RAIL PASSENGER SUBSIDIES AND
BENEFIT-COST CONSIDERATIONS

By William D. Shipman

In several western countries today there appears to be a strong and perhaps increasing commitment to rail passenger subsidies. While the commitment is most evident in western Europe, where public ownership of rail systems is pretty much taken for granted, it is also gaining adherents in the United States, where railways are for the most part in private, though regulated, hands. This growing sentiment in favour of subsidies has accompanied the tendency for rail use to decline and for losses on passenger service to increase in the face of improved and readily accessible substitutes, particularly automobiles and aircraft. Table 1 shows the trends in commuter and intercity rail passenger traffic in three western countries.

As the volume of rail passenger transport has diminished, it has been increasingly difficult for railways to make their passenger services “pay” in the sense of covering either accounting costs or the long-run marginal costs of operation. For it is well known that railways built to 20th century standards can provide a financially viable method of transport only if they achieve reasonably high traffic densities and thus high utilisation of plant. It is inevitable, therefore, that continual downward shifts in demand, particularly where they are spread across entire rail networks, will eventually result in financial losses to the railways and will compel subsidies, either from public sources or from freight traffic, if the services are to be maintained.

Support for rail passenger subsidies in the United States has in the past been most evident in urban areas, but there are signs that the sentiment is spreading to intercity passenger service as well. In a number of states there are presently moves afoot to direct gasoline tax revenues to the support of public transport. Mr. John Volpe, the Secretary of Transportation, has recently said that we should not expect urban transit systems to be able to pay their way.

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1 I construe the relevant economic cost here as “long-run marginal” on the assumption that, except where services and facilities are expected to be discontinued, the carrier must include in its measure of avoidable costs the costs of maintenance and renewal (including interest), as well as operation. The extent to which track costs are to be considered will depend on evidence on their avoidability in particular cases and for particular services. This interpretation of cost helps to define the term “subsidy” as it is used in the present paper.


3 The Wall Street Journal, 21 May 1969, p. 1. Mr. Volpe likens urban transit systems to the army, “which nobody expects to pay its own way.”
early in 1969 sought an amendment to the Interstate Commerce Act, and a bill was introduced in the Senate (S. 2750), which would grant the railroads subsidies to cover the difference between the cost of running particular intercity passenger trains required by the ICC and the passenger revenues actually generated by those trains. In June 1969, 28 senators proposed that the Department of Transportation should undertake "an analysis of the feasibility of developing, promoting and operating long-distance rail passenger transportation through the establishment of regional or interstate rail transportation commissions; a government-industry public corporation; or through direct assistance to railroad operators." And President Nixon has now (1970) proposed a semi-public corporation to take over and modernise much of the intercity rail passenger system. Underlying these moves is the belief, apparently widely held, that ordinary market tests of profitability should not be allowed to determine the future of either urban or intercity rail passenger service. To this belief is added evidence that passengers using transport modes other than rail are presently the beneficiaries of subsidies; hence, the "competition" is played out in uneven terms if rail passengers are not subsidised to an equivalent degree.

These considerations are powerfully reinforced in the public mind by at least two practical problems. One is the increasing congestion which characterises both urban roads and airlines in advanced countries and the extraordinary costs involved in overcoming it by adding new road or air capacity. If road congestion and construction impose very high costs, as they seem to do, may it not be more economic to subsidise railways in order to avoid those costs, or at least to prevent still greater congestion? The other problem is that, without some form of public subsidy, virtually all intercity rail passenger transport may disappear, at least in the United States, and perhaps rather sooner than was expected only a few years ago.

There also appears to be support for rail subsidies among many students of transport, as evidenced by the growing reliance on benefit-cost considerations in matters of rail and road investment, withdrawal of rail services, increases in fares, etc. Those economists who deal with the subject usually proceed from the arguments of increasing returns to scale and/or the predominance of external effects (externalities), while other social scientists emphasise the social and integrative advantages of subsidised transport, particularly for special subgroups of the popula-

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tion. For many students transport in general, and urban transport in particular, seem to provide classic examples of "market failure" in the sense of there being important externalities left out of account in the private decisions of carriers and users. Since external benefits are more obvious in the case of urban transport than in most other activities, it is not surprising that these students have come to support subsidies as a way of maintaining the services.

The present paper argues essentially the opposite case. I have become convinced that, with two exceptions to be noted later, rail passenger subsidies are not justified either in the United States or in any other industrialised country. Nor are they justified in urban any more than in intercity transport. The position argued here is not based on any alleged ambiguities inherent in welfare economics, although there are a number of considerations in that realm that leave one sceptical of the wisdom of taking firm positions in favour of extra-market solutions.8

My position is simply that the benefit-cost analyses typically used to identify externalities and to justify subsidies (in the sense of prices below long-run marginal cost) are inadequate to the task. Increasingly, I find that such identification rests on value judgments, the introduction of which into an analytical procedure is, or should be, unacceptable to anyone claiming scientific impartiality. Also, the problems of measurement are so extraordinarily difficult, especially in the case of urban externalities, that we seem to settle for incomplete analyses leading to conclusions which are inevitably, but not always explicitly, tempered by the fact that we weigh those externalities that can be measured, but neglect other equally important effects.

All this leads me to question whether, by departing from a strict requirement that fares cover costs, we gain anything at all. Indeed, I suspect we may have lost a good deal by going along with the now popular departure from market criteria, and that some of our most pressing problems today, particularly in urban areas, are partly the result of letting essentially non-market (i.e. political) influences decide the transport subsidy question. At the risk of sounding like an indistinct and otherwise inadequate echo of Adam Smith, I believe a standard of pricing aimed at covering all relevant costs is preferable to any other unless or until we understand better the implications of departing from that standard. What follows is an attempt to explain this position.

METHODS OF ALLEVIATING CONGESTION

At given prices, rising demand in the face of relatively inelastic capacity always produces "congestion" in markets for goods and services. Particularly in the case of services which, by nature, are not storable, congestion implies higher time costs resulting from waiting or queuing, higher psychic costs in the form of discomfort

8In particular, I am not concerned here with the "second best" qualifications to marginal-cost pricing, or with the difficulties of achieving methods of public (nonuser) financing that are neutral in terms of Paretian optimality conditions.
and frustration, and higher environmental costs in the form, for example, of air pollution, as well as higher material costs (fuel, wear and tear) stemming from delays. In competitive markets, increasing demand makes for upward pressure on prices, which, as it becomes effective, helps to ration the scarce commodity or service. But another important function of the price increase is to stimulate a response through the profit mechanism which helps to expand capacity. If prices cannot be increased, for any reason, congestion itself then helps to perform the rationing function. But it clearly does so in an inefficient manner. For congestion raises the real cost of the service even in the face of deteriorating quality, and, what is more important, may do so without stimulating the desired response (greater capacity and output) on the part of producers. This type of congestion is characteristic today of urban roads throughout most of the western world, and also of rural roads in particular areas of Western Europe (e.g. southern and central England) where, for a variety of reasons, expansion of truck and automobile use has proceeded at a more rapid rate than road capacity. It also is increasingly characteristic of airlines in and near the major metropolitan centres of both the United States and Western Europe.

In face of the problem of increasing congestion, the alternatives open to the public are approximately as follows:

1. raise road and air "prices" of the existing sort – passenger fares, fuel and other excise taxes – in order to restrain demand and thus make the use of alternatives (e.g. rail) more attractive;
2. raise road and air prices at the margin – that is, resort to marginal congestion pricing so that higher prices are charged specifically to those who occasion the congestion;
3. lower the prices of alternative services, or at least prevent them from rising in an inflationary environment;
4. prohibit or restrain by non-price methods the use of automobiles and private aircraft;
5. attempt to expand road and air capacity so that congestion costs are reduced;
6. some combination of the above.

