THE DECLINE OF INFRASTRUCTURE AND THE FEDERAL GOVERNMENT RESPONSE

by

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ABSTRACT

This study focuses on the role of the federal government in infrastructure planning and finance. Four major arguments for federal infrastructure engagement policy are advanced: (1) equalization of intergovernmental and interregional imbalances, (2) response to tax-base changes, (3) response to recession, (4) revenue dependency of the state and local governments. The conclusion is that, due to the magnitude of expenditure requirements for upgrading and maintaining public-works facilities in the United States, neither state and local governments nor the private sector can effectively solve the current infrastructure problems. The federal government will have to assume a vital role in equalizing interregional disparaties, stabilizing tax-base changes, and reducing the effects of inflation and recession on the construction, rehabilitation, and maintenance of capital stock. Finally, the federal government, with the collaboration of the lower-level governments and the private sector, will gradually have to design and implement a national infrastructure capital plan.

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THE DECLINE OF INFRASTRUCTURE AND THE FEDERAL-GOVERNMENT RESPONSE

by

Ahmad Sharbatoghlie

Over the past several years, considerable attention has focused on the condition of public infrastructure in the United States. The concern over the deteriorating bridges, dams, public transportation, water supply and sewer systems, and so on. has been growing because of the increasing frequency of breakdowns of these public works. In July 1982, for instance, 300,000 residents of Jersey City, New Jersey, went without drinking water for three days, following the rupture of an 80-year-old aqueduct (New York Times, 1982, p. 54). In June 1982, Research and Forecasts, Inc., stated that if one of the two tunnels that supply water to the city (built in 1927 and 1936) were to collapse, evacuation of more than three million persons might be required (Copeland, 1983, p. 4). Similarly, in a study conducted by the U.S. Army Corps of Engineers, 2,884 of 9,000 dams inspected, were found unsafe. The unsafe dams included 132 needing emergency action to prevent imminent collapse (Copeland, 1983, p. 4). Another story that has drawn the attention of millions is a cover story in Newsweek (Beck et al., 1982) on the subject of aging and neglected public-works facilities.

In addition, analysts using case studies have pointed to the urgency of infrastructure planning. A study requested by the Joint Economic Committee of the U.S. Congress, for example, was made by analysts in 23 states. One conclusion was that there is a gap between anticipated revenues

and basic infrastructure needs, approaching $450 billion through the year 2000 (U.S. Joint Economic Committee, 1984). Other estimates of the potential price tag run as high as an incredible $2-3 trillion (Choate, 1982). It now seems to be reasonable to assume that, though not indicating an imminent, widespread failure of the national capital plant, there exists a significant deterioration in the U.S. economic infrastructure.

The perceived breakdown of the existing facilities leads to a fundamental political-financial question: which level of government should have the responsibility for financing the needed reconstruction, rehabilitation, and maintenance costs, given the fiscal capacities of federal, state, and local governments? The issue of responsibility sharing is of primary importance in the context of the present study. To put it in different words, should the federal government delegate most of the responsibility of maintaining public-works facilities to states and localities or to the private sector, or should it either maintain the status quo or assume more responsibility?

In the following sections, we will discuss some of the key issues behind a constructive federal-engagement policy.

RATIONALE FOR FEDERAL-GOVERNMENT INVOLVEMENT

There is a little doubt that the deterioration of the infrastructure condition is truly a national phenomenon. The dispute between policy makers and planners is on the extent to which the federal government should be involved in rectifying this problem. In this section, we will present the rationale behind the federal-government involvement in national

infrastructure planning.

The federal government is attempting to limit or, in some cases, drastically reduce or completely eliminate the federal role in infrastructure planning and finance. The central theme of the present paper is that the restoration of the U.S. capital plant cannot be carried out without active federal infrastructure policy. Four arguments support federal government involvement: (1) equalization of intergovernmental and interregional imbalances, (2) response to tax base changes, (3) response to recessions, (4) revenue dependency of the state and local governments. Each of these will be discussed in the following sections.

Equalization of Intergovernmental and Interregional Imbalances

The foremost argument for federal involvement in the infrastructure crisis is the need for equalization. The rationale is to redress the inequality in revenue-raising capacity both between various levels of government and between different regions in the country. In the following sections, the intergovernmental inequality (vertical imbalance) and interregional inequality (horizontal imbalance) will be discussed.

Intergovernmental Inequality in Revenue-Raising Capacity

An intergovernmental imbalance exists within a federal system when one level of government enjoys robust taxation capacity while other levels suffer from anemic taxation capacity. Analysts have therefore advocated that the federal tax system be used to finance state and local governments, which have weaker taxing systems.

As will be shown, vertical fiscal imbalance in the source of funds between different levels of government has grown recently. This imbalance reflects federal use of a progressive income tax, which responds readily to economic growth, as the major revenue source. On the other hand, state and local governments, which are responsible for most domestic nonmilitary expenditures, rely on the less income-elastic property and sales taxes. Bish and Nourse (1975) have shown empirically that the personal income tax has an elasticity coefficient of about 1.65, indicating that receipts rise more rapidly than incomes; the general sales tax has a revenue-elasticity coefficient of 1.00, indicating that taxes are proportional to incomes; and the local property tax has an estimated revenue-elasticity coefficient of only 0.80, indicating that tax receipts rise more slowly than incomes. Given these facts, there is a need for federal grants to mitigate vertical fiscal imbalances between federal, state, and local governments. Indeed, according to the Advisory Commission on Intergovernmental Relations (ACIR), vertical balance was one of the reasons behind the general revenue-sharing program, which was enacted in 1972 (ACIR, 1982a, pp. 1-15).

An ideal federal system should have strong partnership patterns. In practice, however, enormous differences exist in the ability of the federal, state, and local governments to raise revenue. The supporters of federal general-revenue sharing in the United States argue that, while the revenues of the federal system were increasing because of high income taxes during the last two decades, many state and local governments had major fiscal problems. Proponents further argue that the more jurisdictions a

government embraces, the less vulnerable it is to interjurisdictional tax competition and the higher it can set its top rate (ACIR, 1982b, p. 3). In other words, the federal government has near monopoly control over the personal income tax, giving it greater revenue-raising power than state or local governments. In a situation where large-scale capital investment is required to rebuild and maintain the deteriorating infrastructure, retaining control over the power to tax personal incomes while delegating the financial responsibility of infrastructure to the lower levels of government will perpetuate the problem instead of curing it.

Interregional Inequality in Revenue Raising Capacity

In addition to the above reason for the federal involvement, states differ in the capacity to raise adequate revenues for maintaining and rehabilitating their public works. Understanding fiscal capacities helps in two ways: first, it provides quantitative information necessary for designing and administering the grants-in-aid used by the federal government to carry out its redistributive function, and, second, it forces states and localities to examine and determine their potential tax-base in order to finance public services. Traditionally, the basic objective of improving the measures of fiscal capacity has been to enhance the effectiveness of public policy specifically designed to ameliorate interjurisdictional fiscal disparities. A number of programs, such as General Revenue Sharing (GRS), Medicaid, and Aid to Families with Dependent Children (AFDC), have grants that are inversely related to some measure of

state and local fiscal capacity. In this respect, the Advisory Commission on Intergovernmental Relations (ACIR) went on record in 1964 as favoring the recognition of relative inequalities among the states in the distribution of federal grants to the states. The Commission therefore endorsed "fiscal equalization" as an objective of federal grant policy (ACIR, 1964).

Broadly defined, fiscal capacity refers to the ability of a government to finance public services from its own sources. Stein (1985) is currently analyzing different methodologies for measuring fiscal capacity related to infrastructure. He identifies many ways of measuring fiscal capacity of a state or local government. The federal government uses personal income as a measure of fiscal capacity for grant programs that are intended to provide some equalization. The justification for employing personal income as a measure of fiscal capacity is that, for the nation as a whole, national income is the total resources available to meet both public-sector and private-sector demands for goods and services. According to the ACIR, "this holds for the public sector simply because regardless of whether the tax is levied on income, sales, property, or some other base--it is generally paid from current income" (ACIR, 1982a, p. 5).

Another measure of fiscal capacity is the Representative Tax System (RTS) approach. Under RTS, tax capacity is estimated from the amount of revenue each state (and its local governments) would raise if each state used identical tax rates (ACIR, 1982a, p. 11). The ACIR rates are

"representative" in that they are the national averages for each base. In addition, the state-by-state tax practices--such as exemptions or partial assessment--do not affect the measured capacity.

Regardless of which measure is chosen, substantial differences exist in state fiscal capacity. Table 1 shows the fiscal-capacity estimates for the per capita income and representative tax systems. The estimates are indexed with the use of the national tax-capacity per capita for the years 1967, 1975, 1977, and 1979. The national tax capacity is 100. An index of 113 (Wyoming), for example, shows that the state has 13 percent more tax capacity than the nation as a whole for that year.

Note that both the tax-capacity and per-capita income indicators point to substantial variation among regions. In the case of the tax-capacity index, the 1979 values range from 71 (Mississippi) to 215 (Alaska); the standard deviation is 24.4. When weighted by population, the standard deviation is 14.3. The states with the greatest tax capacities are Alaska (215), Wyoming (179), and Nevada (164); Their high values reflect their ability to tax income earned in their state by people living elsewhere. In contrast, Mississippi (71), Alabama (76), and South Carolina (77) have the lowest tax capacities. The disparities among states are more apparent when the indices are expressed in dollars. The average state had a per-capita tax capacity of $884 in 1979. The tax capacity of the highest state (Alaska, $1,903 per capita) was three times that of the poorest state (Mississippi, $628 per capita).

Table 1

FISCAL-CAPACITY MEASURES: PER CAPITA INCOME AND THE REPRESENTATIVE TAX SYSTEM, BY STATE, 1967-1979.

	Tax Capacity				Per Capita Income			
State	1979	1977	1975	1967	1979	1977	1975	1967
New England	93	95	97	101	102	102	103	109
Connecticut	106	107	108	117	115	114	116	129
Maine	80	82	84	81	80	81	81	81
Massachusetts	91	92	95	98	101	102	104	109
New Hampshire	97	102	103	110	95	94	93	97
Rhode Island	84	87	88	91	97	96	97	103
Vermont	86	92	94	88	84	83	84	90
Mideast	93	97	99	103	104	106	109	113
Delaware	111	122	125	123	106	109	112	117
D.C.	107	118	115	121	120	127	124	119
Maryland	98	100	100	101	106	108	109	107
New Jersey	101	104	107	107	111	112	116	120
New York	87	91	96	108	104	106	111	119
Pennsylvania	92	98	97	91	98	99	100	100
Great Lakes	103	104	103	104	104	105	103	106
Illinois	112	112	112	114	112	114	115	117
Indiana	97	100	97	99	98	98	96	99
Michigan	102	103	99	104	107	108	103	107
Ohio	99	103	103	100	99	101	98	102
Wisconsin	96	97	96	94	97	96	96	97
Plains	101	98	100	100	98	96	98	94
Iowa	106	104	105	104	100	98	101	95
Kansas	107	104	108	105	105	100	102	96
Minnesota	102	98	96	95	101	101	99	96
Missouri	95	94	95	97	94	93	93	95
Nebraska	96	99	104	110	99	95	100	93
North Dakota	106	97	100	92	94	84	101	81
South Dakota	92	89	93	91	85	83	85	81

Table 1, continued

State	Tax Capacity				Per Capita Income			
	1979	1977	1975	1967	1979	1977	1975	1967
Southeast	89	88	89	82	87	86	86	79
Alabama	76	77	77	70	79	80	79	71
Arkansas	78	79	79	77	79	78	77	69
Florida	104	104	104	104	97	96	96	90
Georgia	83	85	86	80	87	86	86	82
Kentucky	86	84	86	80	84	85	83	76
Louisiana	108	103	102	94	86	85	82	80
Mississippi	71	71	71	64	70	71	69	62
North Carolina	82	83	84	78	84	84	84	79
South Carolina	77	78	78	64	80	80	80	73
Tennessee	81	83	84	78	84	83	82	77
Virginia	93	90	93	86	98	98	98	91
West Virginia	95	90	89	75	84	85	85	76
Southwest	116	111	110	98	98	95	93	87
Arizona	95	92	94	95	96	92	92	86
New Mexico	105	101	94	94	86	83	83	77
Oklahoma	113	105	103	102	97	91	89	84
Texas	122	116	116	98	100	98	95	88
Rocky Mountains	108	105	104	101	95	95	95	89
Colorado	111	109	107	104	104	102	102	96
Idaho	91	88	89	91	86	88	89	82
Montana	111	103	103	105	88	87	92	86
Utah	88	90	88	87	82	84	84	82
Wyoming	179	159	162	141	113	108	105	95
Far West	115	113	110	121	113	112	111	113
California	116	114	111	124	115	114	112	115
Nevada	164	155	149	171	120	117	113	112
Oregon	105	104	100	106	102	102	98	97
Washington	103	101	98	112	109	107	107	104
Alaska	215	154	159	99	128	149	165	116
Hawaii	105	107	109	99	105	109	115	110
U.S. Average	100	100	100	100	100	100	100	100

D.C. = District of Columbia

SOURCE: Advisory Commission on Intergovernmental Relations, 1983, Tax Capacity of Fifty States. M-134. Washington DC: Advisory Commission on Intergovernmental Relations.

