A Highway Taxation Cost-Benefit Analysis

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● THE BROAD research assignment undertaken was to seek improvement of the highway financing studies that accompany state highway needs studies; the more specific assignment, to seek clarification and standardization of requests by economists for engineering information needed in their highway financing studies. The carrying out of these assignments in a comprehensive and satisfactory manner required an exploration of the highway financing problem in its many ramifications—economic justification of highways and effective highway legislation and administration, as well as highway taxation, revenue distribution, programing of projects and the like. The undertaking has resulted in a promising method of approach for highway financing studies, designated as "a highway taxation cost-benefit analysis." The report of this undertaking, herein condensed, was of necessity limited to an outline of the development and general application of the cost-benefit analysis.[1]

A review of the highway needs study movement and of published highway financing reports showed that the major obstacles, both to effective formulation of highway financing programs and effective elicitation of engineering information needed in highway financing studies, are to be found in the vital cost allocation area of the financing studies. Different economists had developed a wide variety of allocation procedures based on a multiplicity of theories and concepts and productive of a diversity of results.

Recent federal legislation, particularly the extensive legislation of 1956, needed to be made an important consideration in this study because of its sweeping effect upon highway financing and the state highway study movement.

Included in the 1956 legislation are two major financing provisions which are radically altering state highway financing. One is the adoption of federal highway user taxation to finance the interstate system and all other federally aided highways. The other is the establishment of the federal share of interstate system financing at 90 percent and the state share at 10 percent. These two provisions will in all probability make it more difficult for the states to obtain increases in highway user taxation for any highway purpose other than to match federal aid. On the other hand, 90 percent federal financing of the interstate system will relieve the states of considerable financial responsibility for state highways incorporated into that system.

Included also in the 1956 legislation are several study provisions which directly affect state highway studies. One is that each state make an engineering needs study in cooperation with and under the direction of the Bureau of Public Roads. Another is that the Bureau, in cooperation with other federal agencies and the states, investigate the feasibility of certain bases of highway taxation and submit its findings to the Congress for use in deliberations of federal highway tax problems. Any Congressional action resulting from these cooperative studies will be conditioning factors in any future state fiscal studies.

The first step in this study was to analyze the essential or pertinent principles, theories and concepts of highway finance and thereby establish the basic objectives of a highway cost allocation. It was finally determined that a cost allocation should be (a) equity-directed to ensure a fair schedule of taxes and a proper distribution of tax revenues, (b) economy-directed to ensure that the taxpayers get their money's worth in the engineering and financing programs, and (c) administration-directed to facilitate the enactment of workable systems of taxation and revenue distribution and to promote administrative responsibility at each level of government.

When the cost to be allocated is an engineer-recommended, long-term highway needs program cost, the beginning point of the economist's analysis should be the program cost computed for each highway system, and the end objective, plans for raising tax revenues in those amounts for, and distributing them to, the respective systems.

Equity to taxpayers requires that the legal distinction between special- and general-

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[1] The complete report has been published by the Highway Research Board as Special Report 35.

purpose taxes be recognized and maintained. The right to charge highway costs to special taxpayers as special taxes carries with it the obligation (a) to relate those costs to the benefits which those taxpayers anticipate and (b) to expend the special tax revenues for the benefit of those taxpayers. The right to charge highway costs to general taxpayers implies an obligation to relate those costs to the benefits anticipated in accordance with the general tax policy of the unit of government concerned.

Economy for taxpayers requires that the costs of the highway needs program be economically justified. Economy for highway users, for example, requires that costs incurred for them be justified in such terms as savings in operating costs, in operating time and in accident costs.

The objective of administrative feasibility requires that the cost allocation be directed toward workable taxing and revenue distribution systems.

