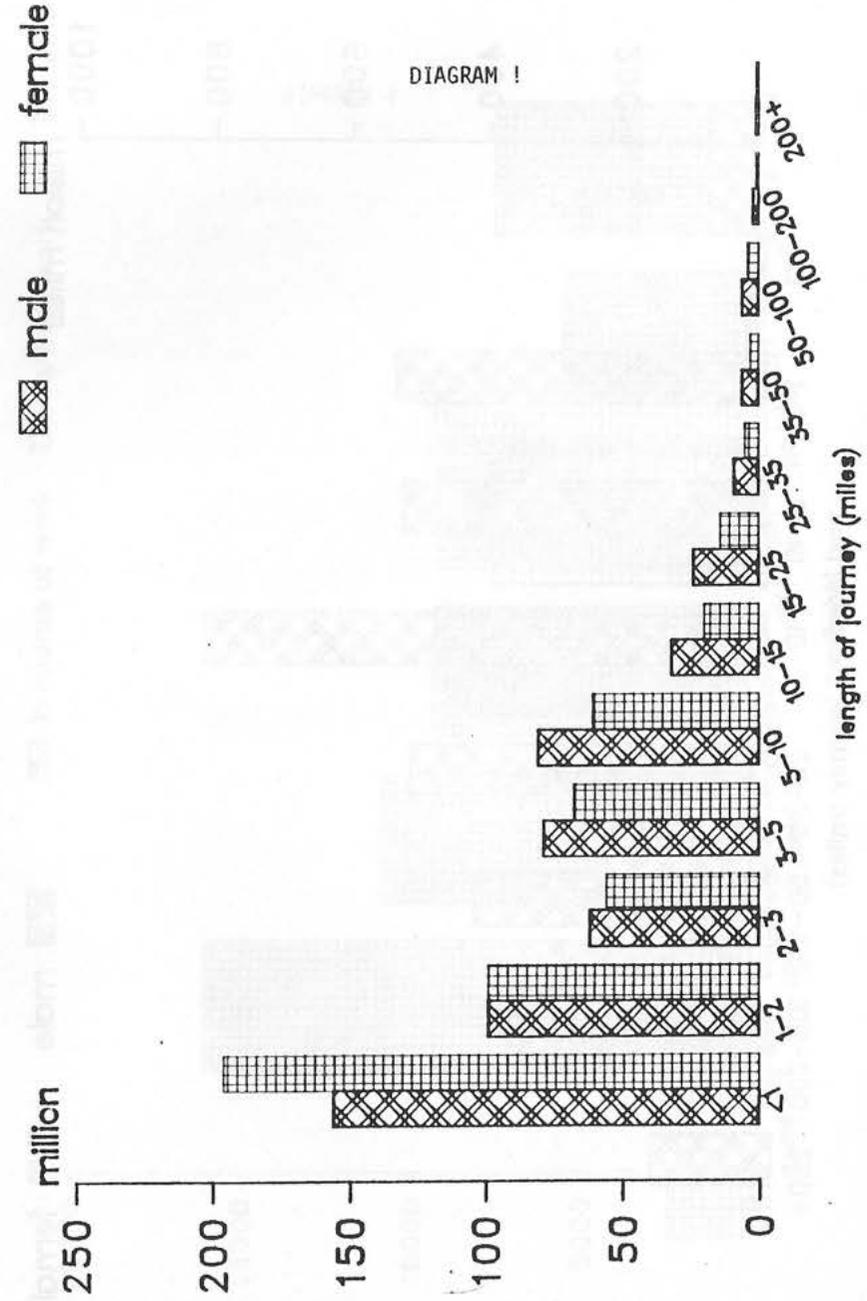
the average of about 8000 miles per year for all household cars, company cars averaged about 16,000 miles. (In discussion it was suggested that this could be influenced partly by deliberate high mileage working to meet tax conditions.) Company cars accounted for about 23 per cent of all car mileage. Cars with no support from employers averaged around 6,000 miles (diagram 3).

