Volume Title: Studies in State and Local Public Finance

Volume Author/Editor: Harvey S. Rosen, ed.

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-72621-5

Volume URL: http://www.nber.org/books/rose86-1

Publication Date: 1986

Chapter Title: State Personal Income and Sales Taxes, 1977–1983

Chapter Author: Daniel R. Feenberg, Harvey S. Rosen

Chapter URL: http://www.nber.org/chapters/c8900

Chapter pages in book: (p. 135 - 186)

6 State Personal Income and Sales Taxes, 1977–1983

Daniel R. Feenberg and Harvey S. Rosen

6.1 Introduction

State governments account for a large growing level of tax collection in the United States. In 1960, states' tax receipts were $20.2 billion, about 16% of taxes raised by all levels of government. By 1982, the figure was up to $178 billion, about 20% of all taxes.[1] The relative importance of various tax instruments in state revenue structures has changed over time. As table 6.1 indicates, over the last several decades, state reliance upon individual income taxation has increased dramatically, while property taxes have waned in relative importance. In broad terms, the two main workhorses of state revenue systems are general

Table 6.1 **Percentage of State Tax Revenues From Each Type of Tax[a]**

Source	1960	1970	1982
Property	3.4	2.3	1.9
General sales	23.8	29.6	31.0
Other sales[b]	36.4	26.8	14.3
Individual income	12.2	19.1	28.1
Corporation	6.5	7.8	8.6
Other[c]	17.7	14.4	16.1

a. Computed from Tax Foundation, Inc. 1983, 251.
b. Sum of taxes on sales of motor vehicles fuels, tobacco products, alcoholic beverages, and motor vehicle licenses.
c. Includes death and gift, severance, and other taxes.

Daniel R. Feenberg is a postdoctoral research economist at the National Bureau of Economic Research. Harvey S. Rosen is professor of economics at Princeton University, and a research associate of the National Bureau of Economic Research. The research in this paper has been supported by NSF Grant no. SES-8419238, and the NBER's Project on State and Local Public Finance.

Table 6.2 **Percentage of State Taxes Raised from Various Sources[a] (Fiscal Year 1982)**

State	General sales	Selective sales	Personal income	Corporate income	Property	Other[b]
Alabama	28.7	32.4	21.9	5.6	2.1	9.3
Alaska		2.6	.1	27.7	5.6	64.0
Arizona	43.2	12.7	23.7	6.2	7.0	7.3
Arkansas	33.2	20.6	28.0	7.3	.4	10.5
California	35.4	8.9	34.2	12.1	3.2	6.1
Colorado	36.3	15.4	32.5	5.4	.3	10.1
Connecticut	42.9	27.5	5.9	14.9		8.8
Delaware		14.6	48.1	6.1		31.2
Florida	50.1	25.3		6.9	2.0	15.7
Georgia	33.2	18.6	36.0	8.2	.4	3.7
Hawaii	54.1	13.1	26.5	4.1		2.2
Idaho	25.3	16.1	38.0	7.9		12.6
Illinois	31.4	18.8	29.9	9.6	1.8	8.5
Indiana	49.3	15.1	24.4	4.1	.9	6.2
Iowa	26.2	16.5	36.1	7.4		13.8
Kansas	32.6	15.6	31.9	8.5	1.7	9.7
Kentucky	27.4	18.1	24.1	6.7	7.9	15.8
Louisiana	29.3	15.8	7.0	9.3		38.5
Maine	34.1	19.9	28.7	4.9	2.0	10.4
Maryland	25.0	19.0	42.4	4.7	3.5	5.5
Massachusetts	19.1	14.3	48.4	12.5		5.7
Michigan	29.2	12.3	33.7	15.1	2.5	7.2
Minnesota	23.0	17.2	40.8	8.6	.1	10.3
Mississippi	52.5	14.6	11.5	4.9	.4	16.2

Missouri	36.3	15.1	32.9	5.3	.2	10.1
Montana		19.4	27.2	8.4	6.4	38.5
Nebraska	33.5	23.5	26.3	5.6	.4	10.6
Nevada	50.4	35.1			3.2	11.3
New Hampshire		46.9	4.6	24.5	2.3	21.7
New Jersey	24.7	26.6	23.4	13.0	1.0	11.2
New Mexico	43.5	13.4	1.3	4.9	.9	36.0
New York	20.7	13.2	52.0	8.7		5.4
North Carolina	20.6	23.6	38.2	7.3	1.5	8.8
North Dakota	27.6	13.6	6.7	7.1	.4	44.7
Ohio	31.3	25.6	21.4	9.4	2.7	9.6
Oklahoma	17.8	15.7	23.6	5.1		37.8
Oregon		12.3	62.4	8.0		17.3
Pennsylvania	27.2	22.4	24.3	10.6	1.3	14.1
Rhode Island	29.6	24.6	31.9	7.8	1.1	5.1
South Carolina	33.0	21.8	32.8	6.7	.4	5.4
South Dakota	54.3	31.7		.3		13.6
Tennessee	52.1	23.9	2.1	9.6		12.3
Texas	38.8	24.4				37.4
Utah	40.8	13.2	34.8	4.3		6.9
Vermont	14.6	30.9	33.9	7.5	.1	13.1
Virginia	20.7	21.2	44.7	5.5	1.1	6.8
Washington	53.6	18.5			17.5	10.4
West Virginia	53.2	16.8	20.8	2.3	.1	6.7
Wisconsin	24.4	15.2	42.7	8.2	2.6	6.8
Wyoming	29.9	6.9			4.7	58.5

a. Based on Tax Foundation, Inc. (1983, pp. 254–55)

b. Includes death and gift taxes, severance taxes, license fees, and other taxes. Excludes unemployment tax collections.

sales taxes and individual income taxes, and these will be the main focus of this paper.[2]

The aggregate figures of table 6.1 mask the very substantial differences across states in the methods used to raise revenue. Table 6.2 shows how some states, such as Delaware, Massachusetts, and Oregon, rely very heavily on personal income taxation. Others—Florida, Nevada, South Dakota, Texas, and Wyoming—levy no income tax at all. Moreover, states differ considerably in how they structure the various taxes. This is the most striking in the case of personal income taxes. Nebraska's income tax is simply an excise tax on residents' federal liability. Illinois has a linear tax on federally defined adjusted gross income. On the other hand, some states rival the federal tax in complexity. Interestingly, a number of long-considered changes in federal law are already in place in some state tax codes, including inflation indexing, optional separate filing for married couples, vanishing exemptions, full taxation (or complete exemption) of realized capital gains, and the complete elimination of personal deductions.

The main purpose of this paper is to develop and implement a coherent methodology for characterizing the structures of state tax systems. The measures thus generated are used to show how the various systems differ and how they evolved over the seven-year period 1977–83. We believe that the availability of such measures will be of use to investigators studying a wide array of questions. A few of these are:

1. How sensitive are state tax revenue yields to changes in income?
2. How does state tax structure influence business location?
3. Do state taxes affect individuals' migration decisions?
4. How do economic and demographic characteristics of a state's inhabitants affect the tax structure?
5. Do states take into account the tax structures of "competing" states when modifying their own systems?
6. How does inflation affect the state tax structure?
7. Does the structure of the tax system exert an independent effect on the size of the government sector?

Of course, many writers have understood the importance of state tax structures in these and other contexts. (See, for example, Oates 1975, DiLorento 1982, Greytak and Thursby 1979, Bradbury et al. 1982, Maxwell and Aronson 1979, and Advisory Commission on Intergovernmental Relations 1979.) However, previous investigators have used (admittedly) inadequate indicators of tax structure. For example, Oates (1975) characterizes each state's tax system by the proportion of revenue raised by the income tax.[3] For this procedure to be meaningful requires, *inter alia,* that each state income tax be more or less the same in structure. As we indicate below, this appears not to be the case.

Investigators have been forced to use such measures because, as Gold indicates, "unfortunately, no recent estimates of elasticities are available on a consistent basis for all states" (1983, 15).

We remedy this situation using the individual income and deduction data from a stratified random sample of 25,000 actual federal income tax returns. The data include the state of each taxpayer for most returns. We have programmed the major income and sales tax rules for every state for the period 1977–83. For each taxpaying unit, then, we can estimate tax liabilities. With this information in hand, any desired summary measure of each state's tax structure can be computed. Several different measures are presented. We do not have comparable data on state corporation income taxes; hence, our study must ignore them. However, as the discussion surrounding table 6.1 indicated, corporate taxes represent a rather small portion of state revenues.

Sections 6.2 and 6.3 of this paper discuss the personal income and sales taxes, respectively. Section 6.4 aggregates the results to allow characterization of the tax structures as a whole. This section also discusses the interaction of the state tax systems with the federal income tax—i.e., how does the deductibility of state taxes (for itemizers) affect the real burden of state taxation? Section 6.5 presents some conclusions and suggestions for future research.

6.2 Personal Income Taxes

6.2.1 General Description

Although state personal income taxes differ significantly from state to state, they share the basic general structure of the federal tax. That is, deductions and exemptions are subtracted from adjusted gross income to obtain taxable income. A schedule converts taxable income to income tax before credits, from which a variety of credits (sometimes refundable) are subtracted. Even so, the state taxes are not generally clones of the federal tax. As of 1983, fifteen states allowed a deduction for federal income taxes paid (seven limit the deductions), while all but four states disallowed the federal deduction for state income taxes paid. Seventeen states allow income splitting (as the federal law did before 1969) while fifteen have separate schedules for couples and individuals (only New Mexico does both). Child-care credits, rent credits, minimum and maximum taxes, among other possible features, each have found expression in at least one state. The most ubiquitous provision in state laws that have no correspondence to the federal law are the property-tax credits included in thirteen states and the rent credits and deductions found in thirteen (mostly overlapping) states.

We coded the tax laws for 1977–83 using information obtained from the tax forms distributed by states to their residents and from sum-

maries such as those published by Commerce Clearing House, the Advisory Commission on Intergovernmental Relations, and the Tax Foundation. We have attempted to code every aspect of the systems which our data would allow.

6.2.2 Methodological Problems in Characterizing a Tax Structure

State personal income tax systems, like their federal counterpart, are nonproportional and nonlinear as well. It is well known that in the presence of nonproportionality, it is generally impossible to summarize completely the characteristics of a tax structure in a single number.[4] Therefore, rather than constrain ourselves to one measure, we have constructed several. Certain measures will be more useful than others depending on the particular context. We compute: (a) the elasticity of tax revenues with respect to before-tax income; (b) the average tax rates faced by "high-," "middle-," and "low-" income taxpaying units; and (c) the corresponding marginal tax rates. For our purposes, the annual incomes of high- , middle-, and low-income units are $40,000, $20,000, and $10,000, respectively, measured in 1979 dollars.

6.2.3 Procedure

Because of the complexity of the tax laws, any given summary measure for a state will depend upon the income distribution in that particular state. To facilitate comparisons across states, we create a synthetic data base reflecting the distribution of income in the United States rather than in any particular state. The records in the synthetic data base are not actual tax returns. They are obtained by sorting the original 25,000 returns by filing status (single, joint, or head of household) itemization status (itemizer or nonitemizer), and age (over sixty-five or not). There are thus twelve ($= 3 \times 2 \times 2$) categories. Within each category the returns were ordered by adjusted gross income and divided into blocks representing approximately one million returns each. Each of the ninety-six blocks of demographically similar returns is then averaged to form a single return with the average income, deductions, and exemptions of its cohort.

With this data base and the state tax laws we can calculate summary measures for each state dependent on the law of the state, but independent of the income distribution in that state. The average tax rate is calculated as revenue divided by reported income.[5] The marginal tax rate is obtained by adding 1,000 dollars to wage income on every return and finding the implied increase in tax liability. In this calculation, the change in federal tax liability associated with the income change is included in the calculation; this effect can be important in those states that allow deductibility of federal taxes. The elasticity of revenue with respect to income is found by increasing each dollar

amount on the tax return (including deductions, but not exemptions) by one percent, and finding the implied percentage increase in tax liability.

Note that there is some asymmetry in the methods used to compute marginal tax rates and elasticities. The marginal tax rate calculations assume that no deductions other than federal income tax change with income, while the elasticity calculations assume that most dollar amounts also change. The reason for the difference is the fact that the two sets of numbers are likely to be put to different uses. The marginal tax rate data show the wedge between before- and after-tax earnings in each state; there is no reason to take into account how other deductions change at the same time. On the other hand, the elasticity calculations indicate how revenues would change when nominal income increases by a given percentage; it therefore makes sense to try to incorporate the impact of income-induced deductions upon revenues. Of course, the assumption that other deductions and income would increase at the same percentage rate is only an approximation, but it is probably not too far wide of the mark. In every case where federal tax liability affects (next year's) state tax liability, this effect is applied to the current year.

Data limitations forced us to impute several variables that have an impact on tax liabilities: (1) Federal tax returns provide no data on household rent payments, but rent credits are an important component of state tax systems. We assumed that families with few or no property tax deductions were renters, and estimated their rent by a linear equation based on consumer expenditure data.[6] (2) Social security benefits for most households are not reported. We imputed to the income of each aged individual a benefit equal to the average benefit level in 1979. (3) In some states separate filing is allowed, but federal tax returns do not list husbands' and wives' incomes separately. We assumed that one-third of total family income could be attributed to the wife.

For some other missing variables we could not arrive at a satisfactory imputation scheme. Certain aspects of state tax systems were therefore ignored. The most important of these are: (1) Tax-exempt interest. Because federal tax returns do not include interest from municipal securities, we cannot compute the state tax liability generated by such interest. (2) Interest from federal securities. We do not know what proportion of each household's interest income is generated by federal securities; such income is not taxable by the states. (3) Property tax credits. Some states allow credits against local property taxes paid. For nonitemizers, we have no estimates of property tax liability. While we do not believe that these omissions have a major impact on our substantive results, it would obviously be desirable to redo the calculations if and when more complete data become available.

6.2.4 Basic Results

The income tax elasticity results are reported in table 6.3. The most striking feature of table 6.3 is the substantial variation across states in the elasticities for a given year. In 1983, they ranged from 1.02 for Pennsylvania to 2.50 for New Mexico. (We exclude Connecticut, New Hampshire, and Tennessee from all comparisons because they have only a small tax base limited to some property income.) The reason for New Mexico's extraordinarily high elasticity is the fact that it has a system of very generous income-related credits—so many that *net* revenues are very small and very sensitive to income. The mean elasticity (conditional on having an income tax) in 1983 is 1.54, with a standard deviation of 0.39. (In table 6.3 and all succeeding tables, means are weighted by the 1979 population of the states.) The substantial heterogeneity present in the table suggests that considerable care must be taken in generalizing about the forms of state income taxes. Similar heterogeneity is exhibited in each of the preceding years.

On average, the elasticity of state income tax systems declined between 1977 and 1983, with an average value of 1.66 in the former year, and 1.54 in the latter. However, a glance at table 6.3 indicates substantial variations in the pattern of changes over time.

When we turn to the figures on the average and marginal tax rate faced by individuals in various positions in the income distribution (tables 6.4a, 6.4b, 6.4c), the following story emerges.[7] From table 6.4a, the mean marginal tax rate for high-income individuals in 1977 was 5.55%, with a standard deviation of 3.53. By 1983, the figure was 5.93% (s.d. = 3.14). The mean average tax rate for this group was lower and also rose during this period, with a value of 3.23% (s.d. = 1.70) in 1977 and 3.78% (s.d. = 1.75) in 1983. Similar trends are apparent for rates on the middle- and low-income taxpaying units. From table 6.4b, the mean marginal tax rate for the middle-income taxpayer rose from 4.44% (s.d. = 2.50) to 5.62% (s.d. = 3.53) over our sample period, while the average rate rose from 2.27% (s.d. = 1.17) to 2.89% (s.d. = 1.36). From table 6.4c, for low-income taxpayers, the mean marginal tax rate increased from 3.27% (s.d. = 1.66) to 4.19% (s.d. = 2.44) from 1977 to 1983, and the average rate from 1.54% (s.d. = 0.91) to 1.98% (s.d. = 1.19). The presence of some negative average tax rates in table 6.4c is due to the presence of refundable tax credits.