While I am primarily concerned here with alternative (3), it will be useful to proceed with an awareness of the entire set of possible remedies.

It is important to realise that in a free competitive market we should in fact see some combination of these alternatives, particularly (2) and (5). That is, capacity would be expanded as a result of profits (rents) accruing to producers who are able to realise "congestion" prices at the margin, particularly during peak periods.

But in markets where competition is imperfect and where indivisibilities exist, the more likely type of price movement is that suggested by alternative (1). While the problem of congestion is recognised, in other words, the response under a regime of administered prices may well be to increase the average level of prices as a means of increasing profits and/or raising revenues with which to expand capacity. This type of reaction is clearly better than no reaction at all. However, it has the grave disadvantage of failing to let prices at the margin perform their rationing function where that function is most needed. For example, raising fuel taxes is an extra-
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ordinarily clumsy method of countering road congestion. Assuming there is some elasticity of demand for road use, higher fuel prices may simply result in under-utilised road capacity on the average without significantly alleviating congestion at the critical points.

These considerations suggest the desirability of using alternative (2) wherever possible. In the case of roads, some method of charging at the margin would have to be developed so as to reflect congestion costs occasioned by urban peak-hour users, and perhaps by others on certain congested intercity trunk roads. A number of systems have been suggested for this purpose. If the engineering feasibility of road congestion pricing is no longer in doubt, however, there does remain considerable doubt of its economic feasibility. All the suggested systems involve substantial costs of development and installation, and it is not clear at this point whether the margin of benefits over costs is greater for congestion pricing than for some simpler engineering devices which could control access to urban highways. Also, the political feasibility of road pricing remains to be demonstrated. While road pricing recognises a universal function of the price system in rationing a scarce good, it does so by denying the use of the road to those who cannot afford to pay.

Alternative (4), which would limit congestion by restraining or prohibiting the use of private automobiles and aircraft by non-price methods, would seem to face many of the same political obstacles as alternative (2). Thus, while alternative (4) is a "political" solution, since it attempts to achieve an essentially economic result outside the price system, it may be quite impolitic to implement it. Presumably one could evaluate the incidence and severity of congestion in particular areas and simply issue rulings against the use of private conveyances which contribute to that congestion. This type of solution receives a good deal of support in lay discussion. But, apart from parking restrictions, I know of few instances where it has been attempted. The reason no doubt lies in the particular types of pressure that can be brought to bear on those who would restrict the use of private automobiles and private aircraft (e.g., the automobile and aircraft manufacturers, the petroleum industry, associations of drivers and pilots, even the commuters themselves); these pressures seem to be irresistible in the political sphere. Even proscriptions of downtown parking may run into considerable political opposition. Any drastic or forcible restriction of downtown vehicle movement or parking may be self-defeating from the standpoint of many downtown business interests. Those interests believe, perhaps with good reason, that congestion is preferable to restriction. Of course, they especially prefer public subsidies for parking and traffic movement.


10Congestion pricing of air travel, on the other hand, should be relatively easy to apply, at least technically because the congestion is concentrated at a limited number of access points, and the problem of identification is minor. For recent discussion of congestion costs at airports, see J. V. Yance, "Movement Time as a Cost in Airport Operations," Journal of Transport Economics and Policy, January 1969, pp. 28-36; and A. Carlin and R. E. Park, "Marginal Cost Pricing of Airport Runway Capacity," American Economic Review, June 1970, pp. 310-319.
The argument for subsidising rail users, implied by alternative (3), is clearly far from a market-type solution to the problem of congestion. Moreover, whether or not it is a solution at all will depend on the particular circumstances and, as will be argued later, on one’s interpretation of the problem. For example, any further shift of urban rail commuters to private automobiles will certainly intensify congestion, at least temporarily, unless the shift is offset by an adequate rise in the number of occupants per car and/or in road and parking capacity. If the direct and indirect costs of expanding road capacity are very high, therefore, there would seem to be a strong case for influencing modal choice through subsidies. On the other hand, a shift of intercity rail passengers to automobiles or air transport could be expected to have seriously adverse effects on urban congestion only where intercity journeys originate and terminate during peak hours and are not already accompanied by automobile use at one or both ends. I return to this question below, in the context of specific subsidies for intercity rail transport.

The need to alleviate congestion is not the only reason advanced for rail passenger subsidies. It may be public policy to provide children and elderly or infirm persons with transport at less than cost, simply as a matter of societal protection. Or there may be a conscious effort to redistribute income through the pricing of transport services rather than, or in addition to, the tax mechanism. And there may be special programmes to subsidise ghetto dwellers in getting to and from jobs. But these appear to constitute special cases which depend on the characteristics of particular consumers rather than on the service itself. On the other hand, transport subsidies have played a worthwhile and historic role in promoting development both here and abroad. That is, development benefits external to the transport enterprise itself have been construed as justifying subsidies to users of transport. Such, indeed, is the history of American railroads. There is no dearth of precedents for a current policy of rail subsidisation.

But development is, with one exception to be noted later, no longer the issue in rail transport, and nothing is gained, so far as I can see, by applying a nineteenth century rationale to a twentieth century problem. The overriding problem today is congestion and, indirectly, the costs of relieving congestion by new road and airport construction. Thus, we are brought back to the question whether, or under what circumstances, rail passenger subsidies can help solve that problem.

FINANCIAL OR BENEFIT-COST CRITERIA

As already suggested, the “losses” for which subsidies are required may be viewed in the usual, narrow sense of their bearing on financial viability, or in terms of real economies in the use of resources, or in the broader context of benefit-cost analysis. Viewed in the light of financial criteria, the problem is simply that users fail to pay the relevant fixed and variable costs of the service itself, thus generating deficits, whereas congestion in a free market would generate surpluses which would induce the expansion of capacity in the direction of new demand. If financial losses in the intercity railways, for example, are primarily a reflection of shifts in demand (and it is difficult to find an alternative explanation), there is a pretty obvious case, in
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terms of financial viability, for contracting the service to the point where revenues can not only cover the relevant avoidable costs of that service but also make some indeterminate contribution to common costs. Failure to do this promptly, moreover, may increase the railways' predicament over time. For, once concessions are granted, rail users may develop ways and means of indefinitely perpetuating those concessions, while those who are willing to pay the high demand prices in congested markets (e.g., roads) are frustrated from making their demands felt.11

Somewhere between the strictly financial view of losses and a general benefit-cost framework lies the interpretation which modifies the conventional meaning of the word "loss" to take account of increasing returns to scale. As already noted, many transport enterprises are characterised by increasing returns or decreasing costs, which simply means that increments in output, even where they involve new capital expenditures, can be achieved at less than the average cost of output as a whole. This is largely attributable, in the case of the railways, to the relative "fixity" and non-depreciable character of the track system (e.g., earthworks and tunnels). With marginal cost thus lying below average cost, setting prices equal to marginal cost (as would be dictated by strict adherence to efficiency rules) implies financial losses. But whether it implies losses in a true economic sense will depend on whether there are alternative uses for the fixed road bed which are precluded by its use for rail traffic. The advocacy of marginal cost pricing in this, as in most other cases, follows from a decision to favour a rule for allocative efficiency over a rule for financial self-sufficiency. The result is a transfer from non-users of the service to users, since the users do not pay the full cost of the resources committed to their use. Whether or not the transfer is warranted, and whether price discrimination is an acceptable method of reconciling the two criteria, are problems which have generated an enormous literature and into which I shall not enter. As indicated earlier, I proceed, instead, on the more evident assumption that users, in order to avoid subsidy, are expected to pay the costs of renewing as well as maintaining all the facilities necessary to support their use.12

Substituting benefit-cost for financial criteria essentially widens the context in which decisions are taken. It does so primarily by allowing "externalities" (benefits and costs external to the user and provider of transport) to be added to passenger revenues and to the costs incurred by the transport enterprise in providing passenger service. But it should not be concluded that the existence of externalities necessarily, or even usually, brings about a decision different from that prevailing under purely financial or market criteria. The outcome will depend on our ability to identify and measure properly these external benefits and costs. Only where the difference between (1) passenger revenue plus non-user benefits and (2) enterprise costs plus indirect costs is greater than the difference resulting from some alternative arrange-

11The predicament is particularly evident in Great Britain, where road and automobile taxes have risen at a rate roughly comparable to the increase in the railway deficit. But efforts to cut back the size of the rail network to the point where it might be self-sustaining (in the sense of covering even long-run marginal costs) have met with bitter political opposition.