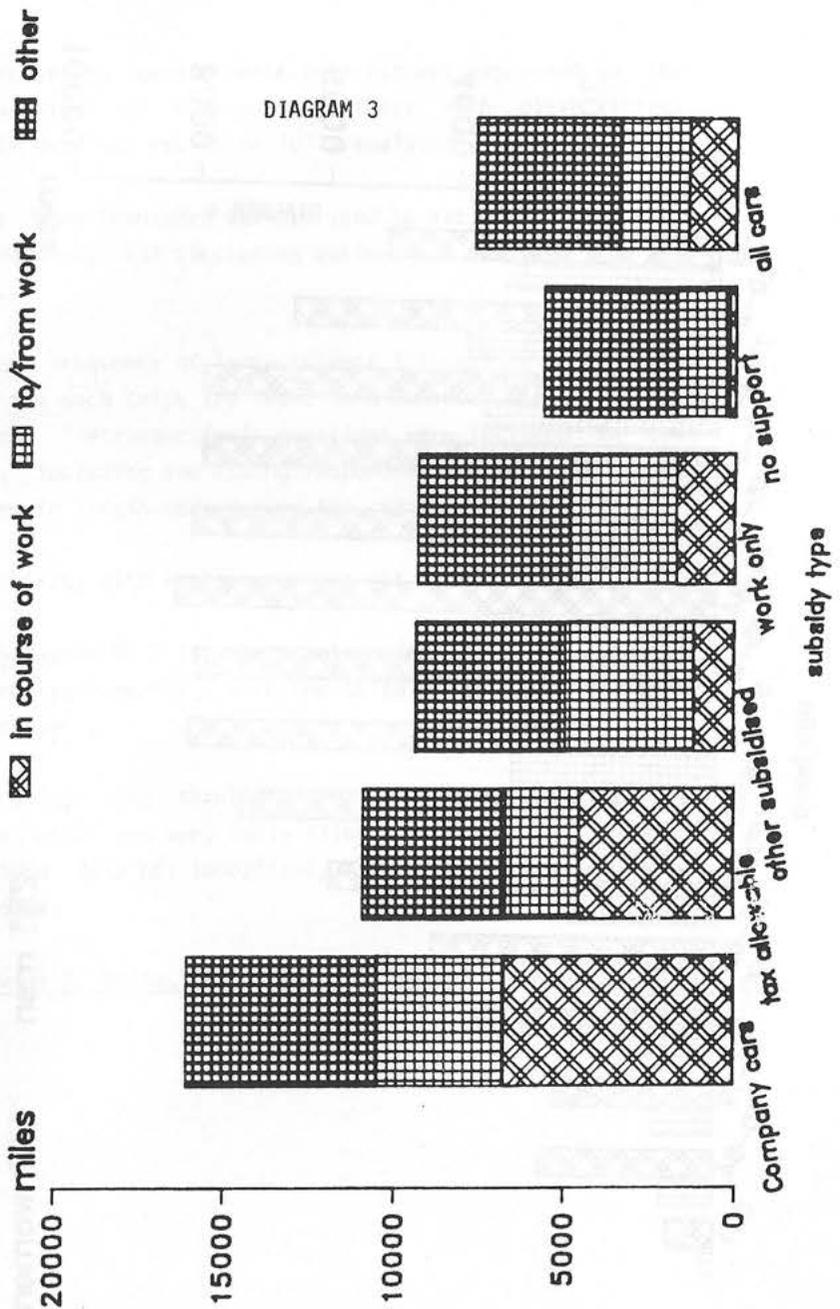
Cars in the 'no support' category, however, represent the great majority of household car stock, around 70%. 'Company cars' as such represent about 12%. The difference being made up by cars receiving partial assistance, (such as journeys in course of work only), and cars used partly for business by self-employed people. However, note that the provision of free parking alone was not identified as a subsidy.

Car mileage driven per annum (i.e. by individuals) is typically around 8,000 per year for adult males, only 4,000 for females, but lower in the elderly age groups (diagram 3).