A comparison of tables 6.4a, 6.4b, and 6.4c indicates that in some states, the marginal tax rate declines with income. In 1983, for example, in Alabama, the marginal tax rates on the low-, middle-, and high-income taxpaying units were 3.66%, 3.74%, and 3.19% respectively. One reason for this phenomenon is that some states allow a deduction for taxes paid to the federal government, and such deductions increase

Table 6.3 **Elasticity of Personal Income Tax Liability with Respect to Income**

State	1977	1978	1979	1980	1981	1982	1983
Alabama	1.33	1.29	1.25	1.21	1.18	1.18	1.18
Alaska	1.54	1.94	.	.	.	.	.
Arizona	1.48	1.44	1.50	1.90	2.02	2.09	2.00
Arkansas	1.60	1.57	1.57	1.54	1.51	1.49	1.47
California	2.14	2.10	2.09	2.34	2.29	2.29	2.24
Colorado	1.59	1.56	1.57	1.21	1.44	1.47	1.34
Connecticut	1.10	1.12	1.12	1.11	1.18	1.09	1.09
Delaware	1.70	1.65	1.65	1.37	1.57	1.55	1.44
District of Columbia	1.71	1.69	1.65	1.39	1.60	1.57	1.45
Florida	.	.	.	.	.	.	.
Georgia	1.73	1.69	1.64	1.43	1.54	1.44	1.47
Hawaii	1.55	1.53	1.57	1.20	1.79	1.56	1.27
Idaho	1.72	1.68	1.62	1.63	1.57	1.53	1.50
Illinois	1.22	1.20	1.18	1.17	1.15	1.14	1.13
Indiana	1.18	1.16	1.15	1.24	1.23	1.21	1.20
Iowa	1.67	1.46	1.44	1.29	1.41	1.43	1.44
Kansas	1.53	1.53	1.54	1.30	1.58	1.52	1.38
Kentucky	1.45	1.42	1.37	0.94	1.29	1.28	1.16
Louisiana	2.51	2.22	1.88	1.84	3.07	2.72	2.24
Maine	2.08	2.11	2.01	1.96	1.93	1.87	1.86
Maryland	1.34	1.32	1.30	1.11	1.27	1.24	1.09
Massachusetts	1.29	1.27	1.25	1.24	1.35	1.31	1.33
Michigan	1.47	1.35	1.39	1.49	1.46	1.41	1.35
Minnesota	1.95	2.15	2.19	1.47	2.46	1.89	2.07
Mississippi	2.11	2.04	1.94	1.60	1.96	1.89	1.91
Missouri	1.73	1.71	1.64	1.44	1.55	1.54	1.52
Montana	1.44	1.40	1.50	1.21	1.42	1.48	1.37
Nebraska	2.08	2.07	2.05	2.14	2.05	1.97	1.88
Nevada	.	.	.	.	.	.	.
New Hampshire	1.45	1.41	1.40	1.39	1.40	1.37	1.35
New Jersey	1.56	1.54	1.50	1.50	1.47	1.45	1.41
New Mexico	4.19	3.69	3.47	3.05	3.60	2.78	2.50
New York	1.73	1.72	1.71	1.57	1.60	1.62	1.57
N. Carolina	1.48	1.46	1.44	1.43	1.42	1.40	1.38
N. Dakota	1.79	1.76	1.59	1.52	2.10	1.79	1.65
Ohio	1.75	1.74	1.70	1.65	1.63	1.65	1.73
Oklahoma	2.04	1.98	1.93	1.70	1.81	1.86	1.73
Oregon	2.21	2.13	2.18	2.15	2.02	1.95	1.83
Pennsylvania	1.20	1.15	1.11	1.05	1.04	1.01	1.02
Rhode Island	1.76	1.77	1.81	1.78	1.75	1.72	1.72
S. Carolina	1.68	1.63	1.61	1.59	1.55	1.52	1.51
S. Dakota	.	.	.	.	.	.	.
Tennessee	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Texas	.	.	.	.	.	.	.
Utah	1.40	1.35	1.31	1.06	1.21	1.21	1.11
Vermont	1.71	1.75	1.77	1.75	1.72	1.69	1.68
Virginia	1.65	1.62	1.60	1.43	1.49	1.45	1.40
Washington	.	.	.	.	.	.	.
W. Virginia	1.52	1.52	1.52	1.30	1.52	1.54	1.61
Wisconsin	2.10	2.00	2.33	1.98	2.05	2.03	1.72
Wyoming	.	.	.	.	.	.	.
Federal	1.78	1.79	1.84	1.80	1.78	1.73	1.72
Mean	1.66	1.62	1.60	1.54	1.63	1.59	1.54
Standard deviation	0.40	0.38	0.38	0.41	0.47	0.42	0.39

Table 6.4a **State Personal Income Tax Rates at $40,000 (1979 Dollars) AGI**

State	Marginal rate							Average rate						
	1977	1978	1979	1980	1981	1982	1983	1977	1978	1979	1980	1981	1982	1983
Alabama	3.32	3.24	3.20	3.06	2.99	3.09	3.19	2.84	2.89	2.96	2.96	2.97	2.94	3.03
Alaska	5.28	5.39	.	.	.	.	.	3.55	3.09	.	.	.	.	.
Arizona	4.84	4.72	4.64	4.44	4.24	4.47	4.66	3.19	3.28	3.06	2.71	2.49	2.49	2.69
Arkansas	6.87	6.87	7.03	7.03	7.04	7.05	7.05	4.14	4.28	4.46	4.64	4.78	4.87	4.90
California	9.57	9.76	10.19	9.55	9.58	9.43	9.61	3.97	4.10	4.22	3.78	3.82	3.68	3.90
Colorado	4.87	4.74	4.16	3.97	3.62	4.59	4.82	3.00	3.00	2.61	2.63	2.42	2.97	3.16
Connecticut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.21	0.21	0.21	0.21	0.21	0.21
Delaware	8.34	8.35	8.69	8.68	8.79	9.03	9.26	4.53	4.70	5.00	5.05	5.23	5.35	5.44
District of Columbia	8.76	8.93	9.10	9.53	9.78	9.97	10.06	4.75	4.93	5.16	5.41	5.61	5.76	5.87
Florida	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	6.03	6.03	6.03	6.03	6.04	6.04	6.05	3.49	3.59	3.72	3.85	3.95	4.05	4.05
Hawaii	8.51	8.68	8.84	8.90	8.97	9.07	9.19	5.32	5.44	5.61	5.60	5.75	5.69	5.91
Idaho	7.54	7.54	7.54	7.54	7.54	7.55	7.56	4.57	4.69	4.83	4.82	4.93	5.01	5.07
Illinois	2.50	2.50	2.50	2.50	2.50	2.50	3.00	2.28	2.31	2.33	2.35	2.37	2.38	2.81
Indiana	2.00	2.00	1.70	1.90	1.90	1.90	3.00	1.82	1.83	1.57	1.72	1.73	1.74	2.76
Iowa	4.60	4.64	4.61	4.62	4.75	5.16	5.47	2.96	3.05	3.11	3.19	3.26	3.48	3.67
Kansas	4.42	4.36	4.54	4.35	4.26	4.53	4.73	2.39	2.42	2.58	2.54	2.58	2.77	2.95
Kentucky	3.83	3.77	3.80	3.63	3.59	3.80	3.97	2.65	2.71	2.84	2.88	2.91	3.05	3.18
Louisiana	1.33	1.30	1.78	2.06	1.20	1.47	2.23	0.74	0.77	0.87	0.93	0.53	0.60	0.86
Maine	7.87	7.87	8.51	8.85	9.05	9.06	9.07	3.19	3.19	3.60	3.95	4.23	4.42	4.54
Maryland	5.00	5.00	5.00	5.00	5.00	5.00	5.00	3.53	3.56	3.57	3.63	3.67	3.70	3.71
Massachusetts	5.32	5.32	5.32	5.32	5.31	5.29	5.25	5.48	5.54	5.56	5.51	5.21	5.24	5.20
Michigan	4.60	4.60	4.60	4.60	4.60	5.10	6.35	3.84	3.89	3.95	4.01	4.06	4.53	5.66
Minnesota	9.84	9.60	9.48	9.05	8.88	9.71	10.10	7.46	7.43	7.27	7.16	7.00	7.78	8.18
Mississippi	3.76	3.81	3.87	3.87	3.87	3.87	4.65	1.87	1.97	2.09	2.22	2.15	2.22	2.48
Missouri	3.55	3.51	3.52	3.44	3.42	3.64	3.80	2.02	2.09	2.21	2.29	2.31	2.45	2.59

Montana	5.50	5.55	5.51	5.40	4.84	5.13	5.44	3.48	3.59	3.48	3.46	3.35	3.44	3.60
Nebraska	5.45	5.72	6.58	5.91	6.11	6.73	6.93	2.44	2.52	2.85	2.48	2.63	2.97	3.07
Nevada	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.48	0.49	0.50	0.51	0.52	0.52
New Jersey	2.52	2.52	2.52	2.52	2.52	2.52	2.52	1.81	1.86	1.92	1.97	2.02	2.05	2.08
New Mexico	4.80	5.02	5.28	5.70	4.43	6.18	8.33	1.36	1.52	1.63	1.88	1.34	2.10	3.00
New York	12.40	12.46	12.63	11.93	10.97	10.86	10.83	6.23	6.46	6.77	6.91	6.88	6.89	6.98
N. Carolina	6.78	6.89	6.92	7.00	7.02	7.06	7.06	4.42	4.54	4.68	4.78	4.87	4.95	5.01
N. Dakota	5.50	5.61	2.84	2.78	2.76	3.55	3.75	2.70	2.86	1.62	1.67	1.45	2.12	2.48
Ohio	2.85	2.93	2.93	3.01	3.19	4.08	6.09	1.74	1.81	1.90	2.00	2.08	2.68	3.87
Oklahoma	5.38	5.28	5.50	5.40	5.49	5.88	5.83	2.28	2.45	2.76	2.95	3.11	3.22	3.39
Oregon	7.64	8.19	7.09	8.16	8.53	9.20	9.10	1.64	1.78	1.51	1.70	1.87	2.51	2.82
Pennsylvania	2.00	2.20	2.20	2.20	2.20	2.20	2.45	2.03	2.24	2.24	2.24	2.24	2.24	2.49
Rhode Island	6.47	6.79	6.94	7.48	7.83	8.18	9.27	3.08	3.17	3.14	3.38	3.59	3.81	4.25
S. Carolina	6.48	6.52	6.66	6.84	6.89	6.90	6.94	3.31	3.45	3.63	3.82	3.97	4.07	4.14
S. Dakota	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Texas	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Utah	4.94	4.82	4.86	4.64	4.57	4.91	5.12	3.38	3.42	3.55	3.57	3.59	3.74	3.90
Vermont	8.52	8.93	8.41	9.06	9.36	8.97	9.01	4.20	4.31	3.92	4.21	4.40	4.28	4.23
Virginia	5.33	5.33	5.43	5.46	5.64	5.67	5.71	2.71	2.80	2.91	3.03	3.13	3.19	3.23
Washington	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W. Virginia	4.42	4.64	4.84	5.15	5.45	5.54	7.98	2.34	2.43	2.56	2.71	2.84	2.93	3.54
Wisconsin	10.60	8.94	7.59	8.63	8.64	8.64	9.64	5.96	5.48	4.68	4.12	4.13	4.11	5.05
Wyoming	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Federal	34.07	35.72	36.55	39.38	40.71	37.38	34.64	16.59	17.01	16.83	18.08	18.91	17.61	16.06
Mean	5.55	5.56	5.59	5.49	5.40	5.54	5.93	3.23	3.31	3.36	3.35	3.36	3.47	3.78
Standard deviation	3.53	3.51	3.58	3.38	3.25	3.19	3.14	1.70	1.71	1.75	1.73	1.73	1.74	1.75

Table 6.4b **State Personal Income Tax Rates at $20,000 (1979 Dollars) AGI**

State	Marginal rate							Average rate						
	1977	1978	1979	1980	1981	1982	1983	1977	1978	1979	1980	1981	1982	1983
Alabama	3.86	3.82	3.86	3.80	3.75	3.63	3.74	2.45	2.59	2.72	2.80	2.87	2.77	2.87
Alaska	4.44	4.58	.	.	.	.	.	3.00	2.09	.	.	.	.	.
Arizona	4.73	4.84	4.46	4.17	3.85	3.87	4.11	2.44	2.60	2.28	1.87	1.67	1.65	1.78
Arkansas	5.31	5.44	5.89	6.10	6.28	6.38	6.43	2.75	2.92	3.11	3.35	3.53	3.68	3.76
California	6.06	6.19	6.32	5.95	5.98	5.74	6.04	2.17	2.27	2.35	1.96	2.01	1.93	2.09
Colorado	4.56	4.81	3.92	3.86	3.54	4.35	4.60	2.36	2.39	1.97	2.07	1.92	2.35	2.49
Connecticut	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.15	0.13	0.13	0.14	0.14	0.14	0.14
Delaware	6.99	7.12	7.78	7.67	7.97	7.99	8.04	3.28	3.47	3.68	3.84	4.07	4.25	4.36
District of Columbia	7.51	7.66	7.82	8.19	8.25	8.39	8.48	3.30	3.46	3.72	4.17	4.40	4.58	4.69
Florida	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	5.64	5.87	5.97	6.03	6.09	6.04	6.04	2.27	2.45	2.66	2.90	3.09	3.47	3.27
Hawaii	8.56	8.26	8.58	8.72	9.05	8.21	8.27	4.36	4.60	4.75	4.74	4.93	4.81	5.18
Idaho	7.37	7.47	7.50	7.56	7.61	7.55	7.55	3.10	3.33	3.57	3.57	3.81	3.99	4.09
Illinois	2.50	2.50	2.50	2.51	2.52	2.50	3.00	2.08	2.13	2.17	2.20	2.23	2.25	2.67
Indiana	2.00	2.00	1.70	1.91	1.92	1.90	3.00	1.70	1.72	1.48	1.60	1.62	1.63	2.60
Iowa	4.61	4.71	4.59	4.74	4.75	5.01	5.27	2.38	2.54	2.46	2.60	2.72	2.89	3.03
Kansas	3.23	3.33	3.64	3.76	3.75	4.03	4.43	1.77	1.79	1.89	1.84	1.94	2.11	2.25
Kentucky	4.09	4.16	4.27	4.32	4.28	4.35	4.51	2.25	2.38	2.50	2.62	2.73	2.88	2.99
Louisiana	1.53	1.51	1.64	1.71	1.40	1.57	1.79	0.39	0.46	0.63	0.71	0.14	0.23	0.53
Maine	4.67	4.72	5.42	6.71	6.95	7.33	7.69	1.63	1.58	1.89	2.20	2.50	2.72	2.86
Maryland	5.00	5.00	4.80	4.89	4.95	4.97	5.00	3.16	3.24	3.12	3.22	3.30	3.37	3.40
Massachusetts	5.17	5.16	5.06	5.15	5.07	5.02	5.02	4.36	4.48	4.56	4.52	4.15	4.22	4.16
Michigan	4.60	4.60	4.60	4.62	4.64	5.10	6.35	3.27	3.36	3.46	3.57	3.65	4.11	5.16
Minnesota	11.33	11.02	10.82	10.54	10.08	10.98	11.48	5.82	6.11	5.50	5.74	5.81	6.44	6.85
Mississippi	3.24	3.25	3.38	3.52	3.51	3.57	3.91	0.96	1.12	1.27	1.45	1.26	1.38	1.49
Missouri	3.04	3.17	3.36	3.54	3.55	3.78	3.99	1.33	1.44	1.58	1.71	1.81	1.96	2.09

Montana	5.15	5.26	5.30	5.48	4.97	5.51	5.74	3.05	3.20	2.89	2.87	2.96	2.97	3.05
Nebraska	3.76	3.89	4.24	3.80	3.99	4.42	4.46	1.45	1.47	1.71	1.42	1.54	1.79	1.92
Nevada	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.20	0.20	0.21	0.22	0.22	0.23
New Jersey	2.02	2.05	2.09	2.21	2.30	2.36	2.43	1.24	1.30	1.37	1.38	1.45	1.50	1.58
New Mexico	2.92	3.17	3.32	3.77	2.93	4.07	5.50	0.18	0.33	0.40	0.63	0.34	0.84	1.40
New York	8.35	9.18	10.04	11.90	13.72	14.11	14.52	3.51	3.67	3.91	4.20	4.47	4.49	4.64
N. Carolina	5.95	6.11	6.32	6.47	6.68	6.66	6.71	3.44	3.60	3.78	3.89	4.02	4.15	4.23
N. Dakota	3.46	4.11	2.28	2.41	2.61	3.49	3.66	1.44	1.60	1.08	1.14	0.72	1.42	1.95
Ohio	2.13	2.29	2.43	2.60	2.80	3.56	5.27	0.95	1.02	1.13	1.26	1.36	1.81	2.50
Oklahoma	3.17	3.70	4.19	4.71	5.18	5.43	5.82	1.10	1.25	1.46	1.69	1.90	1.95	2.16
Oregon	5.68	5.95	5.60	5.60	5.78	6.56	6.76	1.23	1.41	1.30	1.48	1.62	2.22	2.65
Pennsylvania	2.00	2.20	2.20	2.20	2.20	2.20	2.45	2.09	2.31	2.31	2.31	2.31	2.30	2.56
Rhode Island	4.46	4.62	4.48	4.81	5.11	5.38	5.97	2.17	2.16	2.15	2.32	2.46	2.61	2.92
S. Carolina	5.10	5.26	5.69	5.95	6.14	6.23	6.31	2.31	2.45	2.64	2.87	3.05	3.19	3.28
S. Dakota	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.46	0.46	0.46	0.46	0.46	0.46
Texas	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Utah	5.57	5.49	5.57	5.49	5.41	5.55	5.78	3.00	3.18	3.36	3.51	3.62	3.81	3.95
Vermont	5.87	6.08	5.42	5.82	6.11	5.90	5.80	2.97	2.96	2.71	2.91	3.04	2.97	2.95
Virginia	4.61	4.71	4.90	5.14	5.38	5.41	5.49	2.23	2.36	2.49	2.66	2.84	2.95	3.02
Washington	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W. Virginia	3.34	3.44	3.62	3.78	3.97	4.16	5.16	1.91	1.98	2.04	2.15	2.25	2.32	2.56
Wisconsin	8.55	7.69	6.37	7.38	7.44	7.40	8.43	4.18	4.23	3.53	2.88	2.92	2.95	3.78
Wyoming	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Federal	23.47	24.34	23.57	25.32	26.56	24.58	22.31	11.42	11.38	11.31	12.19	12.77	11.93	10.91
Mean	4.44	4.57	4.65	4.87	5.06	5.21	5.62	2.27	2.38	2.42	2.45	2.51	2.63	2.89
Standard deviation	2.50	2.57	2.69	3.03	3.42	3.49	3.53	1.17	1.21	1.18	1.22	1.28	1.32	1.36

Table 6.4c **State Personal Income Tax Rates at $10,000 (1979 Dollars) AGI**

State	Marginal rate							Average rate						
	1977	1978	1979	1980	1981	1982	1983	1977	1978	1979	1980	1981	1982	1983
Alabama	3.23	3.49	3.44	3.69	3.80	3.59	3.66	1.71	1.82	2.01	2.15	2.26	2.28	2.38
Alaska	4.03	3.38	.	.	.	.	.	2.35	0.98	.	.	.	.	.
Arizona	4.27	4.49	3.81	3.64	3.24	3.08	3.37	2.27	2.40	2.07	1.05	0.72	0.64	0.77
Arkansas	3.28	3.53	3.74	4.14	4.44	4.54	4.56	1.45	1.56	1.72	1.90	2.05	2.17	2.25
California	3.88	3.97	4.07	4.04	3.83	3.67	3.89	0.84	0.93	1.01	0.44	0.52	0.48	0.62
Colorado	3.59	3.66	3.23	2.98	2.81	3.41	3.64	1.93	1.94	1.63	1.80	1.66	2.00	2.09
Connecticut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware	5.30	5.63	5.93	6.36	6.65	6.84	6.99	2.45	2.63	2.80	2.96	3.21	3.39	3.51
District of Columbia	5.66	5.91	6.16	7.35	6.79	7.00	7.18	2.36	2.51	2.72	2.95	3.23	3.38	3.49
Florida	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	3.69	3.89	3.98	4.39	4.65	5.53	4.97	1.33	1.48	1.67	1.88	2.05	2.91	2.15
Hawaii	7.01	7.17	7.42	7.83	8.29	7.92	7.92	3.42	3.64	3.91	3.88	3.71	3.83	4.29
Idaho	5.74	5.99	6.21	6.24	6.41	6.54	6.61	1.76	2.04	2.27	2.37	2.64	2.83	2.96
Illinois	2.50	2.50	2.50	2.50	2.50	2.50	3.00	1.95	1.99	2.03	2.07	2.10	2.13	2.56
Indiana	2.00	2.00	1.70	1.90	1.90	1.90	3.00	1.60	1.63	1.41	1.36	1.39	1.41	2.27
Iowa	3.25	3.43	3.93	4.20	4.41	4.43	4.64	1.76	1.86	1.79	1.93	2.06	2.22	2.34
Kansas	2.85	2.95	3.21	3.26	3.38	3.89	3.76	1.42	1.42	1.58	1.55	1.67	1.77	1.91
Kentucky	3.47	3.66	3.75	4.00	4.12	4.26	4.36	1.83	1.94	2.12	2.27	2.39	2.55	2.66
Louisiana	1.17	1.23	1.46	1.59	0.85	0.86	1.25	0.12	0.20	0.40	0.49	0.05	0.10	0.30
Maine	3.25	3.28	3.69	4.14	4.29	4.48	4.61	0.92	0.91	1.15	1.38	1.58	1.70	1.80
Maryland	4.83	4.86	4.42	4.55	4.63	4.69	4.71	2.80	2.88	2.74	2.88	2.98	3.05	3.10
Massachusetts	5.06	5.05	5.05	5.05	5.02	5.01	5.01	3.21	3.34	3.49	3.62	2.71	2.84	2.80
Michigan	4.60	4.60	4.60	4.60	4.60	5.10	6.35	3.06	3.16	3.28	3.40	3.49	3.93	4.95
Minnesota	8.19	7.38	12.02	10.26	15.33	15.78	16.38	2.13	1.47	1.52	1.91	2.29	3.63	4.03
Mississippi	1.68	1.94	2.06	2.32	2.12	2.39	2.43	0.29	0.39	0.51	0.66	0.44	0.52	0.59