12It will be seen that the discussion here represents an effort on my part (a desperate effort, some will say) to avoid a tedious digression on short-run vs. long-run and divisible vs. indivisible costs.
ment or investment, and where internal costs exceed revenues, is there a clear case for rail passenger subsidies.  

In order to study the circumstances under which benefit-cost differentials may justify subsidies, it will be useful initially to identify four different types of rail passenger services: (1) urban transit, (2) suburban commuter, (3) intercity corridor, and (4) other intercity. The first two types have certain attributes in common which warrant their discussion together. While the four types have been arranged roughly according to population density and existing congestion, the order also probably follows the expectation of public subsidy in the minds of the public and policy makers in the U.S., judging by existing subsidy arrangements. There is no systematic collection of financial data embracing all types; but it appears that all enjoy some degree of subsidy at the present time. Types (1) and (2) generally benefit from tax exemptions and/or capital contributions by city, state, and Federal governments, while types (3) and (4) are, except in a few instances, subsidised by other forms of rail traffic.

Conceptually, the first task should be to identify the indirect costs and benefits associated with each type of rail passenger service. Measurement should then follow identification, and the summation of measurements, together with direct costs and revenue data, should yield solutions to the problem of whether or to what extent subsidies are warranted.

**URBAN AND SUBURBAN RAIL TRANSPORT**

Taking urban mass transit as a first example, we can proceed to draw up a table or matrix in which indirect costs and benefits are listed according to type of transport service and according to their degree of “indirectness”. Under this scheme we would include as indirect benefits of subsidising (i.e. of increasing the use of) urban

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13Benefits to users above and beyond the fare paid are disregarded here, on the assumption that a transport enterprise acting on financial criteria will already have attempted to maximise revenues relative to costs (which nowadays usually means minimising losses) and, in the process, will have differentiated prices where feasible and consistent with overall objectives. The concept of consumer surplus suggests that all goods and services yield some aggregate of benefits to users in excess of the prices paid. If “total” benefits, thus defined, were taken into account, however, comparisons among different modes of transport, or between transport and other types of economic activity, would be distorted by the fact that the market typically does not recognise user benefits in excess of the prices paid and that resources in our society are thus generally allocated without regard to hypothetical choices. We also disregard, on similar grounds, “option demand”, which would add further non-user benefits by asking people what they would be willing to pay rather than see a service they do not presently use go out of existence. To recognise such hypothetical “demand” in the case of one good or service and not in the case of its competitors is clearly to tip the balance in favour of the former.


rail transit such things as the time savings from less street congestion and savings in the form of avoidable expenditures on downtown parking. Indirect costs, on the other hand, might include discomfort occasioned by the increment in subsidized transit riders, and losses to them and their employers contingent upon strikes or mechanical failure that would not have occurred in alternative modes of travel. The lists will be long, and somewhat controversial because of the pitfalls of double counting, but in principle the identification can be accomplished.

But almost immediately we are brought up against three major problems. One – the least difficult – is the problem of determining the extent of diversion from one mode to another. This involves estimating cross-elasticities of demand; but this is far from easy, judging by the wide range of evidence accumulating in traffic surveys and demonstration projects. While some surveys suggest that zero or even negative fares might be necessary to attract the public back to public transit, others support the notion that automobile, bus and rail transport are close substitutes for one another. Thus it is difficult to calculate either benefits or costs until we know rather precisely what will happen to travel behaviour as a result of a given subsidy or increase in subsidy.

A second, more serious, problem involves benefits and costs that are either difficult to measure or intrinsically unmeasurable. One can identify and attempt to measure the “costs” of congestion in terms of fuel consumption and wear and tear on automobiles. But that is (or should be) only the beginning. The more important effects of either road congestion or transit use are likely to be in matters of health (air pollution, nervous strain), aesthetics, and changing land-use patterns, most of which imply urban decay and suburban or exurban expansion. Here again the diversion question is relevant, for it will be difficult, if not impossible, to say how much urban decay could be avoided through a given subsidy. Moreover, despite some heroic efforts, the business of attaching numerical values to aesthetic considerations, to decay, and even to shifts in land use raises a set of problems of a quite different order from those we are used to solving. How, for example, does one evaluate the discomfort and “neighbourhood effects” associated with crowded subways and buses, or the identification effects of driving an automobile?

If some of these externalities are essentially unmeasurable, it is not clear that


17See, for example, L. Moses, “Economics of Consumer Choice in Urban Transportation,” in _The Dynamics of Urban Transportation_ (Detroit, 1962), and L. Moses and H. Williamson, “Value of Time, Choice of Mode, and the Subsidy Issue in Urban Transportation”, _Journal of Political Economy_, June 1963, pp. 261–264. Philadelphia experience is reported in E. A. Harvey, “Impact of Fare Change on Railroad Commuter Ridership”, _Highway Research Record_, No. 213 (Washington, 1968), pp. 35–41; a study of New York transit fares by W. Lassow is reported in the same issue; Boston experience is summarised in _Mass Transportation in Massachusetts_, Final Report on a Mass Transportation Demonstration Project (Boston, 1964). Cf. also, J. Meyer et al., _op. cit._, p. 336. It appears from some of these studies that quality and quantity of service are of prime importance in determining modal choice. Hence, diversion may be accomplished best by applying the subsidy to increasing the level of service rather than to reductions in fares.
much good is accomplished by making – as we do – refined calculations based on
time savings, even assuming we can agree on the value of time to users. For many
years our highway planners have been evaluating road investments on criteria
which emphasise time and fuel savings, yet give little or no effect to environmental
considerations. It is not difficult to see why. But these unmeasurable factors loom
especially large in urban transport, and their presence may well make benefit-cost
calculations of particular passenger subsidies unreliable, if not impossible.18 I will
admit that the discipline of economics has suffered at times from unduly negative
views of what can and cannot be measured. But it requires a rather more positive
attitude than I can muster to believe that some of these elements are about to be
translated into quantifiable terms.

A third – and much the most difficult – problem lies in the nature of the value
judgment defining what constitutes a benefit or a cost. Savings in time or in physical
resources, and increases in output or leisure, can be construed as unambiguous
benefits so long as we think in terms of scarcity values and of GNP as the prime
indicator of welfare. But that is purely a convention. While most of us acknowledge
such values, our actions – particularly with respect to automobile use and place of
residence – suggest that time savings, for example, may be quite overshadowed by
other considerations.

When we consider the spatial patterns in which we live and work, benefits are
not at all clearly defined, nor is it always possible to distinguish between a benefit and
a cost. Much of the discussion about, and most of the benefits attributable to,
subsidising urban mass transit rest on a judgment as to the importance of maintaining
the central business district. Decentralisation of economic activity within a given
city, even where it results from the free choice of individuals and firms, is considered
“bad” to the extent that it results in a decaying centre, giving rise to new social and
political problems. Hence, preservation of the centre is construed as a major benefit.
But how do we know it is a benefit? Understandably, the political response of the
city itself is to try to preserve its shape and vitality, particularly where political
boundaries are drawn so as to create competition between the central business
district and its periphery. But this says nothing about ultimate or aggregate benefits,
which may be very large in the case of general decentralisation of work places and
residences. It is apparent, therefore, that arguments for the preservation of central
business districts ultimately rest on a value judgment. We will return to this partic-
ular value judgment in a moment.

