

THE URBAN TRANSPORT PROBLEM

1. People living in most large towns and cities are dissatisfied with transport in eight main respects:
 - (1) Accidents and danger;
 - (2) Road congestion (leading to delays and uncertainty);
 - (3) Walking difficulties;
 - (4) Environmental disruption (noise, air pollution, dirt, intrusion);
 - (5) Peak-hour overcrowding on public transport;
 - (6) Poor off-peak public transport services;
 - (7) Parking difficulties;
 - (8) Cost of transport for those with low incomes.

2. It is not sufficient, however, simply to list these sources of dissatisfaction. Many aspects of the transport system are unsatisfactory in some sense, but the individual difficulties are not unconnected and may be explained as symptoms of a more basic, underlying problem (referred to here as the urban transport problem). Were this not the case it would be difficult to explain why transport problems in most of the world's cities are so similar, and why so little progress has been made in finding a permanent solution to them.

Identification of the underlying cause of the problem is more than a purely academic exercise because we need to know how measures improve on part of the transport system will react on the other parts, and we need to know whether measures which appear expedient in the short-term will conflict with long-term objectives. Only through an understanding of the true nature of the transport problem can the efficacy of transport policies and plans be properly assessed.

3. The problem may be described as an imbalance between supply and demand. In transport it is apparent that people are often unable to get the service they require, although they believe their demands to be reasonable. They are unable to get sufficient road space to move freely, or a seat on the train, and they cannot get a pleasant environment where they live and shop. To most people these demands seem neither technologically ahead of our time nor obviously too costly to achieve. They are right in so far as there has been a failure to provide the right transport facilities; but they are wrong insofar as there has been a failure to keep the pattern and intensity of demand within reasonable limits. This is what is meant here by an imbalance between supply and demand. Such imbalance may occur in other sectors of the economy, but it is particularly marked in transport.

4. How, then, has this imbalance arisen, and what are the special characteristics that make it apparently more difficult to rectify than in other sectors of activity? To answer this it is necessary to look at the ways in which transport facilities or services are paid for, and also at the costs (both economic and social) of transport provision.
5. An important determinant of the amount of travel people undertake, and of the distribution of travel demand (in time, space and mode of travel) is the price charged for the use of the transport. It is here that the organisation of transport reveals its major imperfection, namely that public and private transport, even when offering a broadly comparable service in terms of journey time and convenience, are paid for in entirely different ways. This, it will be seen, has led to the pattern of travel demand becoming distorted to the extent that people cannot obtain the standard of service they require, whatever price they are willing to pay. Congestion, it is sometimes said, is a great leveller: a Rolls Royce suffers the same delay as a Skoda.
6. Private transport is paid for largely in lump sums. Once the purchase price of a car, road tax and insurance have been met, the motorist is virtually free to use any road at any time for any purpose, subject only to regulations and parking controls. Petrol costs are roughly related to journey distance, but usually account for less than half the total cost of running a car. As people pay virtually the same wherever and whenever they drive, they have no financial incentive to be selective in their use of the car according to the costs to others of accommodating their journeys, such as delays imposed on other road users, disruption of the peace and quiet of residential or other streets, and pollution of the air. Moreover, the indirect methods of payment for private motoring result in the costs as perceived by the motorist being well below the actual costs of the journeys undertaken. A study of 100 families in the Newcastle under Lyme area ¹ found that car owners consistently underestimated the cost of car travel, largely because they ignored vehicle depreciation costs.
7. Payment for public transport services is organised on an entirely different basis and is more closely related not only to the total cost of providing the services but also to the cost of individual journeys. This is particularly so with fares graduated according to distance or zones travelled but much less so, of course, where travelcards, season tickets or other methods of payment are used. Generally speaking, however, the public transport user is more directly aware of the cost of each individual journey than is the car user.
8. The most serious aspect of the present charging system is that it removes the main advantages which public transport is able to offer in competition with the car, namely its economy in the use of space and its smaller impact on the environment. The major casualty in these circumstances is the bus, which suffers directly from the congestion created in the main by car users who do not pay for the social cost

¹ CS Riley (1970) 'A motivational Inquiry into Car Use'. Tr. Eng. and Control 12, pp. 192-3. It was noted that a complementary survey carried out for the M.O.T. produced identical finds.

incurred by the journeys they make.

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In the long run this is a way of keeping transport costs and prices down, and of ensuring that customers get the standard of service they require. Certain policies have had the opposite effect, for example standardised fares, free parking spaces, cheap season tickets, and statutory obligations for transport operators to provide certain levels of service regardless of the financial consequence. ** ?? But far more is unrelated to time and spatial variations in the cost of accommodating it, and which also includes no charge for the accidents or environmental disruption caused.