Missouri	2.20	2.36	2.51	2.79	3.02	3.25	3.50	0.78	0.87	1.03	1.16	1.25	1.39	1.49
Montana	4.74	4.92	4.86	5.02	4.81	4.83	5.03	2.86	2.98	2.76	2.64	2.74	2.59	2.64
Nebraska	3.30	3.07	4.11	3.23	3.08	3.46	3.54	0.76	0.87	0.99	0.86	1.01	1.20	1.38
Nevada	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.13	0.14	0.15	0.17	0.17	0.18
New Jersey	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.77	0.85	0.94	1.03	1.10	1.15	1.19
New Mexico	1.36	1.53	1.66	1.97	1.54	2.25	3.14	−0.51	−0.37	−0.31	−0.12	−0.27	0.01	0.31
New York	4.61	4.79	4.90	5.23	5.56	5.86	6.15	2.11	2.21	2.36	2.53	2.69	2.40	2.48
N. Carolina	5.04	5.17	5.38	5.64	5.78	5.90	5.97	2.76	2.90	3.07	3.16	3.31	3.44	3.52
N. Dakota	1.86	2.06	1.45	1.52	1.33	2.39	3.07	1.09	1.14	0.85	0.88	0.10	0.59	1.43
Ohio	0.87	0.94	1.15	1.37	1.57	2.23	3.35	0.47	0.50	0.53	0.59	0.65	0.87	1.06
Oklahoma	2.11	2.27	2.55	2.85	3.18	3.36	3.60	0.76	0.84	0.98	1.12	1.24	1.25	1.37
Oregon	2.55	2.57	2.64	2.88	3.41	4.66	5.12	0.17	0.23	0.19	0.27	0.34	0.71	1.00
Pennsylvania	2.17	2.20	2.20	2.20	2.20	2.20	2.45	1.88	2.09	2.09	2.09	2.10	2.10	2.34
Rhode Island	3.91	3.65	4.34	4.10	3.94	4.21	4.73	1.41	1.52	1.43	1.68	1.85	1.96	2.24
S. Carolina	3.93	4.17	4.44	5.03	5.31	5.54	5.63	2.04	2.16	2.33	2.52	2.70	2.82	2.92
S. Dakota	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.41	0.41	0.41	0.42	0.42	0.42
Texas	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Utah	4.74	4.69	4.55	4.58	4.84	5.11	5.33	2.46	2.60	2.79	2.92	3.03	3.28	3.40
Vermont	5.15	4.80	5.25	4.96	4.71	4.61	4.60	1.86	2.00	1.74	2.04	2.22	2.16	2.19
Virginia	3.56	3.83	4.09	4.21	3.94	4.10	4.24	1.40	1.53	1.71	1.92	2.25	2.33	2.39
Washington	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W. Virginia	2.58	2.74	2.86	3.11	3.30	3.49	4.22	1.72	1.77	1.84	1.92	2.00	2.06	2.15
Wisconsin	5.74	5.55	4.70	5.03	5.02	4.99	5.76	2.90	3.06	2.66	0.62	0.63	0.62	1.52
Wyoming	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Federal	20.61	19.19	22.84	21.57	20.49	19.21	17.70	7.43	7.97	7.52	8.86	9.63	8.97	8.39
Mean	3.27	3.33	3.47	3.56	3.69	3.86	4.19	1.54	1.62	1.68	1.64	1.68	1.78	1.98
Standard deviation	1.66	1.63	1.95	1.84	2.34	2.40	2.44	0.91	0.93	0.93	1.03	1.04	1.11	1.19

with income. Another reason is the existence of income- related credits, which could induce a high marginal tax rate for a low-income household.

To summarize: all the measures we have computed suggest substantial interstate variability in personal income tax structure in a given year, as well as differences in how the systems have evolved over time. On average, however, there has been a tendency for the systems to become less revenue elastic and for the marginal tax rates to increase over time. Why have the two measures tended to move in opposite directions? Most of the systems are not indexed for inflation. Over time, inflation has tended to push people into high tax brackets. But once in the highest bracket, the elasticity tends to decrease, in some cases going down to unity.

6.2.5 Results Holding the Tax Law Constant

Year-to-year variations in our tax structure measures come from a combination of two sources: change in nominal incomes and changes in the tax statutes. At the federal level, considerable attention has been focused on the phenomenon of "bracket creep"—how real tax liabilities change merely as a consequence of changes in nominal income, without any statutory changes.[8] (See, e.g., Congressional Budget Office 1980.) Is a similar phenomenon operative at the state level? To what extent are intertemporal changes in tax structure due to nominal income changes and to what extent to changes in the laws? To investigate these questions, we computed individuals' tax liabilities for every year from 1977 to 1983 assuming that the tax law stayed in its 1977 incarnation. Hence, any changes in year-to-year summary measures are due only to nominal income changes.

The results for elasticities are reported in table 6.5; for marginal and average tax rates on various representative individuals in tables 6.6a, 6.6b, and 6.6c. A comparison of tables 6.3 and 6.5 suggests that, on average, changes in the statutes made during our sample period tended to make state tax systems more revenue elastic than otherwise would have been the case. If the 1977 tax law had been in effect the entire period (*ceteris paribus*), the average revenue elasticity would have fallen from 1.66 to 1.44, but, as noted above, the actual change was from 1.66 to 1.54. Similarly, tables 6.4a and 6.6a indicate that statute changes during the period tended to make the systems more progressive with respect to marginal tax rates. In the absence of any changes, the marginal tax rate for the high-income group would have grown from 5.55% to 5.82%, while in fact the increase was from 5.64% to 5.93%. Tables 6.4b and 6.6b indicate a somewhat different story for marginal tax rates on middle-income taxpaying units; changes in the statutes have tended to make their marginal rates slightly lower than would otherwise have been the case. Similarly, 6.4c and 6.6c suggest that

Table 6.5 **Elasticity of State Personal Income Tax Liability with Respect to Income (1977 Law Applies to All Years)**

State	1977	1978	1979	1980	1981	1982	1983
Alabama	1.33	1.29	1.26	1.21	1.18	1.16	1.14
Alaska	1.54	1.53	1.53	1.53	1.52	1.51	1.52
Arizona	1.48	1.44	1.41	1.35	1.30	1.28	1.26
Arkansas	1.60	1.57	1.56	1.53	1.51	1.49	1.47
California	2.14	2.08	2.02	1.96	1.88	1.85	1.82
Colorado	1.59	1.60	1.49	1.43	1.39	1.21	1.35
Connecticut	1.10	1.10	1.10	1.09	1.15	1.08	1.08
Delaware	1.70	1.65	1.61	1.58	1.56	1.46	1.53
District of Columbia	1.71	1.68	1.63	1.59	1.61	1.44	1.58
Florida	.	.	.	.	.	.	.
Georgia	1.73	1.69	1.64	1.57	1.52	1.45	1.47
Hawaii	1.55	1.53	1.47	1.47	1.50	1.24	1.38
Idaho	1.72	1.68	1.61	1.54	1.50	1.47	1.45
Illinois	1.22	1.20	1.18	1.16	1.15	1.14	1.13
Indiana	1.18	1.16	1.28	1.13	1.12	1.11	1.11
Iowa	1.67	1.46	1.60	1.38	1.35	1.45	1.47
Kansas	1.53	1.51	1.51	1.52	1.45	1.29	1.44
Kentucky	1.45	1.42	1.38	1.32	1.28	1.13	1.24
Louisiana	2.51	2.25	2.10	1.99	1.94	1.84	1.86
Maine	2.08	2.04	1.96	1.92	1.86	1.81	1.80
Maryland	1.34	1.32	1.29	1.26	1.24	1.06	1.22
Massachusetts	1.29	1.27	1.25	1.22	1.21	1.20	1.19
Michigan	1.47	1.43	1.38	1.33	1.29	1.27	1.25
Minnesota	1.95	1.83	1.89	1.46	1.55	1.42	1.45
Mississippi	2.11	2.05	1.94	1.82	1.75	1.72	1.70
Missouri	1.73	1.70	1.65	1.58	1.52	1.50	1.47
Montana	1.44	1.40	1.39	1.35	1.34	1.15	1.30
Nebraska	2.08	2.02	1.92	1.89	1.85	1.81	1.79
Nevada	.	.	.	.	.	.	.
New Hampshire	1.45	1.41	1.40	1.39	1.40	1.37	1.35
New Jersey	1.56	1.54	1.50	1.47	1.45	1.42	1.41
New Mexico	4.19	3.65	3.17	2.83	2.63	2.51	2.43
New York	1.73	1.71	1.67	1.65	1.62	1.56	1.58
North Carolina	1.48	1.46	1.44	1.41	1.38	1.37	1.36
North Dakota	1.79	1.75	1.71	1.68	1.64	1.51	1.56
Ohio	1.75	1.74	1.69	1.64	1.63	1.61	1.61
Oklahoma	2.04	1.97	1.94	1.86	1.81	1.70	1.74
Oregon	2.21	2.18	2.21	2.10	2.01	1.93	1.96
Pennsylvania	1.20	1.15	1.11	1.05	1.04	1.01	1.02
Rhode Island	1.76	1.74	1.69	1.70	1.68	1.66	1.66
South Carolina	1.68	1.63	1.61	1.57	1.55	1.52	1.50
South Dakota	.	.	.	.	.	.	.
Tennessee	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Texas	.	.	.	.	.	.	.
Utah	1.40	1.35	1.31	1.24	1.20	1.09	1.16
Vermont	1.71	1.72	1.65	1.66	1.81	1.64	1.64
Virginia	1.65	1.62	1.59	1.54	1.51	1.49	1.47
Washington	.	.	.	.	.	.	.
West Virginia	1.52	1.52	1.52	1.52	1.52	1.42	1.53
Wisconsin	2.10	2.01	2.70	1.76	1.69	1.58	1.60
Wyoming	.	.	.	.	.	.	.
Federal	1.78	1.76	1.71	1.70	1.68	1.66	1.66
Mean	1.66	1.61	1.60	1.51	1.48	1.43	1.44
Standard deviation	0.40	0.36	0.37	0.31	0.29	0.28	0.27

Table 6.6a **State Personal Income Tax Rates at $40,000 (1979 Dollars) AGI (1977 Law Applies to All Years)**

State	Marginal rate							Average rate						
	1977	1978	1979	1980	1981	1982	1983	1977	1978	1979	1980	1981	1982	1983
Alabama	3.32	3.24	3.14	2.99	2.88	2.81	2.76	2.84	2.85	2.86	2.87	2.86	2.85	2.84
Alaska	5.28	5.39	.	.	.	.	.	3.55	3.67	.	.	.	.	.
Arizona	4.84	4.73	4.57	4.36	4.19	4.07	3.99	3.19	3.26	3.33	3.39	3.42	3.44	3.45
Arkansas	6.87	6.87	7.03	7.03	7.04	7.05	7.05	4.14	4.28	4.45	4.63	4.77	4.86	4.92
California	9.57	10.24	10.73	10.91	11.09	11.10	11.11	3.97	4.28	4.67	5.11	5.45	5.68	5.84
Colorado	4.87	4.80	4.70	4.55	4.46	4.37	4.30	3.00	3.09	3.18	3.27	3.34	3.37	3.39
Connecticut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.24	0.24	0.24	0.24	0.24	0.24
Delaware	8.34	8.35	8.47	8.61	8.85	9.24	9.45	4.53	4.70	4.90	5.12	5.29	5.42	5.51
District of Columbia	8.76	8.92	9.10	9.49	9.78	9.97	10.06	4.75	4.93	5.16	5.41	5.62	5.77	5.87
Florida	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	6.03	6.03	6.03	6.03	6.03	6.04	6.05	3.49	3.60	3.72	3.85	3.95	4.01	4.06
Hawaii	8.51	8.68	8.84	8.93	8.96	9.14	9.20	5.32	5.44	5.61	5.79	5.93	6.02	6.09
Idaho	7.54	7.54	7.54	7.54	7.54	7.55	7.56	4.57	4.69	4.83	4.98	5.09	5.16	5.21
Illinois	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.28	2.30	2.32	2.34	2.36	2.37	2.38
Indiana	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.82	1.83	1.85	1.86	1.87	1.88	1.89
Iowa	4.60	4.64	4.55	4.58	4.56	4.53	4.49	2.96	3.03	3.11	3.18	3.24	3.28	3.31
Kansas	4.42	4.49	4.48	4.27	4.14	4.16	4.08	2.39	2.48	2.59	2.70	2.77	2.81	2.83
Kentucky	3.83	3.78	3.72	3.56	3.43	3.37	3.31	2.65	2.70	2.74	2.78	2.80	2.81	2.82
Louisiana	1.33	1.30	1.56	1.83	2.09	2.04	2.00	0.74	0.76	0.78	0.84	0.90	0.94	0.97
Maine	7.87	7.96	8.38	8.71	8.88	8.89	8.90	3.19	3.42	3.70	4.03	4.30	4.48	4.59
Maryland	5.00	5.00	5.00	5.00	5.00	5.00	5.00	3.53	3.57	3.62	3.67	3.71	3.74	3.75
Massachusetts	5.32	5.32	5.32	5.32	5.33	5.37	5.37	5.48	5.53	5.59	5.65	5.69	5.72	5.74
Michigan	4.60	4.60	4.60	4.60	4.60	4.60	4.60	3.84	3.89	3.95	4.01	4.06	4.08	4.10
Minnesota	9.84	9.62	9.41	8.98	8.65	8.42	8.27	7.46	7.53	7.59	7.63	7.64	7.63	7.62

Mississippi	3.76	3.81	3.87	3.87	3.87	3.87	3.87	1.87	1.96	2.08	2.20	2.29	2.35	2.39
Missouri	3.55	3.51	3.45	3.37	3.30	3.30	3.25	2.02	2.09	2.17	2.24	2.29	2.33	2.35
Montana	5.50	5.55	5.53	5.34	5.44	5.30	5.32	3.48	3.56	3.66	3.77	3.84	3.88	3.91
Nebraska	5.45	5.70	6.04	6.50	6.87	7.12	7.30	2.44	2.58	2.76	2.99	3.17	3.31	3.41
Nevada	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.48	0.49	0.50	0.51	0.52	0.52
New Jersey	2.52	2.52	2.52	2.52	2.52	2.52	2.52	1.81	1.86	1.92	1.98	2.03	2.06	2.08
New Mexico	4.80	5.00	5.34	5.79	6.17	6.43	6.56	1.36	1.53	1.75	2.00	2.22	2.37	2.48
New York	12.40	12.48	12.67	12.75	12.60	12.46	12.46	6.23	6.52	6.87	7.24	7.52	7.70	7.81
N. Carolina	6.78	6.89	6.92	7.00	7.04	7.06	7.06	4.42	4.53	4.67	4.82	4.94	5.02	5.07
N. Dakota	5.50	5.58	5.68	5.71	5.68	5.53	5.43	2.70	2.83	3.01	3.19	3.32	3.41	3.47
Ohio	2.85	2.93	2.93	3.01	3.19	3.26	3.32	1.74	1.81	1.91	2.00	2.08	2.14	2.18
Oklahoma	5.38	5.29	5.39	5.26	5.18	5.20	5.10	2.28	2.43	2.61	2.80	2.94	3.03	3.09
Oregon	7.64	8.50	9.39	9.42	9.43	9.44	9.45	1.64	1.82	2.07	2.38	2.61	2.77	2.87
Pennsylvania	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.03	2.03	2.03	2.03	2.03	2.03	2.03
Rhode Island	6.47	6.76	7.17	7.72	8.16	8.46	8.67	3.08	3.23	3.44	3.69	3.90	4.05	4.16
S. Carolina	6.48	6.53	6.66	6.84	6.89	6.90	6.94	3.31	3.45	3.63	3.82	3.98	4.07	4.14
S. Dakota	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Texas	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Utah	4.94	4.82	4.71	4.52	4.37	4.25	4.18	3.38	3.41	3.43	3.45	3.45	3.44	3.44
Vermont	8.52	8.90	9.44	10.16	10.73	11.13	11.41	4.20	4.40	4.66	4.98	5.25	5.45	5.60
Virginia	5.33	5.33	5.42	5.45	5.64	5.67	5.71	2.71	2.80	2.91	3.03	3.12	3.18	3.23
Washington	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W. Virginia	4.42	4.65	4.83	5.15	5.45	5.55	5.67	2.34	2.43	2.56	2.71	2.84	2.93	3.00
Wisconsin	10.60	10.69	10.88	11.07	11.24	11.31	11.37	5.96	6.18	6.45	6.73	6.96	7.11	7.22
Wyoming	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Federal	34.07	35.61	37.77	40.65	42.93	44.54	45.63	16.59	17.38	18.43	19.69	20.78	21.59	22.16
Mean	5.55	5.65	5.76	5.80	5.83	5.82	5.82	3.23	3.35	3.49	3.64	3.76	3.84	3.89
Standard deviation	3.53	3.65	3.77	3.82	3.82	3.81	3.82	1.70	1.77	1.86	1.96	2.03	2.09	2.12

Table 6.6b **State Personal Income Tax Rates at $20,000 (1979 Dollars) AGI (1977 Law Applies to All Years)**