These considerations do not dismiss the importance of transit subsidies to particular
“disadvantaged” subgroups of the urban population. Some people, because of age
or colour or disability, do require special help; until or unless our redistributive
mechanism is vastly improved, it may well be that subsidising their transport is in
the public interest. It is not clear, on the other hand, that urban rail transit is the
proper vehicle for subsidy. One can think of more appropriate and more selective

of Public Expenditures: The PEB System*, A Compendium of Papers submitted to the Sub-committee
on Economy in Government of the Joint Economic Committee, Congress of the United States,
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methods of handling this problem (in the case of disability, taxi coupons might be preferable to either bus or rail transit). Moreover, it frequently appears that the politician’s arguments for transit subsidy, while ostensibly based on the needs of specific disadvantaged groups, are in reality calculated to gather in the widest possible support. Thus, general subsidies may be the inevitable outcome of the political process, once specific subsidies are sanctioned.

One way to approach the problem of appraising urban transit subsidies is to ask what would happen if the subsidy were withdrawn from all users except those who qualified on specific welfare grounds (e.g. the aged). For example, what would happen if the New York subway system were directed to cover all its costs through user charges? At the present time, users do not pay much more than half of total costs, including interest and depreciation on capital investment. The immediate effect of such a move would be a drastic rise in fares, accompanied by prayers that users would not forsake the system entirely. Without any question there would be sharp rises in all forms of surface transport (including city buses, even if a parallel policy were pursued there), and the congestion effects might well be appalling. In view of this probability it is small wonder that urban authorities subscribe to the present subsidy policy.

But the sharp increase in traffic and congestion would be strictly a short-term reaction to the hypothetical directive that fares cover all costs. For the rise in road and congestion costs would, of course, stimulate a further response; ways would be sought by commuters, their employers, and occasional users to escape the higher costs, or the congestion, or both. It is difficult to imagine how that escape could avoid taking the form of drastic further decentralisation of business firms. And, while that move might have fatal implications for downtown New York’s economic position, who is to say that the metropolitan area public (or the gross national product) would be net losers? Indeed, against the urban dislocation and empty buildings in the city itself must be set the probability that workers and jobs would end up closer to one another, and quite possibly in surroundings that were conducive to a better quality of living and working.

If benefit-cost criteria lead to inconclusive results in urban transit, where externalities apparently are most prevalent, where do they lead when applied to commuter rail service? Some cities in this country and in Europe, with varying degrees of help from their suburbs, have already moved to institute tax and other subsidies to prevent the total loss of rail commuter services. In some cases, for example Boston, this clearly involves a redistribution of income from poor to rich, since the incomes of users are relatively high and the subsidy is financed in part through regressive taxes at the state level. Results to date suggest that, in the United States, the moves have been successful in at least temporarily arresting the decline in commuter use of

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19According to recent statements, estimated Transit Authority revenues for the fiscal year beginning 1 July 1969 will not even cover wage and pension costs. See The New York Times, 1 August 1969, p. 67. Cf. also New York City Transit Authority Annual Report, 1967-1968, p. 9. The Authority leases its physical plant from the City of New York at zero cost, and hence reports no capital expenses whatever.
railroads. Table 2 shows that passengers and passenger-miles in commuter service on Class I railroads in the United States declined sharply between 1957 and 1960, an extension of the longer-term downward trend, but that the 1960's have witnessed relative stability with no clear trend one way or the other. Passenger fares and revenue have, however, increased nearly 20 per cent since 1960, as the railroads have attempted to offset rising costs. And it should be noted that the railroad share of total commuter travel has continued to decline throughout the 1960's.

On the face of it, it might seem self-evident that benefit-cost considerations justify public subsidies to commuter rail service. Otherwise, why would public bodies (legislatures, city councils, etc.) which have already studied the matter have gone along with tax exemption and public contributions in aid of capital equipment? Self-evident or not, it may be worth while to inquire into the benefits associated with commuter rail service, especially if more and more of our metropolitan areas are embracing the "market failure" argument and, hence, the subsidy concept.

At the outset, it is clear that commuter service shares many of its benefits and costs with urban mass transit. That is, commuter choice of rail over automobile (or perhaps bus) implies lower road and downtown parking requirements, less air pollution, and probably enhanced safety, health, and aesthetics. Most commuters, as well as city planners, would no doubt place a high value on such benefits, at least in the abstract. But they apparently will not choose rail transport if it means paying the full costs occasioned by their use, and they may not choose it under any circumstances. Why? I believe there are at least three reasons for the observed preference for automobile over rail.

First, rail commuting often implies lower benefits to the commuter in terms of comfort, convenience and personal freedom. Many people apparently enjoy driving to work – no matter what they say about traffic congestion – and a new generation of commuters may well prefer listening to a radio or taped music programme to reading the daily paper. Commuters travelling in car pools can achieve a very low cost of transport to themselves, but it is highly significant that so few of them do take advantage of such arrangements. Personal (driver) freedom must clearly convey intangible benefits that have escaped economic analysis and therefore too frequently have been left out of consideration. Moreover, as in the case of purely urban transit, the choice of rail leaves the commuter (and his employer) somewhat more vulnerable to the type of disruption common to organised carriers everywhere. Strikes, slowdowns, mechanical failure – all work against this choice. When the 7:07 from Long Island arrives in Manhattan on time, there is just cause for celebration. Until or unless traffic jams exert comparable pressures on automobile commuters, it is likely that they will remain in their automobiles and that the road share of total commuting will increase.

A second reason for the decision not to use the railroads is that urban commuters by automobile may already enjoy a substantial subsidy. While students of the subject are generally agreed that urban highway users as a group are not subsidised by other highway users, there is considerable evidence that urban peak-hour drivers do

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20Some insights into the psychology of choice are provided in W. Y. Oi and P. W. Shuldiver, *An Analysis of Urban Travel Demands* (Evanston, 1962), Chs. 5 and 6.
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not pay their way.\textsuperscript{21} This is because the tax revenues generated by urban peak-hour travel do not cover those capacity costs of the urban arterials properly attributable to their use. (This says nothing of congestion costs, moreover, or of the advantage of travelling on tax-free roads.) That this subsidy can be a compelling explanation for the choice of automobile over rail in the United States is unlikely, in my opinion, given what we know about demand elasticities for automobile use and the traditional cross-subsidisation of rail commuters by freight traffic; but undoubtedly it does have some effect.\textsuperscript{22}

A third reason for the commuter's choice of the automobile, in the face of his probable agreement with the aesthetic, health, and safety goals of limiting automobile use, is his belief that his own actions will not make any difference to the achievement of those goals. If he assumes that others will continue to drive, then not much is accomplished by giving up his car. Since the desired goal (benefit) cannot be achieved by his individual action, he therefore is in effect leaving it to a public agency to make the decision. Hence, in the commuter transport choice, we see combined both individual self-interest in search of comfort, convenience and (possibly) low cost, and also a failure of the market to achieve what may be generally regarded as a worthwhile end.

Of the three reasons given for the choice of automobile over rail, it makes considerable difference whether the first outweighs in importance the other two. For, to the extent that the first is predominant, it seems likely that existing benefit-cost analyses supporting subsidies for public transit may have neglected, for reasons of non-measurability, the principal benefits of private transport, while nevertheless emphasising its costs. It may be true, on the other hand, that the subsidy and "public-private" factors, under certain circumstances and in particular areas, are sufficient to explain the choice of mode. The point is, we don't really know. And, while I do not wish to appear negative on the possibilities for investigation into driver behaviour, I'm not at all certain we're about to disentangle these motives.