9. It is therefore clear that the present transport pricing system is not capable of limiting travel demand where provision is costly or difficult, or of encouraging the use of these modes of transport whose unit costs are lowest, and whose environmental disadvantages are smallest. There may be several reasons for this lack of a selective charging system (including, for example, the common law which gives everybody the right to pass along the public highway), but probably most important is the practical difficulty of charging directly for the use of roads², this at least explains why no city in the world has such a system.
10. The price system does not in itself, however, add up to an explanation of the transport problem. There are certain other spheres of activity, such as the national health service, with pricing systems which do not charge directly for the services used but which suffer from problems nowhere near as serious as those found in public transport. Moreover, the demand for transport can be and has been shaped by methods other than price, and it is certainly not suggested that improvements in transport can only be made by charging users the true cost of their journeys.
11. It may be helpful here to draw a brief comparison between transport and other goods and services in order to show where the key differences lie. In most industries the supply of goods or services can be expanded meet increased demand (at a given price) until some threshold is met in the cost expansion (ie. the point at which dis-economies occur in the scale of production). Beyond that point the extra cost of supplying a greater quantity or quality) requires an increased price for the product. Prices based on the demand for the product in accordance with the costs of providing it. In this way people obtain the goods and services they require, provided they are willing to pay, and that this situation has developed in the absence of a pricing system which is related to the costs of transport provision. It is sometimes argued, however, that transport services (or at least some of them) are essential to everyone and should be treated in the same way as other goods and services; in which case transport may be better compared with, say, the health service in the sense that it should be available to everyone, the costs being borne by the community as a whole. The comparison ends, however, when three unique features of transport are considered.

² * See (1963) "Road Pricing: The Economic and Technical Possibilities." (The Smeed Report)

12. Firstly, the potential demand for transport in urban areas in terms of the number and the length of trips which people could make, and the space exceeds any thing that could be provided. Total transport demand will therefore grow unless checked by price or some other constraint (eg. congestion). The same danger does not arise to anything like the same degree with the health service; the demand for medical treatment is not greatly influenced by the organisation of the health services.
13. Secondly, most forms of travel impose some, and often very large, social costs. Journeys by road create delays for other road users, and important journeys suffer the same amount of delay as the less important ones. Moreover, journeys by road in particular create major social costs in terms of accidents and environmental disruption. The problem of social costs is not serious in the health service since the more serious illnesses can receive priority of attention, and receiving treatment places little or no burden on the lives of the majority who are fit.
14. Thirdly, the cost (both social and economic) of providing transport rises disproportionately with increases in travel demand, particularly increased demand for car use. In other words, in places of intense activity, the expansion of transport facilities and services encounter diseconomies of scale. This feature of public transport is perhaps less obvious than the others mentioned and yet is the most important of all. Economies and diseconomies of scale occur in the provision of all goods and services, of course, and their particular relevance to transport needs some further explanation.
15. With most forms of transport, economies can be made in the costs of provision up to a certain point beyond which diseconomies begin to set in. The economies of scale are fairly obvious. For example the provision of reasonably cheap and frequent bus service requires a certain level of passenger demand, the provision of a railway service requires a much higher level of demand, and a new road requires a certain level of use to be worthwhile. Up to a point these services become cheaper per passenger mile or ton carried, the larger the volume of traffic. These economies of scale are of no great importance because of the intensity of transport and other activity in large urban areas is such that opportunities no longer exist for making such economies; the expansion of transport facilities now involves substantial increases in costs per head or ton, and the costs are both financial and social.
16. Diseconomies of scale in the provision of transport facilities are due overwhelmingly to a shortage of land is fixed. Other resources required for the expansion of transport such as plant, equipment and labour are more readily available. (The recurrent staff shortage on public transport may in certain circumstances prove difficult to overcome, though again is in part due to a shortage of land for housing). Transport requires a lot more space (typically about 25-30% of urban land is taken up with roads, railways, parking space etc.) and the extension of roads and surface railways requires continuous corridors of land whereas the expansion of other activities can take place on sites not necessarily contiguous. But the amount of space required is secondary to the fact that transport competes for space with other activities which give rise to the demand for

travel. The pressure on scarce space encourages the outward spread of the city, thus increasing the length of journeys and still further increasing the demand for transport space. Thus the cost of land tends to increase sharply with increases in levels of activity, population and transport demand. The land problem can to an extent be overcome by building up (or down), but this again is costly and often impracticable for transport facilities. Planning could have reduced the diseconomies of growth by reserving space this way and even if they had, it is unlikely that the present widespread demand for car use could have been foreseen. Moreover, there would eventually come a point where the space required for the activities which it serves.

17. The high price of land where competition for space is intense (and the resulting diseconomies of scale in the provision of transport facilities) does not in itself explain why the supply of transport falls short of demands made upon them. The problem lies in the way society has reacted to them. In conventional industries diseconomies of scale leads to rising prices at the margin which checks demand and encourages the use of alternative products or the development of new technology. This process has not been followed in transport. Were the high costs of expansion reflected in the prices charged for the services this would keep the demand for expansion down to the level for which customers are willing to pay.
18. The principal conclusions of this paper are firstly that in many ways (but notably the eight summarised at the beginning) urban transport fails to meet the demands made upon it; and secondly that the root cause of this problem is that failure over a long period of time to shape the city, and the demand for travel in a way which takes full account of the true costs involved in the expansion of transport facilities, both financial costs and social (or "external") costs.
19. We may draw a further conclusion about the two basic approaches to the problem, one of which is attempting to provide more transport capacity and higher quality services, and the other of which is limiting the pattern and intensity of demand to more closely accord with that which can be accommodated. It should now be clear that providing more capacity whenever congestion occurs is costly in both financial and environmental terms and will (in the absence of measures to regulate demand to take account of the costs of provision) reproduce the same problem on a larger scale. This applies most of all to the expansion of the road system to accommodate the growing demand for car use. The approach must therefore be to first limit demand where the costs of provision are highest, and to provide extra capacity where it can be seen that demand in the long run will be sufficiently strong to justify costs in the widest sense. If this approach is not followed there is a very serious danger that measures will be at best ineffective and at worst counterproductive.