Fiscal Disparity Among the States Revisited

Robert Tannenwald

Assistant Vice President and Economist, Federal Reserve Bank of Boston. The author thanks Pei Zhu for excellent research assistance.

The 50 states differ sharply in the scope of public services their state and local governments must deliver and in the costs of providing them. The governments of many states, through no fault of their own, must work relatively hard to provide the services needed by those who reside, work, travel, and vacation within their borders. For example, some have a high proportion of low-income residents, who need cash assistance, special education, and extensive health care. Others have a high concentration of school-age children, who need primary and secondary education. Such states have high *fiscal need*, that is, they face conditions that increase the cost of delivering state and local services or augment the scope of services they must provide.

The states also differ dramatically in *fiscal capacity*, that is, the capacity of their state and local governments to raise revenues. As discussed later in this article, the measurement of fiscal capacity has proved more controversial than that of fiscal need. Nevertheless, policy analysts agree that in order to evaluate a state's degree of *fiscal comfort* properly, one must take into account capacity relative to need.

Interjurisdictional differences in fiscal comfort are often referred to as *fiscal disparity*. The degree of fiscal disparity among the states has been a salient issue throughout our nation's history. Since World War II, federal policymakers have implemented a number of aid programs designed to mitigate interstate fiscal disparity. Consequently, policy analysts have expended considerable effort trying to measure its severity and to identify states suffering the most fiscal stress. In recent years, the degree of fiscal disparity has been a focal point of the "devolution" debate. While some policymakers have argued that many fiscal responsibilities, currently federal, should be "devolved" to the states, others worry that some states lack the ability to expand their fiscal domain. They are also concerned that those states least able to assume abandoned federal programs would be at a disadvantage in interstate competition, forcing them into a vicious circle of reduced public services, loss of labor and

capital, intensification of their fiscal problems, and further spending cuts or tax increases. Thus, the levelness of the interstate "playing field" remains a key empirical issue in U.S. intergovernmental fiscal relations.

In a previous article in this *Review* (Tannenwald 1998), the author evaluated interstate differences in fiscal capacity, fiscal need, and fiscal comfort in state fiscal year 1994 (FY1994). The study used methods developed by the U.S. Advisory Commission on Intergovernmental Relations (ACIR), a defunct agency that last performed such an analysis for FY1991. The article did not critique these methods, attempt to improve upon them, or compare them with alternatives.

The levelness of the interstate "playing field" remains a key empirical issue in U.S. intergovernmental fiscal relations.

Stepping back from the statistical detail of the previous piece, this article begins with a discussion of the principal issues confronting analysts in the evaluation of fiscal capacity. Using this framework, subsequent sections compare and contrast alternative methods for evaluating fiscal capacity. The article uses a modified version of ACIR's methodologies to update state-by-state estimates of fiscal capacity, fiscal need, and fiscal comfort to FY1996. The concluding section highlights key findings and draws implications for New England.

I. Salient Issues in the Measurement of State Fiscal Capacity

Many conceptual and empirical issues divide analysts of fiscal capacity. Only the most significant are briefly discussed here. Extensive analyses of these and other relevant controversies can be found in Barro (1986a, 1986b), Gold (1986), Akin (1973), Fastrup (1986), Sawicky (1986), and Compson and Navratil (1997).

Fiscal Capacity and the State Budget Constraint

As Barro (1986b) notes, definitions of fiscal capacity tend to be tautological and imprecise, such as the

"financing capability of governments" (U.S. Advisory Commission on Intergovernmental Relations 1982) or "the inherent ability of a government to generate resources" (Reischauer 1974). A more helpful notion is the state budget constraint, the various combinations of public and private goods available to a state's residents at a given time. Which combination they choose is theoretically irrelevant to their state's fiscal capacity. As long they have the potential to allocate all of their resources to the public sector, the value of those resources is their state's fiscal capacity. Line XY in Figure 1 depicts a hypothetical budget constraint, in which the total value of state and local public goods that the state can provide is Y.
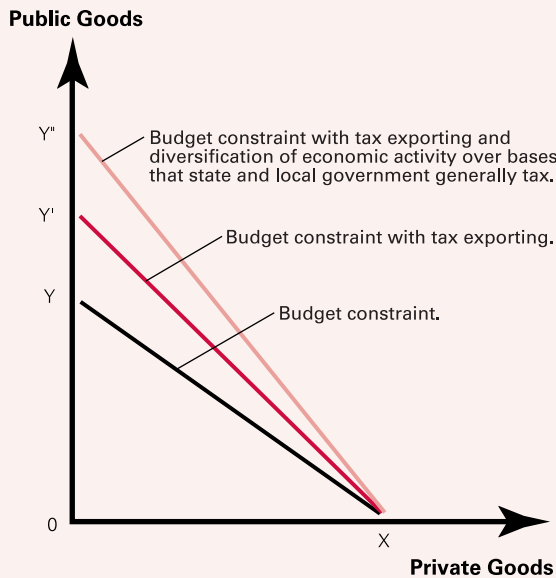
Analysts agree that a state's fiscal capacity depends heavily on its ability to "export" its taxes, that is, to shift their burden to nonresidents. Tax exporting takes two forms. First, states can tax transactions involving nonresidents. For example, energy-producing states and their municipalities impose severance, profit, and property taxes on oil and gas companies in large part because the companies shift a large proportion of the burden of these taxes to customers around the world, by charging higher prices for their products. Even if the burden of these taxes is borne by the companies' owners, much of it is still shifted out-of-state since such a large proportion of their owners consists of nonresidents. This form of tax exporting is known as "price exportation" (McLure 1967).

The second avenue for shifting state and local taxes to nonresidents is the deductibility of state and local income and property taxes. When a federal income taxpayer deducts a dollar of these taxes from his or her taxable income, the amount of federal tax liability forgone is $1 * mtr$, where *mtr* equals the taxpayer's federal marginal income tax rate. Having lost this revenue, the federal government must increase borrowing, cut spending, or raise taxes elsewhere. Most of the individuals and businesses bearing the cost of these offsetting measures reside outside the state whose taxes are deducted. This form of tax exporting is known as "federal offset exportation" (McLure 1967).

Both forms of tax exporting in effect augment a state's fiscal capacity by reducing the price of public goods faced by the state's residents relative to the price of private goods. This effect is depicted in Figure 1. Line XY represents the budget constraint of a hypothetical state with no ability to export taxes. Each dollar of private goods can be traded for one dollar of public goods. Consequently, the slope of XY is -1. Suppose that the state had the ability to shift 20

Figure 1

How Tax Exporting and Mix of Economic Activity Affect a State's Budget Constraint

Public Goods

Y″ — Budget constraint with tax exporting and diversification of economic activity over bases that state and local government generally tax.

Y′ — Budget constraint with tax exporting.

Y — Budget constraint.

0   X

Private Goods

economic resources, before state and local governments. How income is earned and allocated within a state is largely irrelevant to fiscal capacity. Taxes are paid out of income, regardless of the form it takes, the types of economic activity that generate it, the percentage of it that is saved, or the manner in which it is consumed. To emphasize this point, Barro asserts that two hypothetical autarkic states equal in every respect except the percentage of their residents' income allocated to consumption of private goods and services should be assigned equal tax capacities.

The U.S. Department of the Treasury believes that a state's fiscal capacity depends not only on the amount of income earned within its borders, by residents and nonresidents alike, but also on income earned by its residents outside its borders (Compson and Navratil 1997). States currently require their residents to report all of their income, regardless of where it is earned. Furthermore, almost all states grant their residents a credit for income taxes paid to other states. In the Treasury Department's view, this is a voluntary practice that has evolved over time to reduce multiple state taxation of income. Should states choose to, they could abandon this practice and tax the out-of-state income of their residents.
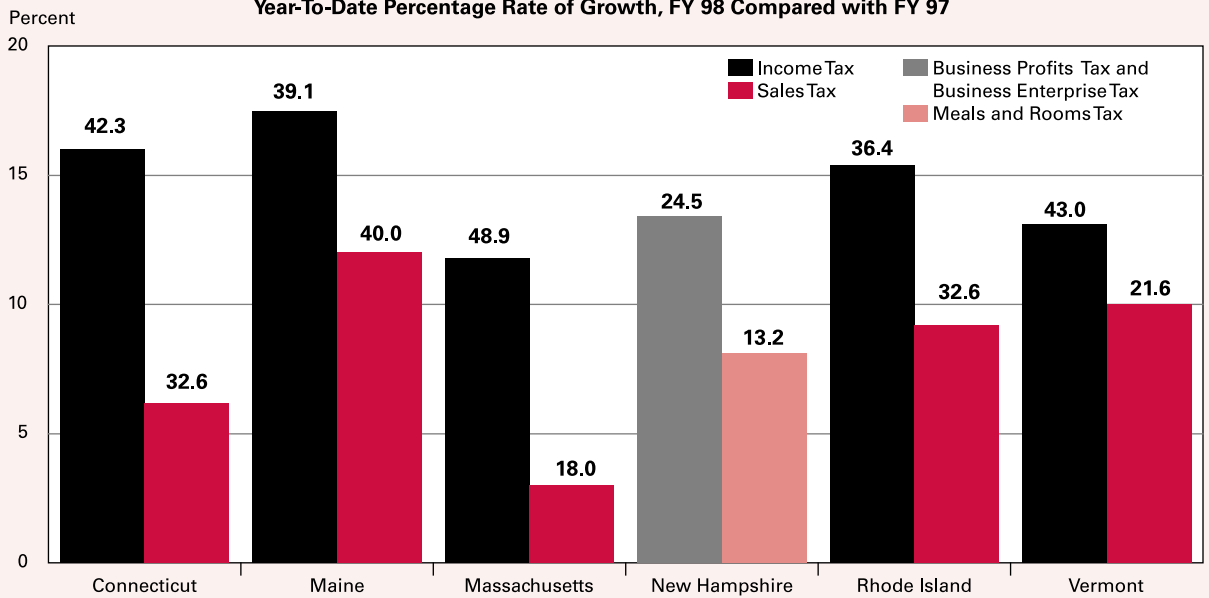
In contrast to Barro and the Treasury Department, ACIR and its supporters (for example, Cohen, Lucke, and Shannon 1986) believe that the mix of stocks and flows that characterizes a state's economy significantly affects its fiscal capacity. State and local governments generally tax certain economic flows, such as the sale of retail goods and services (especially motor fuels, tobacco products, and alcoholic beverages); corporate profits; and items included in federally defined adjusted gross income.[3] Such governments, especially school districts and municipalities, also traditionally tax realty and, in many cases, personal property. Taxpayers are accustomed to state and local taxes on such flows and stocks, and states and municipalities are prepared to administer them. When such traditional tax bases expand in response to changes in the economy, tax revenues increase without politically unpopular increases in tax rates or elimination of deductions and exclusions.

In this view, the cost to a state of financing a dollar of state and local public services depends on the

percent of its tax burden to nonresidents. Each dollar of public goods would now cost residents only 80 cents in forgone private goods. In effect, the slope of the budget constraint would then change to −1.25 (−1/0.8), as in line XY′.[1]

The most contentious issue dividing analysts is the relationship between a state's fiscal capacity and the mix of taxable assets and flows of economic activity that characterize its economy. Barro (1986a, 1986b) argues that the only determinant of a state's fiscal capacity, apart from its opportunities for tax exportation, is the amount of income earned within its borders.[2] Such income should be measured comprehensively, including items omitted from personal income, such as capital gains, undistributed corporate profits, and employers' contributions for social insurance. Federal tax payments should be subtracted out, since the federal government gets the "first crack" at

---

[1] Tax exporting does not change the total value of private goods available to the state's residents in the absence of public goods. In theory, a state could set up a small agency to collect taxes exclusively from nonresidents and distribute the receipts to residents to be spent as they choose. In practice, such explicit discrimination against nonresidents would probably be unconstitutional.