The reaction of city planners and of some architects and economists to this situation is to urge controls and manipulation of commuter choice of travel mode. The generalised benefits attaching to health and safety, and particularly to aesthetics and social amenity, are seen as taking precedence over the other benefits, equally difficult to measure, apparently sought by individuals acting independently. Moreover, certain types of costs -- particularly capital expenditure by the cities themselves for roads and parking -- are seen as being minimised by keeping commuters on the railroads. Finally, it is felt that deterioration of the city must be prevented in order that it may not become even less attractive to those residents and employers still capable of exercising a choice of location. And, since political considerations usually


\textsuperscript{22}The extent of the subsidy to drivers is large or small, depending mainly on whether congestion costs are included. Unfortunately, congestion effects arising from crowded public transit facilities do not usually take the form of time or fuel costs and are therefore neglected by all the better analysts. But they apparently are not neglected by the commuters.
rule out prohibition of automobiles, the easiest way out appears to be to increase subsidies to rail users.

The argument is a strong one, given the previously mentioned unknowns and the context in which the alternatives are usually presented. But that context is, again, essentially short-run. As in the case of urban transit, it takes as given the existence of cities in their present form and, in effect, proceeds to evaluate methods aimed at preserving that form. The context is strongly reinforced, moreover, by certain traditional conceptions held by the architects and planners. These conceptions see the cities being rebuilt (restored) to achieve beauty amidst ever-rising numbers of people, and utilising multi-level shops, malls, and transport arterials with little or no consideration of cost.

The political context is even more important. When a municipal or state government undertakes to subsidise rail commuters, the main political force behind its action almost invariably stems from a fear of what may happen to the city, including its political structure and power, if the service disappears. This is not simply a distaste for congestion and for new road building, or a desire for beautiful cities; it is a fear, felt especially by the city government itself, for its own survival in the competition with other, newer cities or outlying areas, and for its deteriorating tax base in the face of heavy fixed (if not rising) expenses. That deterioration may be cumulative, for the exodus of one industry places a greater burden on those remaining, thus promoting further exodus. For example, if New York City loses the New York Stock Exchange with the associated securities business to New Jersey, the loss may trigger a still greater movement out of the city and thus, from the city's point of view, prove fatal.

Apparently, then, it is only through massive subsidies — mainly though not exclusively in transport — that our major cities are held together in their present form. If one accepts that form as necessary or desirable, on whatever grounds, then the case for transit and suburban rail subsidies is very strong, and benefit-cost calculations will necessarily concentrate on short-term savings implicit within the existing urban framework. But, once the framework itself is questioned, and the benefits and costs of decentralisation are explored with at least some reference to the qualitative aspects of everyday life, I do not see how any of our present benefit-cost analyses can be used to justify rail subsidies.

For example, how do we know that preservation of metropolitan areas in their present form conveys net benefits to society? Are we certain that some alternative arrangement — say, more numerous small cities or smaller commercial and financial centres in the outlying sections of major metropolitan areas — would not be more beneficial, and acceptable, to the public at large? If the economic forces making for metropolitan decentralisation are as pervasive as Meyer and others argue, then apparently the older economic justification for cities, which may be roughly referred to as the economies of association or agglomeration, is no longer a compelling argument for their preservation. Improvements in transport, communication and marketing have made the relevant associative economies available to most business firms without the need to be close to the older downtown sections. Even the publishing, advertising and television industries may, upon examination, find it to their

\[23\text{See J. Meyer et al., op. cit., chs. 2 and 3.}\]
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advantage to give up their communal lunches and move out of their high-cost central locations. And, while one hears a good deal about the social and cultural role of the city centre, it remains to be shown that that role cannot be played successfully by dispersed, smaller centres within our present metropolitan areas.

The only way I can see of appraising the value judgment in favour of preserving cities is to examine the behaviour of people and enterprises acting under their own power in a relatively free environment. In the present case, most Americans (and increasingly most Europeans) live in metropolitan areas but not in the central cities themselves. Those who can afford to do so live farther out still, except for a fringe of the elite who remain in cloistered, expensive surroundings within the city (and who often have second homes elsewhere). Increasingly, the city’s resident population is made up of older couples, young people without children who choose the city for a temporary period, and ghetto dwellers. The forces drawing people from the city to the suburbs (and farther) are apparently at least as strong as the more traditional forces drawing them to urban areas and away from rural. Both processes of residential migration have been going on throughout the twentieth century. But, particularly in the latter half of the century, we are witnessing a rapid movement of production itself out of the centre to the periphery. This is not the place to discuss the reasons for the movement. It is clearly a fact of life, and apparently proceeds from the largely free decisions of firms and households acting in an environment of increasing costs, population, and congestion; rising real incomes; and a technology dominated by electricity and the internal combustion engine.

This long-term movement of people out of the cities is, in reality, a manifestation of our continuing (not only recent) concern for the quality of our environment. Americans, who have been especially careless about permitting their cities and their industries to misuse air, water, and space, ironically have used the rising incomes flowing from industrialisation and urbanisation to purchase some measure of relief from the ill effects of that same environmental misuse. They—most of them—leave the cities whenever they can. If we were to ask (1) the remaining city dwellers why they are there, and (2) the suburbanites who still commute to the centre whether they would prefer to have their jobs nearer their homes, the answers would surely be ominous for the future of cities. Even now, the increasing tensions in our cities are making the much discussed “return to the city” (of couples whose children have grown up or whose tolerance of commuting is especially low) seem an abortive move. Power shortages and disruptions of transport and communications are increasingly a hazard. On the other hand, if we are successful in training non-white workers for new jobs (most of which are on the periphery) and in eliminating racial barriers in the suburbs, it surely will be only a question of time before our urban ghettos become ghost towns.24

Of course, those one-plant firms and institutions in the older core areas whose investment in physical facilities is large and immobile (this would apply to universities and museums as well as to some banks, insurance companies, and certain other

24Unless, of course, they continue to fill up with newly-arrived immigrants, in which case the city can hardly claim to be improving itself. The continued existence of ghettos in a high income society reflects, fundamentally, a lack of alternatives.
business concerns) will mount every conceivable argument against further decentralisation. The stakes, for them, are enormous. But none of the arguments is valid unless it coincides with observable preferences of individuals and families. As I read the signs, higher incomes lead either to complete escape from the city or to the purchase of amenity, privacy and space (including all three in the journey to work) with which to avoid the more distasteful features of city life. If this reading is correct, the larger cities – despite their massive efforts at self-preservation – are rapidly becoming obsolete.

What this boils down to is that we simply do not know how far it is legitimate to extend the concept of benefit in evaluating alternative arrangements in urban and commuter transport. We are increasingly adopting subsidies on rather vague benefit-cost grounds without understanding the value judgments, and perhaps the implications, that are a part of these analyses. Moreover, it seems entirely possible that the use of urban transport subsidies may, in the long run, be working against the public interest. To the extent that subsidies are successful in preserving downtown businesses and hence property values,\textsuperscript{25} they undoubtedly contribute to a slowing down of the general process of decentralisation of production, including production in the service industries. And that slowdown may very well work against the achievement of greater amenity for those whose livelihoods are thereby kept downtown. Attempts to induce, cajole, and coerce businesses to stay downtown, if successful, mean forcing an ever larger proportion of workers to endure a life of commuting. And there is probably no greater miscarriage of reason than that which includes expenditures on the journey to work as a constituent of GNP and hence, by most definitions, “welfare”.

I do not believe we can answer these questions in the present state of economic knowledge. I am not certain we shall ever be able to answer them. But, if we cannot distinguish between a minor measurable “benefit” such as time savings, and a major unmeasurable “cost” such as a deterioration in the quality of life, I cannot see that the method of benefit-cost analysis in matters of urban and commuter transport represents, after all, any real improvement over financial criteria. On the contrary, employment of this method to date may have led us to pursue subsidy policies that reduce welfare in the only relevant sense of that word. I suspect that most of these studies have placed the economist, as well as the engineer, in the employment of the politician whose interests are clearly defined by existing political boundaries. Transferring decisions to the political and away from the market sphere may simply permit unlimited expansion of subsidies to meet the demands of those groups which have sufficient political muscle – particularly those having a vested interest in the city – to enforce their demands. The result may well be perversion of the original justification of benefit-cost analysis.

