taxanalysts special report

Ranking State Tax Systems: Progressivity, Adequacy, Efficiency

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A good tax system must raise sufficient revenue fairly, efficiently, and coherently. How do states' tax systems stack up in terms of adequacy, fairness, and efficiency? To answer this question, we assess each state's relative performance in terms of progressivity, growth, and administrative and economic efficiency. We also touch on revenue volatility and the coherence of tax systems.

Our conclusions regarding fairness, adequacy, and volatility should not surprise most readers. Indeed, these effects appear to be different manifestations of the same underlying causes. That is not the case regarding efficiency and coherency. Here our conclusions are somewhat heterodox insomuch as they question the virtues of the "three-legged stool" in which income, sales, and property taxes are all nicely balanced.

Progressivity

Two facts characterize our understanding of state and local tax systems' progressivity. First, the incidence of state and local taxes is less progressive than the incidence of federal taxes. Second, state and local tax systems vary widely, leading to dissimilar levels of progressivity from state to state. Forty-three states and the District of Columbia have an individual income tax. Eight of these states apply a single tax rate to all taxable income, while the remaining states have multiple tax brackets and rates. Most states and localities rely heavily on sales and property taxes, but those too vary widely. Five states have no broad-based consumption taxes and, in states with sales taxes, rates range from 4 percent in Hawaii to 8.75 percent in California.

We use the data on tax burdens reported in "Who Pays?[1]" by the Institute on Taxation and Economic Policy (ITEP) to estimate the cross-sectional income elasticity of each state's tax system according to the model $lnB_i = \alpha + \beta lnY_i + \varepsilon$, where B_i is the mean tax burden of the i^{th} group, Y_i is the average income of the i^{th} group, and β is the income elasticity of the state's tax system. "Who Pays?" reports the average incomes and tax burdens of the first four quintiles of the population in each state, the next 15 percent, the next 4 percent, and the highest percentile of the population (see Table 1). Hence, to obtain β, the income elasticity of a state's tax system, we simply regressed the weighted values of lnB_i on lnY_i.[2] An elasticity greater than one would indicate a progressive tax system, less than one a regressive system, one proportionality.

Table 1 reproduces ITEP's distributional analysis for the state of Oregon. To calculate tax burdens for the i^{th} group we multiplied the amount shown in the 16th row (Total Taxes) by the amount shown in the fifth row (Average Income in Group). We chose to use line 16 (Total Taxes) rather than line 18 (Total After Offset) for the simple reason that these deductions are included in calculations of federal tax progressivity. Including them here seems like double counting.

1. Results

The data on tax burdens reported by ITEP are consistent with the facts about state and local tax systems noted at the beginning of this section: When incidence is calculated in terms of annual incomes,

[1]Institute on Taxation and Economic Policy, "Who Pays?" A Distributional Analysis of the Tax Systems in All 50 States, Third Edition, Washington, D.C. (2009).

[2]ITEP measures progressivity using the ratio of the average tax rate faced by a state's top income quintile to that faced by its bottom quintile. Its ranking of the progressivity of state and local tax systems (2009) is similar although not identical to ours.

