NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM
SYNTHESIS OF HIGHWAY PRACTICE 62

STATE RESOURCES FOR FINANCING TRANSPORTATION PROGRAMS

TRANSPORTATION RESEARCH BOARD
NATIONAL RESEARCH COUNCIL

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SYNTHESIS OF HIGHWAY PRACTICE **62**

STATE RESOURCES FOR FINANCING TRANSPORTATION PROGRAMS

RESEARCH SPONSORED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS IN COOPERATION WITH THE FEDERAL HIGHWAY ADMINISTRATION

AREAS OF INTEREST:

FINANCE
(HIGHWAY TRANSPORTATION)
(PUBLIC TRANSIT)

TRANSPORTATION RESEARCH BOARD
NATIONAL RESEARCH COUNCIL
WASHINGTON, D.C. AUGUST 1979

NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

Systematic, well-designed research provides the most effective approach to the solution of many problems facing highway administrators and engineers. Often, highway problems are of local interest and can best be studied by highway departments individually or in cooperation with their state universities and others. However, the accelerating growth of highway transportation develops increasingly complex problems of wide interest to highway authorities. These problems are best studied through a coordinated program of cooperative research.

In recognition of these needs, the highway administrators of the American Association of State Highway and Transportation Officials initiated in 1962 an objective national highway research program employing modern scientific techniques. This program is supported on a continuing basis by funds from participating member states of the Association and it receives the full cooperation and support of the Federal Highway Administration, United States Department of Transportation.

The Transportation Research Board of the National Research Council was requested by the Association to administer the research program because of the Board's recognized objectivity and understanding of modern research practices. The Board is uniquely suited for this purpose as: it maintains an extensive committee structure from which authorities on any highway transportation subject may be drawn; it possesses avenues of communications and cooperation with federal, state, and local governmental agencies, universities, and industry; its relationship to its parent organization, the National Academy of Sciences, a private, nonprofit institution, is an insurance of objectivity; it maintains a full-time research correlation staff of specialists in highway transportation matters to bring the findings of research directly to those who are in a position to use them.

The program is developed on the basis of research needs identified by chief administrators of the highway and transportation departments and by committees of AASHTO. Each year, specific areas of research needs to be included in the program are proposed to the Academy and the Board by the American Association of State Highway and Transportation Officials. Research projects to fulfill these needs are defined by the Board, and qualified research agencies are selected from those that have submitted proposals. Administration and surveillance of research contracts are responsibilities of the Academy and its Transportation Research Board.

The needs for highway research are many, and the National Cooperative Highway Research Program can make significant contributions to the solution of highway transportation problems of mutual concern to many responsible groups. The program, however, is intended to complement rather than to substitute for or duplicate other highway research programs.

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The members of the technical committee selected to monitor this project and to review this report were chosen for recognized scholarly competence and with due consideration for the balance of disciplines appropriate to the project. The opinions and conclusions expressed or implied are those of the research agency that performed the research, and, while they have been accepted as appropriate by the technical committee, they are not necessarily those of the Transportation Research Board, the National Research Council, the National Academy of Sciences, or the program sponsors.

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PREFACE

There exists a vast storehouse of information relating to nearly every subject of concern to highway administrators and engineers. Much of it resulted from research and much from successful application of the engineering ideas of men faced with problems in their day-to-day work. Because there has been a lack of systematic means for bringing such useful information together and making it available to the entire highway fraternity, the American Association of State Highway and Transportation Officials has, through the mechanism of the National Cooperative Highway Research Program, authorized the Transportation Research Board to undertake a continuing project to search out and synthesize the useful knowledge from all possible sources and to prepare documented reports on current practices in the subject areas of concern.

This synthesis series attempts to report on the various practices, making specific recommendations where appropriate but without the detailed directions usually found in handbooks or design manuals. Nonetheless, these documents can serve similar purposes, for each is a compendium of the best knowledge available on those measures found to be the most successful in resolving specific problems. The extent to which they are utilized in this fashion will quite logically be tempered by the breadth of the user's knowledge in the particular problem area.

FOREWORD

By Staff
Transportation
Research Board

This synthesis will be of special interest and usefulness to transportation administrators, planners, legislators, and others concerned with transportation financing. Detailed information is presented on sources of revenue.

Administrators, engineers, and researchers are faced continually with many highway problems on which much information already exists either in documented form or in terms of undocumented experience and practice. Unfortunately, this information often is fragmented, scattered, and unevaluated. As a consequence, full information on what has been learned about a problem frequently is not assembled in seeking a solution. Costly research findings may go unused, valuable experience may be overlooked, and due consideration may not be given to recommended practices for solving or alleviating the problem. In an effort to correct this situation, a continuing NCHRP project, carried out by the Transportation Research Board as the research agency, has the objective of synthesizing and reporting on common highway problems. Syntheses from this endeavor constitute an NCHRP report series that collects and assembles the various forms of information into single concise documents pertaining to specific highway problems or sets of closely related problems.

Transportation agencies have encountered severe problems in financing their programs during the 1970s. This report of the Transportation Research Board

deals with the causes for the crisis in transportation financing and includes a review of both currently used methods of financing and potential sources of revenue.

This synthesis was derived from a much larger work by Professor Richard M. Zettel of the University of California, Berkeley. Readers desiring a more detailed treatment of the subject may obtain a copy of the full report, "State Transportation Financing in the 1970s: Theory and Practice," from the Institute of Transportation Studies, University of California, Berkeley, CA 94720, at $12.50 per copy.

To develop this synthesis in a comprehensive manner and to ensure inclusion of significant knowledge, the Board analyzed available information assembled from numerous sources, including a large number of state highway and transportation departments. A topic panel of experts in the subject area was established to guide the researchers in organizing and evaluating the collected data, and to review the final synthesis report.

This synthesis is an immediately useful document that records practices that were acceptable within the limitations of the knowledge available at the time of its preparation. As the processes of advancement continue, new knowledge can be expected to be added to that now at hand.

CONTENTS

ACKNOWLEDGMENTS

This synthesis was completed by the Transportation Research Board under the supervision of Paul E. Irick, Assistant Director for Special Projects. The Principal Investigators responsible for conducting the synthesis were Thomas L. Copas and Herbert A. Pennock, Special Projects Engineers. This synthesis was edited by Gay I. Leslie.

Special appreciation is expressed to Richard M. Zettel, Research Economist, Institute of Transportation and Traffic Engineering, University of California, Berkeley, who was responsible for collecting the data and preparing the report.

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Information on transportation financing was provided by the AASHTO Subcommittee on Financial Management. Their cooperation and assistance were most helpful.

STATE RESOURCES FOR FINANCING TRANSPORTATION PROGRAMS

SUMMARY

In recent years, the states have faced a crisis in the provision of transportation facilities and services. Some of the reasons for this crisis are:

- A revenue base that is not responsive to inflation.
- A relative slowdown in motor fuel consumption, the principal present source of revenue.
- Soaring costs.
- Greater sensitivity to social and political pressures.
- Increasing demands for transportation facilities and services.

Improvements in motor vehicle fuel efficiency and conversion to new energy sources will worsen the situation.

One of the strengths of current transportation financing—the dedication of highway funds—has contributed to the difficulties many states are facing. Dedication has tended to isolate highway financing from the mainstream of policy making, shielding it from the attention of legislative bodies and preventing revenue problems from receiving early deliberation and action.

User charges are employed widely by the states to defray highway costs. In recent years, this financing system has fallen prey to inflation, and states have looked more eagerly to other revenue sources. The discussion here identifies these potential revenues and their relative merits and demerits.

The criteria for appraising the quality of a tax structure include:

- Equitable distribution of the burden.
- Minimal interference with economic decisions in otherwise efficient markets.
- Efficient and nonarbitrary administration.

A diverse state and local tax structure tends to minimize tax competition between jurisdictions. A combination of financing may be preferable to reliance completely on either general tax subsidy or total benefit financing. A judicious combination of the two methods might promote equity and minimize excess burden.

An in-depth review of both user financing and general taxation has turned up no hidden revenue fountain to rescue states from difficulties in providing for transportation needs. On the positive side, no flaws were revealed in current methods of financing of such nature and magnitude that appropriate revenue levels cannot be achieved. Revenue issues pertain mainly to the distribution of the burden. What appears to be needed is an institutional framework that will facilitate timely adjustments in the revenue structure.

The many issues involved in transportation financing are complex, and much pertinent information gathered for this synthesis could not be included. The material not included has been published by the University of California (*1*), and readers desiring a more detailed discussion of this subject are referred thereto.

CHAPTER ONE

INTRODUCTION

It is widely believed that a crisis exists in the public financing of transportation facilities and services and that it threatens to worsen considerably unless corrective measures are taken. Some causes of this mounting crisis are:

- A state highway revenue base that is unresponsive to inflation and other cost pressures.
- A relative slowdown in motor fuel consumption, the principal source of state transportation revenues, as energy conservation measures take effect.
- Soaring expenses as a consequence of inflation, aggravated by the nature of transport facilities costs.
- Greater sensitivity to social and political pressures that tend to increase costs of facilities and services without providing compensating revenue, such as internalizing costs of noise and air pollution, designing to mitigate environmental degradation and undesirable land use patterns, and providing mobility to previously neglected groups such as the handicapped.
- The public finance picture in general (seen in some quarters as a tax revolt).
- Continuing increases in travel demands (outpacing increases in fuel use), giving rise to persistent needs for transportation facilities and services and enlarging cost-revenue imbalances.

The problems affect all modes of transportation and all levels of government. This report emphasizes state financing although what may appear as state financing in one state may show up as local effort in another because of differences in fiscal practice. Moreover, the emphasis on *state* financing tends to focus on highway problems where states concentrate their efforts; nonetheless it serves a useful purpose. Discussion of transportation financing in recent years has been so preoccupied with urban problems that a large problem area and much conventional wisdom have been neglected.

A relative slowdown in motor fuel consumption has cut into anticipated transportation revenues.

One fact of interest here is the increasing tendency to recognize highways as a "facility" rather than as a "mode." As a facility, highways can be seen as an essential component of public mass transportation systems, both in urban and rural areas. States are less involved than local governments in transit and airport financing. While state contributions are significant in a few cases, the subject involves research beyond that undertaken for this report.

No attempt is made to quantify forecasts of state transportation revenues due to lack of authoritative data and acceptable assumptions about the future energy situation. In any case, a national forecast would be of little use to any individual state, and estimates for individual states could not be done.

As this study evolved, it appeared that a synthesis of present attitudes and current theories of transportation financing would be useful in addition to a recital of recent trends and practices—the "whys" as well as the "whats." It also seemed advisable to incorporate perspectives of the taxpayer, the tax collector, agencies supplying transportation, and those concerned with overall fiscal policy.

This report focuses on major fiscal problems that state governments must face in addressing transportation needs over the next decade or two. In order to identify and evaluate basic issues, it was deemed necessary to develop certain theoretical concepts. However, the report concentrates heavily on the actual financing of publicly provided transportation facilities and services, and makes only passing reference to use of taxation for nonfiscal purposes.

FISCAL PERSPECTIVE

At this point it may be good to place fiscal matters in perspective. It is advisable to examine current fiscal data aggregately for two reasons: first, to place state financing in the overall context of the federal system, and second, to relate highway financing generally and user charges specifically to total tax burdens.

The U.S. Census Bureau reports that the total revenue of all governmental units in the United States was $573 billion in 1975-76. Tax revenue amounted to $358 billion, of which 56 percent was federal, 25 percent state, and 19 percent local. [Motor fuel, motor vehicle fees, and drivers license fees are included as "general" taxes but not insurance trust revenue (payroll taxes for social security and

unemployment compensation); "general" expenditures include highway expenditures but exclude insurance trust fund payments.] For state and local governments together, motor vehicle-related taxes provided some 8.6 percent or $13.4 billion of the $157.5 billion collected. State governments collected 97 percent of the state and local motor taxes.

Looking to the other side of the census data, we find that combined state and local expenditures amounted to $254 billion in 1975-76, considerably more than tax revenues. The gap is filled mainly by federal-aid programs. Of the state and local total expenditures, $23.8 billion or 9.4 percent was for highway purposes [$14.8 billion (62 percent) by states and $9.0 billion (38 percent) by local governments]. The differences in division of expenditures and user revenues reflect intergovernmental transfers of state motor taxes to local governments, some pass-through of federal aids, and some local taxes for roads and streets.

This report concerns the revenue side of the fiscal equation, but it should be understood that decisions on the expenditure side must ordinarily be settled before revenue questions can be dealt with rationally.

GENERAL TAXATION AND TRANSPORTATION FINANCE

Much has been written that purports to segregate transportation finance from the finance of "general" functions of government, but the effort is never fully successful and often fails entirely. Even in the case where user charges are politically acceptable and can be relied upon extensively to meet publicly incurred costs of facilities and services, situations may be found in which some level of general tax support is at least worth considering. The relationship between bona fide user charges and general taxes bearing on transportation also needs understanding.

In the first place, general tax support may be provided for all or some part of the cost of certain transport functions. On the other hand, taxation of transportation for the support of the general government is socially and economically sound in terms of equity and efficiency. And, finally, user financing has a legitimate place in the overall tax structure. User charges may be used to complement general taxes and vice versa. Their differences, particularly with respect to conceptual underpinnings, should be better understood.

Taxes are compulsory exactions of government imposed on people, directly or indirectly, to achieve objectives established by the governing powers. Our principal concern in this study is with the objective of *financing* a particular activity, namely transportation, rather than regulating it or controlling the demand for it.

Formalizing these thoughts, it can be argued that criteria for appraisal of the quality of a tax structure should include at least the following:

- Distribution of the tax burden should be equitable; everyone should pay a "fair share."
- Taxes should be chosen to minimize interference with economic decisions in otherwise efficient markets; they should be "neutral," minimizing so-called "excess burden."
- The tax system should permit efficient and nonarbitrary administration at reasonably low costs for both payer and collector.

Tax equity is a particularly troublesome subject. From time to time it is said that taxes should be imposed in accordance with ability to pay and benefits received. This suggestion of a dual standard, taken literally, often leads to a contradiction in terms, for a tax distributed according to ability to pay would often be inversely related to benefits and vice versa. A more reasonable interpretation is that certain taxes for certain purposes should be based on ability to pay, whereas in other circumstances, other taxes can and perhaps ought to be directly related to benefits received. And both may be equitable in the context of the total system. Trade-offs may be warranted, and such trade-offs are likely to lead to diversity in the tax structure rather than reliance on a single source.

The issues are much too complex to delve into here, but it is clear that some measure of personal equity might be traded for a reduction in excess burden (i.e., adverse efficiency effects). A broadly based and diversified tax structure will tend to reduce excess burden. This could lead to quite a different tax structure than might be devised on equity grounds alone.

Rather akin to excess burden is the possibility of excessive costs for administration and compliance with taxes intended to be equitable. The more one strives for equity, the more costly the tax is likely to be; whereas the more blunt the tax, the less equitable it may be.

Again a tradeoff is required. Musgrave and Musgrave (*2*) sumarize it well in the following:

> . . . Since the economy itself is complex and the tax law must be tailored thereto, no single concept of tax base can be implemented to perfection. Moreover, an equitable tax system cannot be simple. An excessively complex tax structure, on the other hand, leads to lawful tax avoidance (some taxpayers adapt their activities to minimize liabilities) as well as illegal evasion, which in turn undermines equity. Tax policy, therefore, is an art no less than a science; and equity is to be sought as a matter of degree, rather than an absolute norm (p. 223).

A diverse state and local tax structure tends to minimize the consequences of any tax competition between jurisdictions. States tend to distribute their burdens among retail sales, personal income, corporate income, selective excises, and a variety of special business taxes. One can easily imagine what might happen to any state that decided a simple personal income tax achieved optimum equity and should replace all other general taxes.

One of the strengths of current transportation financing, the dedication of highway funds, now turns out to be partially responsible for difficulties many states are facing. The dedication of highway funds has tended to isolate highway financing from the mainstream of policy making. As a rule, funds were continuously appropriated and little attention was given to overall programs by legislative bodies. It is now clear that revenue problems should be flagged earlier so they may be resolved by due deliberation of responsible policy makers rather than being allowed to fester by neglect. An institutional framework is needed that will

facilitate timely adjustments in the revenue structure to meet a volatile situation in the decades ahead. Changes, especially in legislative practices, may be required in most of the states to deal effectively with transport finance issues as they emerge.

The discussion here should help identify potential revenues and their relative merits and demerits, as well as cut through other controversial issues in formulating a rational and workable fiscal program. Moreover, if a serious financial problem exists, the analysis should help explain how it may have come about and how it might be avoided in the future. Finally, a better understanding of current fiscal practices and problems and how they might be affected by future events could lead to measures that would avert critical social or economic problems.