Although differences exist between the indices of per-capita income and the representative tax-system, the correlation coefficients between income and tax capacity show a moderate-to-strong relationship between the measures: 0.70 in 1977, 0.77 in 1977, 0.76 in 1975, and 0.70 in 1967 (ACIR, 1982a, p. 26).

The point is that states differ widely in fiscal capacity. States with high energy resources, mineral reserves, or considerable tourism will have less difficulty raising revenues for infrastructure needs than those with the opposite characteristics. Yet, states with few or no mineral reserves, a small amount of tourism, and a restricted tax base--the states with the most fiscal difficulty--will suffer the most from the recent cuts in federal grants-in-aid.

Interregional Fiscal Inequality: An Empirical Illustration

The following analysis will help us further document the interregional fiscal disparity discussed in the previous sections. We have used the data on the 1982 tax capacity of fifty states developed by the Advisory Commission on Intergovernmental Relations (ACIR, 1982b, pp. 15-44). The data contain 31 tax-bases (e.g., general sales tax, corporate income tax, personal income tax, etc.) for the 50 states (Appendix I). A tax base or tax base proxy "is a measure of the resources available for taxation under a particular tax." (ACIR, 1982b, p. 15). The following tax bases were used: personal income tax, corporate income tax, and oil and gas severance tax. In addition, states were compared on the basis of three composite variables (i.e. variables consisting of several revenue sources,

as opposed to a tax-base which indicate a single revenue source): per capita government finances, per capita tax revenue, and income. Appendix I contains the 1982 tax-capacity data for the fifty states, organized by 31 tax bases. The three composite variables are given in the first three columns. The primary reason for the selection of these variables is that combined they show the revenue-raising potential of states. Also, the four tax bases of general sales, personal income, corporate income, and oil and gas severance were selected both because of their importance as a revenue source and also because of the availability of combined tax-base figures. However, a more elaborate analysis is desired before we can draw any causal relationships. This section, therefore, is only designed to show the existence of an imbalance and inequality between different states in their potential revenue sources.

Table 2 shows the average, minimum, maximum, range, and standard deviation associated with the above variables. The uneven ability of the states in raising revenues is reflected in the length of the range and the magnitude of standard deviation. Among states, the per capita financing of public projects varied from $1,068 (Arkansas) to $14,735 (Alaska). Per capita tax revenues also differed significantly among states. The difference between the state with the lowest per capita tax revenue of $730 (Arkansas) and the state with the highest per capita tax revenue of $6,998 (Alaska) is $6,268. The gap between different states is also evidenced when individual tax bases, instead of the composite variables, are compared. The general sales tax base varies from about $106 billion in taxable goods in California to about $2 billion in Vermount. The personal income tax

Table 2

SUMMARY STATISTICS ON SELECTIVE TAX BASES

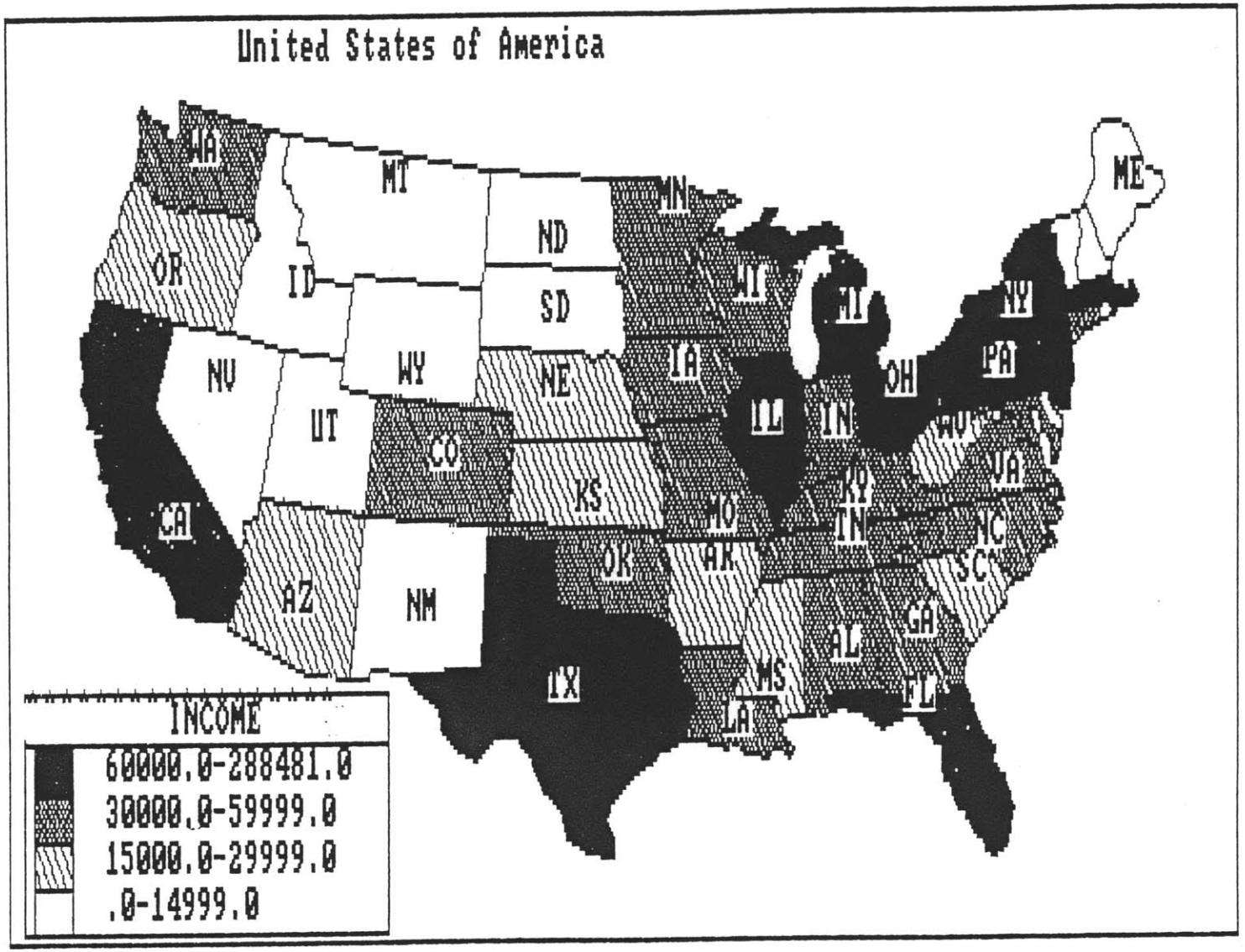
Tax Base	Average	Minimum	Maximum	Range	S.D.*
PCGF	1,884	1,068	14,735	13,667	1,885
PCTR	1,254	730	6,998	6,268	877
INCOME	47,168	4,497	288,481	283,984	54,905
GSALES	105,931,318	2,133,190	103,798,128	101,664,938	1.9787E7**
PITAX	5,432,356	466,379	31,720,188	31,253,809	6.44167E6
CITAX	2,800	241	16,857	16,616	3,454
OGSEVER	2,241,076	0	42,611,540	42,611,540	6.54042E6

*Standard Deviation
**1.9787 raised to the 7th power, or 19,787,000, etc.
Note: Variable names are as follows: PCGF = Per Capita Government Finances; PCTR = Per Capita Tax Revenue; INCOME = Income; PITAX = Personal Income Tax; CITAX = Corporate Income Tax; OGSEVER = Oil and Gas Severance Tax.

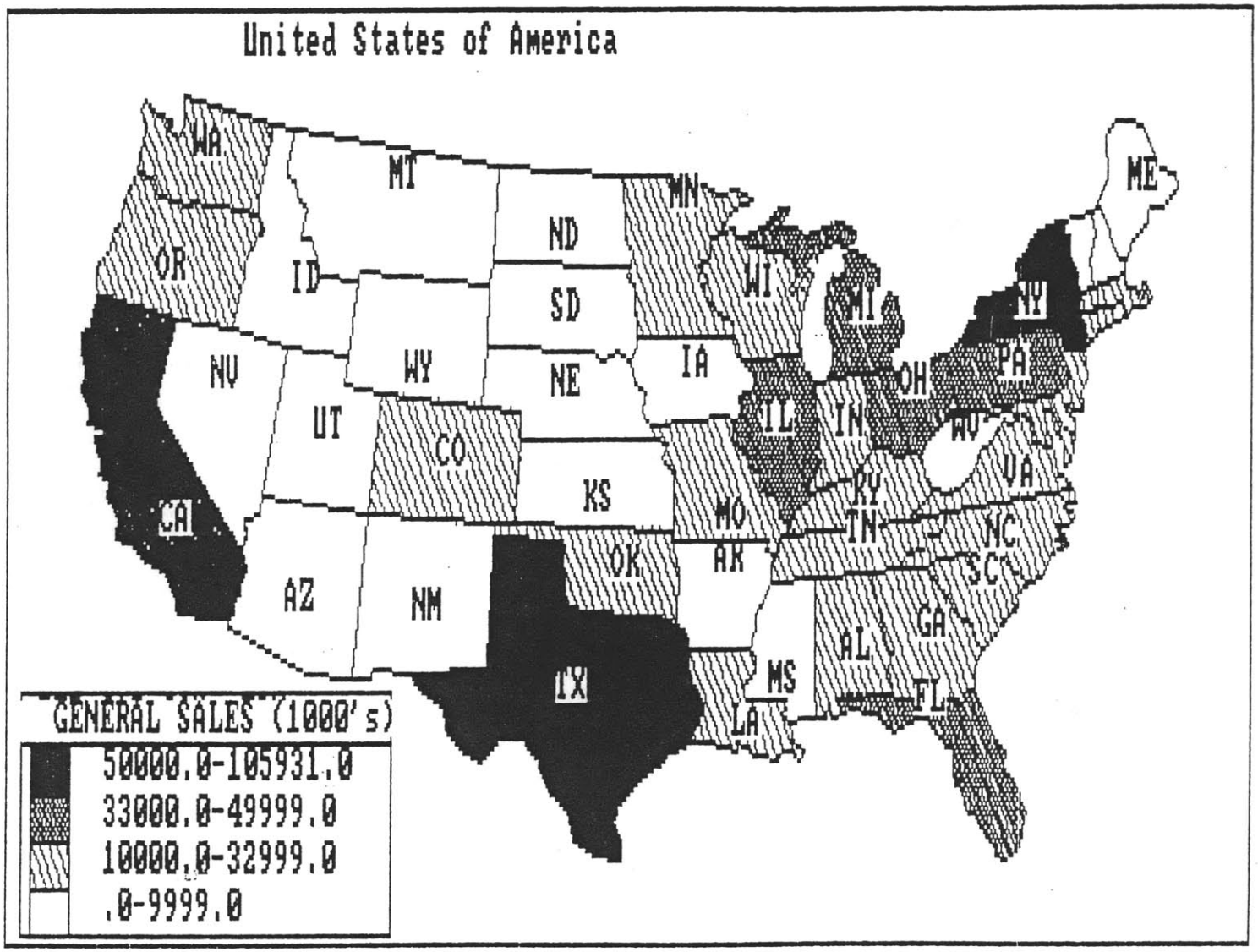
base has a range of about $31 billion and standard deviation of 19,787,000, and the corporate income tax base has a range of about $16 million and standard deviation of 3,454; each signifies a wide disparity in the revenue-generating capacity of the states.

In order to illustrate visually the distribution of the above variables, we have used thematic mapping (Maps 1 through 3). These maps are constructed by first digitizing the map of fifty states and then creating a matrix composed of three variables (column entries) with fifty states (row entries). Of many possible maps, we have only drawn the maps associated only with the following variables: income, general sales tax, and oil and gas severance tax. The selection of the above three variables is due to their significance as indicators of revenue-generating capacity of the states and the availability of combined figures. The variable income is the state 1982 income. Because of the particular configuration of the multimap software used to generate the maps, we had to cluster the states into intervals. The intervals are shown in the lower left corner of each map with the respective legends.