\textsuperscript{25}There is a question here whether such subsidies do work in the long run. If Meyer and Cain are correct in their belief that urban transport and suburban residential land are closely complementary goods (see Meyer, \textit{op. cit.}, p. 336), a reduction in the price of commuter transport impels still more people to the suburbs, leaving the centre even more dependent on commuting facilities. It is ironic that congestion effects on the roads can be used as a rationale for transit subsidies when much of the congestion itself is attributable to an urban form which owes its existence in part to earlier subsidies.
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“CORRIDOR” TRANSPORT

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Corridor transport has received serious attention only since air and road congestion have slowed (or reversed) the longer-term trend toward reduction in travel time between adjacent cities. Hence, we now have, or will shortly have, frequent express trains running between Boston and New York, New York and Washington, London and Liverpool, Tokyo and Tokaido, to mention only a few of the better known examples. This renaissance of high speed surface travel is certainly one of the more hopeful signs of the times, since it enlists a new but neither revolutionary nor particularly expensive technology in the fight against congestion. Results to date are also encouraging, judging by the public acceptance accorded these trains. Barring unforeseen happenings that might turn that public acceptance, we may see comparable developments in a number of other U.S. corridors (e.g., Chicago and Milwaukee, Detroit and Cleveland, possibly San Francisco and Los Angeles) within the next decade or so.

Should corridor rail passengers pay their own way? Or, to put the matter in other terms, is it justifiable for the public generally to defray through taxes some of the costs of providing corridor rail service? Most people seem to believe there is a large and increasing need for fast, efficient rail service in these corridors. At the present time, some of the costs are being paid for by public contribution. This applies both to certain research and development expenses and to a portion of the new rail equipment itself.26 Apparently both Congress and the Executive Branch also believe there are benefits to be derived from recreating a decent alternative to road and air travel along the corridors.

The question is: who are the beneficiaries? If the rail service provided does prove superior and more economical than alternatives, is there any reason not to insist that users who benefit pay all the relevant costs? Can we be sure, otherwise, that it is a superior or more economical service? The present below-cost fares are apparently based on the assumption that non-users derive benefits from the existence of this service for which, on grounds of equity or some other criterion, they (or the public in general) should actually be charged. However, it is well known that non-user benefits pervade our entire society, and the principle, if applied uniformly, can be used to support subsidies to virtually all producers, regardless of the commodity or service in question.27

In the case of corridor transport, however, there is, as I see it, one compelling argument for at least limited subsidy. That is “development”. Just as it was necessary in the nineteenth century for the public to underwrite some of the developmental


27Attempts to qualify this conclusion by distinguishing between inframarginal and extramarginal benefits (see, for example, M. Z. Kafoglis, “Highway Policy and External Economies”, National Tax Journal, March 1963, pp. 68–80) are of little help here, since many other commodities produced in the economy unquestionably yield non-user benefits at and beyond the existing level of consumption.
features of the transport system, so today it apparently is necessary for public money to precipitate innovation and "trial runs" in the corridors. The reasons are to be found in the remarkably negative attitude of most U.S. railroad managements toward passenger service,\textsuperscript{28} and in the dampening effect on research and development expenditure imposed by inadequate rates of return. Without some public subsidy, in other words, we might never find out whether rail is a viable method of moving people along congested corridors.

There is a related argument for corridor rail subsidies, which seems to have carried some political weight, to the effect that competing modes in the corridors are subsidised and therefore the only possibility of "developing" the rail alternative is by some sort of countervailing subsidy. I find this argument singularly unconvincing. Corridor highway traffic, while it resembles urban travel in some respects, does not demonstrate the extreme daily peaks common on downtown arterials. The available evidence suggests that the peak users of urban highways do not pay their proper share of highway costs, but that type of subsidy would largely disappear if the peaks were ironed out. In view of the traffic densities achieved on the principal corridor arterial highways, in fact, and in view of the tolls paid by motorists in addition to fuel taxes on many of these roads, it seems likely that revenues generated here find their way towards the support of other elements in the highway systems of the several states. Much the same type of argument applies also to air corridor travel. While there is no question that air travel in general enjoys substantial public subsidies, it is somewhat more questionable that the densely travelled corridor routes are subsidised. Moreover, even if subsidy elements do exist, what we know about cross-elasticities between air and rail travel in the corridors suggests that lowering rail fares would make relatively little difference to the volume of corridor air traffic.\textsuperscript{29}

It is also important, in this connection, to examine the relationship between corridor congestion and rail subsidies. There is, I believe, a tendency to see the diversion of travellers to rail as a definitive answer to corridor congestion. Now, there certainly will be some good effects stemming from even a limited substitution of rail for road and air travel in the corridors, but I think the case can easily be overstated. Surely it is clear that corridor rail travel – particularly where suburban stops are minimised in the interests of speed – may give rise to even greater congestion near the major terminals. This will be all the more true where trips begin or end at residences, or where travellers’ firms are already outside the central business district. Moreover, it seems likely that what we call corridor congestion is in large measure urban congestion. To the extent that this is true, increasing rail travel may lower intercity vehicular density without having much effect on the volume of urban traffic.

If the development argument is the important one, it is clear that the subsidies should be temporary and should be limited to encouraging innovation. Research

\textsuperscript{28}That the attitude is historically justified does not excuse management for not looking beyond their own (bitter) experience to the needs of a new generation.

\textsuperscript{29}See Systems Analysis and Research Corporation, Demand for Intercity Passenger Travel in the Washington-Boston Corridor, a report prepared for the Office of the Under Secretary of Commerce for Transportation (Washington, no date), Tables V-13 and V-14.
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expenditures are thus particularly appropriate for subsidy support. Expenditures on capital equipment or on "demonstration projects" may be another matter. If the fares paid by rail users not only neglect research and development expenses, but do not reflect ordinary capital costs, the result may be a major distortion in the use of resources. What is in practice more important, heavy subsidies deny us the only way we have of knowing whether the apparent demand for corridor rail service is legitimate: i.e., whether users are willing to pay the relevant cost of resources committed to their use. Public contributions for capital equipment, moreover, may be self-defeating because of their tendency to reinforce the public's (and perhaps management's own) image of the failing enterprise. In this, as in other fields, it is all too easy for the public to be led to support subsidies when the longer-run implications of those subsidies are neither fully understood nor spelled out.

INTERCITY RAIL TRANSPORT

The final type of rail service to be considered is intercity passenger transport outside the special corridors already discussed. As already noted, the arguments for subsidy in this area are mounting in intensity. Attempts to continue intercity rail passenger service without subsidies, moreover, are making the already precarious position of some United States railroads even more so. A recent ICC report has estimated that, for every dollar of carrier passenger revenue, the avoidable expenses incurred in carrying those passengers is $1.83. In a letter accompanying the report, ICC Chairman Brown argued that "Should the public need for such service warrant retention of these (intercity passenger) trains that cannot be operated without significant losses, we would support a program of Federal aid to the carriers." Thus the Commission appears to be taking a position in favour of subsidy where the "need" can be demonstrated.

The evidence is clear that demand for intercity rail passenger transport has declined steadily in the postwar years. The decline, moreover, is not limited to the United States (Table 1), for most western European countries are experiencing the same phenomenon despite strenuous attempts to maintain and improve service. The reason for the decline, of course, is to be found in improvements in competing modes of transport, and in the dispersion of people and businesses away from the older rail centres. This is not to say that the policies of rail management and rail unions have been unimportant in influencing these trends. But those who argue that the railways

30See on this point the remarks of Howard Ross, speaking to a Conference on High Speed Ground Transportation, as reported in the New York Times, 18 May 1969, p. 88. This type of public image, and its consequences, are an old story in Great Britain.