Table 1.
Oregon's Tax Structure, the ITEP Version, 2007

Income Group	Lowest	Second	Middle	Fourth		Top 20%	
	20%	20%	20%	20%	Next 15%	Next 4%	TOP 1%
Income Range	Less than $18,000	$18,000 - $32,000	$32,000 - $53,000	$53,000 - $86,000	$86000 - $173,000	$173,000 - $417,000	$417,000 or more
Average Income in Group	**$10,200**	**$24,600**	**$41,500**	**$67,600**	**$116,500**	**$250,900**	**$1,216,500**
Sales & Excise Taxes	**2.00%**	**1.40%**	**1.00%**	**0.80%**	**0.50%**	**0.30%**	**0.10%**
General Sales — Individuals	—	—	—	—	—	—	—
Other Sales & Excise — Ind.	1.80%	1.20%	0.80%	0.70%	0.40%	0.20%	0.10%
Sales & Excise on Business	0.20%	0.20%	0.10%	0.10%	0.10%	0.00%	0.00%
Property Taxes	**4.40%**	**3.20%**	**2.60%**	**2.90%**	**2.70%**	**2.10%**	**1.20%**
Property Taxes on Families	4.20%	3.00%	2.50%	2.70%	2.50%	1.80%	0.60%
Other Property Taxes	0.20%	0.10%	0.10%	0.20%	0.20%	0.40%	0.60%
Income Taxes	**2.20%**	**3.50%**	**4.70%**	**4.80%**	**5.60%**	**6.10%**	**6.50%**
Personal Income Tax	2.20%	3.50%	4.70%	4.80%	5.60%	6.00%	6.40%
Corporate Income Tax	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%	0.20%
TOTAL TAXES	**8.60%**	**8.10%**	**8.30%**	**8.50%**	**8.80%**	**8.50%**	**7.80%**
Federal Deduction Offset		-0.10%	-0.40%	-0.80%	-1.40%	-1.40%	-1.70%
TOTAL AFTER OFFSET	**8.60%**	**8.00%**	**7.90%**	**7.70%**	**7.40%**	**7.10%**	**6.10%**

Note: Table shows 2007 tax law updated to reflect permanent changes in law enacted through October 2009.
Source: The Institute on Taxation and Economic Policy

state and local tax systems tend to be regressive. While there is significant variation in the degree of regressivity from state to state, on average, low-income households pay a larger share of their current income in state and local taxes than high-income households.

Figure 1.
Least Regressive State and Local Tax Systems

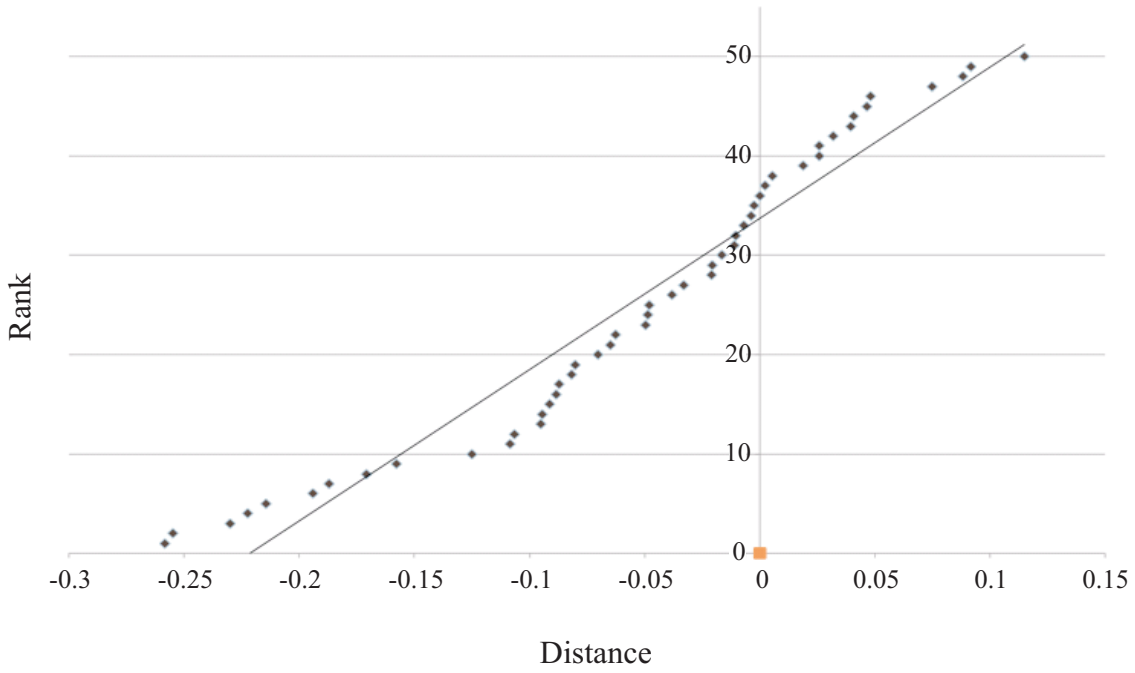
State	Elasticity	Z-Score	Rank (fair)
New York	1.078	1.815	1
Vermont	1.055	1.567	2
South Carolina	1.052	1.529	3
Wisconsin	1.038	1.387	4
Delaware	1.011	1.099	5
Oregon	1.010	1.082	6
Montana	1.004	1.019	7
Kansas	1.003	1.005	8
Kentucky	0.995	0.923	9
Maryland	0.989	0.858	10