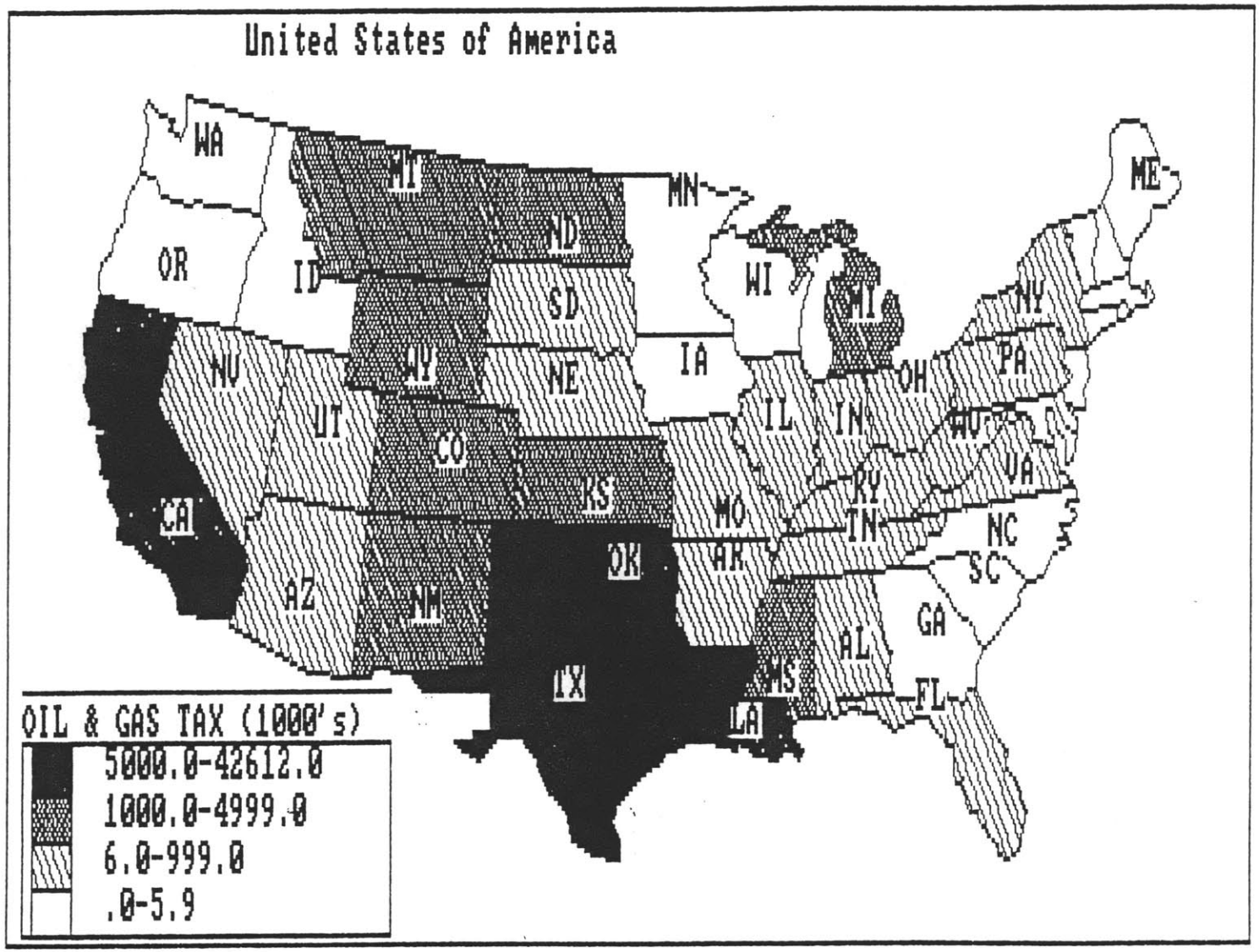
These maps show a wide disparity in the fiscal capacity of the states. Map 1 shows the income distribution of states. The income disparity of states is evidenced when we compare the legends of the income intervals. Whereas California ($288 billion), Texas ($158 billion), Illinois ($133 billion), etc. fall into the $60,000-$288,481 billion interval, Vermont ($4 billion), Wyoming ($5.7 billion), Idaho ($8.6 billion), etc. are in the $0-$14,999 billion interval. In terms of the



Map 1: Income Distribution
SOURCE: Calculations and map generations are based on the 1982 data on tax-bases provided in Advisory Commission on Intergovernmental Relations, 1985, Tax Capacity of Fifty States. M-142. Washington, DC: Advisory Commission on Intergovernmental Relations, pp. 15-44.



Map 2: General Sales Tax Distribution
DATA SOURCE: Advisory Commission on Intergovernmental Relations, 1985, Tax Capacity of Fifty States. M-142. Washington, DC: Advisory Commission on Intergovernmental Relations, pp. 15-44.



Map 3: Oil and Gas Tax Distribution
DATA SOURCE: Advisory Commission on Intergovernmental Relations, 1985, Tax Capacity of Fifty States. M-142. Washington, DC: Advisory Commission on Intergovernmental Relations, pp. 15-44.

individual tax base, the gap between the states is also evident. In Map 2, for example, California with about $106 billion sales tax contrasts with Vermont with only about $2 billion in sales tax. In Map 3 where the distribution of oil and gas severance tax is shown, Texas, California, Louisiana, and Oklahoma fall in the $5-$43 billion interval, but Maine, Idaho, Georgia, and Vermont fall into $0-$6 million interval. Texas with $42.6 billion in taxable oil and gas production has far greater potential to generate revenues for the state and local governments than a state like Maine with no taxes obtainable from oil and gas production.

The fiscal diversity among state and local governments also can be seen in the comparative revenues and expenditures data. As Table 3 shows, the national 1980 average of state-local tax revenues as a percentage of personal income was 11.6 percent. However, Table 3 also shows that in fourteen states, total tax revenues as a percent of personal income fell somewhere between 10 and 11 percent; in two states this percentage exceeded 16. Table 4 presents 1980 expenditures-per-capita data. Once again diversity is evident. In five states, expenditures per capita is less than $1,300. Seventeen states, however, spent more than $1,700 per capita. The U.S. average state-local expenditures per capita was $1,622.

The role of the federal government is particularly significant when we compare the state interregional revenue sources. Among the various sources of revenue, such as property tax, individual income tax, corporate income taxes, and federal aid, the revenue received from the federal government had a comparatively low level of variation; it has been

historically a more stable source of revenue. Table 5 shows the variation in the percentage distribution of revenue sources by state and local governments in the years 1953 and 1975. The major elements of the revenue structure are listed in column 1. Column 2 shows the percentage distribution of various tax sources.

Property taxes, on the average, contributed 32.0 percent of total state-local revenue in 1953; corporate income taxes contributed 2.4 percent. Interstate variability in reliance on various taxes is measured by relating the mean value shown in column 2 to the standard deviation around these mean values. Dividing the standard deviation by the mean provides the coefficient of variation, which assists in comparing variability of taxes having different means. In 1953, the tax with the highest coefficient of variation was the corporate income tax (106.1 percent), while the tax with the lowest coefficient of variation was the sales tax (24.8 percent). Columns 5, 6, and 7 show the interstate variability in 1975 revenue from own sources. In 1975, federal aid had the lowest coefficient of variation (17.8). Because investment in capital plant and infrastructure requires a stable and long-term revenue source, a low coefficient of variation in the federal aid indicates a logically significant source for capital-expenditure financing.

The above discussion centered on the issue of equalization as one of the four major reasons behind the federal government involvement in infrastructure planning and finance. In the next section, the second argument for a federal role is presented.

Table 3

STATE-LOCAL TAX REVENUES AS A PERCENT OF PERSONAL INCOME, 1980

Tax Revenue as a Percentage of Personal Income (Percent)	Number of States
8.01- 9.0	1
9.01-10.0	8
10.01-11.0	14
11.01-12.0	12 (a)
12.01-13.0	8
13.01-14.0	3
14.01-15.0	2
15.01-16.0	0
16.01-17.0	1
17.01-18.0	0
18.01-over (b)	1
	50

(a) 11.6% U.S. average
(b) Alaska: 36.8%

SOURCE: Advisory Commission on Intergovernmental Relations, 1979, Significant Features of Fiscal Federalism, 1980-81, Washington, DC, Advisory Commission on Intergovernmental Relations, p. 34.

Table 4

STATE-LOCAL GOVERNMENT EXPENDITURES PER CAPITA, 1979-1980

Expenditures Per Capita (Dollars)	Number of States
1,101-1,200	1
1,201-1,300	4
1,301-1,400	8
1,401-1,500	6
1,501-1,600	10
1,601-1,700	4
1,701-1,800	5
1,801-1,900	8 (a)
1,901-2,000	1
2,001-over (b)	3
	50

(a) $1,622 U.S. average.
(b) Alaska: $6,257 per capita.

SOURCE: Advisory Commission on Intergovernmental Relations, 1979, Significant Features of Fiscal Federalism 1980-81, Washington, DC, Advisory Commission on Intergovernmental Relations, p. 17.

Table 5

PERCENTAGE DISTRIBUTION OF REVENUE SOURCES
BY STATE AND LOCAL GOVERNMENTS, 1953, 1975
(Percent)

	1953			1975		
Revenue Source (1)	Mean (2)	Standard Deviation (3)	Coefficient of Variation (4)	Mean (5)	Standard Deviation (6)	Coefficient of Variation (7)
Property taxes	32.0	10.3	32.3	20.2	7.8	38.4
Individual Income taxes	3.3	3.5	105.6	8.3	5.5	65.9
Corporate Income taxes	2.4	2.5	106.1	2.5	1.2	49.7
General sales & gross receipts	9.4	7.7	81.9	12.3	5.6	45.8
Selective sales & gross receipts	16.3	4.0	24.8	9.6	2.7	28.0
Miscellaneous taxes	10.1	3.7	36.5	5.8	3.3	56.7
Charges and miscellaneous revenues	13.4	3.6	27.1	18.8	3.7	19.8
Federal aid	12.9	4.4	34.3	22.7	4.0	17.8

SOURCE: Advisory Commission on Intergovernmental Relations, 1983. Significant Features of Fiscal Federalism 1976-77, M-110, Washington, DC: Advisory Commission on Intergovernmental Relations, pp. 33-40.

Response to Tax-Base Changes

We will discuss state and local revenues before focusing attention on the levels and determinants of municipal spending on public works. Today people recognize that large cities may be in fiscal difficulty not because their expenditures are too high in an absolute sense, but because their expenditures are high relative to their ability to raise revenues. Two of the most fundamental factors affecting the ability of state and local governments to generate revenues for needed construction, repair, and maintenance are (1) the standard of the permanent tax base and (2) the change (expansion/contraction) of the tax base.

The tax or fiscal base can be permanent (e.g., natural resources) or mobile (e.g., firms and people). Changes in the tax base can have both positive and negative effects on infrastructure financing. Large northern cities, like New York City, that face out-migration of industries and the professional middle class, are confronted with a crisis in public finance, in general, and infrastructure finance, in particular. On the other hand, many southern and western cities have expanded their revenues from a growing tax base.

In order to avoid confusion, let us explain how this argument holds. This section is not intended to show whether or not there has been migration from the cities to the suburbs or from the North to the South (although such movements have taken place). The point is that large-scale changes in the tax base affects state and local tax capacity. When a state faces economic expansion (e.g., new plants, larger service sector, larger

labor force, etc.), the ability of the state government to raise additional revenues from a growing tax base also increases. The location of the state is unimportant.

In contrast, large-scale contraction of the tax base can have two negative effects: (1) it reduces the tax capacity, and (2) creates inefficiencies due to waste as industries close down and people move from one state to another. These effects provide justification for the federal government to provide a regional stimulus in the form of grant-in-aid programs. The theory of planned adjustment assumes that local deterioration of infrastructure and economic malaise persists precisely because competitive forces do not create an efficient spatial distribution of economic activity due to market imperfections. One of the roles of the federal government is to overcome deficiencies in the market system by planning for changes in the infrastructure (transportation, sewer, and water systems) of the lagging regions so that they become self-sustaining, retain their population, and attract investment.

In order to show that the change of the tax base is not an isolated phenomenon, but rather is taking place on a national scale, we will examine two patterns of change: city-to-suburb population shifts and changes of the tax base in the Sunbelt and the Snowbelt regions.