State	Marginal rate							Average rate						
	1977	1978	1979	1980	1981	1982	1983	1977	1978	1979	1980	1981	1982	1983
Alabama	3.86	3.81	3.75	3.67	3.61	3.57	3.49	2.45	2.53	2.61	2.69	2.75	2.78	2.80
Alaska	4.44	4.56	.	.	.	.	.	3.00	3.10	.	.	.	.	.
Arizona	4.73	4.78	5.01	5.10	5.14	5.11	5.00	2.44	2.55	2.70	2.87	3.00	3.08	3.14
Arkansas	5.31	5.44	5.89	6.07	6.22	6.37	6.43	2.75	2.90	3.10	3.33	3.52	3.65	3.74
California	6.06	6.43	6.94	7.49	7.95	8.34	8.51	2.17	2.39	2.68	3.03	3.33	3.54	3.69
Colorado	4.56	4.96	4.78	4.86	5.00	5.01	4.98	2.36	2.47	2.59	2.75	2.88	2.97	3.03
Connecticut	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.15	0.15	0.15	0.16	0.16	0.16	0.16
Delaware	6.99	7.12	7.46	7.55	7.86	7.89	7.96	3.28	3.48	3.68	3.95	4.17	4.33	4.43
District of Columbia	7.51	7.64	10.23	8.11	8.22	8.38	8.48	3.30	3.50	3.77	4.17	4.41	4.57	4.68
Florida	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	5.64	5.87	5.97	6.00	6.04	6.04	6.04	2.27	2.45	2.66	2.91	3.10	3.22	3.30
Hawaii	8.56	8.26	8.97	8.44	8.50	8.30	8.38	4.36	4.61	4.76	5.05	5.23	5.36	5.44
Idaho	7.37	7.47	7.50	7.55	7.55	7.55	7.55	3.10	3.33	3.61	3.89	4.10	4.24	4.34
Illinois	2.50	2.50	2.50	2.50	2.50	2.50	2.50	2.08	2.11	2.15	2.19	2.22	2.23	2.24
Indiana	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.70	1.72	1.74	1.77	1.78	1.79	1.80
Iowa	4.61	4.70	4.76	4.74	4.75	4.75	4.69	2.38	2.50	2.60	2.75	2.87	2.94	2.99
Kansas	3.23	3.48	3.72	3.87	4.02	4.12	4.18	1.77	1.85	1.92	2.05	2.15	2.23	2.28
Kentucky	4.09	4.16	4.15	4.15	4.12	4.07	3.99	2.25	2.34	2.41	2.54	2.62	2.68	2.72
Louisiana	1.53	1.51	1.59	1.64	1.69	1.69	1.65	0.39	0.45	0.52	0.60	0.65	0.70	0.72
Maine	4.67	5.36	5.75	6.67	6.96	7.23	7.59	1.63	1.80	2.05	2.37	2.65	2.85	2.98
Maryland	5.00	5.00	5.00	5.00	5.00	5.00	5.00	3.16	3.25	3.30	3.40	3.48	3.53	3.56
Massachusetts	5.17	5.22	5.29	5.31	5.34	5.34	5.34	4.36	4.45	4.55	4.67	4.75	4.81	4.85
Michigan	4.60	4.60	4.60	4.60	4.60	4.60	4.60	3.27	3.36	3.47	3.57	3.65	3.70	3.74
Minnesota	11.33	11.17	11.07	10.81	10.66	10.52	10.31	5.82	6.10	6.33	6.64	6.87	7.01	7.10
Mississippi	3.24	3.24	3.37	3.50	3.65	3.66	3.67	0.96	1.10	1.25	1.43	1.57	1.66	1.73

Missouri	3.04	3.17	3.36	3.50	3.61	3.68	3.65	1.33	1.42	1.53	1.67	1.78	1.86	1.91
Montana	5.15	5.18	5.36	5.53	5.62	5.63	5.60	3.05	3.15	3.22	3.37	3.49	3.58	3.63
Nebraska	3.76	3.93	4.10	4.38	4.54	4.70	4.94	1.45	1.58	1.74	1.92	2.07	2.17	2.25
Nevada	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.19	0.19	0.20	0.20	0.21	0.21
New Jersey	2.02	2.05	2.09	2.21	2.30	2.36	2.43	1.24	1.30	1.36	1.44	1.50	1.55	1.58
New Mexico	2.92	3.19	3.51	3.92	4.26	4.45	4.68	0.18	0.33	0.54	0.78	0.99	1.13	1.24
New York	8.35	9.26	10.28	11.46	12.44	13.20	13.53	3.51	3.75	4.06	4.46	4.82	5.08	5.27
N. Carolina	5.95	6.11	6.32	6.49	6.64	6.67	6.75	3.44	3.58	3.77	3.97	4.13	4.24	4.32
N. Dakota	3.46	4.13	4.62	5.20	5.46	5.48	5.39	1.44	1.56	1.74	1.99	2.19	2.34	2.44
Ohio	2.13	2.29	2.43	2.59	2.78	2.86	2.88	0.95	1.03	1.13	1.26	1.36	1.44	1.49
Oklahoma	3.17	3.61	3.91	4.42	4.87	5.07	5.19	1.10	1.22	1.38	1.59	1.78	1.92	2.02
Oregon	5.68	5.93	5.51	5.76	5.70	6.21	6.38	1.23	1.40	1.59	1.79	1.94	2.03	2.12
Pennsylvania	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.09	2.09	2.09	2.09	2.09	2.09	2.09
Rhode Island	4.46	4.66	4.87	5.20	5.39	5.58	5.86	2.17	2.29	2.44	2.62	2.78	2.88	2.96
S. Carolina	5.10	5.25	5.70	5.90	6.10	6.22	6.30	2.31	2.46	2.64	2.87	3.05	3.18	3.26
S. Dakota	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.44	0.44	0.44	0.44	0.44
Texas	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Utah	5.57	5.55	5.51	5.41	5.34	5.27	5.16	3.00	3.13	3.24	3.38	3.48	3.54	3.58
Vermont	5.87	6.14	6.40	6.84	7.09	7.34	7.71	2.97	3.13	3.33	3.57	3.77	3.91	4.01
Virginia	4.61	4.71	4.94	5.09	5.34	5.36	5.47	2.23	2.36	2.49	2.67	2.81	2.92	2.98
Washington	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W. Virginia	3.34	3.44	3.63	3.75	3.97	4.16	4.21	1.91	1.98	2.04	2.16	2.25	2.32	2.37
Wisconsin	8.55	8.92	9.28	9.70	10.05	10.24	10.35	4.18	4.43	4.72	5.08	5.38	5.59	5.73
Wyoming	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Federal	23.47	24.54	25.62	27.35	28.36	29.35	30.85	11.42	12.05	12.87	13.80	14.62	15.19	15.59
Mean	4.44	4.64	4.86	5.10	5.30	5.44	5.51	2.27	2.39	2.53	2.71	2.86	2.96	3.03
Standard deviation	2.50	2.66	2.89	3.12	3.34	3.53	3.61	1.17	1.22	1.28	1.36	1.43	1.49	1.53

Table 6.6c **State Personal Income Tax Rates at $10,000 (1979 Dollars) AGI (1977 Law Applies to All Years)**

State	Marginal rate							Average rate						
	1977	1978	1979	1980	1981	1982	1983	1977	1978	1979	1980	1981	1982	1983
Alabama	3.23	3.48	3.58	3.70	3.73	3.72	3.73	1.71	1.81	1.94	2.09	2.21	2.30	2.35
Alaska	4.03	4.20	.	.	.	.	.	2.35	2.46	.	.	.	.	.
Arizona	4.27	4.48	4.69	4.68	4.73	4.79	4.81	2.27	2.39	2.55	2.75	2.89	2.98	3.04
Arkansas	3.28	3.53	3.74	4.14	4.47	4.54	4.56	1.45	1.56	1.72	1.90	2.06	2.18	2.26
California	3.88	4.18	4.78	5.49	5.70	6.06	6.36	0.84	1.03	1.28	1.59	1.88	2.07	2.21
Colorado	3.59	3.87	4.40	4.44	4.65	4.85	5.02	1.93	2.02	2.16	2.35	2.50	2.60	2.67
Connecticut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Delaware	5.30	5.63	5.98	6.47	6.66	6.78	6.86	2.45	2.62	2.86	3.14	3.38	3.55	3.66
District of Columbia	5.66	5.91	6.17	7.36	6.81	7.01	7.19	2.36	2.54	2.77	3.03	3.34	3.51	3.62
Florida	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Georgia	3.69	3.89	3.98	4.39	4.66	4.83	5.01	1.33	1.48	1.67	1.88	2.06	2.19	2.28
Hawaii	7.01	7.17	7.42	8.08	8.42	8.51	8.57	3.42	3.64	3.91	4.21	4.47	4.67	4.80
Idaho	5.74	5.94	6.19	6.40	6.57	6.71	6.82	1.76	2.00	2.31	2.64	2.91	3.09	3.21
Illinois	2.50	2.50	2.50	2.50	2.50	2.50	2.50	1.95	1.98	2.03	2.07	2.11	2.13	2.14
Indiana	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.60	1.63	1.66	1.69	1.71	1.73	1.74
Iowa	3.25	3.43	3.65	4.31	4.58	4.83	4.62	1.76	1.85	1.98	2.13	2.26	2.35	2.45
Kansas	2.85	3.06	3.34	3.36	3.46	3.65	3.46	1.42	1.49	1.60	1.75	1.87	1.93	2.00
Kentucky	3.47	3.65	3.82	3.99	4.04	4.07	4.07	1.83	1.93	2.06	2.21	2.34	2.43	2.49
Louisiana	1.17	1.22	1.35	1.47	1.46	1.47	1.48	0.12	0.18	0.26	0.35	0.43	0.48	0.51
Maine	3.25	3.51	3.79	4.29	4.45	4.63	4.77	0.92	1.06	1.25	1.48	1.69	1.83	1.92
Maryland	4.83	4.86	4.91	4.97	5.00	5.00	5.00	2.80	2.92	3.06	3.21	3.33	3.40	3.46
Massachusetts	5.06	5.06	5.06	5.06	5.06	5.06	5.06	3.21	3.34	3.50	3.66	3.78	3.85	3.90
Michigan	4.60	4.60	4.60	4.60	4.60	4.60	4.60	3.06	3.16	3.28	3.40	3.49	3.55	3.59
Minnesota	8.19	7.38	12.71	9.95	11.83	14.63	12.86	2.13	2.56	3.04	4.08	4.49	4.91	5.35

Mississippi	1.68	1.94	2.06	2.32	2.80	3.08	3.18	0.29	0.39	0.51	0.66	0.78	0.88	0.96
Missouri	2.20	2.37	2.54	2.76	2.96	3.07	3.17	0.78	0.87	0.99	1.13	1.25	1.33	1.39
Montana	4.74	4.91	5.06	5.35	5.47	5.50	5.59	2.86	2.98	3.12	3.29	3.43	3.53	3.60
Nebraska	3.30	3.07	3.11	3.33	3.48	3.56	3.62	0.76	0.92	1.09	1.27	1.42	1.53	1.60
Nevada	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Hampshire	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.13	0.14	0.15	0.16	0.17	0.18
New Jersey	2.00	2.00	2.00	2.00	2.00	2.00	2.00	0.77	0.85	0.94	1.04	1.11	1.16	1.19
New Mexico	1.36	1.51	1.80	2.10	2.40	2.58	2.72	−0.51	−0.39	−0.23	−0.05	0.12	0.24	0.32
New York	4.61	4.84	4.98	5.37	5.67	6.00	6.24	2.11	2.26	2.46	2.67	2.86	2.99	3.09
N. Carolina	5.04	5.17	5.38	5.67	5.81	5.95	6.07	2.76	2.90	3.07	3.27	3.44	3.56	3.64
N. Dakota	1.86	2.05	2.45	2.91	3.37	3.60	3.77	1.09	1.14	1.21	1.31	1.43	1.52	1.59
Ohio	0.87	0.94	1.15	1.37	1.58	1.80	1.87	0.47	0.50	0.53	0.59	0.64	0.69	0.72
Oklahoma	2.11	2.26	2.53	2.81	3.07	3.26	3.32	0.76	0.84	0.94	1.08	1.21	1.30	1.37
Oregon	2.55	2.65	3.33	3.88	4.36	5.03	5.53	0.17	0.30	0.45	0.67	0.87	1.00	1.09
Pennsylvania	2.17	2.00	2.00	2.00	2.00	2.00	2.00	1.88	1.90	1.90	1.90	1.90	1.90	1.90
Rhode Island	3.91	3.64	3.70	3.96	4.13	4.22	4.30	1.41	1.57	1.74	1.91	2.05	2.16	2.23
S. Carolina	3.93	4.20	4.62	5.09	5.33	5.54	5.64	2.04	2.15	2.31	2.51	2.70	2.83	2.92
S. Dakota	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Tennessee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Texas	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Utah	4.74	4.67	4.47	4.48	4.71	4.84	4.92	2.46	2.59	2.74	2.87	2.96	3.03	3.09
Vermont	5.15	4.79	4.86	5.21	5.43	5.56	5.66	1.86	2.08	2.29	2.52	2.71	2.85	2.94
Virginia	3.56	3.83	4.10	4.21	4.31	4.40	4.49	1.40	1.53	1.71	1.92	2.09	2.20	2.28
Washington	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
W. Virginia	2.58	2.74	2.86	3.11	3.32	3.50	3.59	1.72	1.77	1.84	1.93	2.00	2.07	2.11
Wisconsin	5.74	5.87	6.00	6.43	7.04	7.49	7.76	2.90	3.07	3.29	3.52	3.72	3.89	4.01
Wyoming	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Federal	20.61	19.16	19.45	20.83	21.73	22.23	22.63	7.43	8.28	9.14	10.03	10.81	11.36	11.73
Mean	3.27	3.36	3.64	3.82	4.00	4.21	4.27	1.54	1.65	1.79	1.95	2.09	2.19	2.26
Standard deviation	1.66	1.66	2.09	1.98	2.16	2.46	2.37	0.91	0.93	0.96	1.02	1.06	1.10	1.14

statute changes lead to lower marginal rates for low-income households than would otherwise have been the case. There does not appear to be a simple story to explain this pattern of change. We think that analysis of the dynamics of tax structure modification would be a useful topic for future research.

6.3. Sales Taxes

6.3.1 General Description

State sales tax systems tend to be so complicated—and sometimes eccentric—that there is no simple way to characterize all their provisions. For example, New Jersey has a special asparagus tax; New Mexico levies a tax on dentures, and Maine taxes the proceeds of some (but not all) garage sales. Still, we can summarize the important attributes of the systems. Table 6.7 shows the statutory sales tax rates for 1977–1983. All states except Alaska, Delaware, Montana, New Hampshire, and Oregon levy a sales tax and have done so across the entire period. For states with a general sales tax, rates in 1983 ranged from 2% in Oklahoma to 7.5% in Connecticut. Table 6.7 also indicates each state's tax treatment of food. There is some trend toward the exemption of food: twenty states plus the District of Columbia exempted food in 1977, and by 1983 the figure was twenty-three states plus the District of Columbia. Taken together, the numbers in table 6.7 suggest considerable heterogeneity, just as we found with the income tax.

6.3.2 Methodological Issues

In section 6.2.2 we noted the difficulties inherent in trying to characterize a complex tax system with a single number. The same types of problem crop up here, and our solution is basically the same.

However, a new methodological problem arises in the case of sales taxation. Given that our data come from federal personal tax returns, there is no information on individuals' consumption bundles. Hence, on the basis of our data alone, we can generally calculate neither sales-tax liabilities nor how these liabilities would change with changes in income. It is therefore necessary to impute a sales-tax liability to each household based upon its income and family size.[9]

Our initial plan for doing the imputation was a straightforward three-step procedure. The first step was to compile a detailed history by state of the tax rates applied to each expenditure category. The second was to utilize data from the Consumer Expenditure Survey (CES)[10] to estimate equations for each expenditure category, and use the parameters to estimate expenditures in the various categories for each of the house-

holds in our sample. And the third was to multiply each expenditure category by the appropriate tax rate in order to find tax liability.

Unfortunately, we ran into trouble right at the first step. A detailed history by state of sales tax rates and coverage proved impossible to obtain. However, several reference books did show the general rates through time, and also indicated if food was exempt. (This is essentially the information contained in table 6.7.) We therefore used the CES to estimate equations for only two categories: "food" and "goods other than food."

This simplification proved to be unsatisfactory. The results, when multiplied by population weights, simply did not give very good predictions of sales tax revenues by state. While part of the error may have related to our omission of the sales-tax liabilities of firms, we believe that the main problem was that the broadness of the sales-tax base varied significantly across states in a way not captured by the simple food/nonfood distinction.

An alternative method that turned out to be much more successful relied on the "Optional State Sales Tax Tables" which are included by the Internal Revenue Service (IRS) in the standard package of personal income tax instructions (Form 1040). It turns out that since 1978, these tables have been derived from the CES in much the same manner as described above. There is one big difference, however—the Internal Revenue Service had the benefit of a set of questionnaires filled out each year by the states detailing their laws, and was able to divide coverage into twenty-four categories rather than the two categories we used.

The IRS calculations do have several limitations from our point of view. First, they exclude sales-tax liabilities on cars, boats, and mobile homes. Second, certain states tax liquor and a few other items at a different rate from the general rate. Such taxes are not deductible on the federal return and are not included in the IRS computations. Third, the calculation takes no account of the possible impact of interstate differences in relative prices. Fourth, no allowance is made for inflation.

Of these problems, the fourth is certainly the most important, and is easily corrected by adjusting all amounts by the change in the Personal Consumption Deflator. Given the importance of automobile expenditures in the sales tax base, we impute them on the basis of a simple regression relating these expenditures to income and family size.[11] We have not tried to account for the other items in the previous paragraph, but believe that they are relatively minor.

The IRS tabulates national data into fourteen income classes for six family sizes. In each of the eighty-four cells average sales-tax liability is calculated from reported expenditures. Where family size seems not to affect the sales-tax liability significantly, adjacent family sizes are

Table 6.7 **State Statutory Sales Tax Rates**

State	Normal rate							Rate on food						
	1977	1978	1979	1980	1981	1982	1983	1977	1978	1979	1980	1981	1982	1983
Alabama	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
Alaska	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Arizona	4.	4.	4.	4.	4.	4.42	5.	4.	4.	4.	4.	4.	0.	0.
Arkansas	3.	3.	3.	3.	4.	3.	3.	3.	3.	3.	3.	0.	3.	3.
California	6.	6.	6.	6.	6.	6.	6.	0.	0.	0.	0.	0.	0.	0.
Colorado	3.	3.	3.	3.	3.	3.	3.34	3.	3.	3.	0.	0.	0.	0.
Connecticut	7.	7.	7.	7.25	7.50	7.50	7.50	0.	0.	0.	0.	0.	0.	0.
Delaware	.	.	.	.	.	.	.	.	.	.	.	.	.	.
District of Columbia	5.	5.	5.	5.33	6.	6.	6.	0.	0.	0.	0.	0.	0.	0.
Florida	4.	4.	4.	4.	4.	4.33	5.	0.	0.	0.	0.	0.	0.	0.
Georgia	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
Hawaii	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
Idaho	3.	3.	3.	3.	3.	3.	4.42	3.	3.	3.	3.	3.	3.	4.42
Illinois	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	4.	3.	3.	3.
Indiana	4.	4.	4.	4.	4.	4.	5.	0.	0.	0.	0.	0.	0.	0.
Iowa	3.	3.	3.	3.	3.	3.	3.84	0.	0.	0.	0.	0.	0.	0.
Kansas	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.
Kentucky	5.	5.	5.	5.	5.	5.	5.	0.	0.	0.	0.	0.	0.	0.
Louisiana	3.	3.	3.	3.	3.	3.	3.	0.	0.	0.	0.	0.	0.	0.
Maine	5.	5.	5.	5.	5.	5.	5.	0.	0.	0.	0.	0.	0.	0.
Maryland	5.	5.	5.	5.	5.	5.	5.	0.	0.	0.	0.	0.	0.	0.
Massachusetts	5.	5.	5.	5.	5.	5.	5.	0.	0.	0.	0.	0.	0.	0.
Michigan	4.	4.	4.	4.	4.	4.	4.	0.	0.	0.	0.	0.	0.	0.
Minnesota	4.	4.	4.	4.	4.	5.	6.	0.	0.	0.	0.	0.	0.	0.
Mississippi	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.	5.