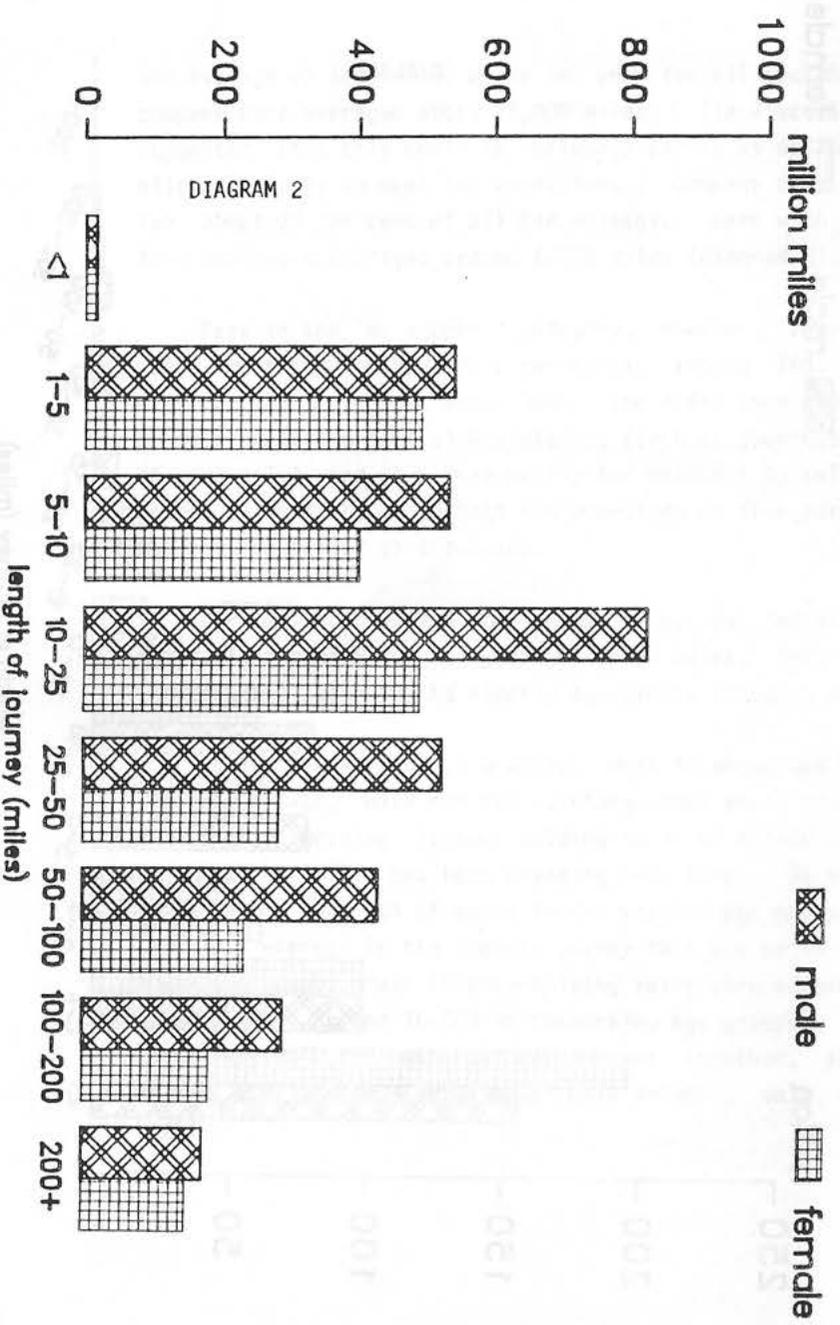
Taking car mileage as a whole, most is accounted for by the age group 20-60, with men representing about three times as much as women. Driving licence holding tends to follow a similar pattern, but this has been changing over time: in the 1972/73 NTS, fewer than 40% of women in the working age groups held a licence, whereas in the 1985/86 survey this was up to 60% in the 30-39 age group. Male licence-holding rates were already high in 1972/73, at around 70-80% in the working age groups. When the 'main driver' and household car are put together, about two-thirds of the cars have a male 'main driver', only one third female.

Journeys per week (GB) by length of journey and sex of traveller, 1985/86





Household cars, average annual mileage by subsidy type, and journey purpose, 1985/86



Distance per week (GB) by length of journey and sex of traveller, 1985/86

In discussion, considerable interest was expressed in the specific questions on transport by those with disabilities: however, this data has yet to be fully analysed.

Whereas some transport surveys tend to exclude the youngest household members, all (including babies) are included in the 1985/86 NTS.

The low frequency of long-distance trip making means that relatively few such trips are found in a one-week diary survey. However, some 'retrospective' questions were included in the 1985/86 NTS, including one asking respondents to identify trips over 25 miles in length made during the previous three months.