BENEFIT TAXATION

In recent decades, the feasibility and possible advantages of benefit taxation in carefully defined situations have come to be recognized. Where benefit taxes (user charges) are feasible, questions arise as to the advisability of using them. Arguments about equity frequently provide stumbling blocks, because a benefit tax will ordinarily be impersonal and geared to the cost of providing the service. A toll, a gas tax, a sewer charge, a college tuition fee, all violate the concept of ability-to-pay and are actually regressive as that term is usually understood in tax circles. But equity is only one of the relevant considerations in framing the tax system. Benefit taxation can add diversity to the structure, reduce the excess burden of taxes, and release scarce resources for activities having access to nothing but general tax financing.

Moreover, when in fact benefits are measurable, quite a different concept of equity may be advanced. Analogy may be made to the private sector. Prices are willingly paid for goods and services, and the purchaser obtains value received. Benefit taxes and user charges are similar in nature; the payer receives a measurable benefit either equivalent to or more than the payment. Equals are treated equally—two who use the same amount pay the same; but unequals are treated unequally—one who uses twice as much as another pays twice as much. If prices charged in the private sector are equitable even though impersonal, so too are properly designed benefit taxes or user charges imposed in the public sector.

The question of user vs. nonuser responsibility for the financial support of transportation facilities has long been controversial, and a definitive answer continues to elude analysts. In some circles it will be argued that provision of transport facilities and services by government is not essentially different from the provision of other goods and services, in which case fiscal principles applicable to public functions generally are equally applicable to publicly provided transportation.

The opposite view, sometimes called the commercial or public utility concept, sees transportation as something rather special. Transportation constitutes something like one-fifth of our total economic effort, and nine-tenths of it is provided through the private sector. The wherewithal to supply the private sector components of the transportation system is provided by prices or charges paid by users. Advocates of user finance argue that the 10 percent or so of transport cost incurred by government should, as a general rule, be similarly defrayed through fees, tolls, fares, or other direct prices, and, where this is not possible, through "benefit taxes" (or charges) in the nature of prices that have an intentional relationship to the costs incurred.

Somewhere between the extremes a position is needed that treats provision of transport system components neither as purely an enterprise nor as purely a public service. Actually, public policy in the United States has for several decades leaned toward the side that public transport services can be priced primarily through user charges, fares,

Tolls are one form of benefit taxation.

General tax support of urban mass transit and rail passenger services is increasing, though user charges still support a significant portion of the program.

or tolls, but that some general tax support may be warranted. The trend has been toward increased user financing of highway and air facilities. For *state* highway financing, general funding has all but disappeared (3.2 percent of total receipts for the nation as a whole). On the other hand, for the last two decades or so, tax support for urban mass transit and rail passenger services has been growing at a furious pace.

Among specialists in public finance, it seems fair to say that a consensus supports user financing and would segregate this financing from other public finances in the absence of overriding social or environmental considerations to the contrary. A basic policy problem, of course, is to reach consensus about what constitutes such overriding circumstances.

One source of confusion involves semantics. It is common to distinguish general taxpayers and transport users as two separate and distinct classes of people and set each off against the other. But virtually everyone is both a user of transport and a general taxpayer. Everyone bears the incidence of both general taxes and user charges (either directly or after tax shifting has taken place). The crux of the matter is the distribution of this particular cost burden among individuals under the fiscal alternatives.

User financing advocates suggest that fares or other direct prices should be used to defray transport costs.

Retail sales taxes on automobile sales are frequently used for nonhighway purposes.

For analytical purposes, it is necessary to distinguish rather ca :fully between general taxes and user charges. By definition, general taxes are for any or all general purposes of government. Again by definition, user charges are imposed for the use of specific facilities or services; they are impositions over and above the general tax obligations of those who pay them. In practice, the distinctions between general taxes and user taxes tend to blur, both conceptually and administratively. A toll on a bridge, a fare for a transit ride, or a fee for landing at an airport are not generally confused with "taxes." But a tax collected at a pump is not so easily seen as a user charge; it is more remote and, in any case, has all the earmarks of a tax.

Confusion is compounded because it is perfectly legitimate to subject users of transport to general taxes as well as user charges. This is readily seen in such cases as an income tax on a trucking firm or a property tax on an automobile dealer's showroom or service facility. Even a retail sales tax on automobile sales is not usually questioned although its proceeds are used for nonhighway purposes. But retail sales taxes on motor fuels, in the few cases in which they are imposed, are seen with a jaundiced eye, inasmuch as gasoline is already subject to a heavy excise tax. Similarly, there is much confusion between motor vehicle registration taxes, special taxes in lieu of property taxes, titling taxes in lieu of retail sales taxes, and special tax collection procedures.

There is no reason to provide exemptions from general taxes because user charges are imposed; in fact, it may be contended that when such exemptions are granted the user charge includes a general tax component. Moreover, it is not the fact that a particular imposition is dedicated or not that distinguishes between user charges and general taxes. In a few states, highway user charges are deposited in general funds and appropriations are made therefrom for highway purposes. A portion of local property taxes is specifically dedicated to roads by a large number of local governments. Should the latter be called a user charge? Or should the former (such as New York and New Jersey's gas taxes) not be recognized as user charges?

These are not idle distinctions. The point is that criteria for determining burden distribution for the one set of taxes are altogether different from criteria for evaluation of the other.

CHAPTER TWO

THE HIGHWAY USER TAX SYSTEM

USER CHARGES

User charges are widely used by the states to defray their highway costs and to assist local governments in meeting costs of roads and streets under their jurisdictions. Additionally, the federal government's grants-in-aid to states (with some required "pass throughs" to local governments) issue from a trust fund to which federal highway user charges are dedicated.

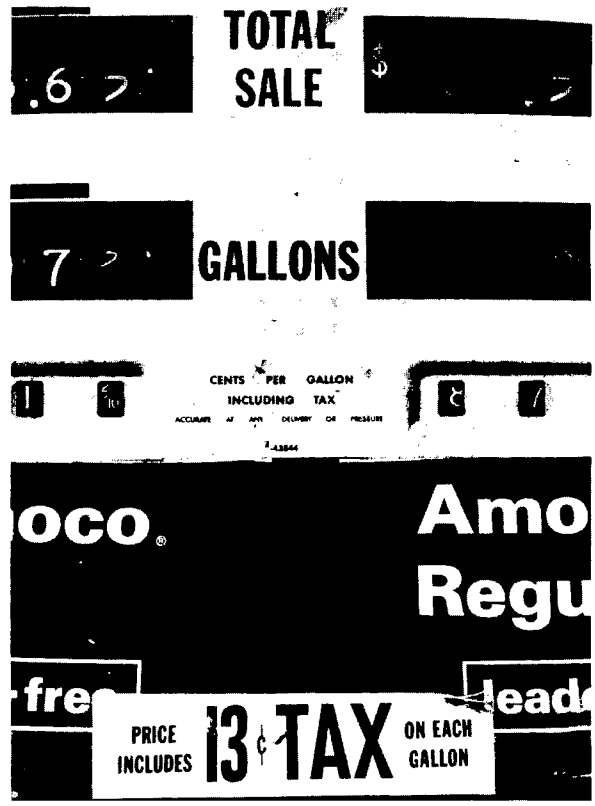
For a half century or so this system proved highly successful—critics might say too successful—in producing handsome revenues for highway purposes. The imposts have been productive, reliable, economical, and comparatively popular—and by their very nature lend themselves to dedication, which facilitates long-range planning and programming of capital improvements. In recent years, the financing systems, being based almost entirely on specific or unit taxes rather than ad valorem taxes, which respond to changing price levels, have fallen prey to inflation. Program cost requirements have begun to outrun revenues in the absence of compensatory rate increases. Energy problems have also created anxieties. However, these setbacks are procedural rather than substantive, and they do not vitiate the underlying objectives of user financing. If the objectives were valid in the past, current inflation and other recent problems, in and of themselves, should not invalidate them.

User charges in the financing of highway activities tend to distribute burdens in proportion to benefits received (either directly or indirectly). They provide a rough measure of economic demand, because through their payments users indicate their ability and willingness to pay for facilities and services. The proceeds provide the wherewithal to meet the demand. User charges tend to curb waste, for use will not be made if gains are less than charges (and other costs). User charges promote public neutrality. They are intended to offset subsidies that competing modes may not enjoy, thereby eliminating distortions in allocation of traffic and private investment.

User financing is not without its practical problems. Nonetheless, with respect to highways at least, even those who criticize conventional user charges do not suggest they be abandoned. They would simply have user charges do more than at present.

An early comprehensive review of the highway user tax system (*3*) published by the National Industrial Conference Board observed:

> It is generally believed that the burden to be borne by road-users can be more fairly distributed by means of a combination of the license and fuel taxes than by the use of either alone. When the motor vehicle and motor fuel taxes are compared and appraised from the standpoint of tax principles, it is found that either standing alone has certain advantages and weaknesses, but that when combined and properly coordinated the two types of tax furnish the most equitable method of distributing the motor vehicle tax burden that has been devised. A license tax graduated according to the extra cost incurred in supplying road service to a given class of vehicles supplements the motor fuel tax, which more accurately measures the amount of use of the roads. (pp. 194-195)



Fuel taxes are a conspicuous form of user charge and tend to distribute burdens in proportion to benefits received.

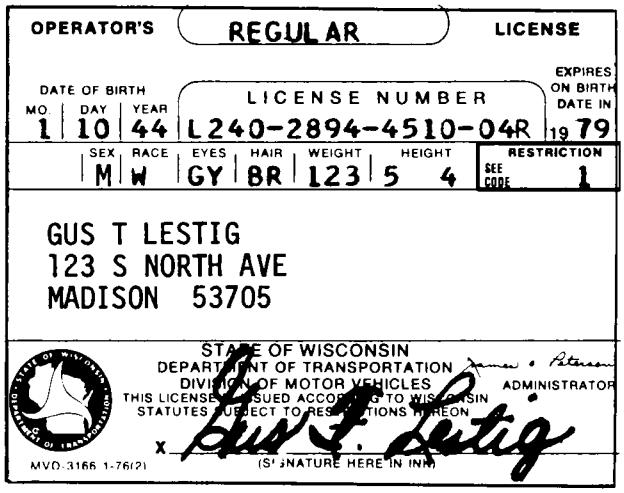
That simple statement of almost fifty years ago can hardly be improved upon as a basic explanation of modern user tax theory and practice.

Each state, and the federal government as well, imposes charges intended to complement fuel taxes. However, the revenue significance of these charges is not widely recognized. A recent study by the State of Washington showed that fuel taxes supplied less than 60 percent of total revenue for the nation as a whole in 1977. The weighted average state fuel tax rate was about 7.8 cents per gallon, but to raise all revenues using fuel taxes alone would require a weighted average fuel tax of 13.2 cents. Twenty states and the District of Columbia would have had to impose fuel taxes in excess of 14 cents in order to derive an equivalent of their total user revenues from fuel taxes alone. Dela-

ware, which had an 11-cent-per-gallon fuel tax, would have needed a 24-cent tax rate to derive its total user revenues from fuel taxes. These data are indicative of the substantial contributions over and above the gas tax that users make for the support of highways.

User financing is ordinarily justified in terms of *benefits* that accrue to users of public facilities and services, but there is another side to the equation. *Costs* are incurred by government in providing the facilities and services, and these are defrayed by user charges. Thus, an expenditure-revenue relationship is established. Any particular class of users should not be expected to pay for costs that provide no benefits to them; nor should any user be charged amounts that exceed the value of benefits derived. Users may legitimately be charged for their benefits only to the extent that the charges are necessary to defray costs.

If the full spectrum of costs that comprises the user tax burden is examined, it will be found that some costs are directly related to the individual vehicle or the individual driver. These can be segregated from other costs and recovered through specific fees. Examples are motor vehicle registration and driver licensing fees.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Driver licensing allows the recovery of certain costs through specific fees assigned the individual driver for the privilege of driving motor vehicles.

These concepts are simple enough, but in practice such fees tend, over time, to get out of line from the costs with which they should be related, particularly during periods of inflation. This situation is frequently camouflaged by institutional procedures. *Fees* intended to meet specific service costs lose their identity by being lumped into highway user *taxes* the administering agencies (usually, motor vehicle departments) are also required to collect. Administrative expenses are related to the total revenues, and appropriations to meet them are typically made "off the top," with the result that the "surplus" of taxes planned for direct highway support is gradually but quite unintentionally eroded. States would be well advised to review more frequently the relationship between revenues and expenses wherever it is intended that specific fees cover designated costs.

Beyond the classical fees, it may be decided that some level of assessment should be imposed without regard to amount of use as a kind of standby charge for availability of the highway plant. This fee is usually allocated on a per vehicle basis, and analogy is often made to the basic charge imposed on telephone service. However, no information of a technical nature has been found to suggest how an appropriate standby charge might be determined. Thus, a political, value-laden determination is probably necessary, which is likely to result in low standby charges (if any are imposed at all) because of the perceived inequity of charges unrelated to actual use and concomitant benefit.

HIGHWAY COST ALLOCATION

In any case, the bulk of the highway user tax burden will be assigned by some method of highway cost allocation. Because volume of travel is a major factor in highway improvement costs and maintenance and operation expenditures, relative use of the highway plant appears a logical measure for apportionment of highway costs among vehicles. If all vehicles were of the same size and operating characteristics, with virtually identical service requirements, a cost allocation on the basis of vehicle miles alone would be satisfactory. The vehicle mile would be rather like the kilowatt-hour used in electricity pricing. Then, if it also followed that motor fuel consumption was practically the same for every vehicle, a tax on motor fuel imposed at the pump would recover the amount of user charge for which each vehicle was responsible on the basis of relative vehicle miles. The gas pump would be a meter of highway use not unlike the meters used by utilities in ascertaining kilowatt-hours of use.

But the highway system accommodates a vast variety of vehicles serving a multiplicity of uses. Moreover, differences among vehicles occasion substantial differences in highway costs, which should be accounted for in the cost allocation process. In an earlier day, it was argued that heavier vehicles caused great highway wear and tear. Today, highway design practices contemplate the various uses to be made of each segment of the highway plant, but these very practices may incur separable costs for service to certain classes of users. For example, highways may be thickened to prevent damage by the heavier vehicles, or capacity (extra lanes) may be added to accommodate peak-hour users (often commuters).

However, the matter is not simple, even in theory. One cannot add 2 in. (50 mm) to a 10-in. (250-mm) pavement unless the 10 in. are already there (or provided for in design). One cannot add "extra lanes" unless lanes already exist. Surely, users also have responsibility for these "initial" costs, as well as for the added costs for which they alone are responsible. In short, one has to deal not only with the truly separable costs but with the costs of all other increments, costs that will be common to more than one class of vehicles.

Notwithstanding road tests and other research, considerable dispute remains among engineers and others regarding the separability of those costs that may relate to character-

If all vehicles were of the same size and operating characteristics, a cost allocation on the basis of vehicle miles alone would be satisfactory.

istics of vehicle classes (such as weight, size, and operating speeds). As one example, public vehicles for highway maintenance and emergency services have an impact on highway design, resulting in higher pavement costs than would be required for small vehicles alone. Soil conditions, weather, and many other physical factors in no way related to use of facilities also affect costs. However, available evidence is highly persuasive that sizable fractions of highway costs are directly and solely attributable to the weights, sizes, and frequency of operations of the larger private vehicles in the traffic flow.

Fuel consumption does measure relative use reasonably well for vehicles within the same class; thus within classes, equity and neutrality are honored. Moreover, fuel consumption increases with vehicle size, so that a tax upon it does exact progressively larger payments per vehicle mile as vehicle size increases. Therefore, fuel taxation standing alone will recover much of the cost responsibility of all classes of vehicles. However, studies of highway taxation invariably find that cost responsibilities per unit of use rise more rapidly than fuel consumption; hence, the motor fuels tax must be supplemented by other user charges if the assigned cost responsibilities are to be recovered.

All states, and the federal government as well, complement the fuel tax with special taxes on heavy vehicles. The deficiency in motor fuels taxation may be converted either to a tax per vehicle or a tax per vehicle mile (by dividing the cost responsibility that is not compensated for by fuels taxation by either total number of vehicles in the class or total vehicle miles operated by the class).

CHAPTER THREE

INDIVIDUAL HIGHWAY USER CHARGES

For purposes of discussion, the states' highway user tax systems are divided into three broad areas: (a) vehicle registration and miscellaneous fees; (b) motor fuels taxes; and (c) heavy vehicles taxes.

VEHICLE REGISTRATION AND MISCELLANEOUS FEES

The U.S. Census Bureau (*4*) defines motor vehicle taxes as follows:

> License taxes imposed on owners or operators of motor vehicles for the right to use public highways, including charges for title registration, inspection of vehicles, and vehicle mileage and weight taxes on motor carriers. Excludes taxes on the business of motor transport and property taxes or sales and gross receipts taxes relating to motor vehicles (p. 37).

Under motor vehicle operators, the Bureau includes, "Licensing for the privilege of driving motor vehicles, including both private and commercial licenses."