The second step in this study was to devise a method of analyzing and allocating highway costs which would best accomplish the established objectives. A review of available cost allocation bases in the light of these objectives indicated that the two most promising ones were "costs caused or occasioned" and "benefits anticipated or received." Both are generally acceptable, have had long use by economists, are applicable to highway needs program costs and the special taxpayer problem and have prospects for improved application. Furthermore, these two bases can be used to advantage in combination much as the benefit-cost ratio is used throughout the engineering world. One of the fundamental principles of engineering economics is that projects which provide benefits in excess of their cost are economically justified and, further, the project which provides the most benefits in relation to its cost has the greatest economic justification.

The cost-benefit analysis developed as a result of this study is briefly as follows:

1. To search out by means of a probe of the decision-making processes underlying the highway needs program, the program costs included for each beneficiary or taxpayer group.
2. To make an independent calculation of the program benefits to each beneficiary or taxpayer group.
3. To compare the costs and benefits calculated for the respective taxpayer groups and establish the cost chargeable to each.

For the assignment of costs, the following two basic rules were developed:

1. That each special taxpayer group be held responsible for the highway costs incurred in its behalf, but only up to the limit of the economic benefits which will accrue to it.
2. That general taxpayers be held responsible for all other costs in excess of those assignable to special taxpayer groups.

The first rule is based on the conclusion that when the government uses its special taxing power, it is proper for it to recover from special beneficiaries of a highway program those costs incurred to provide facilities for their special benefit; but it is unjust for it to recover more than the incurred costs, and economically unjust to recover costs in excess of accruable benefits. Therefore, for each special taxpayer group the quantified costs caused constitute its tax responsibility, unless they exceed the quantified economic benefits, in which event the quantified economic benefits constitute the upper limit of its tax responsibility.

All cost-benefit comparisons in which costs exceed benefits are deemed unfavorable and proper subjects for examination in the interest of equity and economy. If examination of the cost and benefit findings indicates problems outside the province of the fiscal study, they should be referred back to the engineers for re-evaluation and, if necessary, submitted to the legislature for policy action.

The second rule is based on the conclusion that, since the provision of highways is an essential function of government, all program costs not chargeable to highway users, property owners, or other special taxpayer groups, or scheduled for financing through tolls, are the tax responsibility of the general taxpayer and recoverable from local, state or federal general funds. Costs specifically incurred to further the delivery of mail, the transportation of school children, the national defense and other governmental activities are obviously chargeable to the general taxpayer. Any costs incurred for no specific group or activity must be presumed to have been incurred for the general public and to be chargeable to or recoverable from the general taxpayer. Any costs incurred for, but not chargeable to or recoverable from, a special taxpayer group must be presumed to be in the nature of a subsidy and also chargeable to the general taxpayer.

The residual nature of program costs chargeable to general taxpayers precludes the necessity of using cost-benefit comparisons to establish them. However, comparisons of the cost and economic benefits of improvements made to further some specific governmental activity may prove useful in demonstrating to budgetary officials and the legislature the worth of such improvements in relation to other activities sharing in general tax funds. But these and any other comparisons of the costs and benefits of highways to general taxpayers fall within the general tax field and are beyond the scope of this study.

The highway taxation cost-benefit analysis was designed primarily for the use of economists in the cost allocation phase of their financing studies and secondarily for the use of legislators in acting upon the needs and financing programs and of administrators in carrying out these programs. By its use:

1. The economist can develop a highway financing plan resolving such problems as the following:
   a. Who shall pay how much for highways?
   b. How much highway revenue shall be distributed to each governmental administrative unit?
   c. What constitutes diversion and dispersion of highway funds and how can they be prevented?
2. The legislature can determine the effect on the economist's proposed highway tax levies and his revenue distribution plan of any contemplated changes or modifications in the highway financing or engineering programs.
3. The administrator can establish the relative priority of projects to be incorporated into his annual highway improvement program.

The cost-benefit analysis is designed as the basis for a state highway financing program, but can just as effectively serve as the basis for the new federal highway financing program. That is, it was developed in response to demands for a more effective approach to the problem of financing state highway needs programs, but is so basic in concept and comprehensive in scope as to be an equally effective approach to the more extensive and complex problem of financing federal highway needs programs, including that of the new National System of Interstate and Defense Highways.