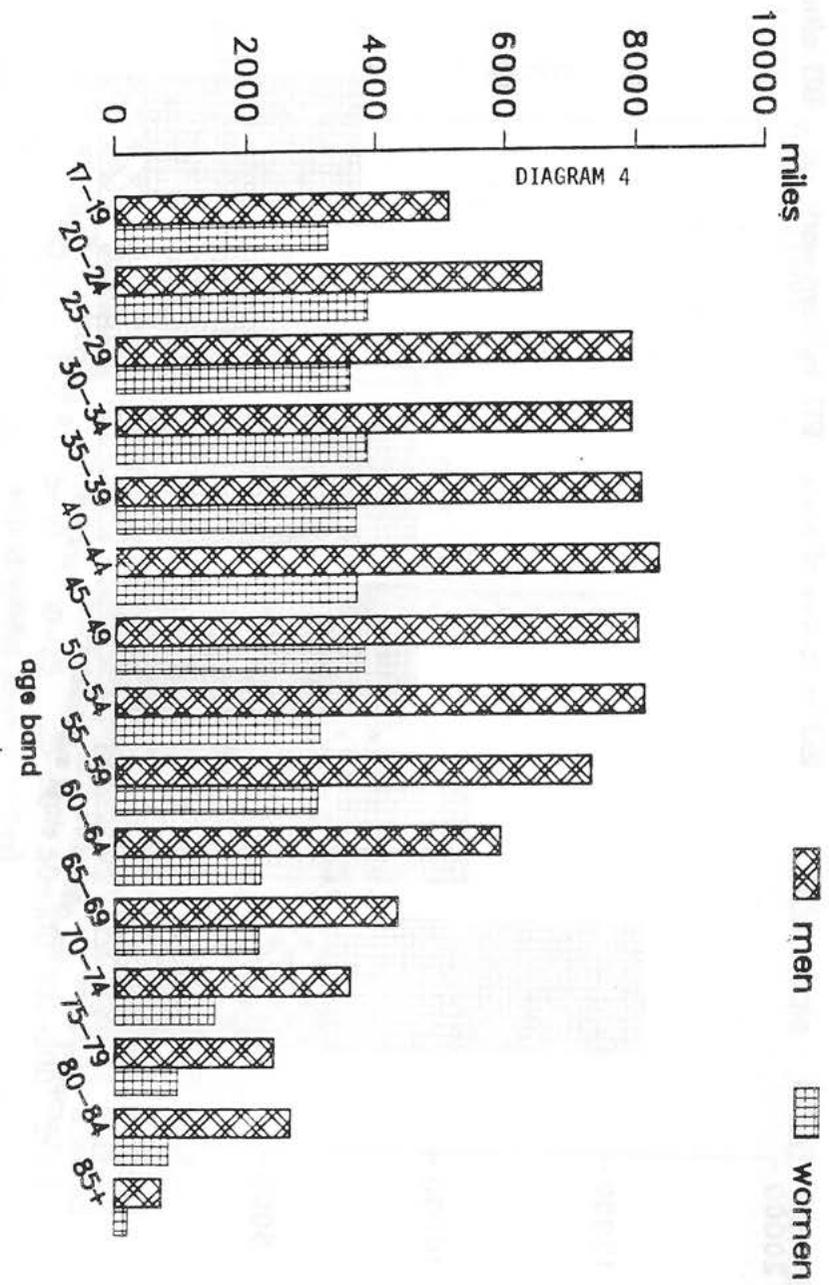
Comparability with earlier surveys was also discussed.

A 'Continuous NTS' is now in being since July 1988, spread over a three-year period, with one third of the sample being taken in each year.

Dr. Collop was thanked for his very comprehensive presentation, which was very fully illustrated by slides, many of which provided data not immediately available in the published reports to date.

Report by Peter R. White, Polytechnic of Central London

Car mileage driven per annum, by age and sex of driver, 1985/86



PRIVATE FINANCE FOR RAIL SCHEMES

Nick Lethbridge, Director Infrastructure, J.Henry Schroeder Wagg
(Merchant Bankers)
(London, February 1989)

The private financing of rail projects is very topical at the present time. There were a large number of rail projects currently being evaluated, e.g. The Channel Tunnel and associated rail link, the Olympia and York Waterloo - Docklands tube link, the Docklands Light Railway extension to Beckton and BR's Paddington - Heathrow Airport rail link. Each scheme mentioned above involved private finance but none were to be fully financed privately.

The history of financing transport shows three distinct phases this century. They were as follows:

1. Pre 1914: property led private financing of transport.
2. Post 1945: central financing from government.
3. Post 1979: enterprise culture which had failed to produce investment required in a time of high economic growth.

At least part of the latter was due to markets for financial capital being given confusing signals due to the lack of a coherent national transport policy. The planning, legal and ownership frameworks differed substantially between private and public enterprises.