Figures 1 and 2 present our results for the 10 least regressive and the 10 most regressive state and local tax systems. The first column shows the state, the second the cross-sectional income elasticity of the state's tax system, the third the state's Z-score on that measure, and the fourth the state's rank. Not surprisingly the less regressive tax systems rely heavily on progressive personal income taxes, while the more regressive ones rely heavily on consumption taxes. However, note that even when the federal offset is eliminated, the 10 least regressive tax systems are almost proportional in their

Figure 2.
Most Regressive State and Local Tax Systems

State	Elasticity	Z-Score	Rank (fair)
Alabama	0.838	-0.762	41
Nevada	0.806	-1.115	42
Arizona	0.792	-1.257	43
Texas	0.776	-1.429	44
Wyoming	0.769	-1.505	45
Florida	0.749	-1.724	46
South Dakota	0.741	-1.810	47
Tennessee	0.733	-1.893	48
Washington	0.709	-2.158	49
Alaska	0.705	-2.198	50

Figure 3.
Rank vs. Distance



incidence. The 10 most regressive systems are distinctly regressive. The rest are bunched in between.

Figure 3 shows that most of the interstate variation in progressivity is due to the extremes, especially the 10 states at the bottom. Figure 3 plots state rank (1-50) against pair-wise changes in elasticity. The bottom 10 states account for more than half of the variation in the progressivity of state and local tax systems. Moreover, these are not all small, poor, conservative, Southern, or ethnically segregated states, although on average the more regressive states are somewhat smaller, poorer, more conservative, more Southern, and more ethnically segregated.

2. Caveats

While the ITEP tax model reports that nearly every state has a regressive tax system, ranging from the roughly proportional (like New York) to extremely regressive (like Tennessee), claims about the progressivity or regressivity of state and local tax systems are much less precise than similar claims about the federal tax system. This is the case for three reasons.

First, tax incidence matters. Conclusions regarding state and local tax systems' progressivity hinge entirely on contested assumptions about the ultimate burdens of these taxes. The persons who initially remit taxes and fees are not necessarily those who bear their ultimate burden, which is the issue. The question of tax incidence is especially unsettled when property and business taxes are concerned — these taxes are important at the state and local levels, but less so at the federal level — and even sales taxes are somewhat problematic.

ITEP's incidence analysis follows reasonable assumptions:

- Individuals bear the burden of the individual income tax and consumption taxes directly.
- Taxes on sales and other excises are allocated to individuals based on their consumption of taxed goods.
- Taxes on individually owned residential properties are borne by the payer. Half of total property taxes on residential rental properties are assigned to tenants and distributed based on rents paid, while the remainder is allocated to individuals according to their capital incomes: interest, dividends, capital gains, passive income, and a portion of taxable pension income.
- Taxes on corporate and business income and nonresidential property are allocated based on capital incomes. The distribution of these items across income groups is computed using the ITEP model and adjusted to each state's share of national capital income.