The motor vehicle tax (often called a registration fee) is associated with motor vehicle licensing. A single charge may be imposed, which is made up of several components, conceptually separable but not specifically identified. The first component is designed to cover the specific cost of the registration process itself, which is intended basically for identification of the vehicle and protection of the registrant's property, including proof (title) of ownership. A second component, a tax in partial compensation of highway cost responsibilities, was included in most states simultaneously or soon after a user charge regime of highway financing was instituted.

Motor vehicle taxes (often called registration fees) include a component in partial compensation of highway cost responsibilities.

Complexities of motor vehicle registration (and fees attached thereto) preclude simple comparisons among the states. However, for passenger cars, 24 states have "flat fees"; 17 use some measure of weight; and 10 use some other basis, usually a combination of weight and age. Registration fees for a typical, medium-size passenger car (excluding property taxes) range from $3 in Louisiana to $48 in Oklahoma. Seven states had fees of less than $10 and 8 had fees of $30 or more (the median fee was $15).

Graduated weight taxes on heavier motor vehicles are also collected during vehicle registration. A few states have separate schedules for registration fees (sometimes called "plate" fees) and weight taxes. All registered vehicles are subject to the registration fees, and the weight fees are added thereto. For example, in California the owner of a truck would pay both a basic registration fee of $11 and a fee according to the vehicle's unladen weight. This scheme may have some advantage equating registration costs and revenues. A large majority of states, however, have apparently decided that this refinement is unnecessary, and they simply meld registration and weight taxes together into a single schedule applicable to various categories of vehicles.

The process of motor vehicle registration and the elaborate record management involved is a costly endeavor that would appear out of line if revenue collection were the only purpose. But the expenses incurred are directly associated with the services provided, and the benefits may far exceed the costs. Registration almost surely would be carried on whether or not highway revenues were included in the charges. The real *incremental* cost directly associated with collecting taxes for highway or any other purpose, in addition to the fee imposed for registration itself, is probably insignificant. And it is doubtful that an increase in such taxes (or a reduction for that matter) would have any material impact on costs incurred by the registrar of vehicles.

Duties have, in fact, been added to motor vehicle administration in connection with general tax administration as well as motor vehicle taxation, perhaps because the incremental cost involved is thought to be negligible. A few states have taken advantage of existing motor vehicle administration to assist in administration of retail sales taxes.

One procedure is to check vehicles registered for the first time in the state to determine if the retail sales tax (or the required use tax in lieu thereof), if applicable, has been paid. Another method is to impose a special excise or titling tax on first-time motor vehicle registrations, which is equivalent to, and a substitute for, the regular sales tax. Usually the taxes are used for general governmental purposes, except that Maryland's titling tax appears to be dedicated to transportation.

A second effort at coordinating motor vehicle administration with general tax administration is found in the prop-

erty tax area. In 21 states, personal property taxes are imposed on motor vehicles in addition to registration or weight fees; in 14 of these, evidence of local personal property tax payment is a prerequisite to vehicle registration. In seven other states, motor vehicles are not subject to conventional property taxes, but a tax "in lieu" of personal property taxes is collected by the state at the time of vehicle registration. The proceeds of these taxes are typically distributed to local governments to compensate for exemption of motor vehicles from property taxes. It seems highly unlikely that these particular kinds of revenue will become a source of any substantial transportation funding in the foreseeable future. Quite probably they will begin to shrivel away because of the movement to deemphasize property taxes in particular and limit government spending in general.

MOTOR FUELS TAXATION

The first "gas tax" for highways was enacted by Oregon in 1919. A direct correlation between highway use and highway costs as well as benefit to users was quickly and widely recognized. The tax proved popular and within 10 years had spread to all states, New York being the last to join the fold.

The genius of the tax on gasoline consumption was that it measured highway use rather well, and use indicated both benefits and needs. A tax imposed on the relatively few distributors of the state, but intended to be passed on to myriad users with their fuel purchases at the pump, proved easy and inexpensive to administer. It also seemed painless from the user's point of view, because the user was buying the total benefit of highway use every time the vehicle's tank was filled. Plus, revenues were being generated by out-of-state vehicles visiting or passing through the state. The fact that gas tax revenues could be generated by operations over the entire plant and accumulated to meet needs on specific facilities greatly facilitated the move of states to pay-as-you-go financing.

From its inception, the tax was imposed on a unit basis. It was a tax on gallonage at a specified number of cents per gallon. Gallons of fuel provided miles of use, and miles of use were the real object of taxation. Moreover, a gallon was a gallon throughout the state, but a tax based on price would vary from place to place. The uniformity provided by the unit tax, therefore, appeared to be a virtue and quieted potential arguments of discriminatory treatment of equal users. Finally and fortuitously, because it was a specific tax, the gas tax provided a steady income despite the fact that gasoline prices actually declined following its imposition. Proceeds from an ad valorem tax would have paralleled the downward trend in the absence of rate increases.

One unique feature of the traditional gasoline tax is that, being imposed upon the distributor and passed on, it catches in its web nonhighway users who were not intended to be taxed. But because at least 80 percent, and in most cases more than 90 percent, of gasoline is used in highway vehicles, it seemed easier to tax everyone and provide refunds for nonhighway uses rather than exempt nonhighway uses initially. Some states allow a tax credit on their income taxes in lieu of refunds.

Investigation began to show that not all persons who used taxed fuel for nonhighway purposes applied for refunds. The concept of "unrefunded gas taxes" was advanced, and legislatures were persuaded to appropriate *estimated* amounts of such moneys for nonhighway purposes. Rather commonplace now are appropriations for airports (unrefunded taxes of general aviators), marinas (unrefunded taxes of boaters), off-highway facilities (unrefunded taxes of trail bike and snowmobile users), and now, too, for agricultural services (unrefunded taxes of farmers).

Diesel Fuel Taxation

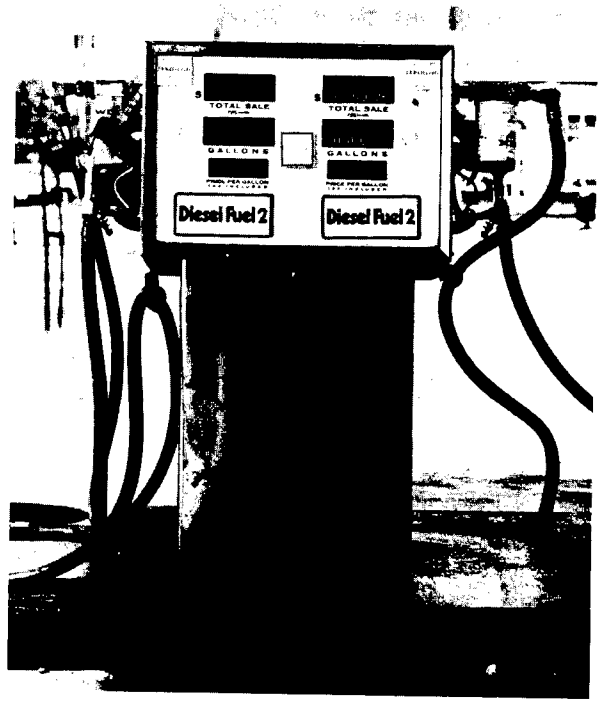
A problem of serious consequence arose during the 1930s with the growth of diesel-powered trucks and buses. The tax and refund policy would not do, because, initially at least, the major use of diesel fuel was for nonhighway purposes. The opposite tack was taken: The highway user of diesel fuel, rather than the distributor, was made responsible for payment of a "use-fuel tax." Later a system was developed whereby retailers would be responsible for the tax on diesel fuel pumped into highway vehicles; however, large users, such as major trucking firms, continued to be responsible for self-assessment of use-fuel taxes when fuel was purchased in bulk. State authorities charged with collecting the diesel fuel tax believe a considerable amount escapes taxation.

Because a gallon of diesel fuel contains more units of energy (Btu's) than a gallon of gasoline and the diesel engine is more efficient than the gasoline engine, a diesel vehicle will derive considerably more highway use from a gallon of fuel than will a gasoline-powered vehicle of similar characteristics. For each mile of highway use, however, it will be charged less if both fuels are taxed at a common rate.

Highway tax analysts have generally recommended diesel tax differentials, but only a handful of states (Alabama, Arkansas, Iowa, Kansas, Mississippi, New York, and Texas) have responded with differentials ranging from one to two cents per gallon. There is considerable debate over the appropriate amount of differential, with estimates ranging from one-third to 100 percent. About 10 years ago, the U.S. Bureau of Public Roads proposed a 75 percent differential in federal motor fuel taxes, but none was established.

The practice of imposing differentials is diminishing, as are the differentials. In 1960, two states had 50 percent differentials and two others had 40 percent compared with current highs of 25 percent in Kansas and New York. Vermont does not tax diesel fuel but imposes a comparatively high weight tax in compensation for the exemption. Wyoming has compensatory mileage taxes instead of a diesel tax. In Oregon, vehicles subject to the weight-mile tax do not pay a tax on diesel fuel—vehicles that use gasoline have their weight-mile tax reduced as a credit for the fuel tax paid—and vehicles not subjected to the weight-mile tax, such as private autos, pay a diesel fuel tax.

The principal arguments against equalization in the past have been: (a) It attempts to equalize prices and therefore distorts resource allocation, and (b) it imposes a penalty on



Because diesel fuel contains more energy than gasoline and the diesel engine is more efficient, a diesel vehicle derives more highway use per gallon and thus will be charged less per mile of highway use if both fuels are taxed at a common rate.

efficiency and fuel conservation. The latter argument, in particular, would be extremely persuasive in these days of concern about energy shortages. If equalization of the fuel tax burden has been politically unattractive under the unit tax, it might be even more so under an ad valorem tax, which is one step further removed from a miles-of-use concept. At the same time, conversion of the present cents-per-gallon uniform rates to an ad valorem basis would only exacerbate the current situation because diesel prices are generally lower than gasoline prices.

However, the issues with regard to diesel fuel may become considerably more serious and more pervasive over the next decade or two as the vehicle mix changes. It has been commonly assumed that fuel consumption rates were sufficiently uniform among smaller vehicles (passenger cars and light utility vehicles) for the gasoline tax to spread the user burden among such vehicles in a reasonably equitable manner. This view was bolstered by knowledge that the heavier vehicles within the group generally paid somewhat more, which seemed intuitively reasonable in terms of highway benefits and costs.

Currently, however, the mix of lighter vehicles (minis, subcompacts, compacts, midsizes, full-sizes, luxury, vans, recreational vehicles, dual-purpose pickups, etc.) is changing rapidly. Moreover, new kinds of fuel (including increasing use of diesel) may produce quite different unit rates of fuel consumption. Within the next decade or two, the dispersion of fuel consumption rates from any norm for the smaller vehicle class is likely to grow substantially. Then, too, a substantial growth in electric vehicles could play havoc with the motor fuels tax structure. Not only would tax proceeds be adversely affected, but the burden would be distributed in an increasingly erratic and inequitable way. Higher gasoline tax rates, whether specific or ad valorem, would only exacerbate the situation in the absence of satisfactory ways of imposing equivalent user taxes on alternative fuels and power sources. The conceptual problem is simple—find a new way to tax vehicle miles of comparable vehicles. This deserves substantial research effort.

Gasoline Tax Rates

Each penny of gasoline tax produces, on a nation-wide basis, more than one billion dollars in revenue. Currently, state gasoline tax rates range from 5 cents to 12 cents per gallon. In 1977, 18 states had rates from 9 to 11 cents; rates in 30 states were from 7 to 8.5 cents; in three states, they were under 7 cents per gallon. The vast majority of states tax all motor vehicle fuels at the same rates.

A major complaint about highway user taxes generally, and the gas tax particularly, is their failure to respond automatically to inflation as do ad valorem taxes. The latter tend to meet rising costs because proceeds increase when the tax bases increase, even though rates remain unchanged. User taxes, being specific in nature, do not automatically provide increased revenues to meet rising costs; their bases are not responsive to inflation. Timely rate changes could resolve the matter, but legislatures have been quite reluctant to increase any tax rates when treasuries are bulging with general revenues as a result of inflation.

However, there may have been more activity than many people have noticed. The course of gasoline tax rates over a 22-year period is indicated below. High, median, and low state rates for selected years were as follows:

	1956	1966	1977
High	7¢	8.0¢	11¢
Median	6¢	6.5¢	8¢
Low	3¢	5.0¢	5¢

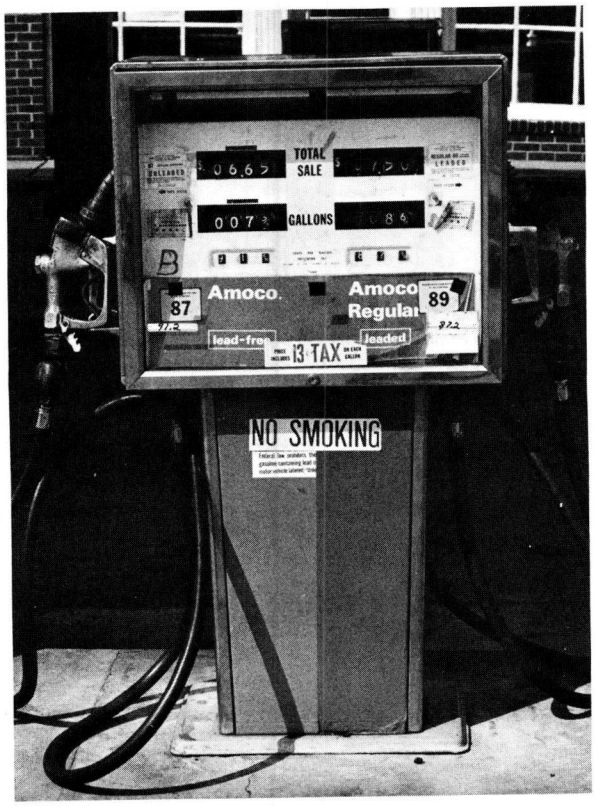
During the period, only four states made no changes at all. At the other extreme, Delaware increased its rate five times, and seven states made four changes.

Over the 22-year period, the rate increases by number of states were as follows:

None 4	3.5¢ 5
1.0¢ 13	4.0¢ 6
2.0¢ 9	4.5¢ 1
2.5¢ 2	5.0¢ 2
3.0¢ 7	6.0¢ 2

Thus there has been considerable activity; whether it has been timely and sufficient is another matter.

Thirty-seven states exempt gasoline (and diesel fuel less frequently) from their general retail sales taxes. Reasons for the exemption are obscure, but probably the best explanation is that the gasoline tax is seen, not as a user charge, but as an excise or selected sales tax (at a higher rate than typically applies to other commodities when put in ad valorem terms). Hence, to tax it under the general sales tax also is thought to involve unacceptable "double taxation."



The gas tax has proved popular with the states because it is easy and inexpensive to administer, but its failure to respond automatically to inflation means it has not kept pace with rising costs.

A less plausible explanation is that gasoline is exempted in order to reduce regressivity of the general sales tax. This notion might possibly explain the exemption of gasoline in 17 states that exempt food as well, but it can hardly hold true for the 20 states that tax food but exempt gasoline. Of the eight states that include gasoline under their general sales taxes, four tax food as well.

Where gasoline is taxed under the sales tax, the proceeds are recognized as general taxes and distributed in the same manner as other proceeds of such taxes. Specialists in public finance would applaud this practice. They might even argue that a general sales tax component is contained in the gasoline tax (by virtue of an unwarranted sales tax exemption) and that a portion of its proceeds should be transferred to the states' general funds. Before this would happen, efforts would probably be made to remove the exemption of gasoline from the retail sales tax; this would appear to be the more straightforward and feasible course of action. The more difficult question involves the legitimacy of imposing a *selective* excise on motor fuel for general purposes in addition to a user charge measured by fuel consumption for highway purposes.

A California situation has confused many writers. Gasoline was included in the retail sales tax base in 1971. At the same time, the state's general retail sales tax rate was reduced commensurately, and the local tax (which is collected under contract by the state) was increased in like amount. The increased *local* general sales tax is earmarked for transportation, with transit having first call for the funds. Because of the politically inspired hocus pocus, it has been widely but erroneously reported that the sales tax on gasoline is earmarked for transportation.

HEAVY VEHICLE TAXATION

It is generally acknowledged that heavy vehicles occasion additional highway cost, more than proportional to increases in their motor fuel tax payments. Therefore, fuel taxes need to be supplemented if equity and efficiency are to be served. Essentially, the choice is between a tax for use of the highways over some period of time or a tax proportional to distance traveled. The former is the familiar weight fee, typically collected annually at the time of vehicle registration. The latter is typically some variation of the controversial mileage tax graduated according to a designated measure of weight (often referred to pejoratively but erroneously as a "ton-mile" tax).

One problem common to either annual or mileage taxes is selection of the weight basis to be used for scaling them. The theoretical ideal is quite impossible. It would measure actual weight imposed on the highway under all conditions —empty, loaded, half-full, etc.—and tax rates would vary under different load factors. No wonder the states have opted for something more simple and stable. A large majority of states now use a measure called gross vehicle weight; a number continue to use empty (unladen) weight. Rated capacity (set by the manufacturers) was once a popular measure but became meaningless as the industry discovered that low ratings could mean low taxes even though vehicles were easily capable of carrying much more than their ratings.