The speaker indicated that there were obstacles to making private investment in transport. They were:

1. Complicated planning procedures.

2. Complicated legislative procedures (97 separate pieces of legislation need to be looked at).
3. Local government can be rate-capped for excessive expenditure [1].
4. Backing is required from "City" institutions.
5. The complex split between spending ministries [2].
6. The central government's unwillingness to earmark taxes, such that demand for expenditure and actual expenditure were unrelated.
7. The Treasury's Rylie rules. If a project is able to find private financing these rules have the effect of reducing the government's expenditure.

Such problems have meant that there is no market for the financing of transport project.

The sources of risk for privately financed projects include demand analysis, design, costs, operations and the regulatory environment. These risks can be shared by the consumers, investors and tax-payers. Private investors require returns well above the normal 10% or so to offset the large risks. Funds for demand surveys, development and design work and Parliamentary

[1] Currently 85% of local government funds come via central government. Section 56 grants for transport projects from central government are matched pound for pound with local government funds.

[2] For example, the funding of Docklands Light Railway comes from DOE, DTp, London Underground Ltd. (via London Regional Transport via DTp) and London Docklands.

procedures easily cost more than £3 million irrespective of the size of the scheme. There was a feeling that these risks were not fully understood by government.

Nick Lethbridge suggested that the way forward was the creation of a market in which investors can react to the signals for finance. This would mean that the public sector transport industries would have to set out their goals and the amounts they were prepared to pay to meet those goals. The Department of Transport would determine the public benefits and their willingness to buy those benefits. The private sector would then be invited to meet the balance.

The future for the private financing of rail projects was seen to lie in the development of fair competition between the private and public sectors of finance provision. It was suggested that changes to the Ryrie rules, the development of a reward system to reflect project sponsors initiatives, more long term planning and the use of "property capture" by transport operators would help create a market for transport finance.

The discussion that followed the conclusion to the paper was wide ranging. Peter White (Polytechnic of Central London) asked for an explanation of the Ryrie rules. The speaker explained that these were designed to control nationalised industries borrowing from private banks rather than the Treasury. The rules state that investment decisions by the private sector should not depend on government security, but should provide returns comparable to those required by financial institutions. A full explanation of the rules is given in a separate report to this report along with a status report as at May 1989 of the rules.

Nigel Harris (London Underground Ltd.) asked how it was envisaged that operators would raise finance from service improvements as opposed to new lines. Nick Lethbridge asserted that households might be surveyed to assess what they were willing to pay for such improvements. Occupants who benefitted from such improvements in service would benefit by increases in the value of their property. The operator might give discounts to those who paid for service improvements.

Ernest Godward (Economic Studies Group) asked about the possible use of bonds to finance schemes. These were not currently allowed in the UK at the present time, but were popular instruments of finance in the USA and Japan.

Mervyn Jones (City University) asked about the development of air rights. The problem here was that big users do not reveal their preferences, particularly the government. As property income from air rights rose, government has in the past reduced other payments to transport operators. Roger Allport (HFA) went on to raise the point of equity particularly in London where congestion that cross subsidy would occur between different travel groups.

Don Box (BR retired) wondered whether the apparent difference in the attitude of government to transport and other utilities was a function of these utilities being able to pay their way. This was rejected on the basis that taking all expenditure on transport taxes paid outweighed the expenditure by over 2.6 times (Transport Statistics Great Britain 1987). However it was felt that the Treasury would be reluctant to lose its power over decisions in the transport sector. The speaker

also noted that there were a variety of standpoints held by European treasuries in response to a comment by Peter White.

Andrew Newlove (London Underground Ltd.) asked why the government did not underwrite privately financed projects. The reply was that there seemed to be no reason, but perhaps government did not understand private financing. The Treasury seemed wary of projects with high rates of return, even though these were a function of the risk level forcing up the rates of return to private investors rather than excessive profits.

The likely modifications to public sector projects required to raise interest amongst private sector investors was the subject of a question from Robert Bain (PCL). The early inclusion of the private sector was seen to be essential. The public sector had no monopoly in the design of projects. Good ideas were seen to arise from anywhere. The speaker had, though, to agree with a question from Cyril Tysall (BR retired) that big organisations were required to write big projects (and carry them out).

Ernest Godward, Financial Appraisal Specialist, London Underground Ltd. (Based on notes taken by himself and Nigel Harris, Strategic Planner, London Underground Ltd.)

The views expressed in this review are the authors own and not those of any organisation worked for.