[2] Gold (1986) contends that property value is also a determinant of fiscal capacity, since property can be liquidated to pay taxes.

---

[3] In the interests of administrative simplicity, several states use federal taxable income as their starting point in computing state taxable income. Others use federal adjusted gross income or, in a few cases, federal gross income as a starting point, measures which include federal taxable income.

Figure 2

Revenues from the Two Largest Taxes in Each New England State
Year-To-Date Percentage Rate of Growth, FY 98 Compared with FY 97

Percent

■ Income Tax ■ Sales Tax ■ Business Profits Tax and Business Enterprise Tax ■ Meals and Rooms Tax

Connecticut: 42.3 (Income Tax), 32.6 (Sales Tax)
Maine: 39.1 (Income Tax), 40.0 (Sales Tax)
Massachusetts: 48.9 (Income Tax), 18.0 (Sales Tax)
New Hampshire: 24.5 (Business Profits Tax), 13.2 (Meals and Rooms Tax)
Rhode Island: 36.4 (Income Tax), 32.6 (Sales Tax)
Vermont: 43.0 (Income Tax), 21.6 (Sales Tax)

Note: Numbers on top of bars indicate percent of general revenues (net of federal aid) accounted for by tax in FY98.
Sources: Official budget documents, state financial statements, and conversations with state budget officials.

size of traditional state and local tax bases within its borders. Other things equal, the larger these tax bases the steeper is the slope of the state's budget constraint, that is, the lower is the cost of state and local public goods relative to that of private goods. In Figure 1, a state with relatively large traditional state and local tax bases has the budget constraint XY″, while a state with relatively small traditional bases has the budget constraint XY′. In the state with relatively large traditional tax bases (operating under the constraint XY″), the value of public goods obtainable from surrendering a dollar of private goods is higher because the administrative and psychological "disutility" associated with the collection of taxes is lower.

As an illustration of this point, consider the experience of the New England states in recent years. In every state within the region except New Hampshire, the individual income tax and retail sales tax account for about two-thirds or more of all state revenue. Rates of growth in personal income tax revenues from FY1997 to FY1998 ranged between 12 percent in Massachusetts and 17.5 percent in Maine (Figure 2). These rates of revenue growth were posted despite enacted cuts in statutory income tax rates.

Sales tax revenues also grew rapidly in every state except Massachusetts, where a change in the tax payment schedules in effect provided vendors with a sales tax cut. Rapid regionwide growth in both income and consumption drove these revenue figures. Given the states' heavy reliance on income and sales taxes, they were positioned to enjoy rapid revenue growth without increases in tax rates or disruptive changes in revenue structure.

Suppose that New Englanders had dramatically increased their propensity to save in FY1998, causing the region to experience this sharp increase in income without a concomitant surge in consumption. While personal income tax revenues would have grown as rapidly, growth in sales tax revenues would have been more sluggish and total state revenues would have grown more slowly. In order to obtain the same amount of revenue, states would have had to forgo popular tax cuts, enact new taxes, or raise tax rates on one or more tax bases. The associated costs, in terms of public dissatisfaction and administrative expense, would probably have induced the states to accept less revenue. In this manner, the size of tax bases traditionally taxed by states (in this case indi-

vidual income and consumption of retail goods) affects fiscal capacity.

A second contentious issue in the analysis of state fiscal capacity is how to evaluate the ability of a state to export its tax burden through price exportation. According to ACIR, one can gauge this ability by measuring the size of traditional state and local tax bases within the state relative to the income of the state's residents. If retail sales or outlays on entertainment are high relative to resident income, tourism is probably a significant component of the state's economy. Consequently, the state has a high capacity for shifting tax burdens to nonresident tourists. Two cases in point are Nevada and Hawaii. If the value of commercial property, industrial property, and extracted fossil fuels is high relative to resident income, the state is probably an energy-producing state, for example, Alaska or Wyoming. Such states have an unusually high capacity to export severance, property, and profits taxes to energy consumers and out-of-state owners of oil and gas companies.

According to the U.S. Department of the Treasury, comprehensive measurement of the income earned within a state's borders, by nonresidents as well as residents, provides a good estimate of its capacity to shift the burden of taxes to nonresidents through commodity price exportation. Such a measure picks up the potential to shift income taxes to nonresident commuters and profits taxes to nonresident shareholders of in-state firms. If the measure of income is sufficiently comprehensive to include rental income and the imputed value of housing services, it also reflects the potential to shift taxes to nonresident owners of property. It is not clear, however, that income earned within a state, no matter how comprehensively measured, accurately reflects a state's capacity to shift tax burdens to nonresident tourists.

According to Barro (1986b), the evaluation of a state's ability to export taxes through commodity price shifting requires a detailed analysis of how the burden of each major state and local tax is shifted under various economic conditions. Examples of such analyses, cited by Barro, are McLure (1967) and Phares (1980). McLure's analysis of the incidence of a state's corporate income tax illustrates this methodology. He argues that who bears the burden of the tax depends on the geographic scope of the markets in which the state's corporations compete and their market shares. If corporations sell in nationwide markets and dominate them, they can shift a large fraction of their income taxes to consumers around the nation. By contrast, if they sell in local markets, McLure concludes, their owners have to bear the burden of these taxes in the form of lower after-tax rates of return.

After developing assumptions concerning the shifting of each tax under various conditions, McLure assesses the degree to which these conditions hold in each state (for example, prevalence of corporations dominating national markets, incidence of nonresident labor in the work force, importance of tourism to the economy). Based on this assessment, he estimates on a state-by-state basis the percentage of each tax that is shifted to nonresidents through price exportation. From these estimates, he computes the percentage of each state's total taxes that is so exported.

Note that McLure estimates the *actual* tax exportation rate of each state, not the state's *capacity* for tax exportation. The two are identical only under the assumption that states always structure their state and local tax systems to maximize their tax exporting potential. This assumption is open to question, given that other normative concerns also shape state and local tax structures, such as fairness, allocative neutrality, simplicity, competitiveness, and revenue stability.[4]

The difficulty of separating potential and actual tax exportation dramatizes a basic quandary that analysts of state fiscal capacity have not resolved. The tax policies of a state and its municipalities influence the most commonly espoused indicators of fiscal capacity in all respects. By affecting a state's economic competitiveness, the level and mix of its taxes partly determine the amount of income earned within its borders and the sizes of its traditional state and local tax bases. As long as states' tax policies differ, analysts cannot determine the extent to which variation in capacity measures reflects these policy differences rather than "true" or underlying differences in capacity.

---

[4] It is also difficult to estimate a state's capacity for federal offset exportation without taking into account the mix and level of its taxes, thereby confusing actual with potential exporting. Several analysts have estimated the percentage of each state's tax burden that is shifted to nonresidents through the federal offset (for example, McLure 1967; Phares 1980; Gramlich 1985; Kenyon 1986; Feldstein and Metcalf 1987; and Tannenwald 1997.) In order to do so, first they have determined the percentage of each state's taxes that is deductible from federal taxable income, which obviously depends on the state's actual tax mix. Second, they have determined the percentage of these taxes that is actually deducted. This factor depends importantly on the propensity of federal taxpayers within the state to itemize their deductions, which in turn is influenced by the actual level of deductible taxes. Finally they have estimated the average federal tax savings per deducted tax dollar, which is the same as the average marginal federal tax rate. The average marginal tax rate depends on the average level of taxable income, which partly depends on the availability of deductions. The availability of deductions in turn is a function of both the level and mix of deductible taxes.

II. The Representative Tax System Approach and the Total Taxable Resources Approach to Measuring Relative Fiscal Capacity

Having laid out the basic analytical issues, the article now briefly describes and critiques the two principal techniques currently used to compare the states' fiscal capacities: the representative tax system approach (RTS) and the total taxable resources approach (TTR). Keep in mind that both techniques evaluate states' fiscal capacities relative to the national average, not their absolute fiscal capacities.

A Brief Description of RTS

The representative tax system approach (RTS) is the only methodology for evaluating fiscal capacity that takes into account the mix of economic flows and stocks characterizing a state's economy. Canada uses it in formulas for allocating a major portion of aid among its provinces. The approach is explained more fully in Tannenwald (1998), U.S. Advisory Commission on Intergovernmental Relations (1993), and a detailed methodological appendix available from the author on request.

RTS evaluates states' tax capacity by estimating the per capita yield that a hypothetical, uniform, representative tax system would produce in each state. This tax system consists of the 26 principal taxes levied by state and local governments for which data comparable across states are available. In the application of each tax, a uniform rate is levied on an ideal comprehensive base, whose definition is necessarily somewhat subjective. In order to determine this base, RTS first identifies how the tax's base would be defined if it were devoid of all "tax incentives" or "tax breaks," that is, exclusions, deductions, and exemptions intended to encourage certain forms of behavior or to relieve groups of taxpayers in particular circumstances.[5] For example, the general sales tax ideally applies to the sale of all goods and services at the retail level (other than a few commonly subject to specific selective excises, such as motor fuels), including such frequently excluded items as food and clothing. From this normative ideal, RTS subtracts items that are almost never taxed because of administrative or political constraints, for example, business services. In subtracting these items from the "ideal" base, RTS

makes a judgment that governments exclude these items because they are compelled to, not because they choose to.[6]

Having defined and measured the standard base of each tax, RTS then determines the "standard rate" to be applied to each base. This rate is set equal to the ratio of actual nationwide collections from the tax to the value of the nationwide standard base. For example, in FY1996 the estimated nationwide standard retail sales tax base was $2.536 trillion. Nationwide collections from the retail sales tax totaled $169 billion. For the purposes of RTS, the standard rate was therefore $169 billion/$2.536 trillion, or 6.67 percent. The 1996 standard bases, tax rates, and actual nationwide receipts for all taxes in RTS are presented in Table 1.

After the characteristics of each tax are determined, RTS divides each base among the states and applies the standard rate to each state's base to estimate the state's capacity to raise revenues from that tax. For example, in FY1996, Connecticut's standard

---

The representative tax system approach is the only methodology for evaluating fiscal capacity that takes into account the mix of economic flows and stocks characterizing a state's economy.

---

general sales tax base was estimated at $38.4 billion, 1.5 percent of the nationwide total. If Connecticut had levied the standard 6.67 percent rate on this base, it would have raised $2.56 billion in revenue, about $703 in per capita terms. The comparable estimate for the nation was $638 per capita. Thus, Connecticut's sales tax capacity was $703/$638, or 123 percent of the national average. This exercise was repeated for every tax for each state. Per capita capacity estimates for all taxes were summed to obtain state-specific total tax capacity estimates. Capacity estimates were indexed

---

[5] These features are often referred to as "tax expenditures," a term coined by Stanley Surrey (1973).

[6] In justifying the inclusion of food and clothing but the exclusion of business services, a practitioner of RTS might point out that 19 of the 45 states levying a general sales tax apply it to food, while none apply it to a wide array of business services. Attempts to tax a substantial fraction of business services, such as in Florida and Massachusetts during the 1980s, failed because of the difficulty of apportioning the value of interstate transactions and the intense opposition of business interest groups.

to the national average (set equal to 100).

The methodology used in this study to derive the FY1996 RTS index is very similar to that used for the FY1994 estimates reported in Tannenwald (1998). The only major difference is the method for estimating personal income tax capacity, which was changed to eliminate an upward bias for states with high average incomes. This methodological change is explained and further justified in Appendix A and discussed in greater detail in the methodological appendix.