City-Suburb Demographic Changes

Large-scale changes in the demographic composition of cities and states can accentuate regional disparities. Such shifts can drain cities and states of some of their most productive tax bases. Information from

the 1980 decennial census and from the 1977 economic censuses indicates the extent of the recent city/suburb demographic changes. Table 6 shows the city-suburban population shifts.

Between 1970 and 1980, the number of people residing within designated Standard Metropolitan Statistical Areas (SMSAs) increased from almost 140 million to about 170 million, which represents a 22 percent increase. The rate of growth of suburban population, on the other hand, exceeded that of central cities by a wide margin. The number of persons living in central cities, for instance, increased from 64 million to only 68 million between 1970 and 1980, a gain of about 6 percent; whereas those living in metropolitan suburbs increased from 75 million to more than 100 million, a gain of about 33 percent. By 1977, the declining cities accounted for only 47 percent of metropolitan-area service-industry receipts, 27 percent of metropolitan retail sales, and 35 percent of metropolitan manufacturing jobs.

Snowbelt-Sunbelt Demographic and Economic Shifts

Regional shifts of population and economic activities can have tremendous effects on the ability of the state and local governments to finance and deliver adequate public services. An understanding of the linkages between regional shifts in employment and population, the unemployment problems of large cities, and fiscal problems of state and local governments is essential to formulating an intelligent public policy (Bahl, 1984).

Table 6

CITY-SUBURBAN POPULATION SHIFTS
1950 THROUGH 1980

	Population			
	1950	1960	1970	1980
	(millions)			
Total U.S. Population	151.4	179.3	203.2	226.5
Inside SMSAs	84.9	112.9	139.4	169.4
In Central Cities	49.7	58.0	63.8	67.9
Outside Central Cities	35.2	54.9	75.6	101.5
Outside SMSAs	66.5	66.4	63.8	57.1

SOURCE: Kamer, Pearl M. 1983. Crisis in Urban Public Finance: A Case Study of Thirty-Eight Cities. New York: Praeger, p. 29.

The fiscal consequences to cities of suburbanization were exacerbated by the concomitant shift of population, sales, and jobs from the North to the South and West. As shown in Table 7, between 1940 and 1980, the Sunbelt increased its population by 112.3 percent. Over the same period, the combined northeastern and midwestern regions, often called "Snowbelt" or "Frostbelt", grew by only 41.9 percent. In terms of economic performance of the northern and southern cities, the contrast is again evident. The northern cities accounted for 39 percent of metropolitan-area service-industry receipts, 22 percent of metropolitan retail sales, and 26 percent of metropolitan manufacturing employment. By contrast, the southern cities accounted for 72 percent of metropolitan-area, service-industry receipts, 52 percent of metropolitan retail sales, and 59 percent of metropolitan manufacturing jobs (Kamer, 1983).

Table 8 shows the interregional employment shifts in the period 1960 through 1980. The indexes of employment change show that the Southern and Western regions enjoyed higher economic expansions than the Northeast and Northcentral regions. For the 1960-1970 period, the index of employment change was 63 in the Northeast, 84 in the Midwest, 138 in the South, and 134 in the West. For the 1970-80 period, the index of employment change was only 34 in the Northeast and 66 in the Midwest, as compared with 153 in the South and 171 in the West.

During the 1970s, the rate of employment growth in the western states was 171 percent of the national average. As a result, the share of U.S. nonfarm jobs in the Sunbelt increased from less than 42 percent in 1960 to

Table 7

POPULATION OF THE SUNBELT, 1940, 1960, 1980
(IN THOUSANDS)

State	1940	1960	1980	Increase 1940-1980 (Percent)	Increase 1960-1980 (Percent)
North Carolina	3,572	4,556	5,874	64.5	28.9
South Carolina	1,900	2,383	3,119	64.2	30.9
Georgia	3,124	3,943	5,464	75.0	38.6
Florida	1,897	4,952	9,740	413.4	96.7
Alabama	2,833	3,267	3,890	37.3	19.1
Mississippi	2,184	2,178	2,521	15.5	15.7
Tennessee	2,916	3,567	4,591	57.5	28.7
Louisiana	2,364	3,257	4,204	77.9	29.1
Arkansas	1,949	1,786	2,286	17.3	28.0
Oklahoma	2,336	2,328	3,025	29.5	29.9
Texas	6,415	9,580	14,228	121.8	48.5
New Mexico	532	951	1,300	144.8	36.7
Arizona	499	1,302	2,718	444.7	108.8
Southern Nevada (a)	16	127	461	2,781.2	263.0
Southern California (b)	3,481	9,399	13,803	259.4	46.9
Subtotal	36,378	53,576	77,224	112.3	44.1
Northeast-Midwest	76,120	96,927	107,986	41.9	11.4
U.S. Total	132,165	179,323	226,505	71.4	26.3

(a) Clark County (Las Vegas Standard Metropolitan Statistical Area).
(b) San Bernadino, Kern, San Luis Obispo, Santa Barbara, Los Angles, Riverside, Orange, San Diego, Ventura, and Imperial counties.

SOURCE: Adopted from Richard M. Bernard and Bradley R. Rice, 1983, Sunbelt Cities: Politics and Growth Since World War II. Austin, Texas: University of Texas Press, p. 2.

Table 8

INTERREGIONAL EMPLOYMENT SHIFTS
1960 THROUGH 1980

Census Regions	Index of Change, 1960-70		Index of Change, 1970-80	
	Total Employment	Manufacturing Employment	Total Employment	Manufacturing Employment
Northeast	63	3	34	*
New England	74	2	72	87
Middle Atlantic	60	3	22	*
North Central	84	89	66	*
East North Central	82	77	53	*
West North Central	90	144	100	235
South	138	248	153	350
South Atlantic	150	206	138	243
East South Central	126	288	123	248
West South Central	127	311	198	688
West	134	128	171	602
Mountain	136	245	240	103
Pacific	133	110	151	523
U.S. Total	100	100	100	100

Note: U.S. growth rate = 100
*denotes an absolute decline.

SOURCE: Kamer, Pearl M. 1983, Crisis in Urban Public Finance: A Case Study of Thirty-Eight Cities. New York: Praeger, p. 36.

more than 51 percent in 1980. As shown in Table 8, the poor employment performance in the Northeast was largely attributable to declines in manufacturing employment. During the 1970s, in the Middle Atlantic states, the underpinnings of the industrial base in the Northeast appeared to disintegrate. Rising energy costs rendered northern manufacturing plants obsolete at an increasingly rapid pace and forced many of them to close.

Kamer (1983) provides the following facts. Between 1960 and 1970, the nation gained 2.6 million wage and salary jobs in manufacturing, 70 percent of them in the South and West. Between 1970 and 1980, the nation gained only 1.0 million manufacturing jobs. However, whereas the South and West gained 1.7 million manufacturing jobs, the Northeast and Midwest collectively lost 680 thousand such jobs. As a result, the share of U.S. manufacturing employment in the Sunbelt increased from 34 percent in 1960 to 45 percent in 1980. Had employment in the northern states increased at a rate equivalent to the national rate of increase between 1960 and 1980, the North would have gained an estimated 8.7 million additional jobs, including 2.3 million manufacturing jobs.

Historically, the federal government has played an important role in setting into motion the interregional movements of factors of production. Undoubtedly, national demographic and economic trends, which may be called exogenous variables, exert serious effects on the tax base of a state or locality. These trends are beyond the control of the individual city or state. They are phenomena of national scope. James (1981) and others argue that federal programs and policies re-enforced private-market

decisions to move from the city to the suburbs and from the North to the South. James, for instance, contends that by offering greater subsidies for the construction of new highways than for the maintenance of existing ones, the federal government, in effect, forced "...built-up areas with established transport systems...to bear a higher proportion of the costs of their transportation" (James, 1981, p. 46). These built-up areas were located primarily in the North. Other federal-spending programs also helped the Sunbelt states.

> Army Corp of Engineers' waterway projects opened southern cities to international trade. The proliferation of Federal defense installations in the south helped create new consumer and industrial markets there....Tax laws also facilitated industrial development in the sunbelt states....In effect, government tax policy encouraged business to invest in growing areas, such as sunbelt states, and to withdraw from older, established northern industrial areas. (Kamer, 1983, p. 39)

Bernard and Rice (1983), in a thorough study of Sunbelt cities, provide the following reasons for the significant growth of these metropolitan areas since World War II: defense spending (especially that generated by the World War II), other federal outlays, a favorable business climate, and an attractive quality of life. According to the authors, federal defense policy before the war had not been especially favorable to the South and the West when it came to the allocation of military installations and the letting of contracts for weaponary and other hardware. Industrial areas in the Northeast and Midwest received most of the bases and, to an even greater extent, most production contracts. With the start of World War II, the armed forces relocated their personnel and training facilities around the country in order to make bombing and even

invasion more difficult for the enemy forces. The chief beneficiaries of this policy shift were the South and the West.

> Warm weather coastal cities became centers of naval construction and land-based operations, causing such places as Mobile, San Diego, and Tampa to suddenly overflow with shipbuilders and sailors. Mobile, wrote John Dos Passos in 1943, looked like "a city that's been taken by storm." Inland cities of the South and Southwest offered wide-open spaces for ground forces training and airplane production and maintenance and clear skies for airplane testing and flight training. New Orleans, Atlanta, Fort Worth, Oklahoma City, San Antonio, Albuquerque, and Phoenix were among the many locales to prosper thanks to the construction of aircraft production facilities and the location or expansion of military bases (Bernard and Rice, 1983, p. 12).

Largely as a result of federal military expenditures, the cities of the South and the West experienced the greatest growth of population. Between 1940 and 1943, defense contractors issued calls for massive numbers of new workers, and the military inducted and trained people for World War II. In those early years, the population in the metropolitan counties of the South grew by 3.9 percent and of the West by 2.7 percent. In contrast, the metropolitan counties of the Northeast suffered a net loss of population of 0.6 percent (Funigiello, 1978, pp. 12-13).

The crucial role of the federal government in stimulating growth in the South and West cannot be underestimated. Given the fact that major problems of infrastructure failure can be traced to the older regions of the Northeast and Midwest, and the fact that the federal government was instrumental in heavily subsidizing the new construction in the South and the West, it seems to be unfair to withdraw support for infrastructure construction, maintenance, and rehabilitation in the former regions.

The role of the federal government is particularly important when regions manifest high tax-base changes. Changes in the tax base may have a serious effect on the revenue-generating ability of states and localities faced with tax-base contraction. Tax-base contractions may have two simultaneous effects on the revenue sources of the state and local governments. First, it may result in a substantial decrease in the own-source revenue of the state/local governments. Second, it may restrain the ability of the taxing authorities to raise taxes, because any attempt at increasing tax rates will exacerbate the tax-base contraction process by further reducing the rate of return on factors of production (Hansen, 1973; Richardson, 1979; Schwartz, 1973; Tiebout, 1956). Therefore, the lower levels of government are often reluctant to increase taxes on mobile factors of production. Similarly, taxes on output will be detrimental to the extent that they cause a deflection of sales from the levying jurisdiction to a neighboring one or an out-migration of factors of production. The decentralization of taxing powers may thus be strongly limited by the disincentives to levy taxes to finance infrastructure expenditures.

Response to Recessions

Recession causes changes in the fiscal capacity of states and also elicits countercyclical programs, both of which are reasons for the important federal government role.

Fiscal Capacity

The deterioration of the fiscal health of the states can also be

traced to recessions (depressions). As will be shown, periods of recession widen the gap between revenues and expenditures. During recessions, firms tend to reduce activities relatively more where operating costs are higher and where physical plant is oldest (i.e., in declining regions generally and in central cities specifically). The process does not reverse itself during the recovery (Birch, 1981; Bahl, 1982). Plant and employment expansions tend to occur where comparative costs are lowest. Lower comparative costs depends on a number of factors including lower energy costs, lower factory-to-market transport costs, lower wage rates, and lower taxes, all of which tend to occur in the South and West. The fiscal problem of a central city is multiplied if it is located in the Northeast or industrial Midwest, where plant is old or obsolete, energy is more costly, transport and labor costs are high, climate is unfavorable, and taxes tend to be comparatively high (Mollenkopf, 1981; Schmenner, 1978; Richardson, 1979). In such circumstances, delegation of massive capital-plant-restoration expenditures from the federal government to states and localities with declining revenues will further accentuate the decline process.