CAR ONLY TOLL ROADS

Tony Flowerdew, University of Kent
(London, March 1989)

The starting point for the Project was the considered need in the future by the European Economic Community (EEC) to supplement certain of the major European road corridors by the building of car only roads (CORs) which would impose a toll on those who used them.

The arguments put forward for this option were that the existing intercity motorways, major roads and city ring roads, highlighted numerous problems especially for the car driver such as:

1. increasing and expensive congestions, especially during peak periods;
2. frequent road maintenance gives rise to long delays;
3. when traffic is moving freely, impatient motorists and lorry drivers hustle those that wish to drive more slowly;
4. high-sided vehicles conceal road signs and create side-draughts for overtaking or overtaken traffic;
5. in adverse weather conditions spray thrown up by lorries is a hazard;
6. in accidents involving both cars and lorries, cars come off far worse as would be expected.

In 1987, therefore, Marcial Echenique & Partners Limited, assisted by Frederick R. Harris BV, carried out a study for the European Community whose purpose was to evaluate the feasibility of roads designed to standards similar to those of motorways, but

catering for light vehicles only, and built to relieve congestion on an existing motorway rather than within a corridor where there is at present no such road.

The suggested advantages of these roads would be:

1. if only cars and light vans used these roads, they would require much less maintenance than their conventional equivalent.
2. The roads would be much cheaper to build, especially in respect of bridges with their lower clearances.

A major disadvantage, however, would be the lack of flexibility in routing.

The terms of reference of the EEC were therefore for a detailed study to highlight the differences between a COR and a conventional motorway, under a list of headings provided by the EEC namely:

road design	bridge design
pavement design	road user costs
environmental planning	safety conditions
traffic management	land use planning
maintenance costs/frequency.	

The actual study was carried out by means of two case studies based on roads in the county of Kent in South East England. The two case studies are for a second Maidstone by-pass, and for a longer stretch of road, the M2, being replaced notionally by a car only motorway, this road being approximately paralleled by the M20, an all-purpose motorway.

The study proceeded by a number of stages. Firstly, suitable standards (these were quite subjectively derived) were devised. Roads and structures were designed and costed using those standards. Figure 1 and Table 1 below summarise the dimensions used and bridge costs for the COR compared to those of the all-purpose road.

The overall roadway costs developed for 100 metres were given in the study as follows:

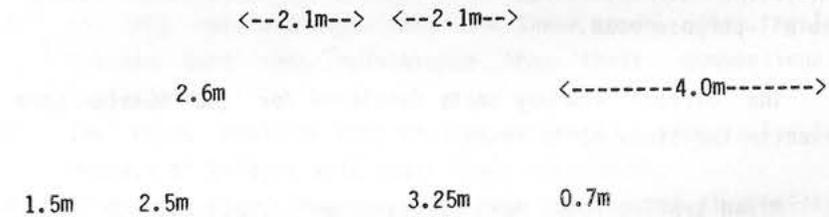
- Mixed traffic road, dual carriageway : £1,743,000
(crown width 28.20m)
- Car only road, dual carriageway : £1,090,000
(crown width 25.00m)

From the above it may be concluded that overall cost savings for roadway works were expected to be in the order of 37.5%.

A summary of the economic analysis of the M2 and the and the Maidstone by-pass as COR's is provided in Tables 2 and 3.

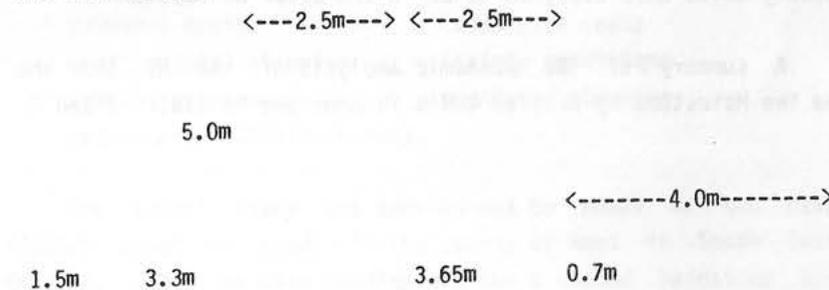
FIGURE 1
ROAD CROSS SECTIONS

Car Only Road



Verge Hard Vehicle Lane Hard Central
Shoulder Limits Width Strip Reservation

All Purpose Road



Verge Hard Vehicle Lane Hard Central
Shoulder Limits Width Strip Reservation

TABLE 1
BRIDGE COSTS COMPARISON

Bridge span (m)	Deck width (m)	Total deck area (m ²)	Total bridge cost		
			as designed for mixed traffic £cost/m ²	if designed for 75% live load £cost/m ²	if designed for 50% live load £cost/m ²
1. 3X14m (av span)	40.0	1830	430	360 (16.3%)*	320 (25.6%)*
2. 3X27m (av span)	47.5	3975	400	330 (17.5%)*	285 (28.8%)*
3. 1X33m	32.5	1118	500	385 (23%)*	335 (33%)*

(*) Figures in brackets indicate percentage reductions of bridge costs when designed for car only road traffic compared to design for regular traffic.