Declared empty weight requires lists of items that must be included and that may be excluded. It requires specific body type descriptions to identify the vehicle, and it requires an updating system for vehicles undergoing modifications that add significantly to their unladen weight.

Gross weight, in contrast, is a numerical measure requiring little or no interpretation. It includes the entire weight imposed upon the highway—the vehicle, its equipment, fuel, and payload. All in all, gross weight provides a closer approximation to actual weight than does empty weight. Besides this, its simplicity in measurement and enforcement and its potential contribution to national uniformity appear to be decisive merits.

Related to weight definition is the question of vehicle combinations or "trains." Should each individual unit be taxed, or should the entire combination be considered a unit? When declared gross weight is used as the base, the latter is accomplished rather easily simply by ascribing to the power unit not only its own weight but the weight of all vehicles in any combination in which it will operate during the year. Typically, the power unit will be registered at or near a maximum legal weight for an optimum arrangement of trailing units. When weights of units are combined in this manner, trailing units are usually registered and required to pay weight fees at fairly modest levels.

Part of the rationale for this approach is that trailing units do not operate on highways without attachment to a

Because heavy vehicles occasion additional highway costs, fuel taxes need to be supplemented to serve equity and efficiency. All states and the federal government impose special taxes on heavy vehicles.

power unit. The approach also appears to facilitate interchange of trailers among carriers through leasing or other arrangements. Forty states register and tax the combination. Three permit an option whereby vehicles may be registered individually or as combinations, and eight require registration and taxation of the individual units.

Although the weight base issue is common to both, the choice between annual taxation and mileage taxation involves a more fundamental issue—that of burden distribution. In principle, the *total* burden to be distributed would be the same. That burden would be divided either by the number of vehicles in each class to derive a per vehicle annual tax or by the number of vehicle miles traveled by that class of vehicles to derive a per vehicle-mile tax. The *average* vehicle in the class with respect to both weight and mileage would pay precisely the same amount under either tax scheme.

Differences in the tax burden arise because of the large dispersions from the mean among the vehicle population in every class. Ranges from 10,000 miles to 200,000 miles per year are not infrequent; ratios of 2 or 3 to 1 are not at all uncommon.

Graduated Weight Fees

If tax liabilities varied accordingly, as they would under a mileage tax, cost responsibilities would be discharged in an equitable manner. But if each vehicle of the class is to be charged the same amount of annual tax, then the system is inequitable and discriminatory. Put another way, low mileage vehicles are overtaxed and high mileage vehicles are undertaxed, which is to say that a cross subsidy passes from the one to the other. A point to be emphasized is that load repetitions, which mileage reflects, are often the critical factor in highway design and costs.

In order to ameliorate this situation, states sometimes resort to vehicle classification. A large majority of states have reduced weight fees for farm vehicles because of their relatively infrequent highway use. Some states impose heavier (or additional) weight taxes on common and contract motor carriers than on proprietary carriers, presumably because of higher average vehicle mileage by the former.

Such efforts to mitigate inequities may take care of the worst offenses but tend to open up a Pandora's box that legislatures may find difficult to contain. Annual weight taxes in general tend to be shaded down out of consideration for the low-mileage operators. The undertaxation (or subsidy) of the high-mileage operator is made all the greater. At the same time, it becomes a matter of simple self-interest to the high mileage operators to do everything possible to keep states in the annual weight tax fold and prevent them from experimenting with mileage taxation.

It is difficult to compare levels of weight fees among the states. Not only do weight bases and the treatment of combinations vary, but schedule graduations are very different from state to state. State A may have a higher tax than B for a truck of a given size, but in a different fee bracket A's tax may be higher. Again, some states have taxes other than fuel and weight taxes (often called "third-structure" taxes) for which a reciprocal relationship may exist, for

example, high mileage taxes and comparatively low weight taxes or vice versa.

The diversity of state approaches to weight taxes is given in Tables 1 and 2. State legislatures have obviously exercised a great deal of discretion, probably because they have received comparatively little guidance from technical advisers. As one illustration, the Highway Cost Allocation Study completed by the Bureau of Public Roads in 1965 had the following cost responsibilities for a specific combination (5-axle, full truck and trailer) under different methods of assignment: differential benefits, $103; incremental, $655; cost function, $944; gross ton-mile, $1,156. Similar variations were produced for other vehicle classes. If exhaustive technical studies produce such results, it is not surprising that there is much diversity among the states in taxation of heavy vehicles.

Weight taxes pose a problem in regard to interstate operation and taxation of vehicles. Reciprocity was designed to deal with this situation. States mutually agreed not to tax each other's vehicles if they were properly registered and taxed in the base state.

Elaborate rules have been established for determining the base state of each vehicle (i.e., the state in which it is required to be registered and taxed). Such rules have reference to garaging, dispatching, controlling and/or maintaining the vehicles; for larger fleets, they actually involved negotiation to allocate a certain number of vehicles to each state in which a significant volume of operation is anticipated. Some 15 states, mostly in the Southeast, are parties to a multistate reciprocal agreement, originally formed in 1948, that goes to great pains to define base state.

Some states, mostly in the West, have agreed to prorate weight taxes in proportion to mileage operated in each of the states that are parties to the agreement. States that have proration must still devise reciprocity arrangements for those who do not prorate, but they show no tendency to give up proration and the industry continues to support the concept. The system has now endured for more than 20 years without sign of decay. But while proration provides a mechanical solution of one aspect of weight taxation, the underlying defects still remain and, in some cases, may be aggravated.

TABLE 1

WEIGHT TAXES AND TYPICAL VEHICLES IN SELECTED STATES, 1973 (after *5*)

State	14 K GVW Stake Truck	72 K GVW Trac. Semi.	Ratio HI/LO
Missouri	51	1,008	19.8
Tennessee	56	1,036	18.5
Washington	47	763	17.2
Illinois	160	1,492	9.3
Pennsylvania	80	560	7.0
Florida	73	404	5.5

TABLE 2

HIGHWAY USER TAXES ON 72,000 LB. GROSS WEIGHT, CONTRACT CARRIER, DIESEL VEHICLE FOR SELECTED STATES, BY TYPE OF TAX, 1973 (after *5*)

	Reg. & Weight	Mileage	Fuel	Total
Mileage-Tax States:				
Colorado	$ 33	$ 2,661	$ 1,000	$ 3,694
Idaho	103	3,364	-o-	3,467
New Mexico	76	1,370	1,000	2,446
New York	519	1,527	1,429	3,475
Ohio	605	1,400	1,000	3,005
Oregon	185	3,850	-o-	4,035
Other High-Tax States:				
Illinois	1,492	-	1,071	2,563
Iowa	1,260	-	1,143	2,403
North Carolina	1,265	-	1,286	2,551
Vermont	1,659	-	--	1,659
Low-Tax States:				
Delaware	383	-	1,143	1,526
Florida	404	-	1,143	1,547
Hawaii	389	-	714	1,103
Oklahoma	652	-	929	1,581

Graduated Mileage Taxes

Conceptually, graduated mileage taxation corrects for defects of weight taxation in the easiest possible way. The taxes here being considered have a variety of names in the various state statutes, there being a general tendency to eschew the word "mileage" and to substitute a euphemism such as "highway use fee." The tax is applied in the following manner: For a vehicle combination of a given declared gross weight, the operator records the mileage for the tax period, say a month, finds the appropriate rate on a tax schedule, fills in a form, and sends in a check.

There has to be a catch in any tax program that seems so simple and rational. In this case it is found in the great dispute over the administrative feasibility of such a program under anything approaching acceptable public and private costs. On the one side, it is suggested that an army of auditors, inspectors, and enforcers will be needed to insure tax honesty and hold evasion to tolerable levels. On the other side, it is argued that a mountain of mileage and back-up data will be required to establish tax liabilities.

There can be no question but what a mileage tax imposes cost burdens more onerous to both government and taxpayer than would exist in a simpler world of just fuel taxes and weight taxes collected with vehicle registration. The question is just how much that additional burden really is and whether it might be worth its costs in terms of greater equity and economic efficiency.

As compared to an annual weight tax structure, a mileage tax system is favorable to low-mileage vehicles and taxes high-mileage vehicles proportionately more—an outcome that appears equitable and efficient from an economic point of view. However, it has been suggested that mileage taxation undermines reciprocity arrangements because the state with mileage taxes gives up little or nothing while a state relying heavily on annual weight taxes gives up a great

deal. Where proration agreements prevail, the issue disappears because each state collects appropriately according to respective use of its highways.

In practice, relatively few states impose comprehensive mileage taxes. Most of these have had such taxes for a quarter century or so, and they continue to produce substantial revenues, especially in Oregon, Colorado, Ohio, and New York. In any comparison among states, however, caution is indicated; whether taxes in a state having mileage taxes are higher or lower than a state without such taxes depends on annual miles traveled by the vehicles in question.

As we look to the future, fuels taxation may become less and less tolerable as a way of recovering highway costs because of new fuel consumption patterns, new types of fuel, and new power systems. Conceivably, mileage taxes, at least for heavy vehicles, might become a more acceptable as well as a more rational highway-user revenue source.

CHAPTER FOUR

STATE TAX SYSTEMS

In 1975-76, total taxes by all levels of government in the U.S. amounted to $350 billion, with the federal government being responsible for 56 percent and state and local governments responsible for 25 percent and 19 percent, respectively. Of the $101 billion in taxes that state governments now collect annually, a substantial portion is expended for transportation purposes.

State government tax proceeds for 1977 are shown in Table 3. The motor vehicle-related taxes increased only 5 percent from 1976 to 1977, but all other taxes increased 14.6 percent over the same year. Income taxes were particularly responsive to inflation, with personal taxes increasing 18.7 percent and corporate income taxes increasing 26.3 percent over the year. Of particular interest for this report is the fact that the motor vehicle-related taxes constitute only 13.5 percent of total state taxes as compared with more than 22 percent 10 years earlier.

The 1977 Census Bureau report (*6*) comments on current state tax practices:

> In recent years, individual income taxes have increased in relative importance as state tax sources, while motor fuel sales taxes have decreased and general sales taxes have remained relatively stable . . .
>
> The predominance of one tax source over another varies considerably from state to state . . . However, the general sales tax is still the primary revenue source in most states, accounting for more revenue than any other tax source in 32 of the 50 states, and in 26 of the 39 states which impose both a general sales tax and an individual income tax. The individual income tax is the primary source of tax revenue in 15 states, while the motor fuel tax is the primary source in New Hampshire, and severance taxes are the largest source in Louisiana. In Alaska, ad valorem taxation of oil and gas reserves has resulted in property taxes being the state's largest tax revenue source (p. 2)

Together, the yield from general sales, gross receipts, and individual income taxes accounted for more than half (55.8 percent) of all state revenue in fiscal 1977.

The matter at issue is the possibility of using portions of general taxes for transportation purposes. These are well-established taxes. They will continue as components of state tax systems, or if removed, it would be for reasons having nothing to do with transportation. In any case, the marginal cost of administration should be zero or close to it. However, the specter of tax competition among the states does impose serious constraints upon any one of them. On the other hand, the possibility exists that greater benefits will derive from additional taxes and tend to offset their adverse impact. Another mitigating factor is deductibility of almost all state taxes from personal and business income in determining federal income tax liability.

INDIVIDUAL INCOME TAXES

Because it is heavily used by the federal government and is imposed in 44 of the 50 states, the personal income tax is well understood by the public. State individual income tax rates are usually progressive; that is to say, they increase as income increases. But because the brackets, rates of progression, exclusions, deductions, and credits vary so widely, it is not easy to compare burdens directly. However, highest marginal rates are found in Delaware (19.8%), New York (15.0%), Minnesota (15.0%), Alaska (14.5%), and Iowa (13.5%).

Three states base state liability on federal income tax liability: Nebraska (18%), Rhode Island (17%), and Vermont (25% plus 9% surtax). Five states have flat rate taxes of rather broad coverage (after provision for personal exemptions): Massachusetts (5.0%), Michigan (4.6%), Illinois (2.5%), Indiana (2.0%), and Pennsylvania (2.0%).

GENERAL SALES AND GROSS RECEIPTS TAXES

Included in this category are taxes based on the volume or value of transfers of goods and services; upon gross

TABLE 3
STATE GOVERNMENT TAX REVENUE, BY TYPE OF TAX, 1977 (*6*)

Tax Source	Amounts (Millions of $) 1977	1976	Percent Change '76 & '77	Percent Distribution 1977	Per Capita 1977
Total Collections	101,026	89,256	13.2	100.0	$472
Personal Income	25,453	21,448	18.7	25.2	119
General Sales	30,870	27,333	12.9	30.6	144
Selective Sales	12,394	11,398	8.7	12.2	58
Alcoholic Beverage	2,125	2,057	3.8	2.1	10
Tobacco Products	3,500	3,462	1.1	3.5	16
Insurance	2,336	1,960	19.2	2.3	11
Public Utilities	2,363	2,060	14.7	2.3	11
Other	2,059	1,858	10.8	2.0	10
Property	2,250	2,118	6.2	2.2	11
Corporate Income	9,187	7,273	26.3	9.1	43
Licenses	2,559	2,543	.6	2.5	12
Corporations	1,041	1,135	- 8.3	1.0	5
Alcohol Beverage	177	154	14.6	.2	1
Other	1,341	1,254	6.9	1.3	6
Death and Gift	1,802	1,513	19.1	1.8	8
Severance	2,168	2,029	6.9	2.1	10
Miscellaneous	674	585	15.2	.7	3
Motor Vehicle-Related	13,669	13,016	5.0	13.5	64
Motor Fuels	9,087	8,660	4.9	9.0	42
Motor Vehicle Licenses	4,236	4,046	4.7	4.2	20
Motor Vehicle Operators	346	310	11.6	.3	2

receipts or gross income; and related taxes based upon use, storage, production, importation, or consumption of goods. Such taxes are "general" when applicable, with only specified exceptions, to all types of goods and services or all gross income, whether at a single rate or at classified rates. A major feature of sales taxes is that "they are *in rem* rather than personal taxes. As such, they do not allow for the personal circumstances of consumers as does the individual income tax with its exemptions, deductions and personal rates. . ." (*2*, p. 323).

The Census Bureau reports (1977) (*6*) that 45 states have taxes of this nature. Three of these—Indiana, Washington, and West Virginia—have separate gross income taxes at various rates in addition to general sales taxes. On the other side, five states have avoided general sales taxation altogether: Alaska, Delaware, Montana, New Hampshire, and Oregon.

Twenty-four states allow various local governments to impose supplemental local sales taxes that can be combined with the state rate and collected by the state government. For example, the state rate for New York is 4 percent, but an additional 4 percent for New York City is collected by the state. In California, the state rate is 4¾ percent, but with local taxes added, the combined rate is 6 percent in 55 of the state's counties and 6½ percent in the other 3. State rates alone range from 2 percent in Oklahoma to 7 percent in Connecticut, with a nationwide median of 4 percent.

Sales taxes produced $31 billion in 1977, almost 31 percent of total state taxes. Eight states (California, New York, Illinois, Texas, Pennsylvania, Florida, Michigan, and Washington) account for more than half the total.

Sales taxes are generally regressive in that they bear more heavily on lower than higher income people; even so, they appear to be comparatively popular according to various polls—or at least this is the case when comparisons are made with local property taxes, on the one hand, and federal income taxes, on the other. Popularity may be due largely to the ease of payment, in driblets, as money is expended.

General sales taxes also have comparative advantages over income taxes in terms of lesser adverse impacts on incentives, savings, and capital formation. For this reason, many authorities see virtue in a combination of personal income and general sales taxes.

SELECTIVE SALES TAXES

The Census Bureau (*4*) defines selective sales or gross receipts taxes as: ". . . taxes imposed on sales of particular commodities or services or gross receipts of particular businesses separately and apart from the application of general sales and gross receipts taxes" (p. 37).

Because of their "selective" nature, such taxes are bound to impose a heavier "excess burden" than do more general taxes. The introduction of a selective tax affects private choices and distorts the market, thereby causing inefficiencies. These inefficiencies must be weighed against whatever merits any particular excise may be thought to possess. From this, it follows that the reasons for "select-

ing" a particular commodity or service or business for special taxation (which some would call discrimination) should outweigh its disadvantages.

Some level of support for selective taxes may be found in two areas. The first is pragmatic. As one example, a selective sales tax may be rationalized as a substitute for a direct user charge, which might be too costly to administer. The motor fuel tax for highway purposes and an aviation fuel tax for airport support are often seen in this light. In other cases, selective taxes may simply be imposed "in lieu" of other general taxes that might be more difficult to apply to the activity in question.

The other area of support for selective taxes involves economic regulation or control through tax devices. In these cases, excess burden is intentional. The market is deliberately distorted as a matter of social preference. The leading example of this kind of policy is "sumptuary" taxation of tobacco products and alcoholic beverages, presumably justified on the ground that consumption of such products is either immoral or unhealthy, or both.