Estimates of RTS Index for FY 1996

State-specific RTS index values for FY1996 and selected previous years are presented in Table 2. Map 1 compares each region's average RTS index value for FY1996 with its value for FY1994 (in parentheses). The relative fiscal capacities of the nation's nine census regions changed very little over the two years. At 114, New England's index of fiscal capacity is still the highest by far, followed by the Mid Atlantic and Pacific regions. The East South Central and West South Central regions still had the lowest relative fiscal capacity. The RTS index of the West South Central region fell, primarily because declining oil prices adversely affected severance tax, property tax, and license tax capacities in Louisiana, Oklahoma, and Texas. The relative fiscal capacity of the West North Central region rose slightly, as rising farm prices boosted property values and incomes. Rising property tax values and incomes also boosted the Mountain States' relative fiscal capacity.

Within New England, increases in the relative tax capacities of New Hampshire, Vermont, and Massachusetts were partially offset by a decline in Connecticut, resulting in a one-point increase in the index for the region as a whole. New Hampshire's improvement relative to other states largely reflected a rapidly expanding property tax base, the result of the brisk

Table 1

Design of Representative Tax System and Representative Revenue System for Fiscal Year 1996

Revenue Sources	State-Local Tax Collections		Standard Revenue Bases and Tax Rates	
	Amount ($ billion)	Percent of Total	Base (million)	Rate
General Sales and				
Gross Receipts Taxes	169.07	24.54	2,536,062	6.67¢/$
Selective Sales Taxes	65.67	9.53		
Motor Fuel	26.83	3.89	147,895	$ .18/gallon
Alcoholic Beverages	3.99	.58		
Distilled Spirits	1.54	.22	131	$11.71/gallon
Beer	2.02	.29	262	$ 7.21/gallon
Wine	.43	.06	53	$ 8.02/gallon
Tobacco	7.52	1.09	22,973	$ .33/pack
Insurance	9.08	1.32	604,868	1.50¢/$
Public Utilities	15.9	2.31	451,137	3.53¢/$
Pari-mutuel	.46	.07	3,710	12.53¢/$
License Taxes	21.09	3.06		
Motor Vehicles	13.77	2.00	206	$66.67/license
Automobiles	8.21	1.19	128	$63.93/license
Trucks	5.30	.77	74	$71.58/license
Buses	.02	<.01	.29	$63.93/license
Motorcycles	.24	.03	3	$63.93/license
Vehicle Operator	1.17	.17	179	$ 6.51/license
Corporation	5.16	.75	5	$ 952/license
Fishing and Hunting	.99	.14	69	$14.29/license
Personal Income Tax	146.84	21.31	4,059,660	3.62¢/$
Corporation Income Tax	32.01	4.65	591,816	5.41¢/$
Property Taxes	209.44	30.40	12,219,884	1.71¢/$
Estate and Gift Taxes	5.35	.78	17,529	30.53¢/$
Severance Taxes	4.12	.60	144,848	2.84¢/$
Other Taxes	35.45	5.14	6,408,848[a]	.55¢/$
RTS TOTAL	689.04	100.0		

[a]The standard base for "Other Taxes" is assumed to be statewide personal income.
Source: Author's calculations and sources reported in a methodological appendix, available from author.

pace of construction in the state between 1994 and 1996. As explained in Appendix A, the change in methodology for estimating individual income tax capacity probably lowered FY1996 RTS estimates for Connecticut and Massachusetts because the average incomes of these states are so high.[7] The region might

---

[7] Connecticut's index of personal income tax capacity fell from 158 to 141 between 1994 and 1996, even though its per capita personal income rose from 136 percent to 140 percent of the national average. Massachusetts' personal income tax index fell from 133 to 131, even though its per capita income rose from 119 percent to 122 percent of the national average. The most likely reason for these discrepancies is the change in estimating methodology between the two years.

Table 2

Index of Fiscal Capacity, Fiscal Years 1996, 1994, 1991, and 1987, Using the Representative Tax System (RTS), by State
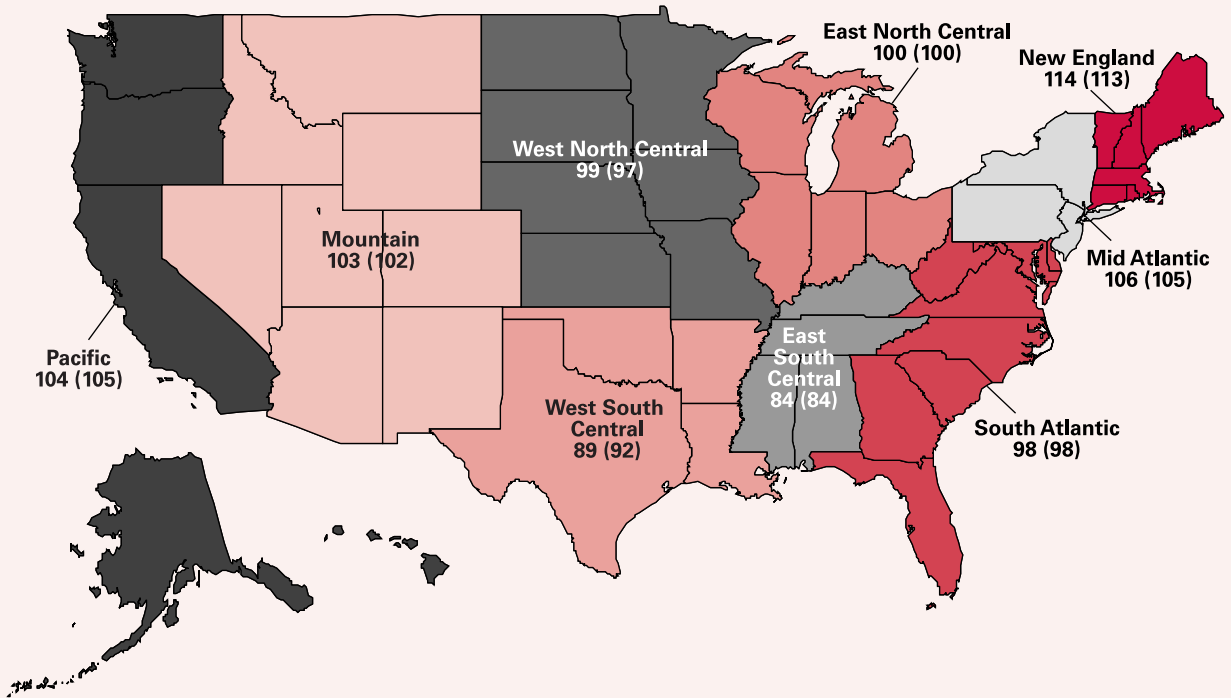
National Average = 100

	1996		1994[a]		1991		1987	
	Index (1)	Rank (2)	Index (3)	Rank (4)	Index (5)	Rank (6)	Index (7)	Rank (8)
New England States								
Connecticut	129	2	132	3	130	4	139	2
New Hampshire	118	8	107	12	110	11	123	6
Massachusetts	116	9	114	9	117	9	127	4
Vermont	99	21	95	29	105	15	103	17
Rhode Island	91	39	91	38	89	38	96	24
Maine	89	42	88	43	95	24	97	22
Other States								
Nevada	141	1	142	1	128	5	110	12
Wyoming	127	3	128	4	134	3	137	3
Alaska	127	3	135	2	178	1	169	1
District of Columbia	126	5	125	5	123	7	122	7
Delaware	121	6	119	8	125	6	124	5
Hawaii	120	7	125	5	146	2	113	10
New Jersey	116	9	124	7	119	8	122	7
Colorado	114	11	110	10	109	12	111	11
Illinois	110	12	108	11	102	19	97	22
New York	109	13	103	17	103	16	108	14
Maryland	108	14	107	12	106	14	109	13
Minnesota	107	15	104	15	101	20	104	16
Washington	104	16	102	18	108	13	99	20
Oregon	103	17	99	21	100	21	92	29
California	103	17	105	14	115	10	117	9
Virginia	101	19	104	15	103	16	102	18
Florida	100	20	100	20	103	16	105	15
Montana	99	21	96	23	91	32	87	37
Nebraska	99	21	96	23	95	24	91	31
Michigan	98	24	101	19	94	26	95	25
Wisconsin	97	25	96	23	90	36	88	36
Indiana	97	25	96	23	90	36	87	37
Iowa	97	25	93	34	93	28	84	41
Missouri	97	25	95	29	91	32	91	32
North Dakota	97	25	94	33	91	32	90	34
Georgia	96	30	95	29	91	32	94	26
Kansas	96	30	96	23	93	28	93	27
Ohio	96	30	97	22	93	28	91	31
Pennsylvania	95	33	96	23	96	23	92	29
South Dakota	95	33	91	38	86	42	78	46
Arizona	94	35	93	34	94	26	100	19
North Carolina	92	36	92	36	93	28	90	34
Utah	92	36	85	45	82	45	79	44
Tennessee	92	36	90	40	82	45	84	41
Texas	91	39	95	29	97	22	99	20
Idaho	90	41	90	40	82	45	77	47
Louisiana	88	43	92	36	89	38	86	40
South Carolina	85	44	85	45	83	43	80	43
New Mexico	85	44	90	40	87	40	87	37
Kentucky	84	46	85	45	83	43	79	44
Oklahoma	84	46	86	44	87	40	93	27
Alabama	83	48	83	48	81	48	75	49
Arkansas	81	49	81	49	78	49	75	49
West Virginia	78	50	81	49	77	50	77	47
Mississippi	72	51	70	51	68	51	65	51

Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.

[a]These values differ slightly from those reported in Table 2 of Tannenwald (1998), because of a computational error, corrected in this table. For details, see the Appendix at the end of this article.

Map 1

Index of Tax Capacity, Fiscal Years 1996 and (1994), by Region (National Average = 100)

East North Central
100 (100)

New England
114 (113)

West North Central
99 (97)

Mountain
103 (102)

Mid Atlantic
106 (105)

Pacific
104 (105)

East South Central
84 (84)

West South Central
89 (92)

South Atlantic
98 (98)

Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.
Values for fiscal year 1994 are corrected for errors in values reported in Tannenwald (1998). For details, see the appendix
at the end of this article.

have gained another point in the index if estimating methodologies had been consistent across the two years.

Critique of the RTS Methodology

RTS implicitly assumes that a state's capacity to tax one set of economic transactions is independent of the intensity with which it taxes the bases of others. This assumption has been criticized by those who believe that income is the most important determinant of fiscal capacity. They have argued that RTS overestimates the relative tax capacity of states in which residents' average levels of consumption and residential property values are high relative to average personal income, and vice versa. The tendency of local governments to lower property tax rates during periods of rapidly rising property values buttresses this point. Municipalities make such adjustments in part because they realize that the income of property owners constrains their ability to bear the burden of higher real estate taxes. At the same time, growth in property tax rolls often provides local governments with a much needed infusion of tax receipts during periods of rising fiscal need, for example, when school enrollments are rising. Municipalities would have much more difficulty obtaining a comparable increase in revenues by raising property tax rates, introducing alternative sources of revenue, or attempting to persuade their state to increase local aid.

Perhaps the most telling criticism of RTS is the inherently arbitrary choice of the "standard" tax rate applied to each base in the representative system. As noted above, standard tax rates, equal to nationwide average tax rates, determine how heavily each tax base is weighted in the representative tax mix. For example,

as reported in Table 1, the standard tax rates of the general sales tax and the personal income tax are 6.67 percent and 3.62 percent, respectively. As a result, each dollar in a state's representative sales tax base is weighted almost twice as heavily as each dollar in the representative income tax base. To those who believe that per capita personal income is the primary determinant of capacity, this weighting scheme exaggerates the capacity of low-income states, whose residents tend to consume a relatively large fraction of their income.