31These data apply to 1968 conditions on a group of eight Class I railroads in the United States. See Interstate Commerce Commission, Investigation of Costs of Intercity Rail Passenger Service (Washington, 1969), p. 92. The conclusion, of course, depends on the definition of costs. The new phrase, "net avoidable expenses", apparently is an attempt to break through the old barriers imposed by "solely related" and "common" costs defined by the Commission for accounting purposes. As far as I can determine, the new concept is the best approach yet to what an economist would call avoidable cost.

32ICC, op. cit., p. iv.
TABLE 1


<table>
<thead>
<tr>
<th></th>
<th>Billions of passenger-miles</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1955</td>
</tr>
<tr>
<td><strong>Great Britain</strong></td>
<td></td>
</tr>
<tr>
<td>British Railways:</td>
<td></td>
</tr>
<tr>
<td>ordinary fares</td>
<td>15.3</td>
</tr>
<tr>
<td>season tickets</td>
<td>5.0</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>London Transport</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.5</td>
</tr>
<tr>
<td><strong>France</strong></td>
<td></td>
</tr>
<tr>
<td>SNCF:</td>
<td></td>
</tr>
<tr>
<td>intercity</td>
<td>14.8</td>
</tr>
<tr>
<td>Paris suburban</td>
<td>2.4</td>
</tr>
<tr>
<td><strong>United States</strong></td>
<td></td>
</tr>
<tr>
<td>Class 2 railroads:</td>
<td></td>
</tr>
<tr>
<td>intercity</td>
<td>23.7</td>
</tr>
<tr>
<td>commuter</td>
<td>4.8</td>
</tr>
<tr>
<td>Urban rail transit*</td>
<td>16.8</td>
</tr>
</tbody>
</table>

*Reported revenue passengers multiplied by an estimated 6.5 miles average journey length.

**Sources:** Great Britain: Ministry of Transport, British Railways.
France: SNCF, United Nations.

TABLE 2

Passenger and Revenue Data for Commuter Services on U.S. Class I Railroads, 1957–1967

<table>
<thead>
<tr>
<th>Revenue Passengers (millions)</th>
<th>Passenger-miles (millions)</th>
<th>Passenger Revenue ($ millions)</th>
<th>Avg. rev. per pass. ($</th>
<th>Avg. rev. per pass.-mile (cents)</th>
<th>Avg. length of journey (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1957 249.1</td>
<td>4,900</td>
<td>115.9</td>
<td>0.47</td>
<td>2.365</td>
<td>19.67</td>
</tr>
<tr>
<td>1958 239.1</td>
<td>4,776</td>
<td>123.6</td>
<td>0.52</td>
<td>2.587</td>
<td>19.98</td>
</tr>
<tr>
<td>1959 222.5</td>
<td>4,549</td>
<td>125.1</td>
<td>0.56</td>
<td>2.751</td>
<td>20.45</td>
</tr>
<tr>
<td>1960 203.0</td>
<td>4,197</td>
<td>122.4</td>
<td>0.60</td>
<td>2.917</td>
<td>20.67</td>
</tr>
<tr>
<td>1961 198.4</td>
<td>4,132</td>
<td>126.9</td>
<td>0.64</td>
<td>3.071</td>
<td>20.83</td>
</tr>
<tr>
<td>1962 194.5</td>
<td>4,046</td>
<td>126.7</td>
<td>0.65</td>
<td>3.131</td>
<td>20.80</td>
</tr>
<tr>
<td>1963 195.1</td>
<td>4,101</td>
<td>130.0</td>
<td>0.67</td>
<td>3.169</td>
<td>21.02</td>
</tr>
<tr>
<td>1964 198.2</td>
<td>4,199</td>
<td>134.2</td>
<td>0.68</td>
<td>3.197</td>
<td>21.18</td>
</tr>
<tr>
<td>1965 192.6</td>
<td>4,128</td>
<td>136.4</td>
<td>0.71</td>
<td>3.303</td>
<td>21.44</td>
</tr>
<tr>
<td>1966 195.1</td>
<td>4,193</td>
<td>139.7</td>
<td>0.72</td>
<td>3.331</td>
<td>21.49</td>
</tr>
<tr>
<td>1967 198.9</td>
<td>4,281</td>
<td>143.8</td>
<td>0.72</td>
<td>3.359</td>
<td>21.52</td>
</tr>
</tbody>
</table>

**Source:** Association of American Railroads

themselves are responsible for the decline in patronage seem to me to have a myopic view both of the system of incentives under which managements and unions work and, more particularly, of the mutually reinforcing trends toward higher incomes, urban decentralisation, and automobile ownership. I know of no example, either here or overseas, where improvements in non-corridor rail service have been accompanied or followed by significant or sustained increases in traffic volume, and I
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think it highly significant that intercity rail passenger traffic in countries such as France and Western Germany (which can boast some of the best rail services in the world) is now yielding to the automobile and the airplane. Apparently it is only in those corridors where the quality of substitutes is inferior (thus making for heightened delay and congestion) that rail can become an attractive alternative to more than a handful of users.

The immediate question raised by the ICC study and recommendations is how best to determine the public “need” if the conventional market tests are to be disregarded. That is, is there some need that can be demonstrated to be independent of the public’s willingness to pay the cost of the service? There is a real possibility here that the study will pave the way for a largely political determination of “need”. In that case the United States will be following in the path of the British, who have, for the time being, boxed themselves in with a political commitment to maintain a railroad network of approximately 11,000 route miles.33 The result of this and similar policies in Britain aimed at preserving the railroads has been to concentrate the efforts of rail management on maximising the use of the existing network rather than on minimising the costs of output. But non-corridor rail usage has nevertheless continued to decline, and at a rather alarming rate.34 In the United States, it seems likely that a predetermined level of passenger service on the principal railroads would similarly lead to a neglect of costs and efficiency, and quite probably to ever-larger subsidy requirements. So it becomes extremely important that the public’s “need” for intercity rail service be examined carefully before the Congress, for whatever reasons, decides to embrace the subsidy argument.

Thus far, the principal arguments in favour of general intercity passenger subsidies have been based on an alleged lack of alternatives in rural areas, greater amenity and reliability of the service to users, and diminished congestion on the highways and airways.35 Of course, whether rural dwellers lack alternatives must depend on local circumstances. There is no doubt that the level and quality of bus service varies widely in the United States, as in other countries. But that does not, and should not, exempt people from paying their share of the costs of rail service. As far as I can see, there is no conceivable case for subsidising those who do not happen to live in metropolitan areas. If traffic densities are low in rural areas, as they usually are, rail service is probably economically inferior to bus in any event.


35The last argument predominates in the Senate Resolution referred to above. See Congressional Record, Vol. 113, No. 97, S 6390. Some railroad advertisements have recently coupled the congestion argument with an “amenity to users” approach.
and subsidy efforts might better be applied to sustaining or creating bus service. 36

The argument from amenity and reliability is, in my opinion, an important source of support for railroads in general. (Since I happen to prefer rail travel to most other types, the argument appears eminently sensible to me.) But it has nothing to do with subsidies. If amenity and reliability are important to travellers, they should be willing to pay for them, and resort to external effects in order to justify the continuation of particular rail services is neither necessary nor valid. If the continental rail systems of Western Europe, for example, have a reputation for punctuality and reliability, that is all to the good—it undoubtedly has helped them to retain some of their passenger business—but it surely is no argument for subsidising their users. To say that society benefits from a more reliable service and should therefore subsidise users of that service is to open the door to unlimited subsidies. After all, society benefits from reliability in virtually any type of economic activity; rail service is no exception.