Another use of regulatory taxes is to correct inefficiencies in resources use (as, for example, by internalizing social costs) or to exact compensation for such inefficiencies. Taxes on petroleum products in the interests of reducing air pollution or promoting energy conservation would be an example; another might be the imposition of special taxes on public utilities to provide reimbursement for monopoly privileges.

Utilities subject to special taxes vary in the different states, but the most common method of taxation is on gross receipts, that is to say, the entire receipts without deduction for any expenditure or cost of service. Often the special taxes on utilities are in addition to all other taxes, but they are sometimes in lieu of all property taxes or other license or privilege taxes.

The most common form of state tax on insurance companies is the "gross premiums tax." This is similar to excise or privilege taxes, levied for the privilege of engaging in business in the state. In many states, the gross premiums taxes are in lieu of other taxes except taxes on real property. The tax rate is usually a fixed percentage of the taxable gross premiums, and in some states the rate is higher for foreign than for domestic companies. It may also be lower if a specified percentage of the assets of the company is invested in the state.

An in-depth evaluation of insurance company and public utility taxes is beyond the scope of this study. The other major selective taxes treated here are rather simple, however. They are indirect taxes clearly intended to be shifted forward. They are highly regressive and impose substantial excess burdens. But they are productive, easy and inexpensive to administer, and not highly visible. Given additional health or moral connotations, such defects as regressivity and distortion of private choice are found to be tolerable if not admirable by governments typically hard-pressed for funds.

Selective sales and gross receipts taxes, exclusive of motor fuel taxes, produced $12.4 billion for the states in 1977. Seventy percent of this amount was raised in six states: New York ($2.2 billion), Texas ($1.7 billion), Pennsylvania ($1.5 billion), Washington ($1.2 billion), Ohio ($1.1 billion), and California ($.9 billion).

CORPORATE NET INCOME TAXES

Corporate profits taxes provide substantial revenues for the federal government, and they are also tapped by 46 states. Competition among the states, however, holds down state proceeds to about one-fifth of federal tax collections.

Nonetheless, the $9.2 billion that the states collected from this source provided a tidy 9 percent of total state tax revenues. In Michigan and New Hampshire, state corporate profits taxes exceeded 16 percent of total state taxes. Three states produced over 40 percent of the total revenue from this source: California ($1.64 billion), New York ($1.30 billion) and Michigan ($.80 billion). On the other hand, Nevada, Texas, Washington, and Wyoming manage to get along without this revenue source.

Questions on incidence of the corporate income tax are highly controversial. Is the tax shifted forward to consumers? Backward to labor? Is it borne by stockholders? Or is it divided among groups in proportions that vary from business to business? Perhaps the very fact that incidence is unprovable gives the corporate income tax much of its political charm. But beyond this or in spite of it, the case for diversity in the tax system may engender support for business taxes as one component of the total tax structure. Moreover, proponents may urge that taxes on business are convenient and certain, comparatively inexpensive to administer and to comply with, and tap revenue at a legitimate point in the income stream in view of the general benefits and compatible environment that government affords to private enterprise.

Support for business taxation as a matter of principle, however, does not necessarily imply support for corporate profits taxes in their present form. If business is to be directly taxed at all, a substantial case can be made for taxation of all businesses, whether incorporated or not and profitable or not.

A tax for this purpose given serious consideration in many circles is the value-added tax, whose final results are rather similar to a general retail sales tax but which taps business at strategic points in the production process without the pyramiding inherent in a transactions tax. Value-added taxation, however, is a more likely candidate for the national government, in view of the states' propensities to avoid adverse competitive situations. For this reason also, it seems unlikely that even the more traditional taxes on competitive business will increase in relative importance in state tax structures.

PROPERTY TAXES

The Census Bureau (*4*) definition of property taxes is a useful introduction to this section:

> Taxes conditioned on ownership of property and measured by its value. Includes both general property taxes (i.e., relating to property as a whole, real and personal, tangible or intangible, whether taxed at a single rate or at classified rates), and special property taxes (i.e., on selected types of property, such as motor vehicles or certain or all intangibles, subject to rates that are not directly

related to rates applying for general property taxation) (p. 38).

All real property, with very limited exceptions, is taxable in all states and is the backbone of every property tax system. Some tangible personal property is taxable in nearly every state, but intangible personal property, including shares of stock in domestic corporations, is generally exempt.

In addition to special treatment of intangibles (and tangible personal property in many cases), exemptions are often accorded certain classes of real property, including schools, churches, cemeteries, libraries and the like. As a rule, public utility properties, because of their complexity, are assessed unitarily by a state agency, with the resulting valuations distributed to the various local jurisdictions for imposition of taxes. Forest lands are often subjected to special methods in the interests of conservation. In some states, "in lieu" taxes are imposed on certain classes of property such as motor vehicles.

States have virtually abandoned general property taxation to their political subdivisions. This source now produces only about 2.2 percent of total *state* taxes. Thirteen states have no property tax revenues at all, whereas this source produces less than 1 percent of state tax revenues in an additional 13 states. In relation to total tax revenues, property taxes, as reported by the Bureau of Census, produce substantial shares of state revenue in Alaska (52.9%), Washington (14.4%), and Arizona (11.2%). The largest amount is reported for California ($439 million), but 98 percent of this is derived from the state's ad valorem tax on motor vehicles, which is collected at the time of registration. Ten states are responsible for 75 percent of the property tax revenue, and in these states about 20 percent of the revenue could be classified as a general property tax, the remaining 80 percent being special property taxes of one kind or another.

Property taxes continue to be of major significance to local governments, inasmuch as over 96 percent of all such taxes go to local governments ($54.7 billion of $56.9 billion in 1975-76). Local governments derived 82 percent of their tax revenues from this source; in 23 states the percentage was 90 percent or more.

The property tax is the source most often suggested when nonuser support of highway or transit is proposed. But empirical as well as theoretical studies of its incidence indicate that the property tax tends to be regressive, especially because a substantial fraction is paid by business and probably is shifted to consumers. A personal net worth tax with appropriate deductions or exemptions could be devised that would be progressive and conform to the ability-to-pay principle, but such a tax would hardly resemble the existing property tax. The outlook for extensive property tax rationalization is not auspicious, however; and the prospects for increased property tax support of transportation are even dimmer.

SEVERANCE TAXES

Severance taxes are imposed "distinctly on removal of natural products—e.g., oil, gas, other minerals, timber, fish, etc.—from land or water and measured by value or quantity of products removed or sold" (*4*, p. 38). Severance taxes usually are held to be excise taxes rather than property taxes.

This class of taxes produced $2.2 billion for state governments in 1977, a little over 2 percent of their total tax revenues. Five states produced more than 80 percent of the severance tax revenues. In these states, the tax provided substantial shares of total taxes: Louisiana (29%); Texas (19%); New Mexico (17%); Oklahoma (17%); and Kentucky (7%).

Quite similar to the severance taxes on oil, gas, coal, etc., but with a different purpose and rationale, are taxes imposed specifically to recover costs incurred by government in serving industries such as mines and forests. Roads as well as other infrastructure that would not otherwise have been supplied in the absence of such private activity would be prime candidates for such fiscal support. This might be regarded as a kind of "special assessment." More specifically, forest roads and special facilities to serve coal mines could be financed in this manner. In economic terms, such facilities are intermediate goods whose costs should be included as components of the industry's total costs. Efficiency as well as equity would be served by such financing.

CHAPTER FIVE

FINDINGS AND SUGGESTIONS

REVENUE SOURCES FOR SUPPORT OF TRANSPORTATION

An in-depth review of both user financing and general taxation has turned up no hidden revenue fountain to rescue states from difficulties in providing for their transportation needs. On the positive side, however, the review revealed no flaws of such nature and magnitude that appropriate levels of financing cannot be achieved with current methods. The financing problem is not so much a matter of inadequate potential revenue sources as it is a matter of definition and political acceptance of a specific expenditure program.

Revenue issues pertain mainly to the distribution of the burden, not its size. As such, they are basically judgmental rather than technical and will be resolved in the political arena. Yet as much as possible should be known about the potential consequences of the expenditure program if reason is to prevail in distribution of the burden.

User Charges vs. General Taxes

An initial issue to be resolved concerns distribution of the revenue burden between users and general taxpayers. Both equity and efficiency questions are involved, and neither set can be resolved with any precision. User financing of highways, already substantial, shows no signs of abating, and it seems a safe prediction that the user share of highway costs will continue to increase even while the definition of highway costs expands. On the other hand, nonuser financing of transit has grown remarkably in the last decade or two, drawing heavily on general taxation and making inroads into highway funds; a reversal of these trends seems unlikely.

In the case of highways, users are the primary beneficiaries, other benefits are largely incidental or the result of shifting, and adequate services are forthcoming with near-total user financing. There is substantial evidence of external costs (noise, smog, and the like) that adversely affect society and might well be included in costs assessed against users. If, as a result, less transport is used, the result will be salutary, and if not, society will be compensated for the social costs inflicted upon it.

Precisely the opposite line is generally advanced for subsidy to transit (i.e., nonuser financing). Transit subsidy represents a form of income transfer to such groups as the poor and the handicapped. Beyond this, external benefits are perceived to stem from provision of more transit service than would be forthcoming if fare-box revenues alone were the source of funding. These benefits could be in the form of decreased social costs because of reduced motor vehicle use. Additionally, urban land use patterns might be improved (less urban sprawl, etc.) as a consequence of increased transit and decreased motor vehicle use.

Subsidies allow the provision of more transit service than would fare revenues alone.

In both the highway and transit cases, opinions differ regarding divisions of costs between users and others. In fact, in either case, the full range extends from zero to 100 percent. But in practice, transit is moving towards zero, while highways are edging upward toward 100 percent user financing.

User Charge Structure

This report stresses the concept of structure, advancing the theses that (a) individual taxes should be designed to complement each other and (b) it is the *combined burden* of the taxes that should be judged in considering equity and efficiency.

The purpose of the user financing structure is to promote economic efficiency as well as equity. The motor fuels tax (commonly, the "gas" tax) is the back-bone of the highway user tax structure because of its productivity, economy, and reliability, as well as basic equity in apportioning costs according to benefits. Certainly no tax is perfect, and probably none is popular, but perhaps the gas tax ranks higher than any other on these scores. Even so, the states wisely supplement the gas tax with other revenue measures in framing their user tax structures.

On the one side, a variety of fees is imposed to meet costs of specific services, the most important of which is the motor vehicle registration fee (sometimes called license tax). The latter may also include a component (more

than enough to defray ministerial costs of registration) regarded as a "readiness-to-serve" or standby charge simply for the *availability* of highway facilities.

On the other side is some scheme of heavy vehicle taxation designed to make up for deficiencies of the motor fuel tax in distributing the highway cost burden. Although motor fuel consumption (and hence fuel tax payments) increases with vehicle size and weight, the rate of progression is insufficient to meet separable costs occasioned by heavy vehicles or added benefits accruing to them.

The vast majority of states translate tax responsibilities of heavy vehicles into a set of annual weight taxes. Weight taxes are fairly easy to administer, but they tend to be shaded downward for benefit of lower mileage vehicles. In any case, annual taxes fail to discriminate properly between lower and higher mileage vehicles within the same category, inasmuch as the latter clearly accrue greater benefits and are responsible for higher costs.

A number of states use annual weight taxes to a lesser extent and rely heavily upon vehicle mileage taxes graduated according to weight, (often called "ton-mile" taxes). Such levies (unlike weight taxes) have the virtue of proportioning burdens more in accord with costs and benefits; they also tend to resolve interstate problems. However, they are anathema to the commercial vehicle industry. It is argued that both administration and compliance costs are unjustifiably high and that substantial tax evasion is inescapable. Yet states that now use such taxes as substantial providers of revenue have had them for years and show no disposition toward abandoning them.

The point to be emphasized here is that each of the states has achieved some kind of balance in its user tax structure and has included in that structure individual taxes that it conceives to be administratively satisfactory. Changes may be warranted, but this is a matter for each individual state to consider in light of its own circumstances.

General Tax Structure

With respect to general taxes, traditional analysis argues that the purpose of expenditures is irrelevant to burden distribution, based on the concept of pure public goods, which by definition are nonrival and nondiscrete, thus making benefit apportionment impossible. Equity becomes a major consideration, and equity is found to be personal. Ability-to-pay, as measured by personal net income, becomes the principal criterion, and progression of rates as the income base increases is judged to enhance equity.

But equity should not be the sole criterion. Other objectives are also to be considered, generally under the rubric of efficiency. Thus, excessive reliance on personal income taxation may result in unwanted "excess burden," specifically through distortion of work-leisure and saving-expenditure tradeoffs. For this reason, among others, taxes other than personal income taxes become part of the total tax structure.

Additionally, diversity tends to facilitate a workable scheme of intergovernmental fiscal relations. It also mitigates the bugaboo of states (and their subdivisions) that getting out of line on any single tax source may divert wanted investment and growth to other areas.

Finally, benefits are not to be ignored entirely in devising the over-all tax structure, even if they cannot be measured and priced with precision. In fact, distribution of expenditures often mitigates any inequities (regressive tendencies) of a diversified tax structure. In any case, it is the incidence of the total tax structure and the attendant expenditures, rather than the incidence of any individual tax, that is to be considered in evaluating the equity and efficiency of the total fiscal package.

The factual review indicates that states have generally followed the course suggested here, if only by happenstance. The principal revenue sources are personal income taxes and general sales taxes. Most states use both. The former is usually progressive; the latter is more or less regressive. These sources are supplemented by selective sales taxes in all states. The more common and lucrative selective sales taxes are those on tobacco products and alcoholic beverages (justified somewhat hypocritically on sumptuary grounds), followed by gross revenue taxes on public utilities and insurance companies (presumably because of unique features of these businesses and the privileges accorded to them by the states).

Next in breadth come corporate income taxes, the rationale of which is not very clear because incidence of the taxes is in doubt. But the notion, bizarre though it is, that businesses, *apart from people,* can and should share the tax burden apparently carries a great deal of political weight.

Finally and understandably, states take advantage of any peculiar endowments they may possess, especially if some export of the tax burden results. States with oil and gas, minerals, or timber commonly exploit severance taxation; others find riches in special business situations or fortuitous circumstances of one kind or another.

Left out of the above reprise was any reference to property taxation, which is usually advanced as the prime candidate whenever general tax support of transportation is proposed. The plain fact is that all but a few states have abandoned property taxation. What shows up in financial statistics are such things as taxes on motor vehicles conveniently collected in lieu of personal property taxes at the time of vehicle registration (and often returned to local governments) or such specialties as taxes on intangible property, private car companies, or designated utilities. In any case, the *general* property tax usually has to be regarded as a local tax, much berated and allegedly abused, but important nonetheless. Even at its best, however, the property tax would not be a particularly suitable source for the support of transportation facilities and services.

General Taxation and Transportation Finance

The expenditure of nonuser funds for transportation is not and should not be dependent upon the composition of a state's general tax structure. By the same token, the advocate of nonuser funding for transportation has no rational basis for proposing any particular general tax as an appropriate source of funds. Indeed, the widespread practice of using "general fund" appropriations for nonuser support is to be applauded as a matter of principle. This allows tax system designers to balance the general tax structure as they see fit, avoiding pointless debate about destination of the revenues but taking full account of mat-

ters concerning tax competition, diversity, complementarity, state-local comity, and the inevitable tradeoffs between equity and efficiency.

This report does not presume to appraise general tax structures of individual states, nor will it propose a model system. However, the choice between general tax or user charge support for transportation in a given case may well rest on the over-all merit of the general tax structure.

Regarding improvement of the general tax structure, the U.S. Advisory Commission on Intergovernmental Relations (*7*) has made the following proposals:

> (1) The personal income tax should stand out as the single most important revenue instrument in the state tax system capable of producing close to 25 percent (compared to a present 12 percent) of total *state-local* tax revenue . . .
>
> (2) The general sales tax should serve as the other major state tax capable of producing between 20 and 25 percent (compared to an existing 16 percent) of total *state-local* revenue without imposing an extraordinary burden on low income families—the exemption of food and drugs or the provision of income tax credits can go a long way toward pulling most of the regressive stinger from this tax . . .
>
> (3) The local property tax should continue to serve as the principal revenue instrument for local government, but a state-financed "circuit-breaker" system should be provided to shield certain taxpayers, especially low-income aged, from excessive burdens.

A refreshing feature of the Commission's report is that it proposes no fiscal magic. It does not promise an elusive, new, and painless revenue source. It stands up to the fact that taxes come from the income stream, which is tapped when income is received, when it is spent, or after it has accumulated.