Perhaps the most telling criticism of the representative tax system is the arbitrary choice of the "standard" tax rate applied to each base in the representative system.

One might also reasonably question the assumption that a state's capacity to collect revenues from a tax is constrained by the nationwide average tax rate when so many states are able to impose a higher-than-average rate, thereby "exceeding" their capacity.[8]

---

[8] Akin (1973) argues that the effects on tax capacity of personal income, property, and the potential for tax exporting can and should be evaluated empirically. Using cross-sectional regression analysis, he estimated the impact of interstate variation in these three variables on variation in actual per capita state and local tax collections. He attempted to control for interstate differences in preferences for public services and fiscal need, since these factors, along with tax capacity, also affect the level of state and local taxes. He reasoned that, by examining how tax collections have actually increased as residential property values have increased, holding income constant, one can estimate the constraining effect of residential property values on fiscal capacity. He found that per capita residential property had less than one-eighth the impact on actual tax revenues of per capita personal income. However, given the imprecision of his estimates, he could not rule out the possibility (in a statistical sense) that residential property exerted no impact.

Akin's regression analysis suffers from several limitations. First, his key indicator of fiscal capacity, personal income, is also an important determinant of preferences. Consequently, his analysis does not isolate and measure the independent contribution of personal income to tax capacity. Second, his controls for determinants of tax collections other than levels of income and residential property values are inadequate. His proxy for tax exporting is airport revenue per capita. His indicators of fiscal need are population level and population density. His proxies for preferences for state and local public services are the education level of adults and the proportion of income earned by people below the poverty level.

While this assumption is, indeed, arbitrary, it is as reasonable as any. A plausible alternative is that states have the capacity to tax a given standard base at the highest receipts-to-base ratio observed among the 50 states and the District of Columbia. Under this assumption, the weights on the three major state and local tax bases—income, sales, and property—would be almost identical to those assigned under the RTS weighting rule.[9]

Total Taxable Resources—the Newest Indicator of Fiscal Capacity

Over the past 15 years, the U.S. Department of the Treasury has developed and refined an alternative indicator of relative fiscal capacity—Total Taxable Resources (TTR). In its current version (presented in Compson and Navratil 1997 and U.S. Department of the Treasury 1999), a state's TTR is its Gross State Product with certain additions and subtractions. Additions theoretically should include residents' income earned out-of-state, federal transfers, and accrued capital gains. Subtractions should include federal taxes paid and depreciation. The resulting ideal closely approximates a comprehensive measure of the income earned within the state plus the out-of-state income earned by its residents. Lack of available data has precluded the designers of TTR from making many of these adjustments in practice, however.

TTR is the only indicator of fiscal capacity other than per capita personal income currently used in formulas allocating U.S. federal intergovernmental aid. Federal law requires the Treasury Department to use TTR in the formula allocating the Alcohol, Drug Abuse, and Mental Health Block Grant. The General Accounting Office has recommended its inclusion in the allocation formulas of Medicaid and the Maternal and Child Health Block Grant (Compson and Navratil 1997).

The principal analytic issue confronting the developers of TTR has been how interstate flows of income affect a state's tax capacity. As alluded to in Section I, the current version of TTR assumes that a state can tax *all* income flows within its borders. According to this view, the nationwide system of state tax credits that eliminates the multiple taxation of household income was created by a series of volun-

---

[9] Under the RTS weighting rule, the ratio of the weights on these three tax bases is 3.62:6.67:1.71, or 2.12:3.90:1.00. If the weights on each base were the highest observed receipts-to-base ratio, the ratio of the weights would be 6.60:12.80:3.02, or 2.19:4.24:1.00.

tary, coordinated state policy choices having no bearing on fiscal capacity. If states wanted to, they could do away with these credits. The resultant multiple taxation would not violate the Commerce Clause or Due Process Clause of the U.S. Constitution. These assumptions are questionable.

The architects of TTR believe that a good indicator of fiscal capacity should be independent of tax policy decisions and devoid of all judgments concerning the administrative, constitutional, and political "taxability" of various types of transactions (Sawicky 1986; Carnevale 1986; Compson and Navratil 1997).

Total taxable resources is the only indicator of state fiscal capacity other than per capita personal income currently used in formulas allocating U.S. federal intergovernmental aid.

They try to avoid potential criticism of such judgments by making none. RTS assumes that such constraints exist and should be taken into account, even if distinguishing them from policy choices is necessarily somewhat subjective.

State-by-state indices of fiscal capacity for FY1996 based on RTS, TTR, and per capita personal income are compared in Table 3. RTS estimates tend to be lower than those based on TTR for states whose residents earn a large proportion of their income from out-of-state sources, such as Connecticut, Delaware, the District of Columbia, New Jersey, and New York.[10] RTS estimates tend to be higher than their TTR counterparts for states with high levels of tourism or nonresident ownership of property, for example, Colorado, Hawaii, Montana, Nevada, North Dakota, Oregon, Utah, and Vermont.

---

[10] Some of these states, like New York and the District of Columbia, have higher gross inflows of income from nonresidents than gross outflows of income earned by residents out-of-state. The gross outflows account for the discrepancies in these states between the RTS and TTR measures because, unlike RTS, TTR assumes that states can tax the out-of-state income of their residents as well as the in-state income of nonresidents.

III. The Representative Expenditures System Approach (RES) to Estimating Fiscal Need

In contrast to relative fiscal capacity, only one comprehensive method of measuring relative fiscal need has been developed, the representative expenditures system (RES). The method was developed by Robert Rafuse and is explained in Rafuse (1990a, 1990b) and Tannenwald (1998). Details concerning its implementation in this study are provided in the methodological appendix.

The RES Approach in Brief

Analogous to RTS, the representative expenditures system approach (RES) attempts to answer the following questions: (1) What are the characteristics of a representative bundle of state and local spending functions? (2) What constitutes a standard level of services for each function? and (3) What would each state and its municipalities have to spend, in per capita terms, to provide this standard bundle and level of services? The higher this amount, the greater is the state's fiscal need.

The first step in RES is to identify and define categories of state and local governmental outlays whose level of spending within a state is significantly influenced by factors other than population. Currently, there are six such categories: elementary and secondary education, higher education, public welfare, health and hospitals, highways, and police and corrections. In FY1996, these six functions accounted for about 70 percent of all state and local governmental expenditures. The need for other functions, such as general administration, environmental protection, and housing, is assumed to be proportional to population.

The second step is to identify, for each of the six functions, measurable "workload" factors—determinants of the cost of providing a given level of service *other than the price of inputs used by governments*. For example, one workload factor for highway expenditures in a given state is the number of vehicle-miles traveled, a determinant of maintenance and repair costs attributable to traffic. The other, lane miles of streets and roads, is a determinant of maintenance and repair costs attributable to the passage of time and exposure to the elements. Massachusetts accounted for 0.9 percent of the nation's lane miles of roadway and 2.0 percent of vehicle-miles traveled. Where more than one workload factor applies to

Table 3

Alternative Indices of Fiscal Capacity Compared, by State, FY 1996

National Average = 100

	Representative Tax System (RTS)		Total Taxable Resources (TTR)		Per Capita Personal Income	
	Index (1)	Rank (2)	Index (3)	Rank (4)	Index (5)	Rank (6)
New England States						
Connecticut	129	2	140	2	140	1
Maine	89	42	83	42	87	36
Massachusetts	116	9	120	7	122	4
New Hampshire	118	8	114	10	110	8
Rhode Island	91	39	97	20	101	17
Vermont	99	21	89	37	92	29
Other States						
Alabama	83	48	79	46	82	40
Alaska	127	3	127	5	101	17
Arizona	94	35	88	38	87	36
Arkansas	81	49	77	47	78	47
California	103	17	102	17	104	13
Colorado	114	11	104	15	106	11
Delaware	121	6	137	3	113	6
District of Columbia	126	5	158	1	140	1
Florida	100	20	94	26	99	20
Georgia	96	30	97	20	95	23
Hawaii	120	7	108	13	104	13
Idaho	90	41	83	42	82	40
Illinois	110	12	109	11	110	8
Indiana	97	25	92	35	92	29
Iowa	97	25	93	32	91	32
Kansas	96	30	95	24	94	27
Kentucky	84	46	84	40	81	43
Louisiana	88	43	94	26	81	43
Maryland	108	14	109	11	113	6
Michigan	98	24	93	32	99	20
Minnesota	107	15	103	16	105	12
Mississippi	72	51	72	51	72	51
Missouri	97	25	94	26	94	27
Montana	99	21	76	49	78	47
Nebraska	99	21	97	20	95	23
Nevada	141	1	118	8	107	10
New Jersey	116	9	129	4	128	3
New Mexico	85	44	85	39	77	49
New York	109	13	118	8	120	5
North Carolina	92	36	93	32	91	32
North Dakota	97	25	84	40	84	39
Ohio	96	30	94	26	95	23
Oklahoma	84	46	77	47	80	45
Oregon	103	17	95	24	95	23
Pennsylvania	95	33	98	19	101	17
South Carolina	85	44	83	42	82	40
South Dakota	95	33	94	26	85	38
Tennessee	92	36	90	36	90	34
Texas	91	39	96	23	92	29
Utah	92	36	83	42	80	45
Virginia	101	19	106	14	103	15
Washington	104	16	101	18	103	15
West Virginia	78	50	74	50	75	50
Wisconsin	97	25	94	26	96	22
Wyoming	127	3	122	6	89	35

Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.
Sources: U.S. Bureau of the Census, U.S. Department of the Treasury (1999), and author's calculations.

a particular function, a weighted average of the factors is used as a composite workload measure. For example, the number of vehicle miles traveled is weighted seven times more heavily than the total number of lane miles in the workload measure for highways. Consequently, Massachusetts' workload factor was $0.125 \times 0.9 + 0.875 \times 2.0$, or 1.86 percent.

The nationwide spending by state and local governments on each function is then multiplied by the state's workload measure for that function to determine how much the state would have spent if it had provided a standard level of services, that is, if it had spent an average amount per "workload measure unit." For example, in FY1996 the nation's state and local governments spent $79.09 billion on highways. With a workload measure of 1.86 percent, Massachusetts spending on highways would have been approximately $1.48 billion (.0186 × $79.09 billion), or about $243 per capita, lower than the nationwide counterpart of $298.

The next step in estimating a state's fiscal need index is to adjust its estimated per capita "standard" spending on each function for its relative cost of inputs for that function. The complicated methodology for this adjustment is explained in Rafuse (1990a) and in this study's methodological appendix. The methodology adjusts only for interstate differences in wage levels and the proportion of expenditures on

each public function accounted for by wages. In FY1996, Massachusetts' input costs for highway services were 2.1 percent higher than the national average. Consequently, its unadjusted per capita spending on highways was raised to 1.021 × $243, or, $248, 85 percent of the national average.

For each state, the per capita standard spending levels on each function are totaled to obtain the state's per capita spending on a standard expenditure package. These totals are indexed to the actual national per capita spending by state and local governments to arrive at an index of fiscal need for each state. The results are presented in Table 4 and Map 2. Subindices for selected individual functions can be found in the methodological appendix.