Table 2.
Oregon's Tax Structure, Adjusted for Reported Income and Taxes Paid, 2007

Income Group	Lowest	Second	Middle	Fourth	Top 20%		
	20%	20%	20%	20%	Next 15%	Next 4%	TOP 1%
Income Range	Less than $18,000	$18,000 - $32,000	$32,000 - $53,000	$53,000 - $73,500	$73,500 - $145,000	$145,000 - $342,500	$342,500 or more
Average Income in Group	**$9,700**	**$22,900**	**$41,500**	**$63,500**	**$101,500**	**$205,500**	**$964,500**
Sales & Excise Taxes	**3.60%**	**2.40%**	**1.60%**	**1.40%**	**0.80%**	**0.40%**	**0.20%**
General Sales — Individuals	—	—	—	—	—	—	—
Other Sales & Excise — Ind.	3.60%	2.40%	1.60%	1.40%	0.80%	0.40%	0.20%
Sales & Excise on Business	—	—	—	—	—	—	—
Property Taxes	**2.10%**	**2.45%**	**2.60%**	**2.65%**	**2.70%**	**2.90%**	**3.10%**
Property Taxes on Families	2.10%	2.40%	2.50%	2.50%	2.50%	2.50%	2.50%
Other Property Taxes	-	0.05%	0.10%	0.15%	0.20%	0.40%	0.60%
Income Taxes	**2.20%**	**3.50%**	**4.70%**	**5.60%**	**7.00%**	**7.30%**	**7.40%**
Personal Income Tax	2.20%	3.50%	4.70%	5.60%	7.00%	7.20%	7.20%
Corporate Income Tax	0.00%	0.00%	0.00%	0.00%	0.00%	0.10%	0.20%
TOTAL TAXES	**7.90%**	**8.35%**	**8.90%**	**9.65%**	**10.50%**	**10.60%**	**10.70%**
Federal Deduction Offset		-0.10%	-0.60%	-0.93%	-1.99%	-2.04%	-2.33%
TOTAL AFTER OFFSET	**7.90%**	**8.25%**	**8.30%**	**8.72%**	**8.51%**	**8.56%**	**8.37%**

These assumptions are not necessarily correct. The Oregon Tax Incidence Model (OTIM),[3] for example, concludes that Oregon's state and local taxes are highly regressive rather than roughly proportional to personal income. Frankly, we think that the OTIM is entirely unsatisfactory. For example, it includes negative-income households in the bottom income quintile. Because this category includes wealthy households that have capital losses or rental losses for the year, the average amount of tax as a percent of average income for this income category is very high and probably unrepresentative of the true tax burden for non-wealthy households. The failure to exclude negative-income households from the bottom income quintile leads to an overstatement of the burden of property, excise, and business taxes on poor households and, therefore, the regressivity of state and local tax systems.

Moreover, the OTIM assumes that all property and business taxes are shifted forward to consumers. In other words, its authors treat corporate income taxes, taxes on commercial and industrial properties, and other business taxes the same way ITEP treats sales taxes and other excises. From the standpoint of handling of both negative-income households and business and property taxes, the ITEP model is clearly better.

Nevertheless, we would contest two of ITEP's decisions:

- Assigning half of property taxes on residential rentals to tenants. According to Steven M. Sheffrin and Marla Dresch,[4] it is more commonly assumed that only about 25 percent of property taxes on residential rentals are shifted to renters, with the remainder paid by owners of capital in proportion to their capital income.
- Excluding taxes paid by nonresidents. This, we believe, also in effect overstates the regressivity of state and local tax systems, especially for systems that rely heavily on income, property, and business taxes. It also results in a substantial discrepancy between taxes accounted for and taxes paid. Table 1, which comprehends all state and local taxes, implies that collections were 8.3 percent of Oregon's personal income, when the standard figure for 2007 is 9.6 percent (state and local tax revenues divided by personal income).[5]

[3]Oregon Legislative Revenue Office, The Oregon Tax Incidence Model (OTIM). Research Report number 2-01, State Capitol Building, Salem, Ore. (2001).

[4]Sheffrin and Dresch, "Estimating the Tax Burden in California," Department of Economics and Center for State and Local Taxation, University of California, Davis, Technical Assistance Program Report. Berkeley, Calif., California Policy Seminar (1995).