Although economic forecasters during the last two years stated that the economy is growing and the recession ending, many states have yet to recover (National Governors' Association, 1983). In fact, Table 9 shows that in Fiscal Year (FY) 1983 more states implemented budget-reduction strategies than in FY 1982: 27 states implemented across-the-board cuts in FY 1983, up from 17 in FY 1982; 12 additional states implemented selective

Table 9

SUMMARY CHART (50 STATES) VARIOUS AUSTERITY MEASURES

Measure	Fiscal Year 1982	Fiscal Year 1983
Across-the-Board Cuts	17	27
Selective Program Cuts	25	37
Permanent Revenue Increases	12	27
Temporary Revenue Raising Measures	14	24
Capital Finance to Bonds	5	6
Move General Funds to:		
Special Funds	8	17
Other Government Entities	1	3
Unpaid Employees Furloughs	4	9
Hiring Limits	37	42
Layoffs	20	22
Restricted Travel:		
Out-of-State	24	32
In-State	16	23

SOURCE: National Governors' Association. 1983. Governors' Response to Fiscal Austerity. Washington, DC: National Governors' Association of State Budget Officers (August).

program cuts. In addition, 27 states enacted permanent tax increases, and 24 states enacted temporary revenue-enhancement measures. Similarly, a survey of the National Governors' Association and the National Association of State Budget Officers provides further evidence of state financial problems when it reports that the aggregate surplus for state governments was $4.7 billion in FY 1981, $2.3 billion in FY 1982, but only $0.5 billion in FY 1983 (Data Resources, Inc., 1983). Some of these austerity measures and decline of revenues are due to recessionary forces, and a significant part is due to the reductions in federal grants-in-aid programs.

One way the federal government has used to respond to recessions has been to enact public-works legislation.

Countercyclical Programs

Historically, public works have been responsible for the creation both of many physical facilities and of a large number of jobs in the construction of roads, dams, bridges, waterways, and the like across the country. Two types of employment effects of public works are important: (1) the short-run employment effects resulting from the construction activity and the demand for materials and (2) the long-run employment effects, including the operation and maintenance of public facilities. In both types, the federal government has been the principle instigator and conductor of such employment-generating schemes. During the first three years of the Great Depression, unemployment grew rapidly, reaching its peak of 24 percent in 1932. Furthermore, private-construction activities dropped from $8.7 billion in 1929 to $1.4 billion in 1932. Under these

circumstances, the Emergency Relief Construction Act (1932) was passed. It led to employment of about 3 million of the 13 million unemployed (Jerrett and Barocci, 1979, p. 3). Similarly, federal establishment of the Civil Works Administration (CWA) led to the direct employment of over 4.3 million persons in the first six weeks of CWA's projects. Other federal-sponsored programs include the National Industrial Recovery Act of 1933, which appropriated $3.3 billion for the Public Works Administration (PWA). The intentions behind the PWA were (1) to prepare public works programs to be undertaken as necessary, (2) to provide employment for workers in building trades and industries supplying construction materials, and (3) to stimulate industry by creating demand for construction materials (Jerrett and Barocci, 1979, p.5). Although these programs were primarily intended to alleviate unemployment, they also produced a staggering amount of output.

> For example, the CWA was responsible for building and/or repairing over 500,000 miles of roads, 40,000 schools, 3,500 playgrounds and althletic fields, and 1,000 airports. It also employed over 5,000 teachers and "pumped" approximately $1 billion into the economy. Over its life, the WPA spent an average of $1.4 billion a year on wages going to over 2 million families. The "small useful projects" created over 617,000 miles of roads, 120,000 public buildings, 124,000 bridges, and LaGuardia Airport (Fournier, 1983, p. 14).

During the last two decades, other federally supported infrastructure programs (such as the 1962 Accelerated Public Works Programs, 1971 Public Works Impact Program, 1974 Job Opportunities Program, and 1976 local public works program) were designed to serve a three-fold function: economic stabilization, work relief, and construction of needed projects.

In summary, recession and countercyclical characteristics of public-

works facilities are two important reasons for the federal government involvement in constructing a national infrastructure policy. In the next section, the final argument for the federal infrastructure engagement policy, namely, the historical revenue dependency of the state and local governments, will be discussed.

Revenue Dependency of the State and Local Governments

The current trends of federal withdrawal from infrastructure investment and further delegation of authority to the state and local governments raises two important questions. First, how will the state and local governments react to the delegation of responsibility? Second, will they do a better job than the federal government in promoting a healthy infrastructure? In order to answer these questions, we will first look at the state and local government expenditures on infrastructure during the last two decades, and then we will discuss the past and the present federal aid policy.

State and Local Infrastructure Expenditures Trends

The two most significant infrastructure expenditures trends of the past two decades are, first, an increasing dependence of state and local governments on federal-aid, and, second, a persistent decline in real levels of state and local government capital outlays. For every 1 percent increase in gross national product between 1954 and 1976, federal general revenues grew by about 1 percent, state and local government revenues from own sources by about 2 precent, and federal aid by about 5 percent (Bahl,

1984, p. 14). With this trend came a growing reliance by state and local governments on federal aid. Table 10 shows that, by 1978, federal aid accounted for 22 percent of total state and local government revenues; it was a more important state and local financing source than property, sales, or income taxes. During the 1970s, federal aid for capital-outlays doubled its share of support for state and local government capital-facility purchases (from 20 percent in 1970 to 41 percent in 1981) and more than tripled in absolute dollars of support.

The second trend observable in the infrastructure realm is the overall reduction in expenditures. Table 11 shows the steep decline in the share of state/local budgets devoted to capital expenditures, from 27.1 percent in 1960 to 15.7 percent in 1979.

Table 12 shows the percentage of state and local government capital outlay by major functions. The fact that the functions of sewerage, water, and transit have slight percentage increases over the years should not lead to the conclusion that the lower levels of government have increased their overall role in capital expenditures. The reason is that the slight increases in the three infrastructure functions coincide with a decrease over time in expenditures pertaining to functions of highway and education. Here the issue of trade-offs in expenditures between different functions of infrastructure (and also other functions, such as education, social welfare, etc.) emerges. That is, given the fiscal constraints of state and local governments, the more money spent on one function of infrastructure (e.g., because of a sudden failure), the less is available for other, equally important, functions.

Table 10

STATE AND LOCAL GOVERNMENT REVENUES FROM FEDERAL AID AND MAJOR TAX REVENUE SOURCES, 1954-1981.

Year	Percent of Total General Revenue			
	Federal Aid	Property Taxes	Income Taxes	Sales Taxes
1954	10.3	34.4	6.6	25.1
1964	14.7	31.0	8.0	23.1
1974	20.1	23.0	12.3	22.2
1976	21.7	22.3	12.3	21.3
1977	21.9	21.9	13.4	21.2
1978	22.0	21.0	13.9	21.4
1979	21.8	18.9	14.3	21.6
1980	21.7	17.9	14.5	20.9
1981	21.3	17.7	14.3	20.3

SOURCE: Roy Bahl, 1984, Financing State and Local Government in the 1980s. New York: Oxford University Press, p. 15.

Table 11

STATE AND LOCAL CAPITAL EXPENDITURES, 1960-1979.

Fiscal Year	Gross Capital Investment (millions)	Percentage of Total Expenditures (percent)
1960	$13.5	27.1
1965	20.1	26.8
1970	28.8	21.8
1975	41.8	18.0
1976	39.9	15.9
1977	39.0	14.4
1978	46.7	15.7
1979	50.8	15.7

SOURCE: George Peterson and Mary Miller. 1981, Financing Options for Urban Infrastructure. Washington, DC: The Urban Institute, p. 6.

Table 12

PERCENT OF STATE AND LOCAL CAPITAL OUTLAY
BY FUNCTION, 1970-1980

Fiscal Year Ending	Total Capital Expendi-tures	Educa-tion	Highway	Sewerage	Water	Transit	Other
1970	100	25.6	36.4	4.7	4.0	1.3	28.0
1971	100	24.5	36.0	5.1	3.6	1.2	29.6
1972	100	23.4	36.0	6.1	3.8	1.2	29.5
1973	100	22.4	32.6	6.8	4.0	3.5	31.7
1974	100	22.0	32.0	6.8	4.5	2.4	32.3
1975	100	22.1	30.4	8.0	4.7	2.7	32.1
1976	100	21.7	30.5	8.6	4.7	2.8	31.7
1977	100	20.5	27.8	9.4	5.1	3.6	33.6
1978	100	19.4	28.8	9.8	4.7	3.0	34.3
1979	100	17.9	29.3	10.5	5.1	3.0	34.2
1980	100	17.0	30.4	10.0	5.2	3.0	34.4

SOURCE: U.S. Bureau of the Census. 1982. Governmental Finances, Series GF. Washington, DC: U.S. Government Printing Office, annual issues.

Table 13 shows the government expenditures for fixed capital investment in current and constant dollars. Between 1968 and 1977, real levels of capital spending by state and local governments fell almost 30 percent. Although there has been some recovery from the 1977 low of capital spending, expenditures have remained well below the levels of the last half of the 1960s and first half of the 1970s.

Tables 10-13, make it evident that the state and local governments have developed high levels of federal aid dependency for their capital expenditures. Now that federal aid is beginning to shrink, state and local governments would have problems enough were their task merely to find substitute sources to finance outlays at recent rates. But given the apparent need for sharp increases in capital outlays, the damage caused by a reduction of federal aid will be magnified (Bernard and Rice, 1983, p. 61).

A number of reasons exist for the increased dependency on federal aid and the decline in infrastructure support by state and local governments. One reason is (a) the shift in state and local government spending priorities from public works and other areas towards social programs, as well as (b) the increased operating costs of services, such as police, fire, and education. The second reason is the citizen-imposed tax-spending limitations. These, combined with sluggish economic growth, have squeezed government budgets. The effect of the tax revolt is clearly evident when the state-local expenditures behavior is analyzed on a "before and after" basis. Table 14 shows that, before the tax revolt, the average

Table 13

GOVERNMENT CAPITAL INVESTMENT AS RELATED
TO POPULATION AND ECONOMIC GROWTH, 1960-1982

Year	Total	Federal	State/Local	Total	Federal	State/Local
	(1982 Constant Dollar Per Capita)			(Investment as Percentage of GNP)		
1960	$126.20	$17.70	$108.50	3.1	0.4	2.7
1965	161.10	23.70	137.40	3.4	0.5	2.9
1970	148.30	13.20	135.10	2.9	0.2	2.6
1975	128.70	15.70	113.00	2.3	0.3	2.0
1976	116.90	15.10	101.80	2.0	0.2	1.7
1977	107.60	16.80	90.80	1.8	0.3	1.5
1978	114.10	18.40	95.70	1.8	0.3	1.5
1979	104.80	16.40	88.40	1.6	0.2	1.3
1980	103.60	15.80	87.80	1.6	0.2	1.4
1981	93.50	15.20	78.30	1.4	0.2	1.2
1982	85.50	13.30	72.20	1.3	0.2	1.1

Note: Represents annual gross capital formation for nonmilitary, nonresidential structures, based upon value of new construction put in place adjusted to remove interest payments.

SOURCE: Douglas R. Porter and Richard B. Peiser, 1984, Financing Infrastructure to Support Community Growth. Washington, DC: Urban Land Institute, p. 3.

annual increase in state and local capital expenditures (adjusted for inflation) was 4.4 percent. After the tax revolt, the average annual increase was only 0.5 percent. A casual observer might interpret many state and local tax increases adopted in 1981 and 1982 as the end of the tax revolt. According to the ACIR, however, evidence suggests a different interpretation, namely, a major state tax increase in the post-Proposition 13 era is more likely to signal fiscal desperation than that "the big spenders are once again in office" (ACIR, 1983, pp. 1-3).

The "taxpayer revolt" hypothesis, which vaulted into prominence with the passage of Proposition 13 in California in 1978, predicts that no state or local politician will lightly propose tax increases to the electorate. If that is the case, federal tax reductions will add little or no strength to state-local revenue-raising powers. Indeed the 1978 Proposition 13 in California was not the point of quelling the tax revolt. The vote of Californians in June of 1982 to eliminate state inheritance taxes and to index the individual income tax fully for inflation are only two examples of a continuing trend. As George Break notes, "If nothing else, these developments suggest that it is a poor time to expect state and local governments to undertake fiscal responsibilities" (Break, 1982, p. 47).