Missouri	3.13	3.13	3.13	3.13	3.13	3.13	4.13	3.13	3.13	3.13	3.13	3.13	3.13	4.13
Montana	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Nebraska	3.	3.	3.	3.	3.	3.33	3.75	3.	3.	3.	3.	3.	3.33	3.75
Nevada	3.50	3.50	3.50	3.50	4.81	5.75	5.75	3.50	3.50	3.50	3.50	4.81	5.75	5.75
New Hampshire	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Jersey	5.	5.	5.	5.	5.	5.	6.	0.	0.	0.	0.	0.	0.	0.
New Mexico	3.75	3.75	3.75	3.75	3.62	3.50	3.62	3.75	3.75	3.75	3.75	3.62	3.50	3.62
New York	4.	4.	4.	4.	4.	4.	4.	0.	0.	0.	0.	0.	0.	0.
North Carolina	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
North Dakota	3.	3.	3.	3.	3.	3.	3.75	0.	0.	0.	0.	0.	0.	0.
Ohio	4.	4.	4.	4.	4.34	5.	5.	0.	0.	0.	0.	0.	0.	0.
Oklahoma	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.	2.
Oregon	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Pennsylvania	6.	6.	6.	6.	6.	6.	6.	0.	0.	0.	0.	0.	0.	0.
Rhode Island	6.	6.	6.	6.	6.	6.	6.	0.	0.	0.	0.	0.	0.	0.
South Carolina	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
South Dakota	4.	4.	4.	4.50	4.50	4.	4.	4.	4.	4.	4.50	4.50	4.	4.
Tennessee	3.75	4.50	4.50	4.50	4.50	4.50	4.50	3.75	4.50	4.50	4.50	4.50	4.50	4.50
Texas	4.	4.	4.	4.	4.	4.	4.	0.	0.	0.	0.	0.	0.	0.
Utah	4.75	4.75	4.75	4.75	4.75	4.75	5.03	4.75	4.75	4.75	4.75	4.75	4.75	5.03
Vermont	3.	3.	3.	3.	3.	3.50	4.	0.	0.	0.	0.	0.	0.	0.
Virginia	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.	4.
Washington	5.10	5.10	5.05	5.10	5.62	5.94	6.32	5.10	2.60	0.	0.	0.	3.63	3.41
West Virginia	3.	3.	3.	3.	3.	4.	5.	3.	3.	3.	3.	0.	0.	0.
Wisconsin	4.	4.	4.	4.	4.	4.70	5.	0.	0.	0.	0.	0.	0.	0.
Wyoming	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.	3.

grouped. This is typically the case where food is exempt. The figures actually reported on form 1040 are then obtained by smoothing with the regression

$$\log(\text{sales tax liability}) = a + b \log(\text{AGI}),$$

which is estimated with fourteen observations for each family size in each state. Although the regression parameters are not published, they are obviously easily recovered from the tables.

To reduce the number of parameters, we fit to the tables an equation that included family size as a regressor instead of estimating a separate equation for each family size. Moreover, to facilitate interpretation of the parameter estimates, we subtracted from log(AGI) the log of $15,800, which was about the median value in 1979; and we substracted from family size its mean, 2.4:

$$(1) \quad \log(\text{sales tax liability}) = a + b[\log(\text{AGI}) - \log(15{,}800)] + c\,(\text{family size} - 2.4).$$

Of course, subtracting the constants does not change the values of b and c, but it does allow us to interpret the constant a as the logarithm of the tax liability on a family with "typical" characteristics. We also experimented with a specification that was quadratic in family size. Generally, the squared term was statistically insignificant, suggesting that over the range of family sizes in the data, linearity is a satisfactory approximation.

6.3.3 Results

Table 6.8 shows the results when equation (1) is estimated for each state. Several features of the table require comment. First, the 1977 coefficients look rather different from those for subsequent years. They were presumably not produced by exactly the same procedure described above. Second, c is typically about 0.1 for states taxing food and about 0.05 for the others. Other things being the same, larger families pay more sales tax in states where food is not exempt. Third, the tax is apparently quite regressive with respect to annual income.[12] (In 1983, the lowest value of b was .57 for Hawaii, and the highest was .73 for Pennsylvania.)

As suggested earlier, sales tax systems vary not only by revenue elasticities with respect to income, but also by comprehensiveness. It is useful to have a simple index number that measures the size of the sales tax base in each state. To obtain such a number, we (1) compute the revenues that actual sales tax system would raise if applied to our standard set of taxpayers; (2) compute the revenue that would be raised by an income tax levied on AGI at the same rate as the sales tax; and (3) take their ratio. The higher this ratio, the more comprehensive the

sales tax base. It might have been more desirable to include in the denominator the revenue that would have been raised by applying the general rate to all *consumption* rather than AGI. Unfortunately, we do not have consumption data. In any case, we do not think that this will have much of an impact on interstate comparisons.

The results are reported in table 6.9. The variation in the value of the ratio across states—almost three to one from largest to smallest—is quite striking. Interestingly, in 1983, Hawaii, which had the lowest revenue elasticity (recall table 6.8), had the broadest base, while Pennsylvania, with the highest revenue elasticity, had the third smallest base.

6.4 Income and Sales Taxes Considered Together

In this section we consider income and sales taxes as a single "structure." When income increases, how does the *sum* of personal income and sales-tax liabilities change? As noted above, for most states, such information goes a long way in characterizing the *entire* state tax structure.

Table 6.10 shows the income elasticity of combined income and sales-tax liability for each state between 1977 and 1983. As one would expect, as a matter of arithmetic, the combined elasticities are smaller than those associated with the income tax, but larger than the sales tax. The result is a set of income-sales taxes that are close to proportional—the average value of the elasticity in 1983 was 1.09. Two other aspects of table 6.10 are noteworthy:

1. The temporal decline in the elasticity of the combined system is somewhat less marked than the decline in the elasticity of the income tax alone. (The average elasticity of the combined system falls from 1.14 to 1.09, while from table 6.3, the average elasticity of the income tax alone fell from 1.66 to 1.54.) Over time, the fact that a greater proportion of revenue was generated by the relatively elastic income tax tended to counterbalance the fact that the income tax itself was becoming less elastic.

2. The combined system is just about as variable as the income tax system alone. In 1983, the coefficient of variation for the elasticity of combined systems was 0.24; for the income tax alone the figure was 0.25. We have already observed that, viewed individually, the income and sales tax systems differ considerably across states. When the systems are aggregated, these differences do not somehow "cancel out."

Tables 6.11a, 6.11b, and 6.11c show the marginal and average tax rates of the combined system for high-, medium-, and low-income individuals, respectively. For all three income groups, the general tendency has been for marginal and average rates to increase over time.

Table 6.8 **IRS State Sales Tax Tables: Regression Parameters Deviations from Means, Real 1979 Dollars**

State	1977			1978			1979		
	a	b	c	a	b	c	a	b	c
Alabama	5.47	.65	.122	5.53	.63	.090	5.53	.63	.090
Alaska	.	.	.	.	.	.	.	.	.
Arizona	5.56	.62	.118	5.63	.62	.090	5.63	.62	.091
Arkansas	5.26	.64	.123	5.33	.62	.089	5.32	.62	.089
California	5.71	.72	.058	5.77	.66	.061	5.77	.66	.061
Colorado	5.23	.64	.119	5.28	.62	.089	5.28	.62	.089
Connecticut	5.75	.78	.043	5.72	.73	.064	5.71	.73	.054
Delaware	.	.	.	.	.	.	.	.	.
District of Columbia	5.29	.66	.120	5.36	.64	.091	5.36	.64	.091
Florida	5.32	.73	.068	5.26	.70	.057	5.26	.70	.057
Georgia	5.32	.62	.117	5.37	.60	.095	5.37	.60	.095
Hawaii	5.78	.61	.084	5.86	.57	.059	5.86	.57	.059
Idaho	5.21	.65	.119	5.23	.63	.092	5.23	.63	.092
Illinois	5.68	.64	.126	5.77	.61	.095	5.77	.61	.095
Indiana	5.37	.71	.077	5.45	.65	.065	5.45	.65	.065
Iowa	5.17	.77	.094	5.17	.67	.053	5.17	.67	.053
Kansas	5.34	.64	.122	5.39	.63	.090	5.29	.63	.094
Kentucky	5.59	.72	.059	5.60	.66	.057	5.55	.68	.054
Louisiana	5.08	.78	.058	5.04	.70	.051	5.04	.70	.051
Maine	5.54	.75	.062	5.47	.70	.056	5.45	.70	.057
Maryland	5.45	.73	.062	5.51	.68	.059	5.46	.70	.056
Massachusetts	4.84	.75	.138	5.01	.63	.139	5.16	.72	.092
Michigan	5.34	.74	.060	5.41	.66	.057	5.41	.66	.057
Minnesota	5.10	.73	.045	5.11	.71	.071	5.05	.72	.066
Mississippi	5.86	.63	.116	5.93	.61	.091	5.90	.62	.088
Missouri	5.27	.64	.124	5.37	.61	.089	5.37	.61	.089
Montana	.	.	.	.	.	.	.	.	.
Nebraska	5.30	.63	.126	5.33	.61	.090	5.33	.61	.090
Nevada	5.32	.62	.119	5.35	.63	.091	5.22	.65	.072
New Hampshire	.	.	.	.	.	.	.	.	.
New Jersey	5.29	.78	.031	5.32	.65	.039	5.30	.72	.056
New Mexico	5.66	.64	.113	5.71	.61	.089	5.69	.61	.089
New York	5.44	.78	.073	5.47	.67	.059	5.39	.70	.053
N. Carolina	5.48	.64	.118	5.52	.63	.087	5.52	.63	.087
N. Dakota	5.00	.77	.057	5.01	.69	.050	5.01	.69	.050
Ohio	5.20	.80	.059	5.19	.71	.050	5.19	.71	.050
Oklahoma	4.86	.64	.116	4.91	.62	.084	4.91	.62	.084
Oregon	.	.	.	.	.	.	.	.	.
Pennsylvania	5.28	.82	.028	5.36	.74	.045	5.36	.74	.045
Rhode Island	5.54	.76	.046	5.48	.70	.048	5.48	.70	.048
S. Carolina	5.56	.62	.118	5.62	.61	.085	5.62	.61	.085
S. Dakota	5.59	.65	.118	5.65	.62	.084	5.65	.63	.086
Tennessee	5.61	.63	.118	5.70	.62	.083	5.70	.62	.083
Texas	5.28	.73	.064	5.25	.68	.065	5.19	.70	.063
Utah	5.73	.65	.110	5.75	.63	.081	5.75	.63	.081
Vermont	4.67	.72	.119	4.68	.69	.085	4.68	.69	.085
Virginia	5.43	.64	.123	5.49	.62	.091	5.49	.62	.091
Washington	5.78	.66	.116	5.66	.68	.072	5.53	.71	.058
W. Virginia	5.27	.66	.127	5.29	.65	.082	5.25	.65	.078
Wisconsin	5.41	.74	.065	5.44	.66	.064	5.41	.67	.052
Wyoming	5.32	.66	.125	5.34	.62	.082	5.34	.62	.082

Table 6.8 (continued)

1980			1981			1982			1983		
a	b	c	a	b	c	a	b	c	a	b	c
5.53	.63	.090	5.53	.63	.090	5.53	.63	.090	5.51	.63	.093
.	.	.	.	.	.	.	.	.	.	.	.
5.51	.63	.072	5.42	.66	.060	5.43	.66	.060	5.53	.66	.061
5.32	.62	.089	5.37	.62	.088	5.32	.62	.089	5.32	.62	.089
5.77	.66	.061	5.77	.66	.061	5.77	.66	.061	5.77	.66	.061
4.99	.69	.052	4.95	.71	.056	4.95	.71	.056	4.93	.69	.064
5.76	.72	.043	5.82	.71	.055	5.82	.71	.055	5.82	.71	.055
.	.	.	.	.	.	.	.	.	.	.	.
5.46	.65	.086	5.59	.65	.080	5.59	.65	.080	5.59	.65	.080
5.26	.70	.057	5.26	.70	.057	5.42	.71	.057	5.57	.70	.061
5.37	.60	.095	5.37	.60	.095	5.37	.60	.095	5.37	.60	.095
5.86	.57	.059	5.86	.57	.059	5.86	.57	.059	5.86	.57	.059
5.23	.63	.092	5.23	.63	.092	5.23	.62	.094	5.56	.63	.091
5.73	.62	.087	5.68	.64	.082	5.68	.64	.082	5.68	.64	.082
5.45	.65	.065	5.45	.65	.065	5.45	.65	.065	5.68	.64	.066
5.17	.67	.053	5.17	.67	.053	5.17	.67	.053	5.43	.68	.053
5.26	.65	.095	5.26	.65	.095	5.26	.65	.095	5.26	.65	.095
5.51	.68	.051	5.51	.68	.051	5.50	.68	.054	5.48	.68	.057
5.04	.70	.051	5.04	.70	.051	5.04	.70	.051	5.04	.70	.051
5.45	.70	.057	5.45	.70	.057	5.45	.70	.057	5.45	.70	.057
5.40	.72	.053	5.38	.72	.054	5.38	.72	.054	5.38	.72	.054
5.13	.72	.061	5.13	.72	.061	5.13	.72	.061	5.13	.72	.061
5.41	.66	.057	5.41	.66	.057	5.41	.66	.057	5.41	.66	.057
5.03	.72	.045	5.12	.72	.045	5.32	.69	.056	5.49	.68	.063
5.87	.62	.091	5.87	.62	.091	5.87	.62	.091	5.87	.62	.091
5.30	.63	.082	5.30	.63	.082	5.30	.63	.082	5.57	.63	.082
.	.	.	.	.	.	.	.	.	.	.	.
5.33	.61	.090	5.32	.61	.093	5.43	.60	.093	5.48	.62	.084
5.05	.70	.053	5.39	.70	.055	5.54	.70	.054	5.54	.70	.054
.	.	.	.	.	.	.	.	.	.	.	.
5.28	.72	.062	5.26	.72	.067	5.26	.72	.067	5.41	.72	.060
5.69	.61	.089	5.65	.61	.089	5.62	.61	.090	5.65	.62	.087
5.39	.70	.053	5.39	.70	.053	5.39	.70	.053	5.39	.70	.053
5.52	.63	.087	5.52	.63	.087	5.52	.63	.087	5.52	.63	.087
5.01	.69	.050	5.02	.69	.058	5.01	.69	.059	5.18	.69	.067
5.20	.71	.058	5.32	.70	.052	5.48	.70	.052	5.47	.70	.053
4.91	.62	.084	4.87	.64	.082	4.87	.63	.080	4.87	.63	.080
.	.	.	.	.	.	.	.	.	.	.	.
5.36	.74	.045	5.36	.74	.045	5.36	.74	.045	5.37	.73	.051
5.48	.70	.048	5.48	.70	.048	5.48	.70	.048	5.48	.70	.048
5.59	.61	.082	5.58	.62	.080	5.58	.62	.080	5.58	.62	.080
5.75	.64	.082	5.70	.64	.068	5.65	.63	.081	5.65	.63	.087
5.70	.62	.083	5.70	.62	.083	5.70	.62	.083	5.70	.62	.083
5.19	.70	.063	5.19	.70	.063	5.19	.70	.063	5.19	.70	.063
5.75	.63	.081	5.75	.63	.081	5.75	.63	.081	5.79	.63	.082
4.68	.69	.085	4.68	.69	.085	4.81	.73	.074	4.93	.71	.076
5.49	.62	.091	5.49	.62	.091	5.49	.62	.091	5.50	.60	.085
5.53	.72	.052	5.55	.71	.052	5.86	.66	.080	5.94	.68	.074
5.17	.68	.065	5.32	.71	.051	5.47	.73	.047	5.57	.71	.051
5.34	.70	.047	5.34	.70	.047	5.50	.70	.049	5.57	.70	.048
5.34	.62	.082	5.34	.62	.082	5.34	.62	.082	5.34	.62	.082

Table 6.9 **Comprehensiveness of State Sales Taxes[a]**

State	1977	1978	1979	1980	1981	1982	1983
Alabama	.285	.294	.294	.293	.294	.294	.289
Alaska	.	.	.	.	.	.	.
Arizona	.303	.321	.324	.284	.266	.245	.239
Arkansas	.305	.318	.316	.316	.249	.316	.316
California	.251	.251	.251	.251	.251	.251	.251
Colorado	.296	.303	.303	.238	.232	.232	.201
Connecticut	.235	.219	.216	.216	.221	.221	.221
Delaware	.	.	.	.	.	.	.
District of Columbia	.191	.201	.201	.208	.210	.210	.210
Florida	.258	.235	.235	.235	.235	.257	.257
Georgia	.320	.326	.326	.326	.326	.326	.326
Hawaii	.370	.387	.387	.387	.387	.387	.387
Idaho	.294	.289	.289	.289	.289	.288	.272
Illinois	.277	.295	.295	.284	.274	.274	.274
Indiana	.267	.273	.273	.273	.273	.273	.274
Iowa	.311	.277	.277	.276	.277	.277	.285
Kansas	.330	.340	.309	.304	.305	.305	.305
Kentucky	.267	.257	.245	.237	.237	.235	.231
Louisiana	.283	.251	.251	.251	.251	.251	.251
Maine	.259	.233	.228	.228	.228	.228	.228
Maryland	.233	.237	.229	.219	.216	.216	.216
Massachusetts	.133	.142	.175	.168	.168	.168	.168
Michigan	.263	.262	.262	.262	.262	.262	.262
Minnesota	.204	.205	.194	.189	.207	.197	.195
Mississippi	.330	.345	.338	.329	.330	.330	.330
Missouri	.297	.315	.315	.300	.300	.300	.298
Montana	.	.	.	.	.	.	.
Nebraska	.314	.316	.316	.316	.312	.311	.294
Nevada	.273	.281	.250	.218	.224	.216	.216
New Hampshire	.	.	.	.	.	.	.
New Jersey	.207	.191	.198	.194	.191	.191	.186
New Mexico	.362	.370	.360	.360	.361	.361	.361
New York	.302	.284	.268	.267	.268	.268	.268
North Carolina	.283	.289	.289	.289	.289	.289	.289
North Dakota	.257	.242	.242	.242	.244	.242	.232
Ohio	.242	.222	.222	.224	.231	.235	.232
Oklahoma	.307	.314	.314	.314	.304	.302	.302
Oregon	.	.	.	.	.	.	.
Pennsylvania	.175	.177	.177	.177	.177	.177	.179
Rhode Island	.219	.195	.195	.195	.195	.195	.195
South Carolina	.303	.315	.315	.308	.305	.305	.305
South Dakota	.318	.327	.330	.328	.307	.330	.331
Tennessee	.343	.307	.307	.307	.307	.307	.307
Texas	.248	.229	.219	.219	.219	.219	.219
Utah	.310	.306	.306	.306	.306	.306	.304
Vermont	.181	.175	.175	.175	.175	.176	.173
Virginia	.270	.281	.281	.281	.281	.281	.276
Washington	.305	.271	.245	.250	.249	.283	.269
West Virginia	.314	.311	.302	.281	.336	.295	.257
Wisconsin	.285	.272	.265	.255	.255	.254	.256
Wyoming	.329	.321	.321	.321	.321	.321	.321

a. This table includes local sales taxes for only those states in which over 90% of the population is covered.