[5]The discrepancy between Oregon's own-source state and local revenue (11 percent of personal income) and state and local tax revenues (9.6 percent) is due primarily to the omission of user fees. How the omission of user charges and fees affects state and local tax systems' progressivity is

(Footnote continued on next page.)

To show how these decisions influence the ITEP model's results, we recalculated Table 1 using Oregon Department of Revenue data.[6] In Table 2, we used personal income tax records, including information on nonresident filers, to estimate the last four columns (the vast majority of folks in the top two income quintiles file taxes, and most file itemized state returns).

Of course, Oregon's nonresident taxpayers have significantly higher incomes than its residents.[7] We distributed business and business property taxes to income groups based on reported capital gains. We estimated property taxes on residential rentals from the total amount collected (rather than using a gross rent multiplier and statutory property tax rates). We retained ITEP's assumption that about half of the property tax on residential rentals is shifted forward, but only on the proportion of the tax levied on improvements. We allocated all other property taxes to property owners, using assessed value as a proxy for tax liabilities. One nice result is that these changes raise the average effective tax rate to 9.7 percent, approximately what Oregon collected in 2007.

Unfortunately, our analysis isn't precisely consistent with ITEP's because adjusted gross income replaces personal income in the denominator. For earners in the top quartile, AGI is lower than personal income. However, this is Oregon AGI, not federal AGI, which adjusts for capital gains. Since Oregon does not, this produces a figure that is less discrepant than if we had used federal AGI.

Which of these tables is best? Obviously, we prefer our assumptions to ITEP's, just as we prefer ITEP's assumptions to those of the OTIM, but we cannot categorically assert that our assessment of tax burdens is better or truer. We honestly do not know. The point we are trying to make here is that assessments of state and local tax progressivity are quite sensitive to assumptions about incidence, and those are by no means settled. Consequently, the only hard conclusion we draw here is that perhaps precise claims about the overall progressivity/regressivity of individual state and local tax systems should be taken with a large grain of salt.

At the same time, as we will demonstrate later, ITEP's relative state rankings are reasonably reliable, subject to two further caveats:

- Incomes fluctuate from year to year and over individuals' life cycles. Consequently, lifetime tax incidence is different from incidence in terms of annual income. Using consumption as a proxy for lifetime income, Gilbert Metcalf[8] found that the incidence of broad-based sales taxes is as progressive as state and local income taxes, and property taxes are more so. If Metcalf is correct and if lifetime tax incidence is a better measure of overall tax burdens than annual incidence, then ITEP's relative rankings should be reassessed, along with everyone else's.
- Systematic thinking about tax progressivity should account for transfers. Taxes are not the locus of redistribution in most states, but transfers are; in every state, cash and noncash transfers go far more to the poor than to the rich. And while it might seem that the same factors that produce high levels of transfers would also result in progressive tax systems, that is not necessarily the case. For example, our analysis of state and local taxes shows that Oregon's system is one-third more progressive than Washington's, but not when cash and noncash transfers are added to the mix. Conceptually, it makes sense to think of public spending on transfer programs as negative taxes. Doing so would tend to promote coherence and consistency, not only in terms of their effects upon private saving, consumption, and investment, but also fairness overall.[9] Unfortunately, that is not what is done.

Adequacy

Compared with equity and efficiency, adequacy is quite straightforward, so long as we ignore the question of "for what?" It resolves to a simple matter of "how fast do state and local revenues grow?" To answer that question, we used two measures:

$$\text{Growth}_i = [\log(\text{2007 per capita state \& local revenue}_i) - \log(\text{1947 per capita state \& local revenue}_i)]/60$$[10]

anyone's guess. Based on the income elasticity of user fees, we would guess they contribute positively to the overall progressivity of Oregon's system, but elsewhere we haven't a clue.

[6]Oregon Department of Revenue, Oregon Personal Income Tax Statistics. Prepared by Research Section, Oregon DOR, Salem, Ore. (2009).