Our earlier question was: given an increased responsibility or total responsibility, will the state or local governments be able and willing to spend more on infrastructure? The above arguments make it doubtful that the lower-level governments will provide better public-works services without than with federal grant-in-aid programs. The norm has been such

Table 14

STATE-LOCAL EXPENDITURES AND EMPLOYMENT
BEFORE AND AFTER THE TAX REVOLT

(Average Annual Percentage Change)

State and Region	Per Capita Expenditures (Adjusted for Inflation) 1957-1978	Per Capita Expenditures (Adjusted for Inflation) 1978-1981	Public Employment (Per 1,000 Population) 1957-1978	Public Employment (Per 1,000 Population) 1978-1981
Total	4.4%	0.5%	2.7%	-1.1%
New England				
Connecticut	2.9	0.5	2.2	1.2
Maine	4.7	-1.1	2.6	-0.1
Massachusetts	4.0	-0.1	2.0	-0.5
New Hampshire	3.4	1.1	2.4	-0.9
Rhode Island	5.2	2.1	2.9	-0.6
Vermont	4.5	-1.4	2.9	-0.7
Mideast				
Delaware	4.6	2.3	3.4	-0.7
D.C.	7.1	-1.3	5.0	-0.8
Maryland	4.9	-1.4	3.6	-2.2
New Jersey	4.7	1.2	3.0	0.0
New York	4.9	0.2	1.9	1.6
Pennsylvania	4.9	-0.8	2.8	-0.6
Great Lakes				
Illinois	4.5	1.0	2.7	-0.6
Indiana	3.6	2.9	2.6	-0.2
Michigan	4.3	0.4	2.7	-3.2
Ohio	4.2	0.7	2.5	-0.2
Wisconsin	4.4	1.9	3.0	-0.1
Plains				
Iowa	4.2	0.7	2.6	-0.7
Kansas	3.6	2.0	2.5	0.3
Minnesota	4.5	1.5	2.6	-0.2
Missouri	3.9	3.1	2.9	-0.4
Nebraska	4.7	0.6	3.1	-0.7
North Dakota	3.9	2.4	2.7	0.4
South Dakota	3.8	1.2	2.7	-0.8

TABLE 14 (CONTINUED)

State and Region	Per Capita Expenditures (Adjusted for Inflation) 1957-1978	Per Capita Expenditures (Adjusted for Inflation) 1978-1981	Public Employment (Per 1,000 Population) 1957-1978	Public Employment (Per 1,000 Population) 1978-1981
Southeast				
Alabama	4.7	0.5	3.2	-1.1
Arkansas	4.9	1.5	2.9	0.2
Florida	3.9	-1.1	2.4	-3.9
Georgia	4.7	1.5	3.4	-1.4
Kentucky	5.3	1.6	3.1	-1.9
Louisiana	3.4	3.2	2.4	-1.0
Mississippi	5.4	1.4	3.2	-0.4
North Carolina	5.0	0.5	3.5	-0.3
South Carolina	5.1	1.7	3.8	-3.6
Tennessee	5.2	-0.4	3.0	-1.1
Virginia	5.1	1.7	3.6	-2.7
West Virginia	5.7	0.6	3.8	-0.6
Southwest				
Arizona	3.9	0.0	3.3	-4.1
New Mexico	3.6	3.6	3.0	1.1
Oklahoma	3.1	4.0	2.5	1.4
Texas	4.1	1.2	3.1	-1.5
Rocky Mountain				
Colorado	3.7	-0.4	2.9	-3.5
Idaho	4.0	-1.9	2.5	-2.3
Montana	4.1	-1.3	3.0	-2.1
Utah	4.2	0.4	2.7	-3.9
Wyoming	4.1	6.4	2.4	2.2
Far West				
California	4.1	-0.7	1.8	-2.2
Nevada	3.2	-1.0	2.7	-6.2
Oregon	4.5	0.2	2.5	-2.2
Washington	3.9	1.8	2.2	-3.1
Alaska	10.1	14.5	6.2	3.5
Hawaii	5.0	-3.8	2.3	-1.6

D.C. = District of Columbia

SOURCE: Advisory Commission on Intergovernmental Relations, 1983, Significant Features of Fiscal Federalism: 1981-1982 Edition, Washington, DC: Advisory Commission on Intergovernmental Relations, p. 2.

that those areas of infrastructure that have not received federal support have deteriorated the most by deferred capital and maintenance spending. Indeed, the deferred spending by states and localities (both new construction and repair) has resulted in continued use of facilities exceeding their design life and in the failure to build the infrastructure needed for the future. Many examples have been offered:

> Many of New York City's water mains are far older than their 60-year life expectancy, and most of Manhattan's sewers were built during two peak periods: the 1830's decade and the period from 1870 to 1900 (Grossman, 1979. pp. 60, 63.)

> The Mayor of Indianapolis estimates that 300 miles of his city's streets should be resurfaced annually as routine maintenance. In 1981 that city resurfaced 15 miles. At the same time, resurfacing costs have increased from $35,000 per mile in 1975 to $63,000 per mile in 1982 (Hudnut, 1983, p. 100).

> The most recent estimate by the states and U.S. Environmental Protection Agency projects that the cost to construct municipal wastewater treatment systems in order to comply with the Clean Water Act is $118 billion. An estimated $7.3 billion of that amount is for major sewer-system repairs and to correct leakages (U.S. Environmental Protection Agency, 1982, pp. 7, 53-54).

> The U.S. Army Corps of Engineers estimates that it will cost $11 billion to repair deterioration of the Nation's inland waterways (U.S. Army Corps of Engineers, 1981).

Thus, the rationale for federal grant-in-aid becomes clear when the magnitude of infrastructure expenditure needs are juxtaposed against the existing fiscal dependency of the lower-level governments on the federal government.

Federal Capital Spending

Although government investment in nonmilitary capital facilities rose to $46.6 billion in 1982 from $13.9 billion in 1960, the increase is not so impressive when those investments are viewed in terms of constant dollars. When the effects of inflation are eliminated, it is apparent that investment peaked in 1968 and has fallen steadily ever since (Porter and Peiser, 1984, p. 2). In constant dollars, as shown earlier in Table 13, total investment was 44 percent lower in 1982 than in 1968. The decline is also apparent when investment is compared with population and economic growth. Investment in public works in 1982 amounted to $85.50 per person, 42 percent lower than in 1970, when it was $143.30 per person. As a percentage of the Gross National Product (GNP), investment fell from 2.9 percent in 1970 to 1.3 percent in 1982. In public works and other aspects of government, the federal government is attempting to redefine its role by applying its limited resources to items considered to be truly of national interest. At the same time, this administration is encouraging state and local governments to rely increasingly on private-sector activities. Thus, although a number of reasons call for greater federal involvement, this administration has resisted comprehensive infrastructure proposals that might create a larger federal role.

The data in Tables 15-17 help support the argument that federal grants do, in fact, translate into tangible state and local infrastructure investments and that areas not receiving federal aid lag behind. Tables 15 and 16 provide a broad overview of the changes in federal capital-spending

Table 15

LEGISLATIVE AUTHORIZATIONS FOR FEDERAL CAPITAL ASSISTANCE
(in millions)

Function	Fiscal Year 1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Interstate Highways	4000	4000	4055	4055	2650	3050	3050	3250	3250	3250	3250	3625
Interstate Resurfacing, Restoration, and Rehabilitation	--	--	--	--	--	--	--	175	175	175	175	175
Federal Aid Urban System	--	--	100	100	780	800	800	800	800	800	800	800
Bridge Replacement and Rehabilitation[a]	--	--	100	150	25	75	125	180	180	900	1100	1300
UMTA Section 3 Discretionary Grants	190	300	310	710	1260	1860	--	--	--	1375	1410	1515
UMTA Section 5 Formula Grants[b]	--	--	--	--	--	300	500	650	775	1515	1580	1665
Waste-Water Treatment	--	--	--	5000	6000	7000	--	--	4500	5000	5000	5000
Community Development Block Grant	--	--	--	--	--	2500	2950	2950	3500	3650	3750	3675
Local Public Works	--	--	--	--	--	--	--	2000	4000	--	--	--
Urban Development Action Grants	--	--	--	--	--	--	--	--	400	400	675	675

[a]The Special Bridge Replacement program was authorized through 1978. In 1978, the program was expanded to include bridge rehabilitation and renamed.

[b]UMTA Section 5 formula grants may be used for operation or capital purposes at the transit system's discretion, with the exception of Tier 4 bus purchase funds, which were added to Section 5, 1978. Tier 4 funds are solely for capital purposes.

SOURCE: George E. Peterson and Mary J. Miller. 1981. Financing Options for Urban Infrastructure. Washington, DC: The Urban Institute.

Table 16

OUTLAYS FOR FEDERAL CAPITAL ASSISTANCE
(in millions)

Function	Fiscal Year 1970	1971	1972	1973	1974	1975	1976	TQ[a]	1977	1978	1979
Interstate Highways	3173	3330	3342	3269	2909	2804	3306	828	2828	2614	3163
Interstate Resurfacing, Restoration, and Rehabilitation	--	--	--	--	--	--	--	--	23	94	151
Interstate Transfers for Transit	--	--	--	--	51	66	337	216	392	667	700
Federal Aid Urban Systems	--	--	--	11	35	170	342	109	434	472	640
Bridge Replacement and Rehabilitation	--	--	3	19	38	46	104	35	131	146	208
UMTA Section 3 Discretionary Grants	[b]	285	510	864	870	1197	1092	254	1250	1400	1226
UMTA Section 5 Formula Grants	--	--	--	--	--	152	390	55	611	735	1134
Capital Uses of Section 5 Grants	--	--	--	--	--	9	25	7	39	n.a.	251
Waste-Water Treatment	--	--	--	680	1560	1940	2429	918	3545	3194	3741
Community Development Block Grant	--	--	--	--	--	38	983	439	2089	2464	3161
Local Public Works	--	--	--	--	--	--	--	--	575	3041	1720
Urban Development Action Grants	--	--	--	--	--	--	--	--	--	n.a.	n.a.

[a]TQ = Third Quarter

[b]Outlays for FY 1965-70: $681 million

n.a. = not available

SOURCE: George E. Peterson and Mary J. Miller. 1981. Financing Options for Urban Infrastructure. Washington, DC: The Urban Institute.

TABLE 17

CAPITAL OUTLAYS BY STATE AND LOCAL GOVERNMENTS
(millions of dollars)

Fiscal Year	Function					
	Highways and Bridges	Sewers	Transit	Water	All Other	U.S. Total
1971	$11,888	$1,744	$446	$1,247	$17,812	$33,137
1972	12,317	2,091	435	1,343	18,441	34,627
1973	11,459	2,428	920	1,435	19,030	35,272
1974	12,152	2,640	926	1,743	20,623	38,084
1975	13,646	3,569	1,203	2,111	24,295	44,824
1976	14,209	3,955	1,339	2,208	24,820	46,531
1977	12,497	4,208	1,573	2,302	24,574	45,154
1978	12,898	4,366	1,407	2,141	23,957	44,769
1979	15,567	5,619	1,618	2,701	27,691	53,196
1980	19,133	6,272	1,921	3,335	32,238	62,894
1981	19,334	6,911	2,617	3,784	34,950	67,596

Note: Deflators were only available for Highways, Sewerage, and Water, so that no attempt were made to deflate these figures. Based upon 1971-1972 = 100, in 1981-82, the highway deflator was 2.314, the sewerage deflator 2.355, and the water deflator 2.374.

SOURCE: U.S. Joint Economic Committee. 1984. Hard Choices. Washington, DC: U.S. Government Printing Office, p. 88.

priorities. The two sectors (besides highways) that had a surge of federal capital support in the last half of the 1970s were waste-water treatment (the nation decided to attack water-pollution problems) and public-transit systems (UMTA).

The concern with mass transit was largely due to the perceived national interest in encouraging an energy-savings strategy. Table 16 shows that the changes in legislative grant authorizations have been translated (of course, sometimes with substantial delays) into corresponding changes in federal outlays for capital support. The effectiveness of the grants in shaping capital spending by recipient governments is visible when we compare data in Table 16 with those in Table 17. The two functions of waste-water-treatment and public-transit singled out for federal capital assistance have displayed the most rapid overall investment growth (222 and 263 percent, respectively). Other sectors that do not receive federal capital assistance, or for which federal capital aid has grown slowly, have lagged in investment levels.

PROSPECTS FOR THE FEDERAL GOVERNMENT ROLE

This administration has proposed major cutbacks in federal public-works grants. For example, on December 29, 1981, a significant course was set for the U.S. Environmental Protection Agency's construction grant program. New amendments reduce the federal government's financial exposure from $90 billion to $36 billion. Policies on other programs--highways, wastewater treatment, and water distribution are--briefly discussed below.