Table 6.10 Elasticity of Combined Income Income and Sales Tax Liability

State	1977	1978	1979	1980	1981	1982	1983
Alabama	0.99	0.96	0.95	0.93	0.92	0.92	0.92
Alaska	1.54	1.94	.	.	.	.	.
Arizona	1.07	1.05	1.06	1.21	1.26	1.28	1.25
Arkansas	1.24	1.21	1.23	1.22	1.20	1.20	1.19
California	1.42	1.38	1.38	1.44	1.43	1.42	1.42
Colorado	1.19	1.16	1.13	1.01	1.15	1.20	1.13
Connecticut	0.79	0.73	0.74	0.73	0.72	0.72	0.72
Delaware	1.70	1.65	1.65	1.37	1.57	1.55	1.44
District of Columbia	1.36	1.34	1.32	1.14	1.26	1.25	1.18
Florida	0.72	0.69	0.69	0.69	0.69	0.70	0.69
Georgia	1.26	1.23	1.22	1.10	1.18	1.14	1.14
Hawaii	1.18	1.14	1.18	0.95	1.31	1.17	1.01
Idaho	1.35	1.33	1.31	1.31	1.28	1.26	1.18
Illinois	0.88	0.85	0.85	0.86	0.86	0.86	0.88
Indiana	0.91	0.87	0.84	0.89	0.88	0.88	0.90
Iowa	1.28	1.14	1.14	1.05	1.13	1.15	1.12
Kansas	1.09	1.07	1.12	1.00	1.15	1.14	1.07
Kentucky	1.05	1.02	1.02	0.81	1.00	1.01	0.94
Louisiana	1.16	1.09	1.06	1.07	1.12	1.14	1.16
Maine	1.39	1.41	1.41	1.42	1.42	1.40	1.40
Maryland	1.08	1.05	1.04	0.95	1.05	1.04	0.94
Massachusetts	1.16	1.11	1.10	1.10	1.16	1.14	1.14
Michigan	1.18	1.08	1.11	1.16	1.15	1.14	1.14
Minnesota	1.63	1.77	1.79	1.27	1.98	1.55	1.64
Mississippi	1.03	1.01	1.02	0.94	1.03	1.03	1.07
Missouri	1.12	1.09	1.08	1.03	1.09	1.10	1.04
Montana	1.44	1.40	1.50	1.21	1.42	1.48	1.37
Nebraska	1.34	1.33	1.38	1.36	1.35	1.31	1.27
Nevada	0.61	0.62	0.64	0.69	0.70	0.70	0.70
New Hampshire	1.45	1.41	1.40	1.39	1.40	1.37	1.35
New Jersey	1.09	1.02	1.05	1.05	1.05	1.05	1.01
New Mexico	1.38	1.34	1.36	1.35	1.30	1.39	1.46
New York	1.39	1.37	1.40	1.31	1.34	1.35	1.32
North Carolina	1.16	1.15	1.14	1.14	1.14	1.13	1.12
North Dakota	1.34	1.32	1.11	1.09	1.25	1.26	1.20
Ohio	1.16	1.14	1.14	1.13	1.10	1.14	1.26
Oklahoma	1.43	1.41	1.42	1.30	1.41	1.44	1.37
Oregon	2.21	2.13	2.18	2.15	2.02	1.95	1.83
Pennsylvania	1.00	0.94	0.92	0.89	0.89	0.87	0.88
Rhode Island	1.25	1.27	1.28	1.29	1.29	1.28	1.31
South Carolina	1.19	1.16	1.16	1.17	1.16	1.15	1.15
South Dakota	0.64	0.61	0.62	0.63	0.63	0.63	0.62
Tennessee	0.68	0.66	0.66	0.66	0.66	0.66	0.66
Texas	0.72	0.67	0.69	0.69	0.69	0.69	0.69
Utah	1.03	1.00	0.99	0.86	0.95	0.95	0.90
Vermont	1.47	1.50	1.50	1.50	1.49	1.44	1.40
Virginia	1.17	1.14	1.14	1.06	1.11	1.10	1.06
Washington	0.65	0.67	0.70	0.71	0.71	0.65	0.67
West Virginia	1.12	1.13	1.15	1.05	1.17	1.15	1.21
Wisconsin	1.60	1.50	1.63	1.44	1.48	1.42	1.31
Wyoming	0.65	0.61	0.61	0.61	0.61	0.61	0.61
Federal	1.78	1.79	1.84	1.80	1.78	1.73	1.72
Mean	1.14	1.11	1.11	1.08	1.11	1.10	1.09
Standard deviation	0.28	0.28	0.29	0.27	0.29	0.27	0.26

Table 6.11a **Average and Marginal Tax Rates at $40,000 AGI (1979 Dollars) (Combined Income and Sales)**

State	Marginal rate							Average rate						
	1977	1978	1979	1980	1981	1982	1983	1977	1978	1979	1980	1981	1982	1983
Alabama	3.96	3.85	3.81	3.67	3.61	3.70	3.80	4.79	4.83	4.90	4.91	4.92	4.89	4.95
Alaska	5.28	5.39	0.00	0.00	0.00	0.00	0.00	3.46	3.01	0.00	0.00	0.00	0.00	0.00
Arizona	5.47	5.38	5.31	5.02	4.82	5.07	5.32	5.08	5.25	5.06	4.44	4.14	4.18	4.56
Arkansas	7.36	7.35	7.52	7.52	7.55	7.53	7.54	5.55	5.70	5.86	6.04	6.25	6.26	6.30
California	10.52	10.58	11.01	10.37	10.40	10.25	10.43	6.42	6.43	6.54	6.11	6.16	6.01	6.24
Colorado	5.35	5.21	4.63	4.39	4.05	5.02	5.22	4.39	4.38	4.00	3.74	3.52	4.06	4.19
Connecticut	1.15	0.97	0.96	0.97	1.02	1.02	1.02	3.09	2.81	2.76	2.81	2.99	2.99	2.99
Delaware	8.34	8.35	8.69	8.68	8.79	9.03	9.26	4.42	4.57	4.87	4.92	5.10	5.21	5.30
District of Columbia	9.31	9.48	9.65	10.13	10.47	10.66	10.75	6.24	6.44	6.67	7.08	7.53	7.67	7.77
Florida	0.66	0.57	0.57	0.57	0.57	0.68	0.76	1.76	1.57	1.56	1.56	1.57	1.86	2.13
Georgia	6.53	6.51	6.51	6.51	6.52	6.53	6.53	4.97	5.05	5.18	5.31	5.40	5.51	5.50
Hawaii	9.24	9.36	9.51	9.58	9.65	9.74	9.87	7.51	7.63	7.79	7.78	7.93	7.87	8.09
Idaho	8.03	7.99	7.99	7.99	8.00	8.00	8.18	5.92	5.97	6.10	6.09	6.21	6.27	6.87
Illinois	3.25	3.24	3.24	3.23	3.22	3.22	3.72	4.52	4.61	4.62	4.57	4.52	4.53	4.95
Indiana	2.66	2.58	2.28	2.48	2.48	2.48	3.73	3.59	3.55	3.29	3.43	3.44	3.45	4.88
Iowa	5.26	5.10	5.07	5.08	5.21	5.62	6.10	4.55	4.31	4.37	4.45	4.52	4.73	5.37
Kansas	4.96	4.90	5.03	4.85	4.76	5.03	5.23	3.98	4.00	4.01	3.97	4.01	4.20	4.37
Kentucky	4.68	4.48	4.50	4.31	4.28	4.48	4.63	4.84	4.72	4.76	4.74	4.78	4.89	4.99
Louisiana	1.93	1.74	2.23	2.51	1.64	1.92	2.68	2.21	1.99	2.09	2.15	1.76	1.83	2.09
Maine	8.73	8.57	9.20	9.53	9.74	9.75	9.75	5.33	5.05	5.40	5.75	6.02	6.20	6.32
Maryland	5.74	5.68	5.68	5.68	5.68	5.68	5.68	5.42	5.41	5.38	5.37	5.39	5.42	5.44
Massachusetts	5.78	5.71	5.88	5.85	5.84	5.82	5.78	6.53	6.59	6.92	6.79	6.50	6.52	6.48
Michigan	5.28	5.17	5.17	5.17	5.17	5.67	6.92	5.53	5.48	5.54	5.59	5.64	6.10	7.21
Minnesota	10.36	10.11	9.97	9.52	9.39	10.29	10.78	8.64	8.62	8.41	8.24	8.21	9.21	9.90
Mississippi	4.63	4.68	4.74	4.71	4.71	4.71	5.49	4.52	4.68	4.75	4.80	4.74	4.81	5.06

Missouri	4.05	4.00	4.01	3.94	3.91	4.13	4.44	3.50	3.60	3.72	3.74	3.76	3.90	4.49
Montana	5.50	5.55	5.52	5.40	4.84	5.13	5.45	3.39	3.50	3.39	3.37	3.26	3.35	3.51
Nebraska	5.95	6.19	7.05	6.38	6.58	7.24	7.49	3.93	3.96	4.28	3.92	4.05	4.54	4.74
Nevada	0.50	0.51	0.48	0.46	0.65	0.75	0.75	1.56	1.58	1.42	1.27	1.79	2.07	2.07
New Hampshire	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Jersey	3.25	3.03	3.14	3.13	3.12	3.12	3.23	3.55	3.33	3.54	3.55	3.58	3.61	3.92
New Mexico	5.53	5.72	5.96	6.38	5.09	6.82	8.99	3.56	3.69	3.73	3.98	3.38	4.06	5.00
New York	13.26	13.10	13.26	12.57	11.60	11.50	11.46	8.20	8.15	8.36	8.50	8.48	8.48	8.57
N. Carolina	7.39	7.49	7.52	7.60	7.62	7.66	7.66	6.17	6.28	6.42	6.51	6.60	6.68	6.74
N. Dakota	6.03	6.04	3.26	3.20	3.19	3.98	4.26	3.97	3.98	2.78	2.83	2.62	3.26	3.86
Ohio	3.56	3.47	3.47	3.56	3.80	4.78	6.79	3.41	3.25	3.33	3.45	3.70	4.56	5.69
Oklahoma	5.71	5.61	5.82	5.73	5.81	6.20	6.14	3.23	3.40	3.69	3.88	4.01	4.11	4.27
Oregon	7.64	8.19	7.09	8.16	8.53	9.20	9.10	1.60	1.74	1.47	1.66	1.83	2.45	2.75
Pennsylvania	2.78	2.89	2.89	2.89	2.89	2.89	3.14	3.84	3.99	3.98	3.98	3.98	3.98	4.25
Rhode Island	7.36	7.49	7.65	8.18	8.53	8.89	9.97	5.26	5.02	4.99	5.23	5.43	5.65	6.08
S. Carolina	7.12	7.15	7.29	7.45	7.51	7.52	7.57	5.21	5.36	5.53	5.67	5.82	5.91	5.98
S. Dakota	0.70	0.67	0.68	0.79	0.72	0.69	0.68	2.11	2.09	2.12	2.39	2.21	2.13	2.12
Tennessee	0.69	0.70	0.70	0.70	0.70	0.70	0.70	2.94	3.03	3.02	3.02	3.03	3.03	3.03
Texas	0.64	0.53	0.52	0.52	0.52	0.52	0.52	1.69	1.51	1.46	1.46	1.46	1.46	1.46
Utah	5.75	5.57	5.61	5.39	5.32	5.66	5.93	5.72	5.67	5.79	5.80	5.82	5.97	6.25
Vermont	8.87	9.25	8.72	9.37	9.68	9.37	9.44	5.05	5.08	4.70	4.98	5.17	5.22	5.29
Virginia	5.92	5.91	6.01	6.04	6.22	6.26	6.24	4.44	4.53	4.64	4.75	4.85	4.91	4.88
Washington	0.88	0.80	0.75	0.77	0.79	0.94	1.06	2.60	2.28	2.06	2.09	2.13	2.76	3.03
W. Virginia	4.96	5.15	5.34	5.63	6.07	6.29	8.75	3.87	3.88	3.97	4.02	4.45	4.84	5.59
Wisconsin	11.35	9.54	8.18	9.24	9.25	9.34	10.40	7.77	7.10	6.28	5.70	5.71	5.98	7.04
Wyoming	0.56	0.49	0.49	0.49	0.49	0.49	0.49	1.66	1.53	1.53	1.53	1.53	1.53	1.53
Federal	34.07	35.73	36.55	39.38	40.71	37.38	34.64	16.17	16.57	16.39	17.62	18.42	17.16	15.64
Mean	5.66	5.57	5.59	5.51	5.43	5.58	5.95	4.71	4.67	4.70	4.67	4.69	4.84	5.18
Standard deviation	3.79	3.75	3.82	3.64	3.52	3.48	3.48	1.93	1.95	2.00	1.96	1.96	1.94	1.99

Table 6.11b **Average and Marginal Tax Rates at $20,000 AGI (1979 Dollars) (Combined Income and Sales)**

State	Marginal rate							Average rate						
	1977	1978	1979	1980	1981	1982	1983	1977	1978	1979	1980	1981	1982	1983
Alabama	4.64	4.58	4.62	4.56	4.52	4.39	4.49	4.88	5.05	5.18	5.26	5.33	5.22	5.28
Alaska	4.44	4.58	0.00	0.00	0.00	0.00	0.00	2.85	1.99	0.00	0.00	0.00	0.00	0.00
Arizona	5.51	5.66	5.29	4.90	4.57	4.60	4.92	4.75	5.02	4.75	4.02	3.68	3.69	4.04
Arkansas	5.92	6.06	6.50	6.71	6.92	6.99	7.04	4.46	4.67	4.84	5.06	5.34	5.37	5.46
California	7.18	7.20	7.33	6.96	6.99	6.75	7.06	5.04	5.12	5.20	4.83	4.87	4.78	4.94
Colorado	5.15	5.40	4.51	4.36	4.06	4.86	5.07	4.03	4.08	3.68	3.37	3.19	3.59	3.69
Connecticut	1.32	1.15	1.13	1.15	1.23	1.22	1.22	3.37	3.15	3.10	3.20	3.40	3.39	3.39
Delaware	6.98	7.12	7.79	7.67	7.97	7.99	8.04	3.12	3.30	3.50	3.64	3.86	4.04	4.14
District of Columbia	8.17	8.33	8.50	8.93	9.10	9.24	9.33	5.07	5.29	5.54	6.17	6.69	6.85	6.95
Florida	0.78	0.68	0.68	0.68	0.68	0.81	0.92	2.04	1.86	1.86	1.86	1.86	2.18	2.53
Georgia	6.27	6.48	6.59	6.64	6.71	6.65	6.65	4.09	4.27	4.48	4.71	4.88	5.23	5.05
Hawaii	9.48	9.15	9.47	9.61	9.94	9.10	9.16	7.07	7.39	7.54	7.51	7.70	7.58	7.92
Idaho	7.98	8.04	8.06	8.12	8.18	8.11	8.33	4.73	4.89	5.11	5.12	5.35	5.50	6.27
Illinois	3.43	3.43	3.43	3.43	3.42	3.40	3.90	4.78	4.96	5.00	4.92	4.84	4.85	5.25
Indiana	2.79	2.73	2.43	2.64	2.64	2.63	3.90	3.74	3.79	3.56	3.68	3.69	3.70	5.16
Iowa	5.36	5.28	5.15	5.31	5.32	5.58	6.04	4.13	4.04	3.97	4.10	4.21	4.37	5.02
Kansas	3.90	3.99	4.24	4.37	4.37	4.65	5.05	3.69	3.73	3.65	3.57	3.67	3.82	3.95
Kentucky	5.09	5.04	5.12	5.15	5.11	5.18	5.32	4.77	4.79	4.79	4.82	4.92	5.03	5.11
Louisiana	2.21	2.05	2.18	2.25	1.93	2.11	2.32	2.05	1.92	2.08	2.15	1.61	1.70	1.98
Maine	5.67	5.56	6.25	7.54	7.77	8.16	8.51	4.11	3.80	4.05	4.34	4.62	4.83	4.96
Maryland	5.88	5.83	5.62	5.70	5.76	5.77	5.80	5.31	5.41	5.23	5.22	5.27	5.32	5.35
Massachusetts	5.70	5.64	5.71	5.78	5.69	5.65	5.65	5.50	5.70	6.09	5.95	5.60	5.67	5.61
Michigan	5.40	5.31	5.31	5.33	5.34	5.81	7.06	5.19	5.26	5.36	5.45	5.53	5.96	6.96
Minnesota	11.94	11.62	11.40	11.10	10.69	11.69	12.30	7.13	7.44	6.77	6.94	7.14	8.06	8.82