In connection with the plaintive but tiresome plea for new sources, Gravelle's admonition to Congress (*8*) regarding federal taxes for transportation is worth repeating:

> Another alternative is to develop an entirely new source of revenue. For example, increased taxes on credit card company earnings from transportation, transportation equipment leasing, corporate headquarters, department stores and other groups which benefit from public transportation have been proposed. These suggestions are attempts to raise revenues on the benefit principle. *Such new types of taxes pose almost insurmountable administrative problems in identifying the appropriate groups for taxation and targeting the taxes. For such a small amount of revenue it is very difficult to justify developing an entirely new set of taxes. Furthermore, in many cases these taxes would be passed on to the general public and would have effects little different from general public financing.* (Emphasis added) (p. 972)

Likewise, Koltnow of the Highway Users Federation testified to Congress (*8*) in 1977:

> We have searched as diligently, I am sure, as many members of your committee have, for a reasonable source of funds for transit. . . We have not been able to come up with any special source, and we propose none. We have looked at how states finance their support of transit. They assume that public transportation is a public necessity and then go in with their general funds (p. 830).

The Institute of Transportation Engineers was representative of a number of witnesses who were equally circumspect in testimony before the same committee (*9*):

> Our society does not believe that our expertise extends to the question of proper forms of taxation and fund sources, but we do believe that a predictable fund source for each transportation mode is essential . . . (p. 70).

It is obvious that this examination of revenue structures has failed to uncover the touchstone to fiscal health of the states' transportation systems. The conclusion is that by and large the best course of action is for states to continue using the revenue sources that have long been available to them. But these sources must be used more effectively.

THINGS GONE AWRY

If potential revenue sources are not a major problem, why do states find themselves in difficulty? The situation in California is illustrative.

> Something has gone wrong—drastically wrong. Employees are being laid-off, contracts stopped or cut back, freeway route adoptions rescinded, rights-of-way sold off. Previous commitments are being cancelled, approved plans abandoned, and cooperative agreements annulled. People who looked to the future with confidence that transportation improvements would keep pace at least with growing demands, and that conditions might even improve over time, are being told that they will be lucky if the state, counties, and cities can keep transportation services from worsening and the transportation plant from falling apart (*10*, p. 5-1).

In explaining the states' fiscal problems, it might be noted that transportation interests generally place continuity above all other virtues in describing attractive revenue sources. The long lead time involved in the systematic planning and development of transportation networks is heavily emphasized. The recent proposal to earmark a specified fraction of the federal corporation income tax as a "trust fund" for transit attracted much support. There was scarcely any debate about the appropriateness of the revenue source; clearly the basis of support was the dedication of the revenue and the continuity of financing that would ensue.

But the much-revered continuity, as embodied in dedication of funds, has been available for many years in most of the states now having fiscal problems with respect to highways. It has tended to isolate highway financing from the ordinary budgeting processes, failing to flag potential revenue problems at their inception. Moreover, in a thoroughly haphazard way, legislatures have tended to chip away at available funds with little forethought as to the ultimate and combined impact because they have not had to face up to the total picture. The Congressional Budget Office apprised the Congress of other problems along these lines in the following (*11*):

> Programs that are financed through trust funds avoid the normal requirement to justify periodically their claims on general revenues. Trust funds are normally set up for extended periods, and they may establish a pattern of programs and aid that is difficult to break. Yet, although the trust funds undoubtedly shield their modes from funding curtailments, they may also make it difficult to increase revenues through additional taxes or user charges. Thus, trust funds with inadequate or declining revenues could prove to be a disadvantage to a mode if they dis-

courage legitimate increases in the level of programs. (p. 23)

Symptomatic of a deeper malaise is the failure of the revenue structure to respond to inflation. A relatively stable flow of dollars that are rapidly and continually losing purchasing power can hardly be characterized as continuity in financing. Such, however, is the result of a tax structure composed almost exclusively of specific rather than ad valorem taxes in the absence or tardiness of legislated rate adjustments to compensate for higher costs. Again, the isolation of highway financing from the mainstream of policy making may have been responsible for complacency, benign neglect, or simple oversight by legislative bodies. Whatever the reasons, the upshot has been a rather frantic effort to build into highway revenue systems a self-executing mechanism to adjust proceeds of specific taxes for inflationary effects, either by conversion to ad valorem bases or by indexing. (It would be remiss not to note here that even while highway interests are looking for ways to gear user charges to inflation, taxpayer interests are moving to take general taxes out of that gear and shift them into neutral by the opposite kind of indexing.)

COPING WITH INFLATION

A number of schemes have been devised for the automatic tuning of specific highway taxes to inflation. The performance of such ad valorem taxes as income and general sales taxes suggests that simple conversion of unit taxes to a value base would meet the problem. Before individual possibilities are explored, a caveat common to all is worth stating. Fuel taxes and other user charges are distributed among taxpayers in different proportions. Thus, an increase in one and not in the other will upset whatever balance the overall structure has achieved. To illustrate, if fuel taxes provide, say, 60 percent of the burden but are increased 20 percent by means of a self-adjusting mechanism, the burden on fuel is automatically and probably inadvertently increased to more than 64 percent of the total. Perhaps as important is the fact that when the entire structure is adjusted proportionally to produce the same revenue, the overall burden would have to be increased only 12 percent, falling equally on motor fuels and other user charges.

In the discussion that follows, it will be convenient to illustrate the various possibilities in terms of the gas tax, but it should be understood that other taxes as well as the gas tax should, in the absence of a specific decision to modify distribution of the burden, be subject to any adjustment process that may be implemented.

Ad Valorem Taxation

Conversion of the gallonage tax on motor fuel to a percentage basis appears on the surface to be an extremely attractive option. When the price per gallon of fuel goes up, the tax yield per gallon of fuel goes up correspondingly, a result that parallels operation of sales taxes generally.

Closer examination, however, reveals a number of rather serious complications. An initial question is placement of the impact of the tax, that is, should it be at the retail, wholesale, or even an earlier point in the marketing process? Whatever the choice, problems may arise. Currently, the gasoline tax is among the least costly to administer. Virtually all of it is collected from the initial distributors of fuel, after which it is passed along through marketing channels. With gasoline taxed at the retail level, instead of a handful of taxpayers, hundreds, perhaps thousands, would be involved. Moreover, general retail sales taxation and ad valorem motor fuels taxes could not be fully integrated because of the differences in applicable tax rates. Administration of use-fuel taxes, applicable generally to diesel fuel and liquid petroleum gases, would be complicated by introduction of price variables. Similarly, the administration of refunds for off-highway use would impose additional and probably more cumbersome reporting and auditing requirements.

Placing the tax at the wholesale level might resolve some of these problems but could create others. Among these would be problems with respect to refunds for nonhighway use, deductibility from income taxes, and the mechanics of use-fuel (diesel) taxation. States that are now taxing motor fuel used in federal vehicles might be precluded from doing so.

The purely administrative problems of an ad valorem tax on motor fuels for highway purposes, whether imposed at the retail or wholesale level, could surely be resolved if other merits of such a tax outweighed the ministerial difficulties. However, other issues, including serious questions of equity, remain to be considered.

What about price differences depending on the location of the sales in the case of ad valorem taxes as contrasted with gallonage taxes? Should residents of the more remote areas of a state, possibly having to pay more for fuel because of transport charges, also have to pay more tax per gallon of fuel used on highways?

How are purchases at discount by major users to be handled? What about differences in price from dealer to dealer within the same community. What about self-service vs. full service price differentials? Are any of these and possibly other potential differences in tax liability consonant with the underlying rationale of motor fuels taxation as a *meter* of highway use?

In a similar vein, what is to be done about differences in fuel prices according to grade or rating? Is there any user-charge rationale for a higher tax on higher grade than regular gasoline? Another case might be especially ironic in that lead-free gasoline is publicly mandated to reduce pollution, for which a premium price must be paid, and ad valorem taxation also would lead to a premium tax.

Looking to the future, one might also consider the impact of ad valorem taxes on the use of alcohols, either as blends or as pure fuels. It is reported that, on an equivalent energy basis, methanol is about twice and ethanol about four times the price of gasoline (*12*). Ad valorem taxation would clearly run counter to any energy policy that might be adopted to promote consumption of alcohol fuels or blends.

But it is not necessary to speculate on the future. Diesel fuel taxation currently poses a troublesome anomaly. The price of diesel is substantially less (about 10 cents a gallon now) than the gasoline price; hence, a percentage tax would

impose a smaller burden per gallon on fuel that would actually produce a larger number of vehicle- and ton-miles per unit. The result would be a material shift in burden from large, heavy vehicles (the large majority of which are diesel-powered) to smaller vehicles (the vast majority of which are gasoline-propelled).

An ad valorem tax to produce the equivalent of a typical gallonage tax would require a rate of such magnitude that it might seem unconscionable in comparison with other excise taxes. For example, at an average taxable price of 60 cents per gallon, it would take a 15 percent sales tax rate to produce as much as a 9-cent-per-gallon tax. Cries would be heard in political circles that motor fuels are being unjustly discriminated against; the open invitation to comparison with other excises would be too attractive to resist, considering that the direct link to highway use would be severely weakened.

The distinction between user charges and general taxes, difficult at best, would be more vulnerable than ever, particularly in states that impose their general retail sales taxes on gasoline and other motor fuels. Consider California: The present 7-cent-per-gallon gas tax would convert to an ad valorem tax of, say, 12 percent (assuming an average price, excluding tax, of about 60 cents). But, in addition, the state's 4¾ percent retail sales tax and local governments' 1¼ percent retail sales taxes would be added, making a total tax of 18 percent in 55 of the state's 58 counties. (In the three counties served by the San Francisco Bay Area Rapid Transit District, residents pay an additional half percent tax.)

A sticky legal question might be raised as to whether the converted tax, now a 12 percent ad valorem tax instead of a gallonage tax, would continue to be subject to the state's constitutional provision, basically earmarking proceeds of the *present* motor fuels tax (and other designated user taxes) for highways but allowing some transfer for fixed guideway transit.

By way of summary, the findings of a special study for the Massachusetts State Senate (*13*) are worth quoting:

> Percentage taxes imposed at the retail level in the same way as the sales tax are inadvisable. They will create more administrative problems than the current cents per gallon tax. The motor fuel tax is supposed to reflect the purchaser's road usage, but motor fuel expenditures vary for reasons unrelated to highway usage, such as the place of purchase. Equity problems would thus be created. (p. i)

All factors considered, the initial wisdom of the gallonage tax as a highway user charge becomes rather obvious; its flaw in the present situation is its failure to respond to the exigencies of inflation. This has led to an alternative intended to keep the merits of the gallonage tax but to adjust the rate in proportion to changes in fuel prices.

Indexing

The procedure is simple: Ground rules are established for the selection of a single, *average* price of fuel throughout the state. At specified intervals, this average is recomputed and the tax per gallon of fuel is determined accordingly. For example, if the initial tax is 10 cents per gallon, and it is found that the "average" price of fuel has increased by 10 percent, the new tax will become 11 cents *per gallon.* (To facilitate administration and compliance, adjustments will be made at specified times, say, January 1 and July 1 of each year. For the same reason, the adjustment will be rounded to some specified fraction such as .1 cent or .5 cent per gallon.)

The specific problems raised concerning true ad valorem taxation are generally resolved by this stratagem. Current administrative and compliance practices can be retained. The tax is uniform over the entire state, and the rate per gallon can be the same regardless of grade or type of fuel. But, of course, the state still has a specific (or unit) tax. What it has done in reality is to index the gallonage rate to an estimated average price of fuel. And immediately new opportunities are opened for consideration. For if indexing is to be the answer, what particular virtue is to be found in indexing to fuel prices? At the least, other indexes deserve equal consideration because the mechanics of adjusting the gallonage tax will be essentially the same in any event.

Actually, after some reflection, it turns out that using gasoline prices as an index may be a singularly inappropriate way of adjusting user revenues to compensate for inflation. The basic assumption of indexing to fuel prices (just as in the case of ad valorem taxation) is existence of an acceptable correlation between fuel prices and the relevant costs to be financed. The causal relationship turns out to be somewhat stronger than first impressions might suggest because petroleum products themselves are heavily used in providing highways, both as an energy source for vehicles and machines and as an important material (asphalt) for construction and maintenance. Nonetheless, trends in fuel prices and highway costs have been far from parallel.

Care is required in interpreting the numbers. Were it not for the oil embargo of 1973 and subsequent events, it is not likely that indexing to fuel prices would attract much attention. Considering the entire period 1953 through 1976, gasoline prices (ex tax) increased 123 percent, while highway construction costs increased 146 percent. But the big increase in fuel prices during this period occurred some time after 1972 and leveled off substantially thereafter. During the 1963-1972 period, gasoline prices (ex tax) increased only 22 percent, while highway construction costs increased 71 percent.

During the 1972-1976 period, gasoline prices (ex tax) went up 94 percent, while the highway construction cost index increased only 44 percent. But this set of numbers may be just as damaging to the concept of indexing to fuel prices. Why, it may be asked, should the level of highway expenditures be raised, even more than proportionally to cost increases, because of the entirely extraneous actions of foreign nations with respect to oil prices? Or, again, why should the level of highway expenditures be changed by actions that may be taken domestically in the furtherance of energy policy (e.g., removal of price controls)? The relevant variable for which indexing is sought is some level of highway expenditure judiciously determined through the legislative process. In these circumstances, fuel prices are apt to be totally irrelevant.

If the objective is to offset the impact of cost increases with commensurate increases in revenue, what is needed is an index that accurately reflects each of the relevant components of the program to be financed. The relevant numbers are not easy to attain. Program mixes change. Cost estimates are subject to considerable margin of error.

An Alabama report (*14*) articulated criteria that might appropriately be used in an evaluation:

> . . . (1) the index must adequately measure the degree of inflation; (2) the index should be relatively consistent, i.e., a steady movement would be preferred to an index which demonstrates jerky up-and-down movements; (3) the index should be relatively easy to understand by policymakers who must approve its use; and (4) it must be internally sound and readily available without questions concerning its reliability and consistency (p. 35).

The Alabama study also advised:

> . . . the indices selected should probably be keyed to the national economy rather than the regional or state economy because (1) the data are more indicative of the economic forces at work which will eventually affect the region; (2) the data are more complete and reliable than in many cases for regions or states; and (3) there are probably more fluctuations in regional or local situations which are smoothed out at the national economy level. As a political constraint, it was felt that an index used should be one readily available for all interested parties to observe (p. 35).

Five indices were studied in Alabama. The most appropriate were found to be the consumer price index and its gasoline price component, both the industrial commodities and construction components of the wholesale price index, and the Department of Transportation's highway construction cost index. In California, 11 different indexes were studied in 1975 as "the most relevant to costs of transportation" (*15*).

Although the suitability of individual indexes for inclusion in a composite index has been examined in these and other studies, the weighting of the components has generally been left to further study. The ideal, of course, would correlate precisely with the program mix, but it would vary from state to state and from time to time. Moreover, the program mix itself involves value-laden political decisions that affect the level of expenditures and could affect the level of revenues under any indexing program. Thus, we see that indexing revenues to costs is not simply a technical matter but involves judgment as well.

One possibility that may warrant consideration but seems to have escaped attention would index specific user taxes to personal income (or personal income per capita) of the state. In effect, taxpayers would be asked to pay a constant share of their income for support of the programs in question. Whether the "constant" is correct is, of course, as debatable as other cost indexes and obviously should be reviewed and perhaps changed from time to time. However, indexing to personal income might become particularly attractive in the event of imposition of aggregate tax or spending limitations that use personal income as a base. Otherwise, the user tax base (assuming it is included within the limitation, as is likely to be the case) might continually be eroded as other inflation-responsive revenues occupy an ever-increasing share of the limited base.

Some Cases

To illustrate indexing in practice, it may be worthwhile examining the programs adopted in Washington and Texas.

A variable gas tax was enacted by the Washington State Legislature in 1977, and later that year survived a referendum for its repeal. The rate can vary between 9 cents (the rate existing when the law was passed) and 12 cents per gallon (an upper limit set by the Legislature). The first indexing action set the rate at 11 cents per gallon.

The law starts out simply enough: The tax rate is to be adjusted every six months "to the nearest ½¢ per gallon equivalent to 21½% of the weighted average retail price of fuel in the state (excluding federal and local excise taxes)" (*13*, p. 24). But then complications set in.:

> . . . In addition to a fixed floor and ceiling, the rate must be sufficient to produce revenues at least equal to the amount obtained by annual compounding of the 1973 expenditures at a rate of 6% per annum, but the rate must not be so high as to produce an amount more than 5% above the budgeted expenditures. . . (*13*, p. 16)

In effect, the Legislature is attempting to assure that the appropriations it makes are fully financed within tolerable limits. At the same time, it appears that the following remarks would be relevant to the Washington program:

> Cost-indexing subject to pre-set limits will permit more rational budget-making. The legislature would then be able to arrange for revenues to automatically adjust to gradual changes in the costs of maintaining roads. This would be a significant improvement over the current system of waiting for a sizable revenue gap before even considering a tax increase, thereby permitting much unnecessary physical deterioration to occur. (*13*, p. i)

Regardless of merit, however, no one, including Washington authorities, would pretend that indexing is a panacea, nor is it the only available solution for the inflation problem.