Fiscal Need: Results

The dispersion in fiscal need among the nine Census regions narrowed between FY1994 and FY1996. The Mountain region exhibited the largest increase in its fiscal need index. Sharp increases in the poverty rates of Arizona, Montana, New Mexico, and Wyoming, along with a rising population of school-age children throughout the region, were responsible for the three-point rise in the region's index value. Rising poverty rates and crime rates in Alabama, Mississippi, and Tennessee produced a similar rise in relative fiscal need in the East South Central region. The three regions

Table 4

Index of Fiscal Need, Fiscal Years 1996, 1994, 1987, Using the Representative Expenditures System (RES), by State
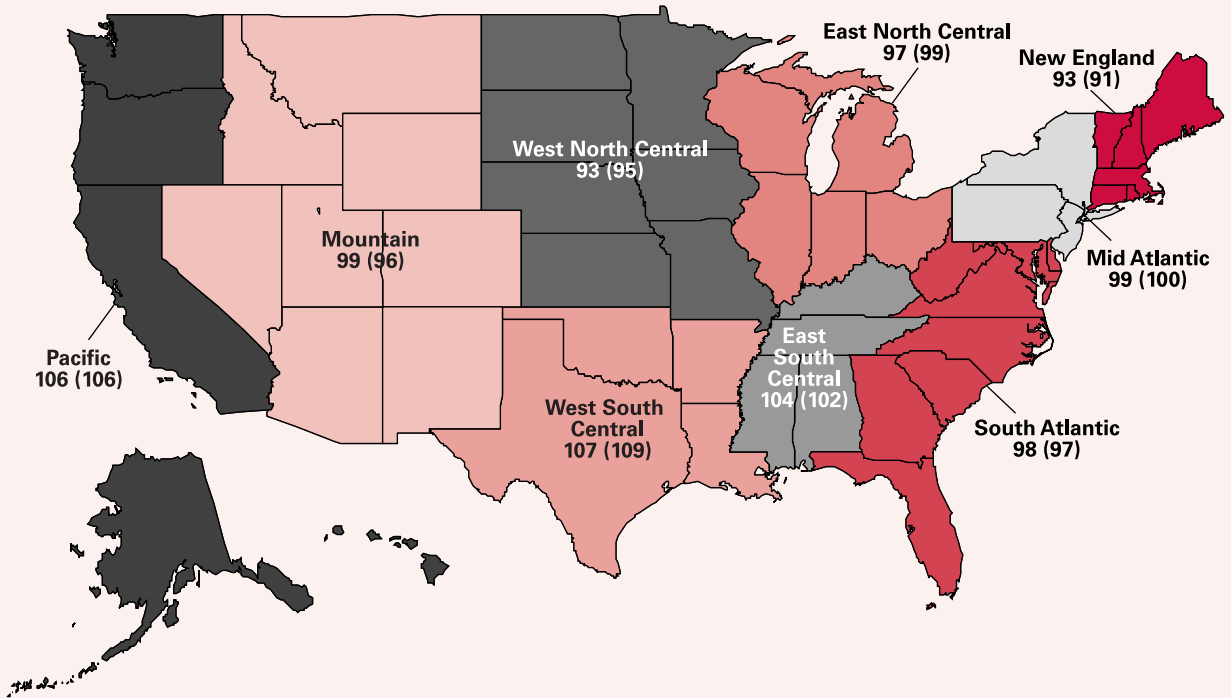
National Average = 100

	1996		1994		1987	
	Index (1)	Rank (2)	Index (3)	Rank (4)	Index (5)	Rank (6)
New England States						
Connecticut	102	12	101	14	92	44
Massachusetts	93	37	90	41	87	49
Vermont	90	42	83	51	89	47
Rhode Island	89	45	88	43	86	50
Maine	88	49	85	49	89	47
New Hampshire	84	51	86	47	85	51
Other States						
District of Columbia	126	1	116	1	103	16
New Mexico	115	2	107	5	111	3
California	110	3	110	3	101	23
Mississippi	110	3	105	7	113	2
Louisiana	109	5	115	2	110	4
Texas	108	6	110	3	110	4
Arizona	105	7	100	16	103	16
Alabama	104	8	102	12	109	6
New York	104	8	107	5	95	40
Georgia	104	8	104	8	109	6
Oklahoma	104	8	102	12	104	14
Tennessee	102	12	99	19	104	14
Alaska	102	12	104	8	121	1
Kentucky	101	15	104	8	108	8
South Carolina	101	15	96	27	103	16
Illinois	101	15	100	16	102	20
Michigan	101	15	104	8	108	8
Wyoming	101	15	96	27	102	20
West Virginia	100	20	101	14	103	16
Arkansas	100	20	97	23	106	10
Idaho	100	20	97	23	106	10
Montana	98	23	91	39	102	20
Ohio	97	24	99	19	100	24
Florida	96	25	94	32	93	42
Virginia	96	25	94	32	99	27
North Dakota	96	25	93	35	105	11
South Dakota	96	25	97	23	105	11
Utah	95	29	95	30	105	11
North Carolina	95	29	97	23	99	27
Maryland	95	29	94	32	97	35
New Jersey	95	29	95	30	93	42
Washington	95	29	93	35	96	36
Kansas	95	29	99	19	98	31
Minnesota	94	35	96	27	102	20
Nevada	94	36	93	35	96	36
Pennsylvania	93	37	93	35	90	45
Indiana	92	39	99	19	99	27
Missouri	92	39	100	16	100	24
Oregon	91	41	91	39	98	31
Colorado	90	42	88	43	98	31
Hawaii	90	42	85	49	90	45
Delaware	89	45	88	43	96	36
Iowa	89	45	88	43	96	36
Wisconsin	89	45	89	42	94	41
Nebraska	88	49	86	47	96	36

Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.

Map 2

Index of Fiscal Need, Fiscal Years 1996 and (1994), by Region (National Average = 100)

East North Central
97 (99)

New England
93 (91)

West North Central
93 (95)

Mountain
99 (96)

Mid Atlantic
99 (100)

Pacific
106 (106)

East
South
Central
104 (102)

West South
Central
107 (109)

South Atlantic
98 (97)

Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.

experiencing the largest reductions in relative fiscal need were the East North Central, West North Central, and West South Central regions. Sharp declines in poverty and crime rates were key sources of improvement in all three regions.

New England's index of relative fiscal need rose by two points between FY1994 and FY1996, largely because, despite general improvement in the region's economy, the poverty rate rose in every state within the region except Connecticut and New Hampshire. The increase was especially large in Maine and Vermont. A rise in the percentage of the population accounted for by school-age children also contributed to the increase. Nevertheless, the region's fiscal need was still the lowest among the regions. Every New England state except Connecticut ranked in the bottom third of the fiscal need distribution.

The Correlation between Fiscal Capacity and Fiscal Need

As discussed in Tannenwald (1998, p. 68), those opposed to devolution would be less concerned if states facing the most severe fiscal need enjoyed the greatest fiscal capacity. However, just as in FY1994 and FY1987, the opposite was true in FY1996. Figure 3 shows that few high-need states are blessed with ample fiscal capacity (upper right-hand quadrant), while many high-capacity states enjoy low need (upper left-hand quadrant). Several states in the southern and southwestern parts of the country suffer from both low capacity and high need. Overall, the correlation between capacity and need was negative (−0.15), slightly more negative than in FY1994 but still statistically insignificant. However, when the District of Co-

Figure 3

Correlation between Fiscal Capacity and Fiscal Need, Fiscal Year 1996
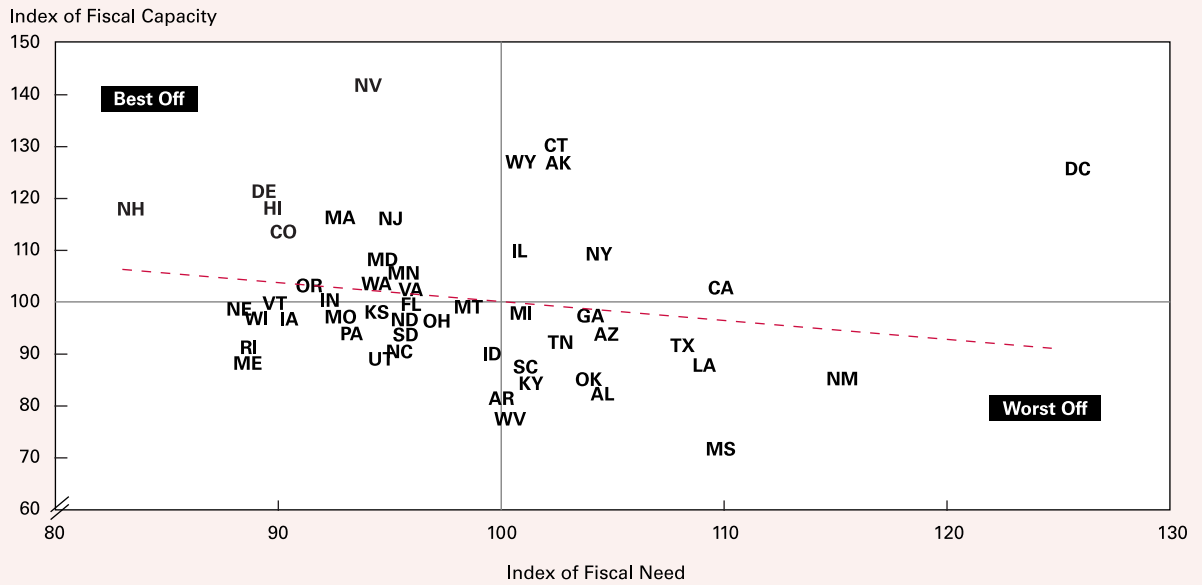
Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.

lumbia, a high-need high-capacity outlier, is omitted from the sample, the negative correlation jumps sharply to −0.33, statistically significant at the 5 percent level.[11]

The Limitations and Biases of RES

Several problems reduce the accuracy of RES. As Rafuse (1990a) acknowledges, workload measures for some functions fail to take into account relevant factors for lack of adequate data. For example, the workload measure for highways includes no indicators of relative rainfall, snowfall, temperature, or incidence of heavy truck traffic, all of which affect the need for road maintenance. The welfare and health care workload measures rely heavily on federally defined poverty rates, which fail to take into account interstate differences in the cost of living. As a result, actual poverty rates in states with high general price levels,

such as Connecticut and Massachusetts, are higher than federally defined rates, vice versa for states with low price levels. Failure of the input cost adjustments to reflect interstate differences in factors other than labor is a further source of inaccuracy that biases downward measures of the fiscal need of many states with a high cost of living. As an illustration, the American Chamber of Commerce Research Association (ACCRA) cost of living index for the Boston Primary Metropolitan Statistical Area exceeded the national level by 38 percent in the fourth quarter of 1997, even though the average wage of its production workers in manufacturing was only 2 percent above the national mean. Similarly, during the same quarter, the consumer price level in the New Haven-Meriden, CT Metropolitan Statistical Area was 26 percent above the national average, while its production workers were earning an hourly wage that exceeded the national average by only 10 percent.[12] Thus, New

---

[11] In FY1994, the correlation coefficient with DC included in the sample was −0.09. With DC excluded it was −0.19. Both coefficients were statistically insignificant. These coefficients were computed on corrected data (see Appendix B).

[12] The ACCRA index is reported in U.S. Bureau of the Census (1998, p. 496), Table 775. Figures for hourly wages of manufacturing workers come from U.S. Bureau of Labor Statistics, unpublished data.

England's relatively low fiscal need partly reflects the biases of the RES index.

IV. Fiscal Comfort

An index of fiscal comfort for FY1996 was created for each state by dividing its index of tax capacity by its index of fiscal need. State-specific values for this index, along with values for FY1994 and FY1987, are presented in Table 5. Comparisons of regional values for FY1996 and FY1994 are made in Map 3.

Fiscal Comfort: Results

The West North Central and East North Central regions enjoyed the largest increase in relative fiscal comfort between FY1994 and FY1996. In the latter region, Indiana's sharp drop in relative fiscal need was largely responsible for the improvement. In the former, the gain in relative fiscal comfort was more widespread and, with the exception of Missouri, came more from expanding relative fiscal capacity than shrinking relative fiscal need. This relative improvement in capacity was attributable largely to rising farm income and property values. By contrast, the Mountain and West South Central regions, like New England, sustained two-point declines in their relative comfort indices, largely because of weakening markets for oil, coal, gas, and other minerals.