Mississippi	4.33	4.35	4.47	4.58	4.57	4.63	4.97	4.23	4.50	4.56	4.65	4.48	4.58	4.69
Missouri	3.67	3.79	3.98	4.15	4.16	4.40	4.79	3.14	3.33	3.45	3.49	3.58	3.72	4.41
Montana	5.15	5.26	5.30	5.48	4.97	5.51	5.74	2.90	3.04	2.75	2.72	2.81	2.82	2.90
Nebraska	4.38	4.49	4.84	4.39	4.58	5.07	5.17	3.28	3.28	3.51	3.23	3.33	3.76	4.01
Nevada	0.62	0.64	0.59	0.55	0.78	0.90	0.90	1.92	1.96	1.74	1.51	2.12	2.44	2.44
New Hampshire	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Jersey	2.85	2.68	2.82	2.93	3.01	3.07	3.26	3.20	3.10	3.26	3.23	3.26	3.30	3.70
New Mexico	3.83	4.05	4.17	4.63	3.76	4.88	6.33	2.90	3.07	3.06	3.29	2.92	3.31	3.91
New York	9.32	9.97	10.81	12.66	14.49	14.88	15.28	5.73	5.73	5.83	6.10	6.36	6.36	6.51
N. Carolina	6.71	6.86	7.07	7.22	7.43	7.41	7.46	5.55	5.72	5.89	5.99	6.11	6.23	6.31
N. Dakota	4.07	4.63	2.79	2.93	3.14	4.00	4.28	2.89	2.95	2.45	2.51	2.12	2.78	3.57
Ohio	2.93	2.95	3.08	3.26	3.53	4.41	6.11	2.81	2.72	2.82	2.96	3.27	4.02	4.65
Oklahoma	3.58	4.10	4.59	5.12	5.58	5.83	6.22	2.28	2.44	2.63	2.85	3.01	3.05	3.25
Oregon	5.68	5.95	5.60	5.60	5.78	6.56	6.76	1.17	1.34	1.24	1.40	1.54	2.11	2.52
Pennsylvania	2.88	3.01	3.01	3.01	3.01	3.01	3.26	4.04	4.29	4.29	4.28	4.28	4.27	4.55
Rhode Island	5.49	5.47	5.32	5.65	5.95	6.23	6.81	4.64	4.36	4.34	4.50	4.63	4.77	5.06
S. Carolina	5.89	6.05	6.49	6.72	6.93	7.01	7.10	4.64	4.83	5.01	5.16	5.31	5.44	5.52
S. Dakota	0.86	0.84	0.86	0.98	0.90	0.87	0.86	2.57	2.60	2.63	2.94	2.73	2.61	2.62
Tennessee	0.86	0.88	0.88	0.88	0.88	0.88	0.88	3.01	3.18	3.18	3.17	3.17	3.16	3.16
Texas	0.75	0.64	0.63	0.63	0.63	0.63	0.63	1.96	1.81	1.74	1.74	1.74	1.73	1.73
Utah	6.57	6.43	6.51	6.43	6.36	6.50	6.78	5.81	5.91	6.08	6.21	6.32	6.49	6.78
Vermont	6.28	6.46	5.80	6.20	6.49	6.36	6.31	3.92	3.86	3.62	3.81	3.94	4.04	4.17
Virginia	5.34	5.43	5.62	5.87	6.10	6.14	6.18	4.31	4.47	4.60	4.77	4.93	5.03	5.05
Washington	1.08	0.97	0.90	0.92	0.94	1.15	1.29	3.13	2.74	2.45	2.46	2.51	3.33	3.62
W. Virginia	4.00	4.06	4.23	4.37	4.71	5.04	6.09	3.72	3.73	3.74	3.71	4.12	4.52	4.96
Wisconsin	9.43	8.42	7.10	8.11	8.17	8.25	9.34	6.23	6.16	5.44	4.74	4.78	5.14	6.10
Wyoming	0.68	0.61	0.61	0.61	0.61	0.61	0.61	1.99	1.91	1.91	1.91	1.91	1.90	1.90
Federal	23.47	24.34	23.57	25.32	26.56	24.58	22.31	10.85	10.81	10.74	11.57	12.13	11.34	10.36
Mean	4.80	4.83	4.90	5.09	5.26	5.42	5.81	4.15	4.20	4.21	4.21	4.27	4.42	4.73
Standard deviation	2.74	2.81	2.93	3.24	3.60	3.66	3.74	1.33	1.41	1.42	1.42	1.46	1.45	1.51

Table 6.11c **Average and Marginal Tax Rates at $10,000 AGI (1979 Dollars) (Combined Income and Sales)**

	Marginal rate							Average rate						
State	1977	1978	1979	1980	1981	1982	1983	1977	1978	1979	1980	1981	1982	1983
Alabama	4.06	4.36	4.31	4.55	4.66	4.45	4.51	4.33	4.63	4.83	4.96	5.09	5.11	5.15
Alaska	4.03	3.38	0.00	0.00	0.00	0.00	0.00	2.13	0.89	0.00	0.00	0.00	0.00	0.00
Arizona	5.13	5.43	4.76	4.49	4.07	3.93	4.30	4.63	4.98	4.69	3.47	3.00	2.97	3.32
Arkansas	3.94	4.22	4.43	4.83	5.17	5.24	5.25	3.23	3.51	3.63	3.79	4.04	4.04	4.12
California	5.13	5.14	5.25	5.21	5.00	4.84	5.06	3.96	4.15	4.23	3.71	3.80	3.75	3.88
Colorado	4.23	4.32	3.90	3.56	3.38	3.99	4.17	3.61	3.75	3.47	3.18	2.99	3.30	3.34
Connecticut	1.44	1.26	1.26	1.31	1.37	1.37	1.37	3.40	3.21	3.20	3.36	3.55	3.55	3.55
Delaware	5.30	5.63	5.93	6.36	6.65	6.84	6.99	2.22	2.38	2.54	2.69	2.91	3.07	3.18
District of Columbia	6.37	6.66	6.91	8.19	7.75	7.96	8.14	4.11	4.43	4.62	5.07	5.66	5.80	5.90
Florida	0.85	0.77	0.77	0.77	0.77	0.91	1.04	2.15	2.02	2.02	2.01	2.02	2.38	2.76
Georgia	4.38	4.59	4.68	5.09	5.35	6.23	5.67	3.25	3.49	3.66	3.85	4.01	4.79	4.10
Hawaii	8.08	8.26	8.51	8.92	9.39	9.02	9.02	6.38	6.89	7.13	7.11	6.96	7.07	7.48
Idaho	6.38	6.63	6.84	6.88	7.05	7.17	7.49	3.43	3.73	3.94	4.03	4.28	4.45	5.30
Illinois	3.49	3.56	3.56	3.54	3.52	3.52	4.02	4.65	5.02	5.06	4.98	4.91	4.93	5.32
Indiana	2.86	2.84	2.54	2.74	2.74	2.74	4.05	3.68	3.88	3.69	3.64	3.67	3.70	5.09
Iowa	4.02	4.09	4.58	4.86	5.07	5.08	5.52	3.43	3.51	3.45	3.58	3.70	3.85	4.51
Kansas	3.57	3.70	3.89	3.94	4.06	4.57	4.45	3.35	3.51	3.44	3.36	3.47	3.57	3.69
Kentucky	4.57	4.67	4.73	4.95	5.08	5.20	5.28	4.47	4.58	4.61	4.64	4.77	4.87	4.92
Louisiana	1.89	1.84	2.07	2.20	1.46	1.47	1.87	1.83	1.81	1.99	2.07	1.68	1.73	1.91
Maine	4.33	4.23	4.62	5.07	5.22	5.41	5.54	3.52	3.34	3.49	3.70	3.89	4.00	4.09
Maryland	5.79	5.80	5.35	5.46	5.52	5.58	5.60	4.99	5.18	4.96	4.94	4.99	5.06	5.10
Massachusetts	5.57	5.55	5.74	5.74	5.71	5.71	5.71	4.18	4.49	4.96	5.06	4.23	4.35	4.32
Michigan	5.47	5.42	5.42	5.42	5.42	5.92	7.17	4.97	5.18	5.28	5.39	5.48	5.88	6.81
Minnesota	8.87	8.04	12.66	10.89	16.03	16.57	17.31	3.68	3.06	3.03	3.37	3.87	5.45	6.20

Mississippi	2.86	3.19	3.30	3.53	3.33	3.59	3.63	3.76	4.13	4.16	4.18	4.00	4.07	4.14
Missouri	2.86	3.07	3.22	3.48	3.71	3.95	4.41	2.65	2.96	3.10	3.10	3.18	3.31	4.04
Montana	4.74	4.93	4.86	5.02	4.81	4.84	5.03	2.60	2.71	2.51	2.40	2.48	2.35	2.39
Nebraska	3.96	3.75	4.79	3.92	3.75	4.20	4.35	2.66	2.88	2.98	2.87	2.98	3.38	3.69
Nevada	0.68	0.72	0.67	0.62	0.88	1.02	1.02	2.02	2.14	1.91	1.65	2.32	2.67	2.67
New Hampshire	.	.	.	.	.	.	.	.	.	.	.	.	.	.
New Jersey	2.92	2.76	2.82	2.80	2.78	2.78	2.92	2.86	2.92	2.96	2.98	3.01	3.05	3.45
New Mexico	2.35	2.54	2.63	2.95	2.49	3.16	4.09	2.40	2.71	2.69	2.86	2.63	2.79	3.16
New York	5.63	5.69	5.77	6.10	6.43	6.73	7.02	4.34	4.48	4.46	4.61	4.77	4.50	4.57
N. Carolina	5.85	6.02	6.24	6.49	6.63	6.75	6.82	4.88	5.15	5.30	5.39	5.53	5.65	5.72
N. Dakota	2.52	2.64	2.04	2.11	1.92	2.98	3.77	2.57	2.61	2.35	2.37	1.67	2.10	3.15
Ohio	1.71	1.67	1.88	2.10	2.39	3.19	4.30	2.37	2.35	2.38	2.44	2.76	3.33	3.47
Oklahoma	2.56	2.73	3.02	3.31	3.64	3.81	4.05	1.98	2.14	2.27	2.39	2.46	2.46	2.57
Oregon	2.55	2.57	2.64	2.88	3.41	4.66	5.12	0.16	0.21	0.17	0.24	0.31	0.64	0.91
Pennsylvania	3.12	3.10	3.10	3.10	3.10	3.10	3.35	3.86	4.16	4.16	4.16	4.17	4.16	4.40
Rhode Island	5.04	4.61	5.30	5.06	4.90	5.17	5.70	4.02	3.91	3.83	4.06	4.22	4.32	4.57
S. Carolina	4.80	5.08	5.36	5.93	6.21	6.44	6.53	4.42	4.74	4.90	5.01	5.14	5.25	5.34
S. Dakota	0.93	0.96	0.97	1.11	1.05	0.99	0.97	2.66	2.87	2.89	3.21	3.07	2.89	2.89
Tennessee	0.93	1.01	1.01	1.01	1.01	1.01	1.01	3.08	3.41	3.41	3.41	3.42	3.42	3.42
Texas	0.82	0.73	0.71	0.71	0.71	0.71	0.71	2.07	1.98	1.88	1.88	1.88	1.88	1.88
Utah	5.82	5.77	5.63	5.66	5.92	6.19	6.47	5.32	5.54	5.71	5.83	5.94	6.16	6.42
Vermont	5.57	5.21	5.67	5.37	5.13	5.11	5.16	2.77	2.92	2.68	2.96	3.12	3.24	3.43
Virginia	4.34	4.65	4.92	5.03	4.76	4.92	5.03	3.53	3.84	4.00	4.19	4.49	4.57	4.63
Washington	1.15	1.08	1.01	1.03	1.05	1.29	1.44	3.23	2.96	2.65	2.67	2.73	3.62	3.93
W. Virginia	3.27	3.44	3.55	3.77	4.14	4.48	5.27	3.49	3.62	3.63	3.57	3.98	4.40	4.72
Wisconsin	6.68	6.39	5.54	5.87	5.86	5.96	6.81	4.99	5.16	4.74	2.77	2.79	3.16	4.17
Wyoming	0.72	0.71	0.71	0.71	0.71	0.71	0.71	2.03	2.12	2.12	2.12	2.13	2.13	2.13
Federal	20.60	19.19	22.84	21.57	20.49	19.21	17.70	6.74	7.24	6.83	8.04	8.74	8.14	7.61
Mean	3.81	3.82	3.95	4.02	4.14	4.32	4.64	3.57	3.71	3.73	3.67	3.72	3.87	4.12
Standard deviation	1.87	1.87	2.15	2.07	2.49	2.54	2.63	1.02	1.13	1.16	1.16	1.16	1.15	1.23

In 1983, for high-income individuals the highest marginal tax rate was in New York (11.46%); the highest average tax rate was in Minnesota (9.90%). For middle-income taxpaying units, the highest marginal rate was again New York's (15.28%); Minnesota again had the highest average rate (8.82%). For low-income taxpayers in 1983, the highest marginal rate was in Minnesota (17.31%), and the highest average rate in Hawaii (7.48%).

To facilitate across-state comparisons, table 6.12 records marginal and average rates for the three income groups for the year 1983.

So far in our calculations we have ignored the fact that taxpayers who itemize on their federal returns can deduct all state income and general taxes taxes. In table 6.13 we exhibit the impact of federal deductibility on the effective rates of the combined income–sales tax structures. Unlike previous tables, for this exercise we used the actual income distribution of taxpayers in each state, not the synthetic distribution described above. For this particular exercise to be interesting, *federal* marginal tax rates must differ across states, and of course they cannot if the states have the same income distributions. As one would expect, the proportion by which gross and net tax rates differ varies considerably from state to state. Presumably, such differences should be taken into account in studies of the state demand for public goods.

6.5 Concluding Remarks

We have computed a number of summary measures characterizing state personal income and general sales tax systems over the period 1977–83. We believe that the availability of such measures will be of use to both academic researchers and policymakers. Still, we should reemphasize some caveats:

1. Although personal income and sales taxes constitute *most* of state tax revenues, they do not constitute *all* of the revenues. Differences in corporate income, property, and other taxes could alter our results.
2. All the measures use annual income as the point of reference. For many problems, some indicator of permanent income is more appropriate.
3. The measures tell us only the statutory incidence of the various taxes. Standard theoretical considerations suggest that the economic incidence may be quite different. Having pointed this out, we hasten to add that any serious study of the economic incidence of state tax systems must begin with careful measures of their structures.
4. We have not considered the role of local public finance. It might be that ignoring how localities raise their money leads to a misleading picture of the overall tax structure facing each state's citizens. Again, however, a good start on this problem requires an adequate representation of the state systems.

Table 6.12 Combined Income and Sales Tax Rates, Summary for 1983

State	Marginal rate			Average rate		
	$10,000	$20,000	$40,000	$10,000	$20,000	$40,000
Alabama	4.51	4.49	3.80	5.15	5.28	4.95
Alaska	0.00	0.00	0.00	0.00	0.00	0.00
Arizona	4.30	4.92	5.32	3.32	4.04	4.56
Arkansas	5.25	7.04	7.54	4.12	5.46	6.30
California	5.06	7.06	10.43	3.88	4.94	6.24
Colorado	4.17	5.07	5.22	3.34	3.69	4.19
Connecticut	1.37	1.22	1.02	3.55	3.39	2.99
Delaware	6.99	8.04	9.26	3.18	4.14	5.30
District of Columbia	8.14	9.33	10.75	5.90	6.95	7.77
Florida	1.04	0.92	0.76	2.76	2.53	2.13
Georgia	5.67	6.65	6.53	4.10	5.05	5.50
Hawaii	9.02	9.16	9.87	7.48	7.92	8.09
Idaho	7.49	8.33	8.18	5.30	6.27	6.87
Illinois	4.02	3.90	3.72	5.32	5.25	4.95
Indiana	4.05	3.90	3.73	5.09	5.16	4.88
Iowa	5.52	6.04	6.10	4.51	5.02	5.37
Kansas	4.45	5.05	5.23	3.69	3.95	4.37
Kentucky	5.28	5.32	4.63	4.92	5.11	4.99
Louisiana	1.87	2.32	2.68	1.91	1.98	2.09
Maine	5.54	8.51	9.75	4.09	4.96	6.32
Maryland	5.60	5.80	5.68	5.10	5.35	5.44
Massachusetts	5.71	5.65	5.78	4.32	5.61	6.48
Michigan	7.17	7.06	6.92	6.81	6.96	7.21
Minnesota	17.31	12.30	10.78	6.20	8.82	9.90
Mississippi	3.63	4.97	5.49	4.14	4.69	5.06
Missouri	4.41	4.79	4.44	4.04	4.41	4.49
Montana	5.03	5.74	5.45	2.39	2.90	3.51
Nebraska	4.35	5.17	7.49	3.69	4.01	4.74
Nevada	1.02	0.90	0.75	2.67	2.44	2.07
New Hampshire	.	.	.	.	.	.
New Jersey	2.92	3.26	3.23	3.45	3.70	3.92
New Mexico	4.09	6.33	8.99	3.16	3.91	5.00
New York	7.02	15.28	11.46	4.57	6.51	8.57
North Carolina	6.82	7.46	7.66	5.72	6.31	6.74
North Dakota	3.77	4.28	4.26	3.15	3.57	3.86
Ohio	4.30	6.11	6.79	3.47	4.65	5.69
Oklahoma	4.05	6.22	6.14	2.57	3.25	4.27
Oregon	5.12	6.76	9.10	0.91	2.52	2.75
Pennsylvania	3.35	3.26	3.14	4.40	4.55	4.25
Rhode Island	5.70	6.81	9.97	4.57	5.06	6.08
South Carolina	6.53	7.10	7.57	5.34	5.52	5.98
South Dakota	0.97	0.86	0.68	2.89	2.62	2.12
Tennessee	1.01	0.88	0.70	3.42	3.16	3.03
Texas	0.71	0.63	0.52	1.88	1.73	1.46
Utah	6.47	6.78	5.93	6.42	6.78	6.25
Vermont	5.16	6.31	9.44	3.43	4.17	5.29
Virginia	5.03	6.18	6.24	4.63	5.05	4.88

Table 6.12 (continued)

State	Marginal rate			Average rate		
	$10,000	$20,000	$40,000	$10,000	$20,000	$40,000
Washington	1.44	1.29	1.06	3.93	3.62	3.03
West Virginia	5.27	6.09	8.75	4.72	4.96	5.59
Wisconsin	6.81	9.34	10.40	4.17	6.10	7.04
Wyoming	0.71	0.61	0.49	2.13	1.90	1.53
Federal	17.70	22.31	34.64	7.61	10.36	15.64
Mean	4.64	5.81	5.95	4.12	4.73	5.18
Standard deviation	2.63	3.74	3.48	1.23	1.51	1.99

Table 6.13 **Average and Marginal State Tax Rates after Federal Deduction: 1979 Law and Actual Incomes**

State	Percentage itemizers	Average rates		Marginal rates	
		gross	net	gross	net
Alabama	22.10	5.07	4.34	3.80	3.55
Alaska	37.72	0.01	0.01	0.00	0.00
Arizona	31.92	5.11	4.21	3.87	3.48
Arkansas	24.61	5.34	4.58	5.05	4.63
California	36.12	6.18	4.12	5.86	4.91
Colorado	41.82	3.94	3.07	3.73	3.25
Connecticut	31.07	3.13	2.63	1.06	0.98
Delaware	17.91	4.27	3.49	5.15	4.69
District of Columbia	30.44	6.52	4.91	7.11	6.21
Florida	24.06	1.97	1.74	0.70	0.66
Georgia	28.52	4.87	3.98	4.51	4.04
Hawaii	26.80	8.01	6.60	7.50	6.83
Idaho	37.42	5.48	4.45	5.92	5.20
Illinois	27.02	4.98	4.19	3.40	3.14
Indiana	23.59	3.72	3.23	2.37	2.22
Iowa	22.82	4.55	3.77	3.58	3.25
Kansas	27.18	4.18	3.57	3.55	3.20
Kentucky	25.66	5.08	4.34	4.18	3.87
Louisiana	19.28	2.73	2.33	2.52	2.33
Maine	18.54	4.71	4.07	4.04	3.68
Maryland	35.70	5.57	4.27	4.87	4.23
Massachusetts	32.28	6.05	4.90	5.09	4.60
Michigan	43.63	5.54	4.28	5.40	4.73
Minnesota	32.03	5.61	4.17	7.52	6.65
Mississippi	19.68	5.03	4.36	2.71	2.48
Missouri	21.46	3.75	3.26	2.96	2.75
Montana	31.88	3.00	2.55	4.02	3.68
Nebraska	23.02	3.96	3.26	3.97	3.59
Nevada	26.39	1.81	1.56	0.53	0.50
New Hampshire	19.22	0.20	0.17	0.00	0.00