Which brings us, once again, to the congestion argument. Will highway and airway congestion be diminished, or prevented from increasing, by subsidising intercity rail travel? I doubt it, at least in the United States. Outside the corridors, rail and air travel are hardly close substitutes any longer where distances are greater than 200 miles. Tables 3 and 4 show, respectively, the distribution of intercity passenger-miles by mode, as estimated by the ICC for 1957 and 1967, and the distribution of person-trips by distance and mode derived from the 1967 Census of Transportation. The latter data are interesting because they show, for distances of 200 miles and over, that the (commercial) air share is of the order of 8 to 10 times the rail share. While data from the 1963 Census of Transportation are not precisely comparable, it appears that a combination of changing modal preference and the discontinuance of small passenger trains has resulted in a sharp decrease in the rail share between 1963 and 1967. 37 The 1967 census, moreover, shows that the rail share (all trips) approached two per cent only where the point of origin was the central city part of a metropolitan area. 38

In Europe, where typical travel distances are much shorter, air travel is tending to displace rail except where air transport is inhibited by metropolitan area congestion between airports and ultimate points of origin and destination. 39 Indeed for several years the principal reason for sustained rail passenger-miles in Western

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36In Britain, the so-called stopping rail passenger services have been among the greatest sources of financial loss (see, on this point, any recent annual report of British Railways); and United States railways have attempted to keep what passengers they have largely by eliminating local stops in the interests of speed and better intercity service.


38Census of Transportation, 1967, Vol. I, Table 7. Although it is sometimes argued that intercity rail service must be maintained in order to provide transport for lower income groups, it appears from the 1967 Census, as might have been expected, that such groups are much more apt to choose bus than rail transport. For person-trips by members of families having incomes below $4,000, the bus, train and air shares were, respectively, 7.8, 3.0, and 3.8 per cent. It is not at all clear that rail subsidies have a favourable redistributive effect even in intercity passenger service.

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TABLE 3

Distribution of U.S. Intercity Passenger-miles by Mode of Travel 1957 and 1967

<table>
<thead>
<tr>
<th></th>
<th>% Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1957</td>
</tr>
<tr>
<td>Automobile</td>
<td>88.7</td>
</tr>
<tr>
<td>Bus</td>
<td>3.5</td>
</tr>
<tr>
<td>Rail</td>
<td>3.6</td>
</tr>
<tr>
<td>Air</td>
<td>3.9</td>
</tr>
<tr>
<td>Water</td>
<td>0.3</td>
</tr>
</tbody>
</table>

100.0

SOURCE: Interstate Commerce Commission

TABLE 4

Distribution of Person-Trips by Distance and Mode of Travel 1967

<table>
<thead>
<tr>
<th>Distance in miles</th>
<th>Auto</th>
<th>Bus</th>
<th>Train</th>
<th>Air</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50</td>
<td>95.2</td>
<td>2.3</td>
<td>1.0</td>
<td>0.1</td>
<td>1.4</td>
</tr>
<tr>
<td>50–99</td>
<td>95.9</td>
<td>2.6</td>
<td>0.7</td>
<td>0.1</td>
<td>0.7</td>
</tr>
<tr>
<td>100–199</td>
<td>93.9</td>
<td>2.6</td>
<td>1.1</td>
<td>1.8</td>
<td>1.0</td>
</tr>
<tr>
<td>200–499</td>
<td>80.5</td>
<td>3.1</td>
<td>1.6</td>
<td>12.2</td>
<td>2.5</td>
</tr>
<tr>
<td>500–999</td>
<td>61.9</td>
<td>2.3</td>
<td>4.3</td>
<td>27.8</td>
<td>3.7</td>
</tr>
<tr>
<td>1,000 and over</td>
<td>55.5</td>
<td>1.5</td>
<td>3.2</td>
<td>36.6</td>
<td>4.2</td>
</tr>
<tr>
<td>Outside U.S.</td>
<td>63.8</td>
<td>3.9</td>
<td>0.6</td>
<td>22.8</td>
<td>8.9</td>
</tr>
</tbody>
</table>

SOURCE: 1967 Census of Transportation, National Travel Survey

Europe has been a strong commuter market, rises in which have tended to offset declines in intercity rail travel (Table 1).

The important point to note in this connection, however, is that intercity rail travel, whether or not in corridors, may aggravate congestion to the extent that urban "pick up and delivery" is necessitated or encouraged by the use of rail. If medium-distance trips are at issue (i.e. trips for which private automobile is the logical alternative to rail), the problems of getting to and from the rail terminals may be severe. For these beginning and ending segments of the overall journey are apt to utilise the most congested roads in any metropolitan area, whereas a total journey by automobile may largely avoid these roads. This should be increasingly true, moreover, as metropolitan decentralisation continues. For long-distance travel, where air is the relevant alternative to rail, the fact that both airports and residences increasingly are on the periphery of metropolitan areas may well give...
air the edge with respect to congestion effects.\footnote{Travel times between home and airport, while not a good proxy for congestion, nevertheless suggest the advantage of air travel in this respect. Such travel times were found to be significantly lower than times between home and either bus or rail terminals. See Systems Analysis and Research Corporation, \textit{op. cit.}, Table V-7.} (Firm conclusions on this point will no doubt depend on the particular area in question and the extent to which intercity rail service can use peripheral terminals without unduly increasing travel time between city centres.) The argument that non-corridor intercity rail travel mitigates congestion is therefore highly suspect. It may well take a few travellers off the airways and the rural roads, where congestion is not a problem, at the same time leaving them on the metropolitan arterials, which already suffer the worst congestion.

CONCLUSIONS

It will be seen from the above discussion that arguments for rail passenger subsidies frequently proceed from faulty assumptions or analysis concerning both justification and impact. In addition to the traditional suspicion of subsidies for their effect on resource allocation, it is clear that they may, over the longer run, aggravate the very problems they ostensibly are used to solve.

This is especially true in the case of urban transport. Subsidies to any mode of urban transport may, in the short run, extend the life of central business districts, but apparently only at the cost of perpetuating and extending commuting as a way of life. When this probability is coupled with the prospect of rising real incomes and technological changes that broaden the field of choice for both individuals and business firms, the resulting probability is that the choices will go against central business districts. It would be far better to recognise the justification of subsidies as frankly political rather than to dress it up in an elaborate benefit-cost garb, for the definition of benefits and costs seems largely to have reflected political rather than economic considerations. Difficulties of definition and measurement, moreover, have the effect of taking decisions on allocation of resources out of the market place and, after transformation into benefit-cost terms, giving them to political officials whose constituencies may be as limited as their competence. If political boundaries and institutions reflected economic reality, this might not be a serious problem. But I judge the lag (of urban political organisation behind changes in the location of economic activity and residences) to be at least two generations, and probably lengthening.

Outside urban areas, most of the arguments for rail-passenger subsidies have as yet no basis even in political imperative. At least this is true in the United States. In Europe public ownership helps to establish such an imperative, but the end results are much the same as they would be in America: secular increases in railway deficits, and resources (including space) committed to the railways that would have a higher productivity in other modes of transport. In the United States, this prospect is what
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makes the ICC's willingness to embrace rail-passenger subsidies (by letting Congress determine "need") so dangerous to the future rationality of the transport system.

The important question is this: Can transport subsidies be granted to alleviate essentially short-run problems (congestion, contracting passenger services) without interfering with and perhaps preventing long-run solutions to those problems? I do not think they can. I am prepared to admit that the case for developmental subsidies in corridor transport, and distributional subsidies to disadvantaged groups in urban areas, is a relatively strong one. But the general case for passenger subsidies based on external benefits is so weak, and so certain to work against long-run minimisation of costs – including even congestion costs – I cannot see that it has any merit. And, certainly, the intellectual position of the economics profession is not enhanced by permitting benefit-cost analysis to be used to justify subsidies unless or until both benefits and costs can be properly identified and measured.

Bowdoin College, Brunswick, Maine, U.S.A.