

General Discussion

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• THE PAPERS that have been presented deal primarily with the related questions of indirect benefits, nonuser contributions, and highway subsidy. They represent an attempt to evaluate what might be called the "social" component in highway finance. Inasmuch as social value is an exceedingly difficult concept to define and measure, the differences in approach and contradictions in conclusions that have been presented might be expected.

The division of highway costs between users and nonusers is based on the fact that highway use and development create diverse indirect benefits which accrue to persons other than the direct users of the highway plant. As a matter of equity, it is maintained that these indirect benefits justify a general tax contribution toward the highway program. According to Steele and Todd, this practice is "almost universally accepted by specialists in the field." Steele and Todd review and evaluate the data and techniques employed in allocating costs among users and nonusers, and conclude that it is now "possible to do a much more theoretically sound and practically satisfying job of allocating highway costs than has been possible at any time in the past." Their analysis represents an important step in the direction of developing a standardized approach to the user-nonuser allocation.

However, within the past few years a number of economists have questioned the validity of the allocation of highway cost between users and nonusers. Thus Tybout, in a stimulating reorientation, defines highway use as space occupancy and concludes that "only user-taxes can be justified on economic grounds." Adopting a more restricted pricing approach, Mohring states that the economic justification for general tax contributions must be found in situations where marginal cost is below average cost. This purely theoretical case for the use of general tax contributions has not as yet had an important impact on highway finance. It clearly is not the rationale of the traditional nonuser share which is based on the existence of indirect benefits.

Although indirect benefits to others than users are generally cited in justification of a nonuser share, the actual techniques employed—relative-use and earnings-credit—appear to have no direct or close relationship to indirect benefits. The implication of these techniques is that indirect benefits are relatively greater on lightly-traveled access routes than on primary highways. Measurements to give weight to this hypothesis have never been made, and in view of Goldstein's well-documented analysis, it is doubtful that this hypothesis can be supported. Of course, it might be possible to define indirect benefits to include only increases in land value associated with access facilities. Here the problem (emphasized by Mohring) is encountered that increases in land value may represent a capitalization of user savings and should not, therefore, play a separate role in highway finance. This does not mean that landowners and other indirect beneficiaries should take their gains and go scot-free. According to Tybout, "Even the unearned increment may be taxed. The point is that such taxes should not be used for the support of highways." The traditional allocation of highway cost to nonusers may lead to the creation of a highway subsidy disguised in the name of equity, for what is paid by nonusers represents a reduction in the amount paid by users. If a subsidy is created in this manner neither equity nor economic efficiency will be served.

Zettel and others have noted that the usual allocation of cost between users and nonusers has been developed to solve the administrative problem of recovering through uniform user taxes the differentially-higher unit costs on secondary roads. Thus, property taxes and other sources of revenue closely associated with the local highway user have been employed. That is, there has been a close identification between tax and

user. Tybout emphasizes this point and suggests that nonuser sources be employed, not in the light of indirect benefits, but because access uses are more expensive per unit of travel than through or primary uses. A clear implication of Tybout's discussion is that the calculation of a nonuser share on the Interstate Highway System could be justified only to the extent that local traffic on the Interstate System requires or utilizes more units of capacity than the through traffic. Following through on Tybout's approach, it would appear that any nonuser revenue sources utilized to finance the Interstate System should be assessed and collected at the State or local level where local users may be reached. Tybout's analysis is implicitly damaging to the case for a nonuser share at the Federal level.

Mohring's paper fortifies these conclusions. He suggests that highway services be priced according to a marginal cost. Because the most important component of marginal cost is time loss due to congestion, user rates would vary in relation to traffic density or demand. An interesting feature of Mohring's analysis is the proof that optimal highway operations in the absence of scale economies would yield sufficient user revenue to defray highway cost. To provide highway services at rates below marginal cost would lead to a subsidized user tax structure.