The plan recently adopted in Texas is not strictly an indexing plan, nor does it provide for automatic tax rate increases in any other way. Instead it increases the amount of general tax revenues that are made available for highways in order to meet the dual challenges of continued high levels of inflation and decreasing revenues resulting from better fuel efficiency and lower weights of automobiles. (Note that ordinary indexing of the tax rates does nothing to meet loss of revenues due to declining fuel consumption relative to vehicle miles of travel.)

The Texas law provided a substantial and immediate increase in funds available for highways. Beyond this, it provided for continuance of the program by establishing a statutory base for revenues of the state highway fund. This guaranteed base would be adjusted annually by a Highway Cost Index Committee (the Governor, Lt. Governor, and Comptroller), which would establish an index based upon a weighted annual cost of highway operations, maintenance, and construction. In contrast, most other indexing plans might fall short of expectations simply because they neglected the revenue gap that developed before they took effect. To be successful a plan should provide for updating the transport program to current requirements, thereby establishing a new and realistic base to which indexing is to be applied.

A special feature of the Texas program is the increasing reliance on general tax funding of highways that seems bound to ensue. User revenues are deducted from the adjusted base, and the difference is made up from general funds. Because user revenues are not expected to keep pace with costs due to inflation and fuel consumption trends, the call upon general revenues will increase each year, and the *share* of highway costs to be met by dedicated user taxes will decline.

It should be observed, however, that the Texas situation is unique. The state's constitution requires that 25 percent of user taxes, and all other state taxes as well, be siphoned off the top for education. It could be said that highways now are recovering revenues that were thought to be their just due all along. In any case, the increasing amount of general funds devoted to highways is being derived from tax sources in Texas that are quite sensitive to inflation and could provide funds that might otherwise be regarded as surpluses.

Some Doubts

No one claims to have found the magic wand. Many variables are involved in fashioning a rational transportation program, and the more intractable can never be solved by such contrivances as indexing. In fact, if a device of this nature were to lead to legislative complacency and possible neglect of important program considerations, it might well prove counterproductive.

Indexing has been opposed in some quarters on economic grounds. In a somewhat different context, but pertinent to the case at hand, then Treasury Secretary Blumenthal argued that indexing schemes tend to make high inflation rates "accepted facts of economic life. The economic defect becomes institutionalized" (*16*). A contrary argument, perhaps more persuasive at the state level, is that more adequate financing will forestall higher transport costs and their wide impact on production costs.

In any case, political instead of economic arguments may bear the most weight. To illustrate, the American Petroleum Institute has expressed the following view (*13*):

> The prevailing system of taxation requires legislators to review the priorities and needs before making the difficult decision to increase the taxes which their constituents will ultimately bear. . . This process insures that an increase in the tax burden results from a deliberate determination by responsible elected officials, accountable to their constituents, the ultimate taxpayers.
>
> (Indexing) plans would in various degrees circumvent this essential process. Either the tax rate or the tax base could increase automatically due to forces of the market place or other extrinsic factors, without reference to a state's actual highway needs. (p. 5)

The issues raised are not ones to be dismissed lightly. The danger to be guarded against is the use of indexing as an easy way for legislators to shirk their responsibilities and avoid political accountability. Perhaps the matter can be resolved satisfactorily if indexing is held within strict bounds and is used only as a tool to facilitate timely adjustments in tax rates within strict guidelines set down by the legislative body itself. If authority is to be delegated to a commission, perhaps it should only have "minimal discretion and act in a ministerial manner. . ." (*13*, p. 17).

At any rate, indexing is not a panacea. The plans used in both Texas and Washington require deep legislative involvement in establishing and reviewing the expenditure programs that the revenues are intended to finance. Even if an ideal mechanism were found, it might at best take care of revenue shortages occasioned by either highway cost or fuel consumption changes, but the complex factors affecting state transportation program size and composition demand a deeper legislative commitment than has been seen in most states for some time.

THE NEED FOR DEEPER LEGISLATIVE INVOLVEMENT

Basic decisions in transport matters are concerned more and more with value judgments and less and less with technical engineering and economic findings. Planning is now preoccupied with policy determination. Environmental concerns may override conventional evaluations. And multimodal financing proposals are advanced for reasons far removed from mobility and service considerations.

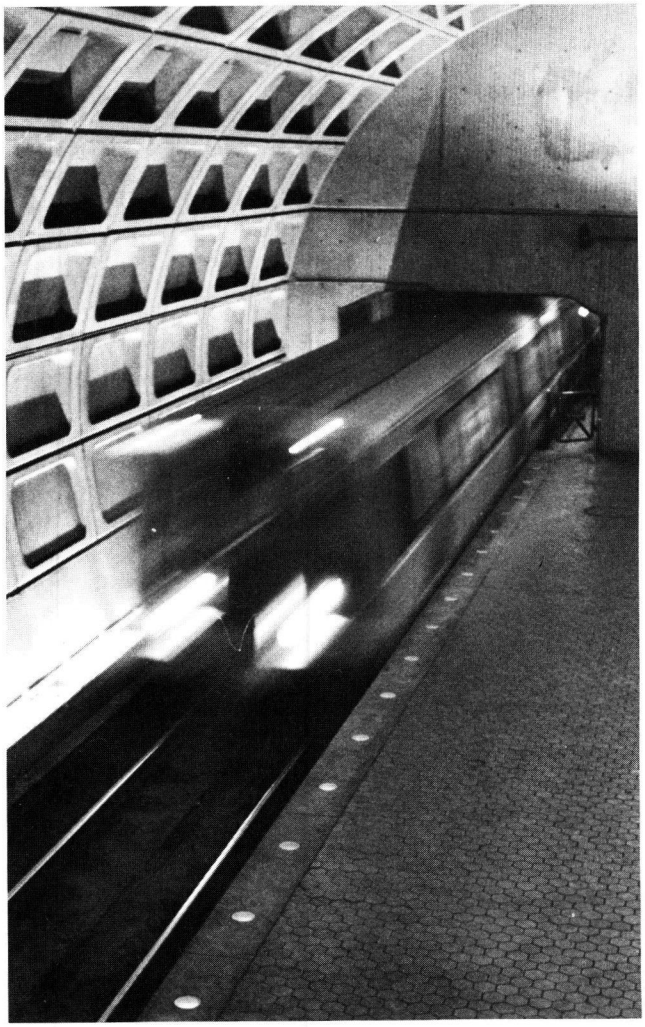
The upshot of all of this has been a fundamental loss of the political consensus that guided state transportation policy for many years. If state transportation programs are to be revitalized, a new consensus on goals and objectives must be forged. This task cannot be delegated; state legislatures must assume leadership.

A brief recapitulation of factors, other than inflation and fuel efficiency, that have complicated transportation financing in the last dozen years or so reveals the depth of the value-laden policy issues involved. On the expenditure side, the following should be considered:

- The composition of state highway funding programs themselves is changing, often for policy rather than technical reasons. More attention is being given to highway rehabilitation, maintenance, and operational improvements. The definition of highway purpose is being enlarged, with attendant pressure on scarce resources.
- State involvement in transit financing is increasing, perhaps slowly and erratically, but inexorably nonetheless. Multimodal transport financing is making headway. Economic evaluation becomes more difficult, and nontechnical tradeoffs are required. Income transfer and social concerns increasingly influence transport policy.
- The mitigation of social costs becomes part of the recognized overhead of transportation programs. Added to the standards designed for the benefit of system users are requirements intended to "internalize" social costs by requiring expenditures for such things as environmental protection, noise attenuation, beautification, and reduction of or compensation for community disruption and degradation.

On the revenue side, issues also demand earnest legislative attention. Among them are:

- The strong possibility that easy reliance on motor fuels taxation, which once served very well as a meter of highway use, will have to be modified as new fuel consumption patterns, new types of fuel, and new power systems respond to demands for energy conservation. For example, rapid



Multimodal transport financing is making headway as income transfer and social concerns increasingly influence transport policy.

growth of electrically propelled vehicles would require a new method of exacting payments equivalent to fuel tax payments from such vehicles. Then again, as the variety of liquid fuels increases, gallons consumed may become a totally unacceptable measure of relative highway use.

• The overall financial condition of the states in the years ahead is likely to impose extreme stringency. Pressures on the legislatures will force examination of transportation expenditures and revenues from all angles. Questions will have to be answered concerning general tax payments of highway users on the one hand and general tax support of transportation on the other. In any case, strenuous efforts will be made to shift more of the burden of financial support for transportation from local governments to the states. The critical issue may well be how this is to be done—with or without added resources.

• State legislators will continue to be importuned to "rationalize" transportation through implementation of pricing strategies. Whatever the resolution of the issue, the matter will not stay put. The better-informed the legislature, which is to say, the more involved it is in the nitty-gritty of transportation policy, the more likely that the public interest will be served.

With such burgeoning issues confronting policy makers, it is not surprising that political consensus has been lost. Nor is it surprising that transportation faces troubled times. What is surprising is that the apparent need to modify institutional arrangements to meet current exigencies has attracted so little attention, especially with respect to the legislative role in transport affairs. At times, the need for a complete reidentification of the major transportation goals and objectives of state government has been mentioned, but the fact that such reidentification must be the sole prerogative of the legislature seems to have gone unnoticed.

Beyond this, a successful turnaround in policy and program would appear to require the continuing and active participation of the legislature. In many cases this will involve significant institutional changes within the legislature itself.

Any discussion of legislative procedures and practices with respect to transportation treads on extremely sensitive ground. The situation changes from time to time and will vary considerably from state to state. Any generalized comments offered here are not likely to fit any given state in every respect. The fact is, however, that legislators themselves have often experienced frustration in seeing transportation programs go sour, even while they have stood idly by because of barriers they or their predecessors have erected. In the final analysis, legislative action is the prerequisite to positive new directions for state transportation programs. In developing the details of such legislation, a hard look at the legislature's own role in the program may be highly productive.

Although increased legislative involvement in transportation policy and program direction seems imperative to revitalization of state transportation programs, the potential hazards should also be considered. Transportation interests attach great importance to continuity in financing to facilitate long-range planning and systematic development of the network. Continuity is thought to be guaranteed by dedication of funds and abetted by continuing appropriation and delegation of budget details to special agencies. More legislative involvement almost surely will lead to more legislative participation in budget-making matters.

The danger, as seen by some, is that the transportation budget will be politicized, which implies that it will turn out to be a political pork barrel fashioned by old-style legislative log rolling. Beyond this, the fear is expressed that the budget will become little more than a will-o'-the-wisp, subject to legislative caprice, leading to a hand-to-mouth program, thereby thwarting rational transport planning and development. A substantial number of legislators share these concerns.

Such concerns are not to be dismissed lightly, but neither should they foil necessary modifications; some risks may be unavoidable in pursuit of a higher objective. Moreover, it may be possible to devise strategies and processes that will mitigate potential dangers. First, the legislature might limit its budget-making to the program level, delegating certain details, such as allocation to projects, to a less politically vulnerable entity.

Easy reliance on motor fuels taxation may have to be modified as new fuel consumption patterns, new types of fuel, and new power systems respond to demands for energy conservation.

It may also be possible to develop a system of multiyear authorizations and appropriations that would satisfy the need for deep legislative involvement while providing reasonable continuity. As one possibility, the legislature might adopt a five- or six-year program in rather broad outline but be more specific about the first two years. Every two years the process could be repeated, taking action on specifics for the immediately ensuing two years, updating the program, and adding on two years. The current emphasis on five-year transportation improvement programs (TIPs) should facilitate such a process.

In such a scheme of things, it might be possible to incorporate a modified system of indexing for fine-tuning during intervals between major reviews. Although some pundits might hold that authority to change taxes should never be delegated, others would find indexing to be a useful tool to lessen the political risks to which legislators are constantly exposed.

Finally, most state legislatures are better equipped to deal with the requirements of rational transportation policy now than they might have been when present restraints were established. With mandated reapportionment to meet the "one man, one vote" requirement, state legislatures have become more representative and more responsive. Their operations are more open to public scrutiny. They meet more often, for longer periods of time, and have larger and more qualified staffs. All in all, most legislatures have acquired considerable expertise and have become highly professional. No guarantees are possible, of course, but it seems unlikely that deeper legislative involvement would signal a return to the storied political chicanery of the past. In any case, the clincher may be quite simple: There is no feasible alternative in sight.

Unless the present course of events is forestalled, the consequences are likely to be serious. States and their counties and cities may incur heavier public costs over time, which will ultimately have to be defrayed by taxation, unless preventive maintenance and timely rehabilitation of facilities are adequately provided. Although much of our basic highway plant is in place, this is not universally true, and critical gaps remain. Then, too, mass transit is critically deficient in many areas. Improvements deferred now may cost more later. In the meantime, users of the systems, and ultimately society in general, will bear the brunt of inadequate transport facilities and services in higher operating costs, accidents, and time losses.

This report has suggested that traditional revenue sources, both user charges and general taxes, are available for use if accelerated financing of state transportation programs is really wanted. In terms of personal income, amounts per vehicle mile, and shares of total transportation costs met in the public sector, considerably less is being expended for public transport facilities and services than was a decade ago. Traditional revenues for transportation could be increased substantially—in most states 50 percent or more—without bringing the burden up to levels of the recent past.

The basic financing problem today—if indeed there is one—stems from the inability to convince the public and its legislative representatives that an enlarged expenditure program is warranted. Hence, this report has concentrated on potential improvements in the institutional setting so that a new political consensus on transport goals and objectives, and their attendant financial requirements, may be achieved.

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APPENDIX A
STATISTICAL DATA

A broad overview of transportation financing in the United States was given in the text. This appendix presents statistical data in greater detail to illustrate trends and variations in practices among the states.

The picture presented here is one of considerable stability and continuity in state financing policies over time and remarkable adherence to central tendencies in the practices of the several states. The system that has evolved for state financing of transportation has served us well and continues to do so. There is good reason to believe that it can meet major exigencies of the future, if it is made to do so.

The selected statistical data that follow fall into two groups. The first four tables give data aggregated for all states for selected years starting with 1956 and ending with the latest data available (1956 being chosen to represent the situation prior to impact of the National Interstate Highway program and inauguration of the Federal Highway Trust Fund). Besides showing overall trends, any particular state wishing to do so can easily compare its own situation with national norms. The second set of tables gives financial practices on a state-by-state basis, with emphasis on the distribution of funds, especially between state and local governments.

TABLE A-1

CURRENT INCOME FOR HIGHWAYS BY SOURCE, ALL UNITS OF GOVERNMENT, SELECTED YEARS 1956-1976 (Millions of Dollars) (*17*)

	Highway User Imposts	Other Taxes	Total	User % of Total
1956	$ 4,952	$1,792	6,744	73.4
1961	8,360	1,954	10,314	81.1
1966	11,697	2,705	14,402	81.2
1971	16,038	3,974	20,012	80.1
1972	16,903	4,073	21,056	80.7
1973	18,714	4,786	23,500	79.6
1974	18,799	5,576	24,375	77.1
1975	18,624	6,147	24,771	75.2
1976	19,590	6,665	26,255	74.6

TABLE A-2

CURRENT INCOME FOR HIGHWAYS BY SOURCE, STATE AND LOCAL GOVERNMENTS, SELECTED YEARS, 1956-1976 (Millions of Dollars) (*17*)

	States			Local Governments			Total		
	Total	User Imposts	Other Taxes	Total	User Imposts	Other Taxes	Total	User Imposts	Other Taxes
1956	$ 4,304	$ 4,161	$143	$ 1,409	$149	$1,260	$ 5,713	$ 4,310	$1,403
1961	5,461	5,319	142	1,805	207	1,598	7,266	5,526	1,704
1966	7,384	7,213	171	2,357	241	2,116	9,741	7,454	2,287
1971	10,357	10,055	302	3,356	343	3,013	13,713	10,398	3,315
1972	11,527	11,186	341	3,558	427	3,131	15,085	11,613	3,472
1973	12,616	12,186	430	3,907	459	3,448	16,523	12,645	3,878
1974	12,847	12,192	655	4,297	503	3,794	17,144	12,695	4,449
1975	13,111	12,387	724	4,642	538	4,104	17,753	12,925	4,828
1976	13,924	13,124	800	5,003	577	4,426	18,927	13,701	5,226

TABLE A-3

DISPOSITION OF RECEIPTS FROM STATE IMPOSTS ON HIGHWAY USERS FOR SELECTED YEARS, 1956-1976 (Millions of Dollars) (*17*)

	Available	For Collect. & Admin.	Nonhwy Purposes*	Hwy Law and Safety	For Hwys	For State Hwys	Local Roads & Streets	Local Roads % of Hwys
1956	$ 4,395	$ 167	$ 325	$ 145	$ 3,758	$ 2,652	$ 1,106	29.4
1961	5,511	226	424	229	4,632	3,228	1,404	30.3
1966	7,605	319	709	363	6,214	4,275	1,939	31.2
1971	10,910	533	1,221	718	8,438	5,796	2,642	31.3
1972	12,070	566	1,268	774	9,462	6,580	2,882	30.5
1973	13,145	654	1,340	872	10,279	7,120	3,159	30.7
1974	13,120	712	1,191	953	10,264	7,020	3,244	31.6
1975	13,456	783	1,349	1,051	10,273	6,902	3,371	32.8
1976	14,805	831	1,802	1,090	11,082	7,464	3,618	32.6

*Nonhighway purposes includes funds for mass transportation purposes, segregated beginning in 1974 as follows: 1974 - $134 million; 1975 - $251 million; 1976 - $433 million.