Dispersion in fiscal comfort in FY1996 was slightly narrower than in FY1994 and

Table 5

Index of Fiscal Comfort, Fiscal Years 1996, 1994, and 1987, by State
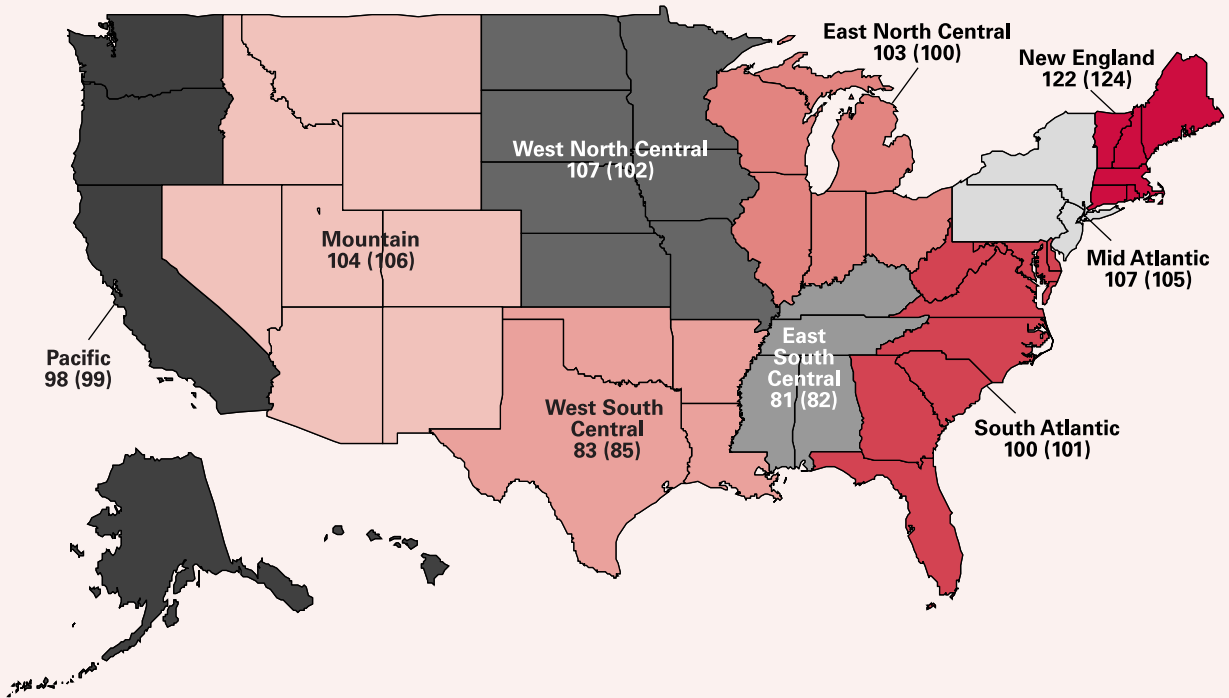
National Average = 100

	1996		1994[a]		1987	
	Index (1)	Rank (2)	Index (3)	Rank (4)	Index (5)	Rank (6)
New England States						
New Hampshire	141	2	124	10	144	4
Connecticut	126	5	131	5	152	1
Massachusetts	125	8	127	8	145	3
Vermont	111	15	114	11	115	12
Rhode Island	102	25	103	25	112	16
Maine	100	30	104	24	109	18
Other States						
Nevada	150	1	153	1	147	2
Delaware	135	3	135	3	128	8
Hawaii	134	4	147	2	126	9
Colorado	126	5	125	9	113	13
Wyoming	126	5	133	4	134	6
Alaska	124	9	130	7	139	5
New Jersey	122	10	131	5	152	1
Maryland	113	11	114	11	112	16
Minnesota	113	11	108	17	106	19
Oregon	113	11	109	16	94	26
Nebraska	112	14	112	13	94	26
Wisconsin	109	16	108	17	93	28
Washington	109	16	110	15	104	20
Illinois	109	16	108	17	95	24
Iowa	108	19	106	21	87	36
Virginia	105	20	111	14	104	20
Missouri	105	20	95	33	91	29
New York	105	20	96	32	91	29
Indiana	105	20	97	29	88	34
Florida	104	24	106	21	113	13
Pennsylvania	102	25	103	25	102	21
North Dakota	101	27	101	27	86	38
Kansas	101	27	97	29	95	24
Montana	101	27	105	23	85	39
District of Columbia	100	30	108	17	119	10
South Dakota	100	30	94	36	75	45
Ohio	99	33	98	28	95	24
Utah	97	34	89	41	75	45
North Carolina	97	34	95	33	91	29
Michigan	97	34	97	29	88	34
California	94	37	95	33	116	11
Georgia	92	38	91	39	87	36
Idaho	90	39	93	37	77	43
Arizona	90	39	93	37	77	43
Tennessee	90	39	91	39	81	40
Texas	85	42	86	43	90	32
South Carolina	85	42	89	41	76	44
Kentucky	83	44	82	47	73	48
Louisiana	81	45	80	49	78	41
Arkansas	81	45	84	44	70	49
Oklahoma	80	47	84	44	90	32
Alabama	79	48	81	48	69	50
West Virginia	78	49	80	49	78	41
New Mexico	74	50	84	44	78	41
Mississippi	65	51	67	51	57	51

Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.

[a]These values differ slightly from those reported in Tannenwald (1998), Table 2, because of a computational error. The values reported in this table correct for this error. For details, see the Appendix at the end of this article.

Map 3

Index of Fiscal Comfort, Fiscal Years 1996 and (1994), by Region (National Average = 100)

East North Central
103 (100)

New England
122 (124)

West North Central
107 (102)

Mountain
104 (106)

Mid Atlantic
107 (105)

Pacific
98 (99)

East South Central
81 (82)

West South Central
83 (85)

South Atlantic
100 (101)

Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.
Values for fiscal year 1994 are corrected for errors in values reported in Tannenwald (1998). For details, see the appendix at the end of this article.

considerably narrower than in FY1987.[13] The degree of dispersion pertains to the devolution debate, since devolution's detractors doubt the ability of fiscally stressed states to compete with their fiscally comfortable counterparts.

Despite improving economic conditions and growing state fiscal surpluses, the relative comfort indices of all New England states except New Hampshire fell from FY1994, leading to a two-point drop in the region's index. Moreover, none of the region's states had the comfort level they enjoyed during the heyday of the late 1980s. Yet, as in FY1994 and FY1987, the region, with its high fiscal capacity and low fiscal need, was far more comfortable in FY1996 than any other region (although, as noted above, New En-

gland's strong fiscal position may partially reflect biases in the RES index). Five of the six states were more comfortable than the median state. Only 30th-ranked Maine, whose rising fiscal need depressed its comfort index by four points, fell below the median. New Hampshire enjoyed the largest improvement in fiscal comfort in the nation, thanks mostly to an 11-point rise in its capacity index. Other states with big increases in fiscal comfort included Indiana, Missouri, New York, and Utah. States suffering the steepest declines in comfort were the District of Columbia, Hawaii, New Mexico, New Jersey, and Wyoming.

Fiscal Comfort, Tax Effort, and Interstate Differences in Preferences for Level of Public Services

Another key issue for both supporters and detractors of devolution is the diversity across states in

---

[13] The mean absolute deviation from 100 was 13.7 in FY1996, 14.4 in FY1994, and 18.7 in FY1987.

preferences for the size of state and local government. Proponents contend that decentralization would give citizens an opportunity to realize diverse preferences. Opponents fear that states preferring limited government would fail to provide levels of service consistent with the national interest.

As discussed in Tannenwald (1998), the extent of interstate diversity in preferences on this issue can be estimated roughly from measures of fiscal capacity and fiscal comfort. Other things equal, fiscally stressed states (low comfort) are compelled to spend a high fraction of their tax bases to provide a given level of public services. Consequently, if preferences for levels of state and local public services were similar across states, one would expect states with low levels of fiscal comfort to tax their revenue bases relatively intensively, that is, to exercise a relatively high tax effort. A lack of correlation or a negative correlation between fiscal comfort and tax effort would imply that fiscally stressed states prefer lower levels of government than their fiscally comfortable counterparts.

The degree of dispersion in fiscal comfort pertains to the devolution debate, since devolution's detractors doubt the ability of fiscally stressed states to compete with their fiscally comfortable counterparts.

Table 6 provides indices of relative tax effort by state for FY1996 and FY1994. Tax effort is measured by the ratio of each state's actual tax collections to the taxes it would have collected under the representative tax system. With the exception of New Hampshire, the New England states have exhibited high tax effort, although Vermont's tax effort fell sharply between the two years.[14] New York and the District of Columbia have taxed their standard bases far more intensively than other states.

As shown by the scatter plot in Figure 4, only a handful of states—California, Michigan, Mississippi, and New Mexico—had low fiscal comfort and above-

---

[14] Vermont lowered its tax effort after several years in which its paramount fiscal goal was to eliminate a large cumulative deficit.

Table 6
*Index of Tax Effort, Fiscal Years 1996 and 1994, by State*
National Average = 100

	1996		1994[a]	
	Index (1)	Rank (2)	Index (3)	Rank (4)
New England States				
Rhode Island	117	3	114	4
Connecticut	115	6	109	6
Maine	113	8	111	5
Massachusetts	104	10	104	13
Vermont	100	17	109	6
New Hampshire	74	49	85	42
Other States				
New York	141	1	155	1
District of Columbia	141	1	148	2
Wisconsin	117	3	117	3
Alaska	116	5	100	18
New Jersey	114	7	108	9
Minnesota	113	8	109	6
Hawaii	104	10	107	10
Washington	104	10	105	11
New Mexico	102	13	97	21
Mississippi	102	13	98	20
Pennsylvania	102	13	101	16
California	101	16	96	23
Michigan	100	17	105	11
Ohio	100	17	95	26
Maryland	100	17	103	14
Kentucky	99	21	95	26
Nebraska	99	21	100	18
Kansas	99	21	101	16
West Virginia	99	21	95	26
Iowa	98	25	103	14
Illinois	97	26	96	23
Georgia	95	27	93	30
North Carolina	94	28	96	23
Arizona	93	29	97	21
Arkansas	92	30	86	40
Idaho	92	30	91	33
Oklahoma	92	30	89	35
Delaware	90	33	87	39
Florida	90	33	91	33
Texas	90	33	89	35
Virginia	89	36	86	40
South Carolina	89	36	88	38
North Dakota	89	36	89	35
Utah	89	36	93	30
Indiana	88	40	92	32
Missouri	87	41	82	46
Louisiana	86	42	78	50
Oregon	85	43	95	26
Alabama	83	44	80	49
Colorado	82	45	85	42
Montana	79	46	85	42
Tennessee	79	46	81	48
South Dakota	79	46	83	45
Wyoming	74	49	82	46
Nevada	73	51	69	51

Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.

[a]These values differ slightly from those reported in Tannenwald (1998), Table 2, because of a computational error. The values reported in this table correct for this error. For details, see the Appendix at the end of this article.