TABLE 2
ECONOMIC ANALYSIS OF M2 AS COR

	(£thousands)
Average cost per kilometre as conventional motorway	3335
as COR	2163
as COR (reduced headroom)	2120
Saving from COR per kilometre (0.5m headroom)	1172
Length of M2	40 km
Total saving from COR, construction costs	46880
Net present value of additional maintenance costs	247
Total saving in capitalised costs of construction and maintenance	46633
Annual traffic costs (1980)	14300
Annual traffic costs (1995)	10600
Estimated average annual costs	12450
Rate of return on conventional motorway compared to COR	26.7%

TABLE 3
ECONOMIC ANALYSIS OF MAIDSTONE-BY-PASS AS COR

	(£thousands)
Average cost per kilometre as conventional motorway	2819
as COR	1934
as COR (reduced headroom)	1909
Saving from COR per kilometre (0.5m headroom)	885
Length of M2	23.5 km
Total saving from COR, construction costs	20798
Net present value of additional maintenance costs	2082
Annual traffic benefits (1995)	3580

The observations for this part of the analysis were stated in the report that "it appears from these two case studies that the circumstances of the individual case are all-important. It seems that the presence of an existing motorway which is a convenient alternative for most of the freight traffic, is of the greatest importance. Other factors of importance are the condition and location of the feeder network, the traffic mix and the terrain. In making the calculations described in this chapter, the consultants have tried to be reasonably conservative in their estimation of the likely benefits of the COR. It appears that it is indeed a solution worth considering in some, perhaps many cases; but it is certainly not a panacea for every new investment in motorways."

Another stage of the study was to attempt to ascertain the effects on driver behaviour (modal split and assignment). The Marcial Echenique & Partners transport model, MERPLAN, was used for this task. The model applied to Kent was run five times as follows:

- i 1980 traffic flows with M2 as conventional motorway (as at present)
- ii 1980 traffic flows with M2 as a COR
- iii 1995 traffic flows with M2 as conventional motorway, M20 as motorway to Ashford, Folkestone and new dual 2 carriageway link to Dover; additional dual 2 conventional motorway as second Maidstone by-pass
- iv as iii but with M2 as a COR
- v as iii but with second Maidstone by-pass as a COR.

With these runs, three economic evaluation runs were performed, comparing:

- I (ii) against (i)
- II (iv) against (iii)
- III (v) against (iii).

An additional driver behaviour survey was also undertaken, with the help of the British Automobile Association to find out what drivers' current attitudes towards motorways were and how they might be affected by the availability of a car only motorway.

On the basis of the questionnaire used in this particular study, two particular responses are of significant interest:

1. the route selection of varying travel times and tolls;
2. the value of using COR based on money.

Table 4 below highlights the results.

This table shows that the majority of respondents (81.9%) would choose COR as opposed to CON if both routes were the same in distance and time. 88% would choose COR if it took 5 minutes shorter than CON and only 10.6% would choose CON if it took 5 minutes shorter than COR. 54.43% of the respondents are willing to travel on COR even if it takes 15 minutes longer than CON. As much as 40.8% of the sample would pay 50p/hr to use COR as opposed to non-tolled CON.

TABLE 4
ROUTE SELECTION FOR VARYING TRAVEL TIMES AND TOLLS

Travel conditions (total journey 1 hour)	Number of respondents choosing				Total questioned
	CON	(%)	COR	(%)	
1 COR 5 mins shorter than CON	119	(11.9)	873	(88.0)	992*
2 Distance and time on both COR and CON routes are the same	61	(6.1)	812	(81.9)	873
3 COR 5 mins longer than CON	105	(10.6)	707	(71.3)	812
4 COR 10 mins longer than CON	89	(8.9)	618	(62.3)	707
5 COR 15 mins longer than CON	78	(7.9)	540	(54.43)	618
6 Toll of 50p/hr on COR but distance and time on both COR and CON are the same	135		405	(40.8)	540

* 8 respondents failed to answer question 1 for reasons unknown.