Highways

Before the present Administration, urban portions of the highway system had the largest growth in federal support. However, the present administration's policy is to phase out all federal aid for secondary and urban roads, leaving only strengthened support for the existing interstate highway system and aid for primary roads. Large urban areas that have been most dependent on the recent growth in Federal Aid to Urban Systems (FAUS) will be hurt the most from the new policies.

Federal financing of highways has not kept pace with growing highway problems. The Highway Trust Fund is supported by a flat tax on gasoline and various other user taxes and fees, including excise taxes on trucks and trailers. Because of a slowing of the increase in automobile travel and improved fuel economy, revenue from the motor fuel tax--the key source of highway funds--has stopped growing. Motor fuel revenues now account for one-half of the trust-fund receipts, with the other user charges and interest income making up the balance (U.S. Department of Transportation, 1983). Peterson and Miller (1981) outline the following effect of the administration's highway aid proposals on the financing of road improvements.

> The proposals would cut back on plans for building uncompleted portions of the interstate highway system. The proposals would reduce the number of lanes, eliminate planned interchanges and noise barriers, and scrap some planned urban extensions of the system. These changes would reduce the cost of building the rest of the interstate system from the 1981 estimate of $53.8 billion to $31.5 billion.

> Boost still further the share of funds going for maintenance and reconstruction of the interstate system. This would be done by creating a new "4R" program, adding reconstruction projects to the current 3R program purposes of resurfacing, restoration, and rehabilitation. The 4R program would devote more federal aid to the sizable reconstruction needs of older interstate mileage, by raising the federal share of 4R projects from 75 percent to 90 percent.
>
> Most importantly for local finances, the proposals would terminate federal assistance for urban arterials and for secnodary roads, which would be turned over to state and local government financing responsibility. Federal assistance for urban and secondary roads would be cut from $1.6 billion in 1982 to $800 million in 1983 and zero in 1984 (Peterson and Miller, 1981 p. 21).

The overall effect of major federal expenditures cutbacks cannot be determined in the immediate future. However, given the history of state and local government dependency on federal government appropriations, the future of secondary roads and urban arterials seems to be most bleak in the regions of highest fiscal stress.

Wastewater Treatment

Current proposals will greatly reduce the level of federal assistance for wastewater treatment investment. Most of the federal funding will be concentrated in secondary treatment plants and interceptor lines needed to treat existing sewer capacity. There will be no funds available for the expansion, rehabilitation, or improvement of other parts of existing sewer systems (Peterson and Miller, 1981).

Water Distribution

Although the federal government has adopted safe drinking-water

regulations, and states and localities are legally obliged to abide by the set standards, the administration has resisted creating capital programs to assist in the renewal of water distribution facilities (Peterson and Miller, 1981).

In the 1980s, to the extent that the national infrastructure problem will continue to exist, policies for dealing with it may require two types of tradeoffs: (1) between infrastructure and other national programs, such as defense expenditures, and (2) between different types of infrastructure. It is unlikely that individual states or localities will be able to tackle the massive expenditure requirements for the public-works facilities. According to Choate (1981), some of the most costly infrastructure includes highways and bridges outside urban areas, $1 trillion; city streets, $600 billion; municipal water systems, $125 billion; ports and inland waterways, $40 billion; construction and renovating up to 3,000 prisons and jails, $15 billion; water pollution controls to meet current standards, $100 billion. Realistically speaking, such an astonishing amount of expenditure is beyond the collective fiscal potentials of states and localities. Thus, without sizable federal aid, the repair and rehabilitation of major sectors of infrastructure will be deferred, sometimes indefinitely.

CONCLUSION

In this paper, we have attempted to delineate the underlying reasons for federal involvement in rectifying the existing infrastructure problems in the United States. We have stressed the following reasons: (1) equalization of intergovernmental and interregional imbalances, (2) response to tax

base changes, (3) response to recessions, (4) revenue dependency of the state and local governments.

We argued that, because of a growing vertical fiscal imbalance in the source of funds in favor of higher levels of government, the federal government must assume a larger share in financing the multi-billion infrastructure reconstruction and rehabilitation costs. Also, because the federal government is predominant in the economy (credit market), states and localities with limited power to borrow and raise capital should be helped by the federal government. Interregional differences in the revenue-raising capacity are yet another reason for aiding the declining regions. The tax capacity of the states and localities varies, sometimes substantially. Delegation of heavy capital expenditures to states and localities with poor or low tax capacity further accentuates their fiscal crises.

We have also argued that large movements of the tax base can create inefficiencies, because such movements not only accelerate regional inequalities, but cause substantial waste when industries close and production shifts among states. The federal government, by providing a regional stimulus in the form of grant-in-aid programs, can help stabilize regional economies and eliminate factors causing tax-base movements, such as a decaying infrastructure.

Recession, which is national phenomenon beyond the control of individual states and localities, also creates a need for federal involvement. By providing public works, the federal government

historically has generated countercyclical forces in the form of infrastructure outlays that led the country out of recession.

The past neglect of the public works and the long trend of the state and local capital expenditures dependency are other reasons for the inability of lower levels of government to meet the existing infrastructure expenditures needs on their own.

In brief, the growth of intergovernmental aid has stimulated a debate between those who support intergovernmental aid and those who point to its major disadvantages. Among the first group, Break (1980) makes a persuasive case for intergovernmental aid. He believes that such aid is needed to mitigate the consequences of benefit spillovers, to redress fiscal imbalances, to satisfy the unmet needs of lower income groups, to decentralize political power, to encourage consumption of "merit" goods, to promote innovation and experimentation, and to help stabilize the economy. Spillovers prevent cities and states from reaping the full benefits of their investment in infrastructure; federal grants reduce program costs to insiders until such costs are roughly equal to the program benefits insiders enjoy (Break, 1980). On the other extreme, authors, such as Hanke (1984) and Goldman and Mokuvos (1984), argue for a drastic, if not total, federal disengagement in public infrastructure. As an alternative, the latter group propose instead the "privatization" of public-works facilities.

We argue for a coordinated federal infrastructure engagement policy. Such a policy would involve the participation of all three levels of the

government; the policy would emphasize the equalizing power of the federal government. Given the magnitude of the expenditures requirements for upgrading and maintaining the nation's capital stock, neither state and local governments nor the private sector alone can overcome the vast financial burden of infrastructure investment backlog. The federal government, in participation with the lower level governments and the private sector, will eventually have to design and implement a national infrastructure capital plan. Therefore, the role of federal government, both as a mediator to equalize interregional disparities in the public works expenditures, and also, as a fundamental financial source, will remain important for a long time to come.

APPENDIX I

TAX-BASE OF THE FIFTY STATES, 1982

TAX-BASE OF THE FIFTY STATES, 1982

State	Per-Capita Gov. Finance	Per-Capita Tax Revenue	Income (mils. $)	Population
Alabama	$ 1239.58	$ 762.47	$ 32198	3893888
Alaska	14735.43	6998.03	5667	401851
Arizona	1564.56	1063.55	27256	2718215
Arkansas	1068.53	729.57	18467	2286435
California	1879.00	1371.16	288481	23667902
Colorado	1767.92	1191.16	33256	2889964
Connecticut	1663.02	1336.79	40164	3107576
Delaware	1843.37	1215.74	6640	594338
Washington, DC	2257.42	1923.88	8542	638333
Florida	1387.23	946.25	103502	9746324
Georgia	1397.23	942.98	49797	5463105
Hawaii	1930.66	1431.28	10823	964547
Idaho	1298.30	867.73	8574	943935
Illinois	1540.12	1196.56	132675	11426518
Indiana	1249.78	879.61	53147	5490224
Iowa	1582.32	1130.41	30362	2913808
Kansas	1592.44	1054.45	25762	2363679
Kentucky	1158.41	857.02	30836	3660777
Louisiana	1742.81	1105.51	41001	4205900
Maine	1327.41	1027.44	9669	1124660
Maryland	1755.13	1271.44	48929	4216975
Massachusetts	1681.90	1351.43	64248	5737037
Michigan	1732.28	1233.81	99314	9262078
Minnesota	1892.24	1291.68	44087	4075970
Mississippi	1231.77	765.70	18749	2520638
Missouri	1174.76	846.41	47682	4916686
Montana	1828.91	1229.84	7458	786415
Nebraska	1601.31	1048.75	16346	1569825
Nevada	1916.99	1271.29	9782	800493
New Hampshire	1268.40	932.94	9350	920610
New Jersey	1727.91	1346.46	89788	7364823
New Mexico	2172.52	1141.93	11324	1302894
New York	2238.07	1790.82	201823	17558072
North Carolina	1213.55	884.88	51494	5881766
North Dakota	1923.26	1132.02	6725	652717
Ohio	1350.55	970.15	111179	10797630
Oklahoma	1797.26	1219.02	31771	3025290
Oregon	1733.91	1113.43	26526	2633105
Pennsylvania	1443.72	1114.62	123096	11863895
Rhode Island	1662.47	1223.42	9676	947154
South Carolina	1240.31	845.33	25457	3121820
South Dakota	1404.99	917.44	6056	690768
Tennessee	1141.45	771.12	38957	4591120
Texas	1567.79	1081.31	158431	14229191
Utah	1610.86	1013.28	12619	1461037
Vermont	1499.79	1115.33	4497	511456
Virginia	1400.01	1030.54	56191	5346818
Washington	1709.73	1166.75	47557	4132156
West Virginia	1330.08	954.85	16352	1949644
Wisconsin	1729.34	1261.48	47579	4705767
Wyoming	3877.90	2565.67	5738	469557
U.S. Total	$96084.7	$63934.73	$2405600	226545386

NOTE: For abbreviations refer to the last page of Appendix I.

Continued

State	General Sales (1000 $)	Parimutual (1000 $)	Motor Fuel (1000 Gallons)	Insurance (mils.$)	Tobacco (mils. of packs)
Alabama	12074983	143713	2125428	2535	467
Alaska	2232580	0	272918	531	61
Arizona	9994415	206558	1538950	2198	317
Arkansas	7744552	280470	1364652	1606	293
California	105931318	2048355	11929470	23231	2792
Colorado	13368525	213149	1703256	2827	387
Connecticut	12337593	519874	1411369	3218	359
Delaware	2369436	89284	321841	710	92
Washington, DC	2741402	0	189208	1558	83
Florida	47705246	1712355	5469775	8778	1342
Georgia	20219873	0	3327640	4499	731
Hawaii	4870602	0	335745	800	76
Idaho	3570291	10063	521374	745	107
Illinois	43307063	974458	5119791	10381	1498
Indiana	19590534	0	3023673	4357	808
Iowa	11183568	0	1703627	2910	337
Kansas	9383558	0	1481680	1970	312
Kentucky	12357932	293337	2004888	2171	771
Louisiana	14151633	502848	2463538	4145	620
Maine	4426104	27936	572246	969	158
Maryland	17470943	388647	2087203	3766	560
Massachusetts	24031779	559448	2425083	5102	706
Michigan	35451417	347489	4153193	9743	1264
Minnesota	17185475	0	2203373	3862	489
Mississippi	6568850	0	1374296	1722	318
Missouri	19541145	0	2876292	4482	690
Montana	3565876	10649	562119	580	97
Nebraska	6395056	187287	965158	1628	185
Nevada	9575234	11267	573750	766	140
New Hampshire	4180601	87249	424407	937	225
New Jersey	28037130	949080	3508979	8731	935
New Mexico	5224569	129016	892313	963	130
New York	62868106	3328754	5961266	18168	2261
North Carolina	19786915	0	3254477	4415	1065
North Dakota	2838810	0	492252	596	83
Ohio	37403739	395021	5295254	8539	1445
Oklahoma	12057683	0	2231231	2927	456
Oregon	11831802	98034	1458560	2703	359
Pennsylvania	41332721	540694	5040194	10266	1464
Rhode Island	3208950	138531	390360	1011	139
South Carolina	10278499	0	1757454	2399	431
South Dakota	2782307	36789	476667	526	78
Tennessee	15500866	0	2758583	3706	606
Texas	66881507	0	9598953	14516	1938
Utah	5229663	0	795440	988	112
Vermont	2133190	13039	251935	440	84
Virginia	21636480	0	2865636	3798	800
Washington	17006546	205063	2073755	3013	450
West Virginia	7020679	250946	909870	2070	234
Wisconsin	16125938	0	2289745	4073	548
Wyoming	2734274	1508	464422	396	78
U.S. Total	895447958	14700911	117293289	206971	29978