Figure 4

Correlation between Tax Effort and Fiscal Comfort, Fiscal Year 1996
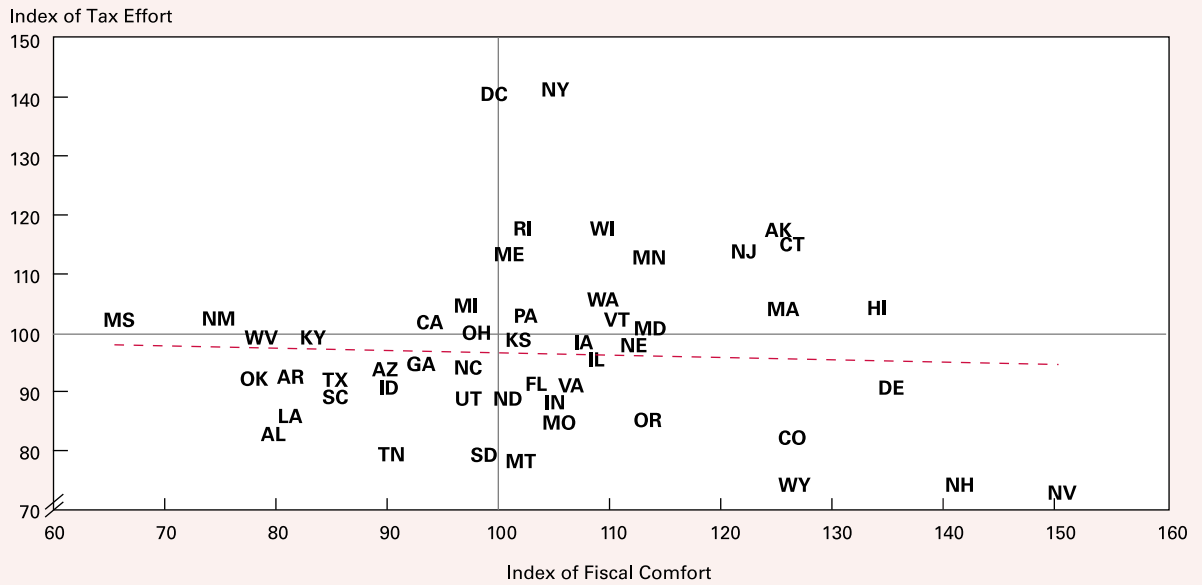
Index of Tax Effort

Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.

average tax effort (upper left quadrant). Many states exhibit both low tax effort and low comfort (lower left quadrant) or high tax effort and high comfort (upper right quadrant), just the opposite of what one would expect if preferences were similar. However, a number of states—especially Nevada and New Hampshire—had both high comfort and low effort (lower right quadrant). The correlation coefficient between effort and comfort was −0.028, statistically indistinguishable from 0.

V. Summary and Implications for New England

The measurement of relative fiscal comfort necessarily involves subjective judgments on the part of policy analysts. The RTS approach, used in this article to estimate fiscal capacity, one of the two components of fiscal comfort, has been criticized. Yet, alternative methods such as the Total Taxable Resources approach (TTR) are not necessarily superior. RTS depends crucially on the assumption that a state's fiscal capacity depends significantly on the degree to which

its economy is diversified across the stocks and flows that state and local governments traditionally tax. If this assumption is valid, then RTS provides useful insights into interstate fiscal disparity.

Sharp improvement in the nation's agricultural sector enhanced the relative fiscal comfort of the nation's East North Central and West North Central regions between FY1994 and FY1996, while fading markets for fossil fuels and other minerals slightly weakened the relative fiscal positions of the Mountain and West South Central States. New England also suffered a mild reduction in relative fiscal comfort because of rising relative fiscal need in all states except New Hampshire and falling relative tax capacity in Connecticut.

Nevertheless, New England continues to be by far the least fiscally stressed region in the nation. Except for Rhode Island and Maine, the region's states ranked in the top 15 in terms of fiscal comfort in FY1996. Even those two states experienced average comfort levels. While biases in the RES method of evaluating fiscal need exaggerate New England's relative fiscal strength, the region is still probably the most fiscally comfortable of the nine U.S. Census regions. What are

the policy implications of our strong long-run fiscal situation?

Perhaps we New Englanders should be ardent "devolutionists" because, compared to other regions, we are in the best position to provide for ourselves. As our share of the nation's population has decreased, our share of federal largesse has diminished relative to the federal taxes we pay. Devolutionists might question whether we should subsidize other states as much as we do and argue that the disadvantaged residing within our own borders deserve our attention more than those in such states as Mississippi or Alabama. Devolutionists might also assert, as Figure 4 suggests, that people in the southern and southwestern regions, however fiscally stressed they may be, like small government. They might lack fiscal resources and have to contend with some difficult problems, but they believe that it is not the business of state and local government to resolve them.

In crafting a position on this issue, we New Englanders need to ask ourselves whether it is in the national interest to ensure that all Americans have access to some minimum level of public services that some states and municipalities cannot or will not provide on their own. If the answer to this question is no, then, perhaps we should support sharp reductions in federal intergovernmental aid and fewer strings on whatever aid is provided. If the answer to this question is yes, then, despite our region's high level of fiscal comfort, we should support the provision of federal aid to the states. Such aid should be provided in magnitude and under conditions sufficient to ensure that the desired minimum level of public services is provided throughout the nation.

Appendix

A. Revised Method for Estimating Personal Income Tax Capacity

In general, RTS evaluates a state's capacity to raise revenues from a particular tax by estimating the total value of the flows comprising the standard base of the tax that occur within the state's borders. In the case of the personal income tax, these flows include wages and salaries, dividends, interest, rents, royalties, profits of unincorporated enterprises, capital gains, and the like. Yet, in evaluating a state's personal income tax capacity, the U.S. Advisory Commission on Intergovernmental Relations (ACIR) did not measure the value of these flows directly. Rather, it assumed, in effect, that this capacity is proportional to the federal personal income taxes paid by the state's residents, subject to two adjustments. Specifically, the Commission assumed that

$$Tb_i = (Ftr_i + Dslt_i * Amtr_i) * (Wra_i/W_i),$$

where:

Tb = standard personal income tax base
Ftr = federal income tax receipts collected from residents
$Amtr$ = average marginal personal income tax rate of residents who itemize
$Dslt$ = total state and local taxes deducted from federal taxable income
Wra = salaries and wages, residency adjusted[15]
W = salaries and wages, unadjusted
i = the "ith" state

The first adjustment, represented by the $Dslt * Amtr$ term, accounts for the federal tax payments forgone by residents because they can deduct certain state and local taxes from federal taxable income. Without this adjustment, a state's personal income tax capacity would depend partly on the level of its state and local taxes and the degree to which it relies on deductible taxes for its tax revenue. RTS assumes that, for each dollar of state and local tax payments deducted by a taxpayer, the reduction in federal tax liability is equal to $1 times the taxpayer's marginal tax rate. For example, if the taxpayer's last dollar of federal taxable income were taxed at 28 percent, his or her tax savings per dollar of deducted taxes would be $0.28. $Amtr$ is equal to the average marginal tax rate of all federal taxpayers residing in the state who itemize their federal deductions, weighted by the amount of state and local taxes deducted by the itemizer.

The second adjustment, accomplished by the variable Wra, accounts for differences between the total wages and salaries earned within a state and those earned by residents only. State personal income taxes are source-based, that is, states tax income earned within their borders, regardless of the residency of those who earn it. Workers may claim a credit against their home-state income tax liability equal to the taxes they owe to the state in which they work. Thus, the personal income of a state's residents must be adjusted to reflect net interstate commuting flows. For a state like New Hampshire, where income earned by residents commuting to other states far exceeds the income earned by nonresidents who commute to the state, residents' personal income must be adjusted downward to obtain an accurate estimate of the state's potential to raise revenues from an income tax. For a state like New York, where the opposite is true, residents' total personal income must be adjusted upward.

Why ACIR used a formula based on federal income tax receipts is unclear. The most likely reason is ease of computation. Each year, the Internal Revenue Service produces a publicly available data file containing a nationwide sample

---

[15] No residency adjustment was made to the wages and salaries of residents of the District of Columbia, Maryland, or Virginia. Although a large percentage of Maryland and Virginia residents work in the District, federal law prohibits the District from taxing nonresidents. As a result, Maryland and Virginia are able to tax their residents working in the District without providing a credit for District taxes paid.

of federal personal income tax filers. From this file, one can easily produce state-specific estimates of federal personal income tax liabilities adjusted for the deductibility of state and local taxes. Tannenwald (1998) used the Commission's methodology for the same reason.

Yet, the personal income taxes of only three states—North Dakota, Rhode Island, and Vermont—"piggyback" on the federal income tax, that is, they set a taxpayer's state income tax liability as a stipulated percentage of his or her federal tax liability.[16] The other states specify their own personal income tax bases, although most rely to varying degrees on provisions of the Internal Revenue Code to define components of taxable income. Many states have personal income tax bases that are broader than the federal income tax base. Some states require their taxpayers to include various statutory adjustments that the federal government allows its taxpayers to make in computing their adjusted gross income. Many states disallow deductions for expenses deductible from federal taxable income. In addition, the estimates of the average marginal tax rates of small and mid-sized states are imprecise because these states are poorly represented in the publicly available IRS sample of federal tax returns.

An indicator of state individual income tax capacity relying on federal personal income tax receipts overestimates the relative capacity of high-income states and underestimates that of low-income states. This bias results from the graduated rate structure of the federal tax. Under this structure, a household's ratio of tax liability to income rises with income. Consequently, if the average income of state A is 20 percent higher than that of state B, federal taxes collected on the income earned in A will exceed those collected in state B by 20 + X percent. Interstate competitive forces constrain the ability of state governments to impose progressive income taxes. States are inhibited from attempting to shift too much of their tax burden to high-income households for fear of driving them away. Consequently, if state A's average income were 20 percent higher than state B's, state A's income tax capacity would be 20 + Y percent higher than state B's, where Y is less than X.

These shortcomings led the author to change the method for measuring each state's standard personal income tax base in the FY1996 capacity estimates reported in this article. He started with the total wages and salaries reported by the state's residents on their federal tax returns. He added other items of reported federal adjusted gross income. To this subtotal he added statutory adjustments to arrive at total gross income earned within the state.

The author believes that some modification of gross income is necessary to reflect personal exemptions. Almost every state allows taxpayers to take exemptions for themselves and their dependents. In theory, these personal exemptions protect from taxation amounts required for subsistence. Governments should not—and theoretically cannot—tax this minimum requisite income because, without it, taxpayers could not subsist and, therefore, could not pay taxes. Reflecting this view, the federal "tax expenditure" budget, which distinguishes tax incentives and tax breaks from other provisions of the federal personal income tax,

treats personal exemptions as a feature of the income tax's standard statutory rate structure, not a tax break. For these reasons, the author subtracted from each state's gross income $2,000 for each personal exemption claimed by the state's residents on their federal income tax return. He then adjusted this amount by the same residency adjustment procedure used in previous RTS capacity estimates, described in the above formula.

Under this revised methodology, the standard tax rate applied to the estimated potential income tax bases is the ratio of nationwide state personal income tax collections to the nationwide standard personal income tax base. In effect, it is assumed that in the "standard" scenario states are incapable of imposing graduated income tax rates, even though in fact most do, within limits. Consequently the revised methodology biases downward the capacity estimates of high-income states and biases upward the capacity of their low-income counterparts. This bias is the opposite of that inherent in the methodology used in Tannenwald (1998). Yet, a flat rate is closer to the norm than the degree of graduation exhibited by the federal rate structure. Of the 42 states that levy a broad-based income tax, six impose a flat rate. Another 19 states set the lower limit of their top income tax bracket for married couples at between $3,000 and $25,000. In these 19 states, the estimated average federal taxable income of married joint filers in 1996 ranged from $36,300 to $58,200.[17] Thus, in all of these states a large bulk of taxable income is subject to a single rate, the highest marginal rate.[18] In another two states, the highest marginal tax rate is less than 150 percent of the lowest marginal rate. By comparison, the highest federal marginal tax rate is 264 percent of the lowest marginal rate.