Table 6.13 (continued)

State	Percentage itemizers	Average rates		Marginal rates	
		gross	net	gross	net
New Jersey	27.51	3.55	2.82	2.27	2.02
New Mexico	21.05	3.65	3.07	2.93	2.63
New York	35.31	7.13	5.34	7.33	6.13
North Carolina	23.33	6.19	5.20	5.72	5.25
North Dakota	26.59	2.92	2.48	2.00	1.81
Ohio	23.24	3.18	2.67	2.29	2.06
Oklahoma	28.35	3.28	2.75	3.56	3.20
Oregon	33.65	1.54	1.19	3.38	2.88
Pennsylvania	25.49	4.35	3.75	2.93	2.72
Rhode Island	27.41	5.03	4.02	4.39	3.85
South Carolina	29.76	5.56	4.69	5.17	4.69
South Dakota	13.86	2.91	2.72	0.97	0.94
Tennessee	21.30	3.19	2.84	1.42	1.38
Texas	22.17	1.78	1.55	0.63	0.59
Utah	31.19	6.20	5.11	5.39	4.92
Vermont	21.02	3.98	3.27	4.31	3.89
Virginia	31.30	4.93	3.94	4.30	3.74
Washington	24.10	2.42	2.10	0.82	0.77
West Virginia	26.11	4.34	3.66	4.02	3.62
Wisconsin	34.43	5.17	3.98	7.81	7.10
Wyoming	16.25	1.92	1.75	0.67	0.64
Average	28.80	4.60	3.64	3.94	3.48

Notes

1. Calculated from Tax Foundation, Inc. 1983, 26.
2. There are also nontax forms of revenue such as user charges, revenues from state-owned liquor stores, etc. These are not considered in this paper.
3. "The extent of reliance on income taxation should provide a reasonable approximation to the relative elasticity of the tax structure" (Oates 1975, 147).
4. See Musgrave and Thin (1948) and Formby and Sykes (1984). An analogous problem arises in trying to summarize the degree of inequality in an income distribution. See, e.g., Atkinson 1970.
5. We compute the average tax rate as the average of each individual's average tax rate. Marginal tax rates and elasticities are computed analogously.
6. Specifically, take the grouped data on rent and income presented in table 16 of U.S. Department of Labor 1977 and estimate the regression: Rent = 1750 + 0.1 Income. Because the constant term in the regression applies to 1972–73 data, it is inflated to 1979–83 levels.
7. The calculations for each income level involve the returns of households within a range of those levels. The ranges are \$8,000–12,000 for the \$10,000 level; \$16,000–24,000 for the \$20,000 level; and \$32,000–48,000 for the \$40,000 level.
8. Partial indexing of the federal personal income tax is due to begin in 1984 with respect to taxes due in 1985. At one time or another, seven states had some provisions for indexing their personal income taxes.
9. A general discussion of the problems involved in using one data set to impute values for another is provided by Feenberg and Rosen 1983.

10. The 1972–73 CES was used. As of mid-1984 this was the only comprehensive source of individual consumption data. However, a 1982 survey should become available soon. As an alternative to using actual tax returns with imputed consumption data, we might use the CES as a source of both income, deduction, and consumption data. The CES is not, however, a satisfactory source of income data for high-income individuals.

11. The regression, based on cross-tabulations in Bureau of Labor Statistics (1978), is: log(expenditure) = 6.74 + .687 Income + .052 (Family Size). (The expenditures include autos, trucks, and boats.).

12. Of course, we are referring to the statutory incidence of the sales tax. Tax shifting could, in principle, affect the ultimate distributional implications of the tax.

References

Advisory Commission on Intergovernmental Relations. 1979. *State-local finances in recession and inflation—An economic analysis*, A–70. Washington, D.C.: Government Printing Office.

Atkinson, A. B. 1970. On the measurement of inequality. *Journal of Economic Theory* 2:244–63.

Bradbury, K. R., A. Downs, and K. A. Small. 1982. *Urban decline and the future of american cities*. Washington, D.C.: The Brookings Institution.

Bureau of Labor Statistics. 1978. *Consumer expenditure survey series: Interview survey 1972–73, bulletin 1985*. Washington, D.C.: Government Printing Office.

Congressional Budget Office. 1980. *Indexing the individual income tax*. Washington, D.C.: Government Printing Office.

DiLorento, T. J. 1982. Tax elasticity and the growth of local public expenditure. *Public Finance Quarterly* 10, no. 3:385–92.

Feenberg, D. R., and H. S. Rosen. 1983. Alternative tax treatments of the family: Simulation methodology and results. In M. S. Feldstein, ed., *Behavioral simulation methods in tax policy analysis*. Chicago and London: University of Chicago Press.

Formby, J. P., and D. Sykes. 1984. State income tax progressivity. *Public Finance Quarterly* 12, no. 3:153–66.

Gold, S. D. 1983. Recent developments in state finances. *National Tax Journal* 36, no. 1:1–30.

Greytak, D., and J. Thursky. 1979. Functional form in state income tax elasticity estimation. *National Tax Journal* 32, no. 2:195–200.

Maxwell, J. A., and J. R. Aronson. 1979. *Financing state and local governments*. 3d ed. Washington, D.C.: The Brookings Institution.

Musgrave. R. A., and T. Thin. 1948. Income tax progression 1929–1948. *Journal of Political Economy* 56:498–514.

Oates, W. E. 1975. 'Automatic' increases in tax revenues—The effect on the size of the public budget. In Wallace E. Oates, ed., *Financing the new federalism*. Baltimore: The Johns Hopkins University Press.

Tax Foundation, Inc. 1983. *Facts and figures on government finance—22nd biennial edition 1983*. Washington, D.C.

U.S. Department of Labor, Bureau of Labor Statistics. 1977. Consumer expenditure survey series: Interview survey 1972 and 1973. Report 455.

Comment George R. Zodrow

This paper is an important one because it makes a significant first step toward filling an obvious void in the public finance literature—the lack of a comprehensive characterization of the tax structures of the fifty states, complete with a supporting data base. Gold (1983, 1) notes that "state finances have received surprisingly little attention in the academic literature" and, although the Advisory Council on Intergovernmental Relations (ACIR) publishes a great deal of informative data relevant to state public finance issues, the information and results presented by Feenberg and Rosen are considerably more sophisticated than the data on tax structures and tax rates issued by the ACIR in publications like its Significant Features of Fiscal Federalism series. Thus, in calculating income elasticities and marginal and average tax rates for all state income taxes, income elasticities and a measure of base comprehensiveness for all state sales taxes, and income elasticities and marginal and average tax rates for the combined income–sales tax systems for all fifty states, Feenberg and Rosen have accomplished a formidable and useful task.

The procedure used by Feenberg and Rosen is straightforward. They use federal tax return data on personal income, exemptions, and deductions to construct a synthetic data base that is representative of the distribution of income in the United States rather than any specific state, use data on the details of state income and sales tax codes to calculate tax burdens for each state for this synthetic distribution, and characterize these nonlinear tax structures using the summary measures described above.

The goal of the paper is "to develop and implement a coherent methodology for characterizing the structures of state tax systems" which can be used by researchers in studying familiar public finance questions such as the effects of state taxes on individual and firm migration decisions, the nature of interstate tax competition, and the changes in state taxes induced by income growth and inflation. I shall make four general comments on the extent to which the authors have met this goal and then briefly examine their results.

George R. Zodrow is assistant professor of economics at Rice University and is currently on temporary assignment as a financial economist on the Fundamental Tax Reform Project at the U.S. Treasury Office of Tax Analysis.

First, all of the results presented in the paper, with the exception of the final table 6.13, are based on the synthetic income distribution constructed by the authors. The primary advantages of the use of a synthetic distribution rather than the actual state distributions of income are that the data requirements are reduced and the comparison of state tax structures abstracts away from differences in state income distributions. However, there are some troublesome problems with this approach. The authors stress the considerable heterogeneity of state tax structures found in their analysis and note that this implies that previous characterizations of state tax structures using indicators such as the proportion of revenues raised with income taxes are inadequate. However, the distributions of incomes in the states are also rather heterogeneous—1981 data issued by the ACIR indicate a per capita annual income range of $7,408 to $13,763 about a mean of $10,491 with a standard deviation of $1,480—so that the use of a synthetic distribution masks significant income differences across states; this implies the results presented by Feenberg and Rosen are subject to a similar criticism.

This problem seems especially relevant in terms of the research questions listed above. For example, data on average and marginal tax rates at specific income levels, rather than at income levels of a synthetic distribution, would be of concern to researchers studying business or individual migration or the extent to which tax structures are affected by the fiscal policies of nearby states. Similarly, since data on actual state income elasticities would be of concern to researchers studying the effects of inflation or growth on a single state or region, the Feenberg and Rosen data might be misleading; for example, if in a relatively high-tax state there were fewer high-income and more low-income people than implied by the synthetic income distribution (as some would predict would be implied by mobility considerations), the income elasticity calculated by the authors would likely be too high (the degree of variation might also be overstated). Also, questions regarding how the presence of special interest groups or other economic and demographic characteristics affect the nature of the tax structure (such as whether homogeneous states are more likely to use broad-based proportional taxes and if reforms are more likely to involve large-scale changes in nonhomogeneous states as the dominant interest group changes over time) require specific information about the income distribution in the state.

Feenberg and Rosen do use actual state income distributions in the construction of table 6.13, which is limited to aggregate marginal and average combined sales—income tax rates for 1979. Since the authors have the data required to compile all of their summary measures of state taxes on the basis of actual state income distributions, such an

extension of their results would seem to be worthwhile, especially in light of the relevant state public finance questions they cite. It would at least be interesting to compare the tax rates calculated on the basis of the actual state income distributions with those calculated on the basis of the synthetic distribution; such a comparison is impossible without information beyond that presented in the paper.

Second, all of the results presented in the paper, again with the exception of table 6.13, do not take into account the fact that taxpayers who itemize on their federal returns can deduct state income and sales taxes. Although reasonable for the elasticity calculations, this procedure is troublesome for the calculation of state average and marginal tax rates. State public finance questions that focus on individual and firm migration decisions or the nature of interstate tax competition hinge on effective state tax differentials, which include the effects of federal deductibility of state taxes. Accordingly, another useful extension of the results would be to calculate the state tax rates allowing for deductibility, as is done in the limited results presented in table 6.13.

Third, the authors describe their state income and sales tax parameters as "characterizing the structures of state tax systems," arguing that all other state revenue sources account for only one-quarter of revenues. This position seems somewhat overstated, as one-quarter is not an insignificant fraction for the average amount of revenues ignored and there are significant deviations about the average (for example, eight states receive over 20% of revenues from severance taxes alone). Moreover, the state corporate and severance taxes omitted from consideration are growing as a fraction of state revenues and are likely to be the critical factors in analyses of business migration decisions, interstate tax competition, and the effects of state tax structure on the level of state expenditures. Accordingly, a description of the results simply as characterizing state income and sales tax structures would be more appropriate and in no way diminish their significance.

Fourth, the caveats listed by the authors are worth emphasizing. The analysis considers only statutory incidence and may be misleading for state income and sales taxes, although arguably less so than a similar analysis for property or corporate income taxes; for example, high state sales taxes will have a smaller impact on individual migration decisions if they are exported to a substantial extent. Also, the lack of information about the nature of state expenditures implies that the results are incomplete in terms of explaining individual and firm migration decisions as well as the nature of interstate competition. Since most studies that address similar issues also note the importance of benefits but then ignore them, any attempt by the authors to incorporate

an analysis of the expenditure side of state budgets in their analysis would be a welcome and important extension.

Turning to the calculation of the state income tax parameters, Feenberg and Rosen estimate: (1) the income elasticity by increasing all income sources and deductions by 1% and calculating the effect on revenues; (2) the average tax rate by dividing revenues by reported income; and (3) the marginal tax rate by increasing only wage income by $1,000, holding deductions constant, and calculating the effect on revenues; the tax rates are calculated for low-, middle-, and high-income levels of the synthetic distribution. The rationale for the asymmetry in the methods of calculating the income elasticities and the marginal tax rates is not entirely convincing. Even if one were concerned only about tax distortions in net wage rates across states, an additional $1,000 of wage income is likely to lead to an increase in deductions, which should not be ignored since it will reduce the associated increase in taxes paid. Since the nature of the deductions allowed may vary widely across states, a procedure that neglects changes in deductions will not capture a perhaps important factor in determining interstate income tax differentials.

More importantly, a marginal tax rate with respect to both capital and wage income rather than wage income alone would be relevant for many questions. For example, individual migration decisions would be affected by such a "total" marginal tax rate, as would a firm's decision to relocate its headquarters (and transfer high-income employees). Since this calculation would involve only manipulation of the income elasticity data at the relevant income levels, it would appear to be a straightforward and useful extension of the analysis. It would also be interesting to document the extent to which the states tax capital income.

The most striking features of the income tax results are the large variations in the parameters across states and the calculated declines in income elasticities and increases in marginal tax rates. Two sets of manipulations of the results on changes in tax rates over time would be informative. First, it might be useful to have a finer division of income classes than the low-middle-high breakdown utilized by Feenberg and Rosen, especially at the highest income levels. For example, in the version of the paper presented at the conference, the authors noted that the mean marginal state income tax rate on individuals in the top decile declined from 6.78% in 1977 to 4.70% in 1983. This rather dramatic reduction in rates is not reflected in the marginal tax rate change experienced by the high-income group, where the mean rate increased from 5.56% to 5.89%.

Second, it would be interesting to devise a summary measure of the magnitude of interstate tax differentials based on the Feenberg and Rosen data, and then determine changes over time in the measure.

Such a statistic would shed some light on whether interstate tax competition is increasing over time.

Feenberg and Rosen also separate the effects of statutory tax changes and nominal income changes on their parameters by doing the same calculations holding the state tax codes constant at their 1977 configuration. Results here imply that the statutory changes made the state tax systems more elastic than they would have been, raised marginal rates for high-income individuals, but lowered marginal tax rates for middle- and low-income individuals. The authors offer no explanation for the slightly odd combination of higher income elasticities and lower marginal rates on middle- and low-income individuals, and an example or two from specific states might be enlightening. The result may occur partly because of the way the income elasticities and marginal tax rates are defined. For example, states may have tightened provisions for the personal taxation of capital income (this certainly occurred with respect to corporate taxation of capital income as twenty-six of the forty-four states with a corporate income tax increased corporate taxes relative to the national level after the 1981 Economic Recovery Tax Act), while lowering marginal rates on wage income in response either to "tax revolt" public pressure for income tax relief (fifteen states lowered income tax rates between 1978 and 1980) or to lower service levels (despite generally increasing budgets, state revenues as a percentage of GNP declined slightly from 1977 to 1982). The last comment suggests that in general it might be useful to attempt to examine the changes in state tax structures after controlling for the size of the budget if an acceptable procedure could be devised.

The state sales tax results are based on IRS estimates of sales tax liability as a function of adjusted gross income and family size. The basic approach used by the IRS is straightforward; data from the Consumer Expenditure Survey are used to predict consumption in twenty-four different categories and details of state sales tax codes are then used to calculate sales tax liability on the predicted consumption pattern. Note that it would be interesting to check the IRS compilations to see if the common perception of downward bias of sales tax liability is valid.

The calculations again indicate a considerable degree of heterogeneity across states. The most striking result is a large degree of regressivity—income elasticities range from 0.55 to 0.75; note, however, that the familiar argument that progressivity should be measured with respect to some measure of permanent income applies here. Feenberg and Rosen also demonstrate that the nature of the sales tax base is quite important—tax liabilities increase twice as fast with respect to family size in states that do not exempt food. They measure the "comprehensiveness" of the base as the ratio of actual revenue to revenue

with an income tax at the same rate and again note large variation. One interesting feature of the results is that over the 1981–83 period, the comprehensiveness of the sales tax base increased in roughly one-third of the states. This contrasts with previous experience; Gold (1983) documents a plethora of base changes that reduced comprehensiveness over the 1971–81 period while only three states increased comprehensiveness. It would be interesting to determine if the change to increased coverage is a real phenomenon or an artifact of the definition of comprehensiveness (actual total consumption should be in the denominator rather than income) or some other facet of the compilations.

Note also that the heterogeneity of coverage of the sales tax base has implications for the current debate regarding the relative desirability of a national value-added tax or a national retail sales tax. Proponents of the latter argue that the existence of a collection mechanism is a strong point in their favor; the heterogeneity of the sales tax bases reduces the strength of this argument somewhat as states would probably be reluctant to change their laws to conform to a national base, thus lowering the administrative cost advantage of a national sales tax. Feenberg and Rosen also note that base exclusions are, at least in some cases, effective in vertical equity terms—states with many exemptions, presumably chosen to exclude commodities purchased disproportionately by the poor, are in fact characterized by more income-elastic sales tax structures. This fact suggests that it is quite feasible to reduce the regressivity of a national value-added tax with a judicious choice of exempt commodities.

The final set of calculations presented by the authors combines the two tax systems. Results here indicate that heterogeneity is not significantly reduced, the decline over time of the income elasticity of the combined tax structure is small as the declining elasticity of the income tax is offset by increased use of income taxation relative to the much more regressive sales tax, that marginal and average tax rates have increased over time, and that the common perception of an approximately proportional tax structure is accurate on average although there are certainly deviations about the average.

In summary, this paper provides a wealth of new results on the nature of state income and sales taxes. Subject to the caveats noted above, this information will be very useful to practitioners in state and local public finance. In addition to the specific questions cited above, the data accumulated suggest an important possibility for incidence theory. To the extent that the Feenberg and Rosen analysis indicates increased interstate tax competition (through lower income elasticities or perhaps through increases in an "interstate tax competition" summary measure as described above), it suggests that incidence theories that rely on implicit collusive exploitation of capital through widespread use of

corporate taxes or industrial property taxes must take such competitive behavior into account.

Reference

Gold, S. D. 1983. Recent developments in state finances. *National Tax Journal* 36, no.1:1–29.

This Page Intentionally Left Blank