ECONOMICS OF CHANGE IN ROAD PASSENGER TRANSPORT

A Comment

By J. G. Ody*

In his contribution to the September 1972 issue of this Journal, D. G. Rhys provides a practical insight into the private economics of the bus grant scheme (which aims to speed replacement of two-man bus fleets by one-man operated rear-engine designs). He also mentions social costs, which in his estimation may or may not be lower with the scheme than without it. His discussion raises two immediate issues.

Firstly, some brief attention should perhaps be given to other road users. Most evaluations of road transport improvements go into some detail in the measurement of effects of congestion on journey times of all road users: Mr. Rhys points out that one-man operation increases waiting time at bus stops, although the passenger "learning" process cuts this increase down to 4 or 5 per cent in the longer run. This seems to be optimistic, but surely even 4–5 per cent is measurable, when a stationary bus is reducing road capacity at that point by one lane.2

Secondly, it would be interesting if social costs could be reconsidered under the rather wider definition employed in P. K. Woolley’s examination of Concorde in the same issue.3 This would permit consideration of:

(a) the discounted cost of accelerating and compressing fleet replacement expenditures so that the normal intake between 1970 and 1976 might be trebled;

(b) the net import cost of creating sufficient scarcity of supply to encourage foreign entrants to the market, after allowing for the additional overseas sales potential of the standardised U.K. designs (possibly negative);

(c) the discounted cost of increasing investment in bus manufacturing capacity beyond the routine fleet replacement volume and the excess of opportunity cost over accounting cost of the resources so employed (when the truck lines were apparently short of capacity);

(d) the opportunity cost of maintenance (skilled) labour in contrast with that of conductor (unskilled) labour, where reductions in bus crew numbers are partly balanced by increased maintenance staff.

Perhaps the most worrying aspect of the discussion taken as a whole is that the

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2Operators in other countries have avoided the problem of fare collection delaying entry by placing the "gate" midway down the vehicle. Passengers can then pay and pass the gate at any time during their journey, since there is room to sit or stand before it.

reader is forced to the conclusion that the Ministry of Transport and the Department of the Environment were persuaded to finance a scheme to counteract the effects of design deficiencies in rear-engined bus models. There seems already to have been a commercial incentive to switch to less crew-intensive bus designs, but the chassis manufacturing industry had produced vehicles which were neutralising crew economies by significantly increased costs of maintenance and stand-by units. Public funds were used to retain the loyalty of operators to the new designs, with resulting distortion in the use of resources in the chassis industry.

What is not brought out in Mr. Rhys's discussion is what would have occurred without the intervention of the bus grant scheme. One can only speculate. Initially the operators would have been forced to decide whether or not the rear-engined designs offered net reductions in perceived costs. In either case the U.K. bus makers would have been in a vulnerable position: rejection of the rear-engine concept would have undermined their product-development programmes, while acceptance would have caused either an interruption in ordering until problems were overcome, or diversion of orders to new suppliers in U.K. or abroad.

On balance, it seems likely that decision-making by accounting costs would not have caused much distortion in the use of resources, especially if the accountants concerned were aware of D.C.F. criteria. It is hard to believe that the distortions in ordering and manufacturing investment associated with the grant scheme represented a socially more desirable allocation of resources than would otherwise have prevailed, leaving aside external social aspects like traffic congestion or road maintenance.

Finally, in present urban operating conditions (i.e. in competition with the private car) the effect of increasing unit bus capacity and simultaneously maintaining load factors should not be ignored. The implied reduction in service frequency can do disproportionate damage to the demand for public road transport, as that demand is usually more sensitive to quality of service and convenience than to price.

A Rejoinder

By D. G. Rhys

The points raised in Mr. Ody's note are interesting and well taken.

The mass introduction of road pricing and/or bus priority lanes might effectively solve the service frequency problem—always assuming that services were not disrupted by a labour shortage. It has been shown\(^1\) that a comprehensive traffic plan can reduce urban journey times by 37 per cent. Buses using special lanes were able to save up to 44 minutes on quite short sections of route, representing improvement of between 8 and 39 per cent. But in another study\(^2\) it appeared that only a widespread use of priority lanes is effective, short stretches having no impact on the

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\(^1\) Bus Demonstration Project, Summary Report No. 3, Reading, D.o.E.

\(^2\) Bus Demonstration Project, Summary Report No. 2, Tottenham, D.o.E.
reliability of the route as a whole. Unfortunately bus lanes can conflict with the needs of other road users, causing increased congestion on the s–l remaining lanes. Alternative methods of fare collection, including some form of pre-payment, might eliminate the increased waiting time at bus stops; but if there is an elderly (Eastbourne?) or itinerant (Central London?) clientele this may not prove possible.

Mr. Ody's proposed reconsideration of social costs should be pursued; the approach specified is both reasonable and feasible.

It is rather unfair to say that the Ministry of Transport and Department of the Environment were persuaded to introduce grants to counteract the effects of design deficiencies, even though this is what, in effect, the scheme did. Its main impetus was the acceptance by the Prices and Incomes Board of one-man operation as being the key to keeping fares relatively stable while paying busmen more. Nevertheless the description of grants as "loyalty money" is a good one.

Without the scheme some bus models withdrawn from the market might have remained in production, and other technical answers to the one-man bus problem might have been anticipated. Despite the strait-jacket of the grant scheme the National Bus Company's Northern Group of companies has produced its own radically different solution to the problem of how to design a reliable one-man vehicle. The Group used an existing front-engined product as the basis; the table explains why.

<table>
<thead>
<tr>
<th></th>
<th>Routemaster (Front-Engined)</th>
<th>Atlantean (Rear-Engined)</th>
<th>Fleetline (Rear-Engined)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel consumption (m.p.g.)</td>
<td>8.41</td>
<td>8.01</td>
<td>9.45</td>
</tr>
<tr>
<td>Engine mileage before overhaul</td>
<td>222,600</td>
<td>91,500</td>
<td>240,000</td>
</tr>
<tr>
<td>Gearbox mileage before overhaul</td>
<td>131,000</td>
<td>86,500</td>
<td>50,000</td>
</tr>
<tr>
<td>Costs in pence per chassis mile for maintenance</td>
<td>3.3</td>
<td>4.72</td>
<td>3.67</td>
</tr>
<tr>
<td>Cost at re-certification overhaul</td>
<td>£900</td>
<td>£1,300</td>
<td>£1,300</td>
</tr>
</tbody>
</table>

The front-engined double-decker fleet was so much more reliable and efficient than rear-engined types that as the pressure for one-man operation increased the Group decided to meet it by modifying these vehicles substantially to make them suitable. Too much interference with the free market by the imposition of officially approved design standards and constraints may have stultified similar innovation by manufacturers of new vehicles and prevented the development of what might have proved to be the "right" product in terms of operating efficiency and customer acceptance.