B. Corrections to Estimates for Fiscal Year 1994

The Appendix Table presents revisions to the FY1994 estimates for individual income tax capacity, tax capacity, and fiscal comfort reported in Tannenwald (1998). As noted in the text, residency adjustment is an integral part of the estimation of individual income tax capacity. Upward adjustments are large in states with a relatively high incidence of nonresidents in its work force, such as New York and Massachusetts. In making this adjustment, one multiplies a state's unadjusted standard income tax base by the following ratio:

$$\frac{\text{Residents' Wages and Salaries} - R}{\text{Residents' Wages and Salaries}},$$

---

[16] North Dakota's income tax payers also have the option of either piggybacking or using an alternative tax rate schedule.

[17] Since state-specific data on married joint filers are not available, these averages were estimated by the following formula: (average taxable income, all filers, for state i) /(nationwide average taxable income, all filers/nationwide average taxable income, married joint filers). Source: U.S. Internal Revenue Service, unpublished data.

[18] To verify this point, one needs state-specific distributions of taxable income by marginal tax rate. While such distributions are generally not available, unpublished data from the U.S. Internal Revenue Service show that in 1996 tax filers with adjusted gross incomes $30,000 or higher accounted for between 69 percent (in Mississippi) and 88 percent (in Connecticut) of all adjusted gross income reported on federal tax returns.

Appendix Table

Revision to Fiscal Year 1994 Values of RTS Individual Income Tax Capacity, Tax Capacity and Fiscal Comfort

	Individual Income Tax Capacity				Total Tax Capacity				Fiscal Comfort			
	Original (1)	Rank (2)	Revised (3)	Rank (4)	Original (5)	Rank (6)	Revised (7)	Rank (8)	Original (9)	Rank (10)	Revised (11)	Rank (12)
New England States												
Connecticut	177	1	158	1	136	2	132	3	135	3	131	5
Maine	77	37	76	37	89	43	88	43	105	24	104	24
Massachusetts	127	5	133	4	112	10	114	9	124	10	127	8
New Hampshire	129	4	100	17	113	9	107	12	131	7	124	10
Rhode Island	102	17	91	27	94	32	91	38	107	19	103	25
Vermont	85	30	83	35	95	28	95	29	114	11	114	11
Other States												
Alabama	75	40	74	42	83	48	83	48	81	48	81	48
Alaska	111	10	127	6	131	3	135	2	126	8	130	7
Arizona	85	30	84	34	93	34	93	34	93	37	93	37
Arkansas	65	49	67	49	81	49	81	49	84	45	84	44
California	101	18	101	16	105	14	105	14	95	32	95	33
Colorado	111	10	111	11	110	11	110	10	125	9	125	9
Delaware	103	16	116	10	116	8	119	8	132	6	135	3
District of Columbia	143	3	143	2	124	7	125	5	107	19	108	17
Florida	100	19	100	17	100	20	100	20	106	22	106	21
Georgia	91	28	92	25	95	28	95	29	91	39	91	39
Hawaii	99	21	99	19	125	6	125	5	147	2	147	2
Idaho	77	37	75	40	90	40	90	40	93	37	93	37
Illinois	119	8	120	9	107	12	108	11	107	19	108	17
Indiana	95	23	92	25	97	22	96	23	98	28	97	29
Iowa	81	36	80	36	93	34	93	34	106	22	106	21
Kansas	92	26	87	30	97	22	96	23	98	28	97	29
Kentucky	72	43	72	44	85	46	85	45	82	47	82	47
Louisiana	69	47	70	46	92	37	92	36	80	49	80	49
Maryland	122	6	122	8	107	12	107	12	114	11	114	11
Michigan	106	14	105	15	101	18	101	19	97	31	97	29
Minnesota	105	15	107	12	104	15	104	15	108	17	108	17
Mississippi	59	51	56	51	71	51	70	51	68	51	67	51
Missouri	84	34	91	27	94	32	95	29	94	33	95	33
Montana	71	44	71	45	96	27	96	23	105	24	105	23
Nebraska	83	35	86	33	95	28	96	23	110	15	112	13
Nevada	121	7	126	7	141	1	142	1	152	1	153	1
New Jersey	159	2	137	3	128	4	124	7	135	3	131	5
New Mexico	69	47	69	47	90	40	90	40	84	45	84	44
New York	118	9	130	5	101	18	103	17	94	33	96	32
North Carolina	85	30	87	30	91	38	92	36	94	33	95	33
North Dakota	71	44	76	37	93	34	94	33	100	27	101	27
Ohio	93	24	94	23	97	22	97	22	98	28	98	28
Oklahoma	71	44	69	47	87	44	86	44	85	44	84	44
Oregon	92	26	96	21	98	21	99	21	108	17	109	16
Pennsylvania	98	22	97	20	97	22	96	23	104	26	103	25
South Carolina	75	40	73	43	86	45	85	45	90	41	89	41
South Dakota	74	42	75	40	91	38	91	38	94	33	94	36
Tennessee	85	30	87	30	90	40	90	40	91	39	91	39
Texas	88	29	89	29	95	28	95	29	86	43	86	43
Utah	76	39	76	37	85	46	85	45	89	42	89	41
Virginia	107	13	107	12	104	15	104	15	111	13	111	14
Washington	109	12	106	14	103	17	102	18	111	13	110	15
West Virginia	61	50	60	50	81	49	81	49	80	49	80	49
Wisconsin	100	19	96	21	97	22	96	23	109	16	108	17
Wyoming	93	24	93	24	128	4	128	4	133	5	133	4

Note: Sources, methodology, and detailed statistics are presented in a methodological appendix.

where R is the difference between wages and salaries earned by residents working out-of-state and wages and salaries earned by nonresidents working in the state. If R is positive, the ratio is less than 1 and the standard income tax base is adjusted downward. This is the case in states where a large fraction of residents commute to other states for work, such as New Jersey and New Hampshire. If R is negative, the ratio is positive, and the standard income tax base is adjusted upward. In Tannenwald (1998), the author used the following incorrect adjustment formula:

$$\frac{\text{Residents' Wages and Salaries} + R}{\text{Residents' Wages and Salaries}}$$

As the Appendix Table shows, this error seriously affected estimates of the individual income tax capacities of several states. (The original estimates were not reported in Tannenwald (1998) but were contained in a detailed methodological and statistical appendix available from the author.) New Hampshire's index of income tax capacity was overestimated by 29 points, New Jersey's by 22 points, Connecticut's by 19 points, and Alaska's by 16 points. By contrast, Alaska's index of income tax capacity was underestimated by 16 points, New York's by 12 points, and Massachusetts' by 6 points. The impact of the mistake on estimates of total tax capacity was smaller. The largest impact was in New Hampshire, whose tax capacity index was revised downward by 6 points. Connecticut's and New Jersey's were revised downward by 4 percentage points, while 4 points were added to Alaska's. The impact on the fiscal comfort index was similar. New Hampshire's comfort index dropped 7 points, while Connecticut's and Rhode Island's dropped 4 points. In 41 states the mistake changed the fiscal comfort index by 1 point or less.

References

Akin, George. 1973. "Fiscal Capacity and the Estimation Method of the Advisory Commission on Intergovernmental Relations." *National Tax Journal*, vol. 26, no. 2, pp. 275–90.

Barro, Stephen M. 1986a. "Improved Measures of State Fiscal Capacity: Short-Term Changes in the PCI and RTS Indices." In U.S. Department of the Treasury, *Federal-State-Local Fiscal Relations: Technical Papers*, Vol. 1, pp. 187–262. Washington, D.C.: Government Printing Office. September.

———. 1986b. "State Fiscal Capacity Measures: A Theoretical Critique." In H. Clyde Reeves, ed., *Measuring Fiscal Capacity*, pp. 51–86. Cambridge, MA: Lincoln Institute for Land Policy.

Carnevale, John T. 1986. "Experimental Estimates of Total Taxable Resources, 1981–84." In U.S. Department of the Treasury, *Federal-State-Local Fiscal Relations: Technical Papers*, Vol. 1, pp. 119–32.

Cohen, Carol, Robert Lucke, and John Shannon. 1986. "The ACIR Representative Tax System Method for Estimating the Fiscal Capacity of the Fifty State-Local Systems." In H. Clyde Reeves, ed., *Measuring Fiscal Capacity*, pp. 11–28.

Compson, Michael, and John Navratil. 1997. "An Improved Method for Estimating the Total Taxable Resources of the States." Washington, D.C.: U.S. Department of the Treasury, Office of Economic Policy, Research Paper No. 97–2. Processed.

Fastrup, Jerry C. 1986. "Fiscal Capacity, Fiscal Equalization, and Fiscal Grant Formulas." In U.S. Department of the Treasury, *Federal-State-Local Fiscal Relations: Technical Papers*, Vol. 1, pp. 41–62.

Feldstein, Martin and Gilbert E. Metcalf. 1987. "The Effect of Federal Tax Deductibility on State and Local Taxes and Spending." *Journal of Political Economy*, vol. 95, no. 4, pp. 710–36.

Gold, Steven. 1986. *Measuring Fiscal Effort and Fiscal Capacity*. Denver, CO: National Conference of State Legislatures. Legislative Finance Working Paper #47C.

Gramlich, Edward M. 1985. "The Deductibility of State and Local Taxes." *National Tax Journal*, vol. 38, no. 4, pp. 447–65.

Kenyon, Daphne A. 1986. "Federal Tax Deductibility of State and Local Taxes." In U.S. Department of the Treasury, *Federal-State-Local Relations: Technical Papers*, Vol. 1, pp. 417–96.

McLure, Charles E, Jr. 1967. "Tax Exporting in the United States: Estimates for 1962." *National Tax Journal*, vol. 20, no. 1, pp. 49–77.

Phares, Donald. 1980. *Who Pays State and Local Taxes?* Cambridge, MA: Oelgeschlager, Gunn, and Hain.

Rafuse, Robert W. J. 1990a. "Representative Expenditures: Addressing the Neglected Dimension of Fiscal Capacity." Washington, D.C.: U.S. Advisory Commission on Intergovernmental Relations.

———. 1990b. "A Walk on the Expenditure Side: 'Needs' and Fiscal Capacity." *Intergovernmental Perspective*, Fall 1990, pp. 25–30. (Magazine published by the U.S. Advisory Commission on Intergovernmental Relations.)

Reischauer, Robert D. 1974. *Rich Governments—Poor Governments*. Washington, D.C.: The Brookings Institution.

Sawicky, Max B. 1986. "The 'Total Taxable Resources' Definition of State Revenue-Raising Ability." In U.S. Department of the Treasury, *Federal-State-Local Fiscal Relations: Technical Papers*, Vol. 1, pp. 63–94.

Surrey, Stanley S. 1973. *Pathways to Tax Reform: The Concept of Tax Expenditures.* Cambridge, MA: Harvard University Press.

Tannenwald, Robert. 1997. "The Subsidy From State and Local Tax Deductibility: Trends, Methodologies, and Its Value After Federal Tax Reform." Federal Reserve Bank of Boston Working Paper No. 97-8. December.

———. 1998. "Come the Devolution, Will States Be Able to Respond?" *New England Economic Review*, May/June 1998, pp. 53–73.

U.S. Advisory Commission on Intergovernmental Relations. 1982. *Tax Capacity of the Fifty States: Methodology and Estimates*. Washington, D.C.

———. 1993. *State Fiscal Capacity and Tax Effort*. Washington, D.C.

U.S. Bureau of the Census. 1998. *Statistical Abstract of the United States, 1998.* Springfield, VA: National Technical Information Services.

U.S. Department of the Treasury, Office of Economic Policy. 1999. "Revised Estimates of Total Taxable Resources." Processed.