The final results Professor Flowerdew showed that the effect on users was quite different in the two studies, depending primarily on how close together the conventional motorway and the car only motorway were. In the M2/M20 case, turning the M2 into a car only motorway resulted in a high proportion of heavy vehicles re-routing not to the M20 but to the old A2 road, with a heavy penalty in terms of operating costs, congestion and higher maintenance on that road. By contrast, users benefitted greatly on the Maidstone by-pass where the old and new routes provided good substitutes for each other. The survey of driver attitudes, however, revealed strong support for the car only motorway concept. Again the very high savings on interchanges on COR's was a significant finding. It is also understood that the Directorate-General for Transport of the Commission of the European Communities is currently considering recommendations of the study for further development and application of the car only motorway concept.

The discussion was lively and re-emphasised the conclusions that were reached in the study itself. These were that much more in-depth research would be needed, especially into design standards, the spacing of roads in general and the flow/speed characteristics of the CORs. A further critical aspect of the study was highlighted in the use of 1980 data, which may have been weak. The fact that safety was not included in the analysis was also noted.

T.S.Mervyn Jones, City University Transport Studies Group

BOOK REVIEWS

GOODS VEHICLE COSTING AND PRICING

David Lowe. Kogan Page

As a cost accountant myself, any book which covers an area that has been traditionally neglected is more than welcome. The book is divided into two distinct halves - Part 1 on costing and control, Part 2 on financial control.

In part 1, the author begins by introducing the reader to the essential examples of costing, identifying and defining standing costs, overheads and running costs. This then leads into total operating costs and perhaps more important for a vehicle operations manager - important cost areas.

These important areas, identified particularly as maintenance, labour and energy are then dealt with in some very helpful additional detail.

By adopting this approach, the reader is not just instructed in cost scorekeeping, but in attention directing cost information. In the highly competitive market of the 1990s, the manager who knows what cost to look for and concentrate on, will retain an advantage over his competitors. Part 1 concludes with two very useful chapters. The first is a useful chapter on depreciation with emphasis on the context of replacement, the impact of inflation and refurbishing second hand vehicles. The second chapter emphasises strategy for survival, primarily for recession environments, but doubtless with regard to the cut throat less regulated commercial world of the 1990s.

Part 2 begins by justifying the need for financial control, moving into understanding finance. Careful explanations, couched in non-financial language are provided. This gives the operations manager a useful understanding, followed by basic guidance on financial planning. Three essential chapters on budgeting, cashflow management and capital expenditure follow. As a staunch advocator of operational participatory budgeting, I fully support the emphasis herein upon operations managers preparing budgets. However, might I suggest that budgeting is kept at as low a level in the echelon as possible! The controversial problem of budgetary slack is also dealt with, as is the educational process of what a budget is really intended for. This particularly enhances the value of the book as a useful guide for students, who have difficulty appreciating and understanding budgets.

The final chapters concentrate on haulage rates and pricing, delivery pricing, performance monitoring and setting up a costing system.

Each chapter is well structured, with the contents pages broken down into the topic sub headings. Thus any topic, be it break even analysis or vehicle depreciation can be found at a glance. Each topic is dealt with in a short, direct style, ideal for both manager and student. Each chapter has a short summary, which is perhaps too short and rather vague. A more pointed summary would be of greater benefit.

As a lecturer, I welcome this book. It will be very useful to students on the CIT Accounting & Finance course.

Reviewed by Mark Lee Inman, Senior Lecturer, Polytechnic of North London

TEG NEWS

CHANGE OF ADDRESS

Ernest Godward has recently been appointed Financial Appraisal Specialist with London Underground. His new address is: Room 511, South Wing, London Underground Ltd., 55 Broadway, London SW1H 0BD (Tel: 01-227 3757).

PROGRAMME OF MEETINGS 1988-89

LONDON PROGRAMME FOR 1988-89

Programme Organiser: Roland Niblett, Network South East, British Rail

Wednesday, 14 June 1989 (*N.B. second Wednesday in June)

MINIBUSES

Speaker from the Transport Studies Group, PCL

18.00 for 18.30

Polytechnic of Central London, 35 Marylebone Road, London NW1,

NORTHERN PROGRAMME

Meetings are to be arranged. Full details are available from Chris Nash, Institute for Transport Studies, University of Leeds, Leeds LS2 9JT (0532 431751 X5337).

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