TABLE A-4

STATE AND LOCAL BOND FINANCING OF HIGHWAYS, SELECTED YEARS, 1956-1976 (Millions of Dollars) (*17*)

	State Governments				Local Governments				Outstanding Debt Beginning of Year		
		Debt Service				Debt Service					
	Bond Proceeds	Total	Interest	Retirement	Bond Proceeds	Total	Interest	Retirement	Total	State	Local
1956	1,056	419	233	186	415	309	79	230	6,719	6,619	100
1961	718	636	306	330	554	458	123	335	9,527	9,384	143
1966	1,152	907	388	519	524	544	148	396	11,197	11,059	138
1971	2,649	1,431	616	815	692	690	224	466	14,248	14,020	228
1972	1,672	1,490	707	783	787	730	243	487	16,141	15,851	290
1973	1,216	1,657	774	883	738	789	267	522	17,424	17,171	253
1974	846	1,685	798	887	811	839	281	558	17,750	17,462	288
1975	1,412	1,731	823	908	781	882	297	585	18,006	17,631	375
1976	1,543	1,840	871	969	796	921	310	611	n.a.	18,136	n.a.
1956-1976 Inclusive	22,978	21,525	9,883	11,642	12,397	12,257	3,671	8,586			

TABLE A-5

STATE RECEIPTS FROM BONDS AND DISBURSEMENTS FOR DEBT SERVICE FOR HIGHWAYS BY STATES, 1976 (Thousands of Dollars) (*17*)

	STATE	Bond Proceeds	Total	Debt Service Redemption	Interest
1	CONNECTICUT	105,474	88,170	52,349	35,821
	MAINE	--	13,955	9,662	4,293
	MASSACHUSETTS	125,000	87,979	50,788	37,191
	NEW HAMPSHIRE	25,187	8,327	4,705	3,622
	NEW JERSEY	18,941	124,064	34,774	89,290
	NEW YORK	--	206,222	114,794	91,428
	RHODE ISLAND	3,764	16,712	9,622	7,090
	VERMONT	6,029	14,125	8,540	5,585
	PUERTO RICO				
	SUBTOTAL	284,395	559,554	285,734	274,320
3	DELAWARE	7,756	31,415	17,353	14,062
	MARYLAND	1,150	75,794	46,521	29,273
	PENNSYLVANIA	354,922	215,060	65,259	149,801
	VIRGINIA	--	33,400	18,411	14,989
	WEST VIRGINIA	100,297	75,041	30,602	44,439
	DIST. OF COLUMBIA	2,250	11,758	4,794	6,964
	SUBTOTAL	466,375	442,468	182,940	259,528
4	ALABAMA	--	36,671	20,475	16,196
	FLORIDA	13,061	77,083	30,900	46,183
	GEORGIA	48,500	47,263	22,742	24,521
	KENTUCKY	--	91,023	31,794	59,229
	MISSISSIPPI	76,675	35,153	14,566	20,587
	NORTH CAROLINA	--	23,467	18,000	5,467
	SOUTH CAROLINA	30,000	12,942	7,500	5,442
	TENNESSEE	35,148	21,658	13,660	7,998
	SUBTOTAL	203,384	345,260	159,637	185,623
5	ILLINOIS	205,010	52,887	17,596	35,291
	INDIANA	--	15,352	10,414	4,938
	MICHIGAN	--	51,022	38,687	12,335
	MINNESOTA	--	14,355	10,769	3,586
	OHIO	100,835	111,587	77,947	33,640
	WISCONSIN	17,711	27,098	17,161	9,937
	SUBTOTAL	323,556	272,301	172,574	99,727
6	ARKANSAS	--	--	--	--
	LOUISIANA	--	46,860	23,623	23,237
	NEW MEXICO	--	--	--	--
	OKLAHOMA	--	19,662	5,298	14,364
	TEXAS	--	6,006	4,671	1,335
	SUBTOTAL	--	72,528	33,592	38,936
7	IOWA	--	620	245	375
	KANSAS	114,000	32,485	19,813	12,672
	MISSOURI	--	--	--	--
	NEBRASKA	--	1,831	1,000	831
	SUBTOTAL	114,000	34,936	21,058	13,878
8	COLORADO	--	--	--	--
	MONTANA	--	--	--	--
	NORTH DAKOTA	--	--	--	--
	SOUTH DAKOTA	--	--	--	--
	UTAH	--	--	--	--
	WYOMING	--	--	--	--
	SUBTOTAL	--	--	--	--
9	ARIZONA	--	246	200	46
	CALIFORNIA	50,351	16,357	9,835	6,522
	HAWAII	1,088	13,668	5,976	7,692
	NEVADA	--	--	--	--
	SUBTOTAL	51,439	30,271	16,011	14,260
10	ALASKA	15,415	11,203	4,159	7,044
	IDAHO	--	--	--	--
	OREGON	--	5,674	2,300	3,374
	WASHINGTON	--	42,574	21,767	20,807
	SUBTOTAL	15,415	59,451	28,226	31,225
U.S. GRAND TOTAL		1,458,564	1,816,769	889,272	917,497

TABLE A-6

CURRENT STATE RECEIPTS FOR HIGHWAYS, 1976 (Thousands of Dollars) (*17*)

	STATE	State User Taxes and Tolls	State General Funds	Federal Funds	Misc. Income	Total Current Receipts	(Toll Revenue Included	(Bond Proceeds Excluded)
1	CONNECTICUT	189,659	---	42,890	12,795	245,344	(35,710)	(105,474)
	MAINE	85,869	1,480	36,802	7,215	131,366	(13,642)	--
	MASSACHUSETTS	278,820	5,351	125,793	5,982	415,946	(50,768)	(125,000)
	NEW HAMPSHIRE	68,371	--	30,121	2,979	101,471	(8,431)	(25,187)
	NEW JERSEY	352,015	--	98,994	32,249	483,258	(162,987)	(18,941)
	NEW YORK	884,828	--	214,905	38,029	1,137,762	(227,954)	--
	RHODE ISLAND	44,429	--	23,643	432	68,504	(3,464)	(3,764)
	VERMONT	46,861	--	31,098	142	78,101	--	(6,029)
	PUERTO RICO							
	SUB TOTAL	1,950,852	6,831	604,246	99,823	2,661,752	(502,956)	(284,395)
3	DELAWARE	61,189	--	24,766	4,934	90,889	(21,338)	(7,756)
	MARYLAND	306,687	9,747	192,814	11,808	521,056	(51,130)	(1,150)
	PENNSYLVANIA	846,723	8	326,337	51,058	1,224,126	(101,405)	(354,922)
	VIRGINIA	423,963	28,533	211,715	24,185	688,396	(51,812)	--
	WEST VIRGINIA	169,386	42,002	210,360	9,602	431,350	(12,854)	(100,297)
	DIST. OF COLUMBIA	27,832	661	41,509	771	70,773	--	(2,250)
	SUB TOTAL	1,835,780	80,951	1,007,501	102,358	3,026,590	(238,539)	(466,375)
4	ALABAMA	208,253	18,736	169,699	16,908	413,596	--	--
	FLORIDA	612,413	--	156,158	40,489	809,060	(65,963)	(13,061)
	GEORGIA	242,721	--	147,752	10,397	400,870	--	(48,500)
	KENTUCKY	323,786	43,223	139,241	38,680	544,930	(16,846)	--
	MISSISSIPPI	150,399	47,907	93,901	8,599	300,806	--	(76,675)
	NORTH CAROLINA	384,899	--	187,398	22,540	594,837	(401)	--
	SOUTH CAROLINA	161,588	--	64,838	1,735	228,161	--	(30,000)
	TENNESSEE	284,954	3,352	188,975	5,171	482,452	--	(35,148)
	SUB TOTAL	2,369,013	113,218	1,147,962	144,519	3,774,712	(83,210)	(203,384)
5	ILLINOIS	688,749	--	417,649	26,523	1,132,921	(79,470)	(205,010)
	INDIANA	359,510	54,367	99,197	9,933	523,007	(23,657)	--
	MICHIGAN	529,241	41,447	199,441	30,537	800,666	(6,950)	--
	MINNESOTA	288,746	--	143,468	27,818	460,032	--	--
	OHIO	618,982	455	196,478	32,730	848,645	(40,807)	(100,835)
	WISCONSIN	227,119	--	96,849	12,090	336,058	--	(17,711)
	SUB TOTAL	2,712,347	96,269	1,153,082	139,631	4,101,329	(150,884)	(323,556)
6	ARKANSAS	159,965	19,240	107,495	5,150	291,850	--	--
	LOUISIANA	221,420	144,572	171,580	22,292	559,864	(910)	--
	NEW MEXICO	86,492	5,073	69,971	1,791	163,327	--	--
	OKLAHOMA	215,194	11,739	70,073	15,708	312,714	(24,257)	--
	TEXAS	603,291	7,680	278,434	37,101	926,506	(12,637)	--
	SUB TOTAL	1,286,362	188,304	697,553	82,042	2,254,261	(37,804)	--
7	IOWA	253,542	66,197	106,705	10,572	437,016	(1,595)	--
	KANSAS	159,976	--	77,614	32,468	270,058	(17,473)	(114,000)
	MISSOURI	280,924	11,761	152,108	8,689	453,482	--	--
	NEBRASKA	116,108	18,121	58,041	9,905	202,175	--	--
	SUB TOTAL	810,550	96,079	394,468	61,634	1,362,731	(19,068)	(114,000)
8	COLORADO	127,773	1,873	140,842	7,275	277,763	--	--
	MONTANA	60,974	3,313	100,522	1,480	166,289	--	--
	NORTH DAKOTA	50,215	4,653	49,942	7,301	112,111	--	--
	SOUTH DAKOTA	56,204	10,604	46,523	1,967	115,298	--	--
	UTAH	64,243	7,170	81,286	2,423	155,122	--	--
	WYOMING	48,027	1,395	73,686	2,604	125,712	--	--
	SUB TOTAL	407,436	29,008	492,801	23,050	952,295	--	--
9	ARIZONA	159,695	--	85,693	4,894	250,282	--	--
	CALIFORNIA	1,144,452	--	370,369	39,384	1,554,205	(38,503)	(50,351)
	HAWAII	42,425	7,436	56,766	412	107,039	--	(1,088)
	NEVADA	40,660	--	43,040	3,966	87,666	--	--
	SUB-TOTAL	1,387,232	7,436	555,868	48,656	1,999,192	(38,503)	(51,439)
10	ALASKA	42,090	57,596	117,398	3,136	220,220	(12,975)	(15,415)
	IDAHO	73,107	1,000	54,325	2,111	130,543	--	--
	OREGON	154,434	--	119,724	8,641	282,799	(1,177)	--
	WASHINGTON	258,954	--	134,910	15,760	409,624	(30,825)	--
	SUB-TOTAL	528,585	58,596	426,357	29,648	1,043,186	(44,977)	(15,415)
U.S	GRAND TOTAL	13,288,157	676,692	6,479,838	731,361	21,176,048	(1,115,941)	(1,458,564)

Notes: State User taxes and tolls combined (tolls shown separately); FHWA and other Federal agency funds combined; transfers from local governments combined with miscellaneous income; bond proceeds (shown separately) not included in total receipts.

TABLE A-7

DISPOSITION OF RECEIPTS FROM STATE IMPOSTS ON HIGHWAY USERS, 1976 (Thousands of Dollars) (*17*)

	STATE	Net Funds Distributed	State Highways	Local Roads and Streets	Mass Transport Purposes	Non-Highway Purposes	General Fund Offsets	Anti-Diversion Amend*
1	CONNECTICUT	216,080	137,016	16,932	23,980	38,151	--	
	MAINE	72,234	69,658	2,569	6	--	--	x
	MASSACHUSETTS	240,596	180,652	47,399	12,544	--	--	x
	NEW HAMPSHIRE	60,305	53,493	6,447	268	96	--	x
	NEW JERSEY	484,311	172,339	16,689	119,548	175,735	--	
	NEW YORK	783,970	519,751	137,122	120,175	6,921	--	
	RHODE ISLAND	52,469	40,578	387	993	10,510	--	
	VERMONT	47,510	39,387	7,473	15	635	--	
	PUERTO RICO							
	SUB TOTAL	1,957,475	1,212,874	235,018	277,529	232,048	--	
3	DELAWARE	47,794	37,852	2,000	1,999	5,944	--	
	MARYLAND	346,487	149,934	105,623	12,263	78,667	(21,101)	
	PENNSYLVANIA	772,576	626,065	119,252	27,258	--	--	x
	VIRGINIA	379,953	333,953	38,198	7,801	--	--	
	WEST VIRGINIA	156,532	156,532	--	--	--	(182)	x
	DIST. OF COLUMBIA	51,985	13,332	14,500	7	24,146	--	
	SUB TOTAL	1,755,327	1,317,668	279,573	49,328	108,757	(21,283)	
4	ALABAMA	208,253	111,946	96,306	--	--	(1,681)	x
	FLORIDA	559,069	426,629	119,821	3,715	8,903	(205,888)	
	GEORGIA	278,717	190,258	52,462	272	35,725	--	
	KENTUCKY	307,205	268,713	38,226	266	--	--	x
	MISSISSIPPI	150,399	101,169	49,231	--	--	(28)	
	NORTH CAROLINA	384,834	353,454	31,044	337	--	--	
	SOUTH CAROLINA	166,713	144,773	16,816	--	5,124	--	
	TENNESSEE	294,706	159,724	125,229	4,651	5,100	(30,688)	
	SUB TOTAL	2,349,896	1,756,666	529,135	9,241	54,852	(238,285)	
5	ILLINOIS	693,671	299,369	309,910	50,912	33,480	(8,488)	
	INDIANA	335,853	174,493	161,360	--	--	(2,120)	
	MICHIGAN	557,196	233,692	288,598	34,906	--	(19)	x
	MINNESOTA	288,887	181,956	106,790	--	111	(6,830)	x
	OHIO	578,175	291,213	286,962	--	--	--	x
	WISCONSIN	241,222	133,866	93,252	123	13,980	(159)	
	SUB TOTAL	2,694,974	1,314,589	1,246,872	85,941	47,571	(17,616)	
6	ARKANSAS	160,482	101,741	58,225	517	--	(1,525)	
	LOUISIANA	220,511	181,943	38,667	--	--	(8,722)	x
	NEW MEXICO	86,491	77,433	9,059	--	--	(13,956)	
	OKLAHOMA	212,617	117,149	73,788	--	21,680	(47,844)	
	TEXAS	965,126	548,327	42,327	784	373,688	(30,688)	x
	SUB TOTAL	1,645,227	1,026,593	221,966	1,301	395,368	(102,735)	
7	IOWA	254,274	137,385	114,561	2,328	--	--	x
	KANSAS	144,197	105,032	37,471	20	1,676	(662)	x
	MISSOURI	280,924	240,875	40,049	--	--	--	x
	NEBRASKA	116,194	63,330	52,779	86	--	(3,514)	
	SUB TOTAL	795,589	546,622	244,860	2,434	1,676	(4,176)	
8	COLORADO	132,128	68,491	59,283	--	4,355	--	
	MONTANA	63,855	32,409	28,565	--	2,881	(2,037)	x
	NORTH DAKOTA	50,305	32,021	18,195	89	--	(1,107)	x
	SOUTH DAKOTA	56,221	35,676	20,527	17	--	--	x
	UTAH	64,266	47,516	16,727	23	--	(449)	x
	WYOMING	48,026	37,085	10,943	--	--	--	x
	SUB TOTAL	414,801	253,198	154,240	129	7,236	(3,593)	
9	ARIZONA	159,695	105,626	54,069	--	--	--	x
	CALIFORNIA	1,522,880	656,185	449,764	4,555	412,375	(55,845)	x
	HAWAII	42,425	28,189	14,236	--	--	(5,510)	
	NEVADA	52,461	34,270	6,390	--	11,801	(286)	x
	SUB TOTAL	1,777,461	824,270	524,459	4,555	424,176	(61,641)	
10	ALASKA	29,115	27,830	1,285	--	--	--	
	IDAHO	73,107	49,557	23,550	--	--	--	x
	OREGON	164,594	90,859	62,397	1,639	9,699	--	x
	WASHINGTON	316,211	133,016	95,114	1,046	87,035	(397)	x
	SUB TOTAL	583,027	301,262	182,346	2,685	96,734	(397)	
U.S. GRAND TOTAL		13,973,777	8,553,740	3,618,469	433,143	1,368,416	(439,179)	

*"x" indicates state has constitutional provision requiring highway-user taxes to be used for highway purposes.

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