Mohring gives scant attention to indirect benefits assuming perhaps that such benefits are received by users in the first instance and subsequently passed along to indirect beneficiaries. But an easy dismissal of indirect benefits seems inappropriate. Goldstein's paper cites an impressive array of "net" indirect benefits. His paper suggests that horizons in considering highways should be broadly social rather than narrowly economic. Goldstein describes highways as "social overhead" and classifies them along with schools, water supply, recreation, and other activities that are sometimes heavily subsidized. On the other hand, Tybout states that highway services are private goods. Though Goldstein does not suggest that highways be subsidized with general revenues, his analysis logically raises the question. Mohring, who deals extensively with subsidies in relation to the mass transit problem, does find a justification for subsidy in what he describes as noneconomic "social considerations." That is, "aesthetic, national defense, or other reasons entirely unrelated to economic value." But the indirect benefits cited by Goldstein are, more often than not, economic in character, not aesthetic or ethical. It is doubtful that transportation subsidies historically have been based on noneconomic grounds, although they may have been based in part on decreasing cost, a situation which Mohring takes into account. It seems that transport subsidies have been granted because the economic benefits to society—indirect benefits—far exceeded the direct economic benefits to private users as reflected in the market place. Mohring's classification of subsidy-justifying conditions seems to omit the most important economic factor of all—indirect benefits. Only under some rather extraordinary theoretical conditions does the market adequately measure all relevant indirect benefits. The market place is a powerful institution for the measurement of value, but it is not perfect; it overlooks many indirect benefits and costs.

The existence of significant indirect benefits frequently calls for public subsidies designed to encourage expansion of what is socially and economically a good thing. Subsidies to schools are, in part at least, justified on the basis of economic values, especially anticipated increases in productivity in excess of those accruing to the individual. Why not subsidized highways, especially in the light of Goldstein's findings? It might be argued that indirect benefits are associated in equal amounts in both private and public investments. That is, indirect benefits cancel out and to subsidize public works would "rig" the economy in favor of the public sector. This is the import of Mohring's apples-oranges analogy. The canceling out assumption, however, does not sit well. For it is likely that the areas in which the public has taken an interest are precisely the areas in which indirect benefits are greatest, and transportation is one of these areas. More efforts along the lines of Goldstein's paper may shed some light on these questions. Relatively narrow market approaches to highway planning and finance are difficult to justify, at least at this stage.

In attempting to reach a conclusion regarding the desirability of highway subsidy, it might be asked whether the private demand of highway users is of sufficient intensity to provide, through direct user payments, the quantity and type of facilities required to

meet society's needs. In short, will the private economy provide "social overhead?" If the answer is affirmative, the traditional nonuser share amounts to a superfluous subsidy. If the answer is in the negative, an appropriate subsidy in the form of a non-user share would be in order.

It is possible that in some of the less developed areas of the Nation, traffic stimulation through the use of subsidies may increase productivity and therefore be economically desirable. However, in general, this situation does not exist in the United States. Although a different situation existed historically, current highway development reflects primarily a response to the direct demand of motorists. Modern highway policy is not consciously geared, as it was in the early 1900's, to the positive stimulation of traffic. One might question the validity of an infant industry rationale for the nonuser share. Thus, Goldstein's excellent analysis of indirect benefits with an emphasis on "social overhead" may not adversely affect the conclusions reached by Mohring and Tybout relative to highway subsidy.

The space-occupance approach to the determination of user tax rates was introduced by Troxel and others a number of years ago. Tybout's suggestion that space occupance be employed for the allocation of geometric costs merits serious consideration. It is consistent with the marginal cost standard described by Mohring and seems to provide a more rational basis for the allocation of geometric costs than either vehicle-miles or axle-miles. After all, the limiting or relevant economic factor is highway capacity. The development of space-occupance factors for various highway uses and for vehicle classes would add significantly to the highway analyst's box of tools. The "Highway Capacity Manual" represents a good start in this direction.

Although the papers presented suggest many areas for further research, the chief implication for current analysis relates to the possibility of reorienting the cost allocation between users and nonusers. Elimination of this costly and time-consuming allocation would not preclude the employment of nonuser revenues, would not diminish equity, and might improve economic efficiency. There are many indirect benefits that will accrue as a result of the new highway program. It is reasonable to suppose that some groups will insist that these surpluses warrant general fund contributions toward the highway program. Extreme care should be taken before making such transfers. Equity may still be served by taxing obvious windfalls for other public purposes.