State	Amusement (1000 $)	Utility (1000 $)	Spirits (1000 gallons)	Beer (barrels)	Wine (1000 gallons)
Alabama	178983	4422797	5413	2198152	4184
Alaska	34939	278798	1378	409609	1425
Arizona	313742	3166199	5697	2786982	7014
Arkansas	156504	2527976	2738	1325065	1730
California	9414194	29701915	54464	19690171	109921
Colorado	594904	3457691	6905	2703149	8590
Connecticut	377751	3924401	7569	1951091	9106
Delaware	92034	765793	1552	530032	1262
Washington, DC	156398	1153799	3503	559383	4281
Florida	2385048	10803974	26264	9576431	26642
Georgia	523638	6124451	10977	3687654	7262
Hawaii	154290	1042288	2155	1004800	2879
Idaho	61123	984131	1357	754523	1705
Illinois	1528170	13829126	23404	9166614	25062
Indiana	351659	6147952	7898	3973009	6149
Iowa	250410	3069708	3646	2287884	2302
Kansas	174950	3101584	3109	1661895	1954
Kentucky	275801	3534209	5283	2350475	2608
Louisiana	447885	6123773	8058	3549714	7637
Maine	71900	888773	2235	848409	2127
Maryland	529903	4487465	10516	3413912	9394
Massachusetts	793347	6686466	14121	4816175	18210
Michigan	1007197	10439098	17148	6925957	15623
Minnesota	496703	4010661	8797	3190257	6912
Mississippi	92398	2695962	3843	1644740	1649
Missouri	631442	4939129	6258	3894340	6533
Montana	64514	809521	1546	812897	1560
Nebraska	136304	1531268	2523	1344287	1983
Nevada	1704006	929991	4288	1003595	4198
New Hampshire	168777	956900	4328	1032301	3434
New Jersey	2350416	10650122	16643	5260353	24383
New Mexico	133457	1488177	2159	1234148	2751
New York	5625047	18051985	37897	12823563	52845
North Carolina	441184	5258197	9875	3683335	7924
North Dakota	42969	622135	1424	573808	714
Ohio	1339015	12650215	13627	8548781	14641
Oklahoma	242454	4390104	5041	2120445	3172
Oregon	223822	2642155	4492	2001321	8553
Pennsylvania	1182556	12918257	16165	9938605	17170
Rhode Island	81669	955844	1988	754230	3363
South Carolina	197612	3183442	6057	2216481	3931
South Dakota	67278	565541	1267	494681	743
Tennessee	458224	5311691	6274	2981338	3950
Texas	1688470	24667143	23987	15343415	23836
Utah	161668	1490232	1434	780221	1231
Vermont	98883	455201	1243	437168	1605
Virginia	445515	5284179	9344	3922228	9179
Washington	537058	3965105	8125	3210648	13697
West Virginia	151723	2016606	2049	1219003	1672
Wisconsin	463207	4737018	10483	5223612	8841
Wyoming	47863	714124	1113	485617	699
U.S. Total	39149004	264553272	437660	182346504	508236

Continued

State	Vehicle License	Corporate Licenses (units)	Hunting License	Alcohol License	Auto Regis.
Alabama	2316209	32533	892925	2226	2183226
Alaska	320719	6675	328082	1205	197475
Arizona	2085980	38921	674973	4159	1568888
Arkansas	1591119	24391	968732	1229	960345
California	16299376	315910	3019715	25690	13292130
Colorado	2182380	53376	1091294	5060	1834962
Connecticut	2235145	51151	303069	5210	2089975
Delaware	433284	12019	43951	926	330228
Washington, DC	385100	17548	0	1168	204700
Florida	7978824	208391	938288	8163	6683102
Georgia	3605067	62304	1010745	3359	2980954
Hawaii	561346	18667	19736	1840	523657
Idaho	663411	12590	657747	1017	525025
Illinois	6964608	140450	1244539	19932	5797807
Indiana	3345254	60620	1047694	6392	2859296
Iowa	1926852	39668	790292	4822	1650900
Kansas	1693782	32354	573366	2296	1385639
Kentucky	2141104	34112	953774	2209	1795321
Louisiana	2539776	61455	911997	9489	1990047
Maine	757264	13472	471609	1298	537274
Maryland	2741333	46795	297973	4880	2411888
Massachusetts	3641141	88562	312777	8004	3284368
Michigan	6390130	101151	2526477	13100	4966529
Minnesota	2397077	56057	2220538	4187	2325454
Mississippi	1734173	21402	692093	1261	1210909
Missouri	3297491	62297	1416051	8405	2534075
Montana	491879	13071	570941	1673	444409
Nebraska	1084396	25158	426936	3052	798111
Nevada	654658	14498	250283	2364	504604
New Hampshire	677478	13038	227832	1084	657864
New Jersey	5337632	148306	335854	11516	4342148
New Mexico	942972	14882	402926	1604	770575
New York	8992488	320201	1761276	27770	7157121
North Carolina	3903103	64967	813467	1528	3427480
North Dakota	428006	8704	274064	1233	377935
Ohio	7668931	114768	1611718	12294	6303230
Oklahoma	2039398	45559	926523	831	1779558
Oregon	1893609	36490	1096671	1762	1451267
Pennsylvania	7351333	111945	2405352	19788	5584455
Rhode Island	599687	17305	42352	1759	505500
South Carolina	1959351	31971	618547	2693	1511576
South Dakota	486421	8203	367196	1471	374656
Tennessee	2902326	39269	1308783	1526	2752479
Texas	10154386	197474	2921052	11271	7887184
Utah	913773	20273	677540	440	704623
Vermont	355051	8837	277930	1132	267779
Virginia	3625377	60883	1037044	2100	3130043
Washington	2774210	54696	1226023	2857	2281095
West Virginia	1410893	16949	629922	1386	779604
Wisconsin	3036428	58645	2260295	14462	2550178
Wyoming	397788	8791	450903	958	295721
U.S. Total	150309519	3067754	46329867	276081	122763369

Continued

State	Truck Regis. (units)	Personal Income Tax (1000 $)	Corporate Income Tax (mils. $)	Resident Property Tax (1000 $)	Farm Property Tax (mils. $)
Alabama	814210	3151633	1719	36097067	11341
Alaska	110005	1136926	362	9207957	191
Arizona	615409	3037167	1256	64574307	11466
Arkansas	500738	1680946	1072	21453615	18106
California	3512284	31720188	16857	669697157	64198
Colorado	634043	4240774	1951	77307694	15000
Connecticut	131386	5437164	2109	77173537	1291
Delaware	77347	861591	568	11195245	1095
Washington, DC	11437	1002700	516	12436455	0
Florida	1448417	12579727	4753	221786284	18616
Georgia	869865	5257588	2882	73261019	12798
Hawaii	50541	1140006	475	35989419	2426
Idaho	324654	796052	396	14087726	11370
Illinois	1335112	16084047	7522	152378102	55678
Indiana	965312	6145318	3164	59516215	29155
Iowa	649022	3063896	1531	34822623	60908
Kansas	647487	2899321	1573	27510998	28372
Kentucky	769327	3122134	2161	33908976	14442
Louisiana	756593	5147637	3421	52385203	15412
Maine	189434	945299	518	18891799	992
Maryland	446589	6119056	2054	78022169	6644
Massachusetts	415446	7661911	3614	105966660	1075
Michigan	1163346	10662596	5136	122683619	13708
Minnesota	895550	4587557	2504	66419433	36389
Mississippi	362384	1802380	1082	22156582	14500
Missouri	847770	5663221	2735	56532301	27381
Montana	296431	755987	436	9535448	15773
Nebraska	396442	1647318	792	21677899	29798
Nevada	184314	1271386	379	17035589	2510
New Hampshire	103220	1073910	538	17962865	587
New Jersey	436774	10620303	5656	143610651	3212
New Mexico	395490	1294475	685	18695588	10001
New York	937373	23533411	12262	234948785	7467
North Carolina	1065916	5149688	3600	80479771	14252
North Dakota	263306	709280	385	5557350	18181
Ohio	1244021	12592073	6474	155843325	23879
Oklahoma	950847	3897784	2467	41781429	23873
Oregon	580040	2673264	1284	51893222	11181
Pennsylvania	1033728	14026461	7668	155916565	11722
Rhode Island	72255	972792	479	13118216	224
South Carolina	428533	2521759	1481	36891354	5600
South Dakota	225983	546960	287	7734789	12949
Tennessee	569447	4177783	2203	51919712	13025
Texas	3206475	21979208	13576	215028846	79718
Utah	315302	1251876	739	25414667	7257
Vermont	75741	466379	241	8662934	1328
Virginia	516591	6743029	3024	87105273	10192
Washington	901325	5719988	2089	92380450	14474
West Virginia	320465	1728228	963	19253324	3565
Wisconsin	558733	4994098	2639	67419828	19850
Wyoming	199435	755464	499	6579992	6001
U.S. Total	33821895	277049739	142777	3741910034	819173

Continued

State	Com./Ind. Property Tax (1000 $)	Utility Property Tax (1000 $)	Estate Gift Tax (1000 $)	Oil & Gas Severance (1000 $)	Coal Severance (1000 $)	Non-Fuel Severance (1000 $)
Alabama	21840857	9564	54619	886202	1133750	299409
Alaska	7331920	86	3836	12566441	13986	112911
Arizona	16032845	5157	71302	10753	207592	1656568
Arkansas	12837990	6218	36620	749726	5510	256389
California	195255909	35694	969778	9679672	0	1612193
Colorado	31620945	6119	64574	1514876	411541	626995
Connecticut	29840360	6874	111459	0	0	56076
Delaware	7867162	1794	20707	0	0	3197
Washington, DC	4829689	1696	19606	0	0	0
Florida	54033553	24204	392976	883375	0	1223398
Georgia	36482325	15430	78601	0	0	717973
Hawaii	5036218	1781	24150	0	0	46889
Idaho	4881488	1747	15923	0	0	300180
Illinois	95568395	29603	373776	881173	1737870	389594
Indiana	43861033	15757	106502	176485	783216	215004
Iowa	17816033	6661	86658	0	12301	218637
Kansas	20399936	7402	80847	2830514	37281	256016
Kentucky	26755986	7428	55721	311279	4502989	206947
Louisiana	54273522	12954	92788	12321123	0	417667
Maine	6063053	2265	18136	0	0	35439
Maryland	24179695	10217	111101	28	122142	171457
Massachusetts	42711818	11334	174807	0	0	89302
Michigan	76349425	22375	151008	1483376	0	1035895
Minnesota	30939011	8130	93922	0	0	1110126
Mississippi	14019881	5725	28799	1864527	0	72685
Missouri	34126252	11294	134813	6313	137028	733774
Montana	5539919	2191	16303	1068045	378359	266594
Nebraska	9423970	1422	49346	215880	0	79557
Nevada	4042503	2720	68785	19389	0	525900
New Hampshire	6068983	1739	11807	0	0	23294
New Jersey	65262163	16481	164799	0	0	132410
New Mexico	9753105	5346	21410	4700726	382649	742887
New York	141026809	28224	770665	85879	0	500353
North Carolina	41570108	14007	90612	0	0	257258
North Dakota	5045057	962	14386	1631253	163131	12977
Ohio	89852286	26408	227633	820361	1167508	450229
Oklahoma	46024912	10306	100308	10382304	155216	225044
Oregon	17841049	4859	47554	10	0	107843
Pennsylvania	95600002	31627	248543	474550	2638785	602650
Rhode Island	6170282	1024	13455	0	0	5138
South Carolina	17921770	8341	38460	0	0	194473
South Dakota	2854592	1040	11960	43809	0	135673
Tennessee	30485719	3846	75646	44733	214894	378752
Texas	200508425	46326	546616	42611540	352706	1724145
Utah	10412835	2952	23383	819451	500993	773576
Vermont	2783259	911	9178	0	0	50150
Virginia	36478741	11329	112398	26913	1350581	263183
Washington	29529067	5421	86643	0	69863	172028
West Virginia	16921128	11734	20193	584790	4824350	75613
Wisconsin	34288426	9421	74209	0	0	112294
Wyoming	9486162	3320	14287	4599424	1381590	868967
U.S. Total	1849846573	519466	6231608	114294920	22685831	20545709

ABBREVIATIONS AND DATA SOURCE

Abbreviations:

Auto Regis. = Automobile Registration Fees.

Com./Ind. Property Tax = Commercial/Industrial Property Tax.

Mils. = Millions of U.S. Dollars.

Per Capita Gov. Finance = Per Capita Government Finance.

Truck Regis. = Truck Registration Fees.

Data Source: Advisory Commission on Intergovernmental Relations, 1985, Tax Capacity of Fifty States. M-142. Washington, DC: Advisory Commission on Intergovernmental Relations, pp. 15-44.

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