[7]This is partly because the rich, especially the elderly rich, are more likely to engage in residence shifting (real or reported) and other observationally equivalent activities to avoid Oregon's high income taxes. Moreover, nonresident taxpayers are generally richer than resident taxpayers. This is obviously the case when tax shifting is at issue; high-income taxpayers and tax-importing states gain and exporting states lose from this process, but the same taxpayers are on both sides of the shift.

[8]Metcalf, "The Lifetime Incidence of State and Local Taxes: Measuring Changes During the 1980s," in Joel Slemrod, Tax Progressivity and Income Inequality (1994).

[9]*See* Willem Buiter, Principles of Budgetary and Financial Policy (1990); James Mirrlees, S. Adam, T. Besley, R. Blundell, S. Bond, R. Chote, M. Gammie, P. Johnson, G. Myles, and J. Poterba, "The Mirrlees Review: A Proposal for Systematic Tax Reform," 65 *National Tax Journal* 3 (2012).

[10]For Alaska and Hawaii we used 2008 and 1958 data and divided by 50.

$$Growth_i = \beta_i$$

Where β_i is estimated by OLS according to the following equation:

$$log(year\ n\ per\ capita\ state\ \&\ local\ revenue_i) = \alpha_i + \beta_i(year\ n) + \varepsilon_i$$

Mathematically, these two growth measures are approximately equivalent. Practically, they produce nearly identical rankings of state and local tax systems. But the second has the advantage that its variance is also a satisfactory measure of revenue volatility.[11]

Results

Using data from The Book of the States, we calculated both measures. The states with the most expansive state and local tax systems of the entire period are listed in Figure 4; those with the least expansive systems are listed in Figure 5. Both estimating procedures generated nearly identical lists, although the rank order of two of the states was reversed.

Figure 4. Most Expansive State and Local Tax Systems
New York
Hawaii
California
Wisconsin
Ohio
Maryland
Minnesota
North Carolina
Rhode Island

The most remarkable thing about state and local revenue growth is the degree to which the measures used here are covariant with our measures of progressivity and volatility. The coefficients of correlation are consistently above 70 percent, regardless of the specification used. They are so high that we are tempted to say they are all measuring the same thing. Increasing progressivity means faster long-term revenue growth and greater volatility and vice versa. The inter-correlations of these three measures also confirm the validity of the relative rankings of progressivity produced by the ITEP model, although not so much its implications regarding the progressivity/regressivity of state and local tax systems.

Figure 5. Least Expansive State and Local Tax Systems
Alaska
New Hampshire
Wyoming
South Dakota
Delaware
Tennessee
Texas
North Dakota
Nevada
Oklahoma

In point of fact, the covariance we observe between progressivity, growth, and volatility appears to reflect one basic underlying historical mechanism: state-level decisions to rely on progressive income taxes to grow revenue — which looks like the main driver underlying the progressivity, volatility, and growth of state and local tax systems. We have not subjected the notion that the volatility of tax revenue is essentially a proxy for the progressivity and elasticity of state tax regimes to the rigorous testing it deserves. But Nathan Seegert has. Based on an examination of 1,108 tax rate changes across 3,000 state-year observations, Seegert finds that volatility and progressivity have increased dramatically over time and that this is due largely to increased reliance on income taxes.[12]

Revenue volatility is not inherently important. Its significance derives from its effect on the volatility of government consumption. While states have failed to smooth public consumption in the face of volatile revenue streams, that doesn't mean that they cannot. What needs fixing is unstable spending. The proper solution lies in using savings and/or debt to smooth out spending, thereby avoiding deep cuts when the economy goes bust and unsustainable spending growth during booms. This can be accomplished by basing spending on long-term revenue

[11]That is to say, we define volatility as the squared deviations from the growth trend, $x = (x_t - x_{timetrend})^2$. The more standard approach is to estimate the inter-temporal income elasticity of revenue and its volatility. We tried this approach and, while it produced similar results, they were not identical. We rejected the standard approach for several reasons. First, more observations are usually better; we had many fewer years of data on state product/income than on state and local revenue. Second, our growth measures were somewhat better correlated with the equity measure. Third, we believe that the relationship between the tax system and economic growth could very well be recursive.

[12]Seegert, "Optimal Taxation With Volatility: a Theoretical and Empirical Decomposition." Job Market Paper, Department of Economics, University of Michigan, Ann Arbor, Mich. (2012).

growth rather than annual forecasts.[13] This general approach's effectiveness, both for controlling expenditure growth and for stabilizing programmatic support, is suggested by various case studies, most persuasively by the Chilean experience.[14] Nevertheless, this raises an obvious question: Why are state governments so bad at smoothing outlays?

Efficiency

The efficiency concerns raised by tax systems are nicely summarized by Jon Bakija and Joel Slemrod: "Taxation is a system of coercively collecting revenues from individuals who will tend to resist. The coercive nature of collecting taxes implies that the resource cost of implementing a tax system is large."[15] In addition to the revenue that governments collect, taxes impose two burdens on the citizenry: enforcement costs and deadweight costs. The former results from the direct behavioral effects of taxes. The latter, also called the excess burden of taxation, results from the indirect behavioral effects of taxes on resource deployment and use. The efficiency of a tax system is defined by the sum of these two burdens.

1. Enforcement Costs

The direct behavioral effects of taxes include the actions that people take to reduce their tax payments, those that they are required to take by tax authorities aimed at preventing tax evasion (tax avoidance is legal, evasion illegal), and those taken by the tax authorities to collect taxes and monitor and enforce compliance with tax codes (which goes a long way toward defining the distinction between avoidance and evasion). Taxes are costly to taxpayers, and people generally arrange their affairs to minimize costs. They can reduce their tax payments through tax avoidance or evasion. Both tie up resources in socially "unproductive" activities. Similarly, tax laws require individuals and businesses to employ costly resources recording things that they would not otherwise record and maintaining access to those records. Enforcement and administration of the tax system use additional resources.

How large are enforcement costs at the state and local level? In 2007 the federal government spent $10 billion to $15 billion collecting income, payroll, and other taxes and excises; the total cost of collecting state and local taxes is approximately twice as much. The Government Accountability Office reported that it costs individuals and businesses $150 billion to $250 billion to comply with federal tax codes.[16] Most of these costs are incurred as a result of the personal and corporate income taxes.

Because most state and local government income taxes depend on the same compliance activities as the federal income tax, taxpayers would still bear most of the costs of those activities without state and local income taxes. In any case, it is implausible that the incremental compliance burdens associated with state and local income taxes are an order of magnitude greater than the costs of collecting them. Our best guess is that they are of a roughly similar order of magnitude.

In contrast, the costs of compliance with sales and property taxes are not significantly influenced by federal efforts, but are due in their entirety to state and local tax policies and practices. However, evidence suggests that the compliance burden associated with sales taxes is relatively small — probably not more than 1 percent of collections — and, as a taxpayer-passive system, the burdens associated with property taxes are approximately nil.

Consequently, we estimated state and local tax enforcement costs (EC) in the i^{th} state using data from the 2007 U.S. Census of Governments according to the following formula:

$$EC_i = [(2*\text{state collection outlays}_i) + (\text{local collection outlays}_i)]/\text{population}_i$$

2. Deadweight costs

The deadweight costs of taxation, also called the excess burden of taxation, result from the behavioral effects of taxes on working, saving, and investing — and on patterns of input use and production in the economy. Presumably individuals allocate their labor and capital endowments to maximize returns (both monetary and non-monetary). To do this they must allocate their endowments to equalize after-tax returns in both high-tax and low-tax sectors, thereby creating tax wedges, which divert resources from high-tax to low-tax activities and inhibit the exploitation of growth opportunities from reallocating productive resources.

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[13] *See* Fred Thompson and Bruce Gates, "Betting on the Future With a Cloudy Crystal Ball?" 67 *Public Administration Review* 5 (2007).

[14] Chile has the world's most volatile revenue structure and a commitment to balanced budgets. It avoids expenditure volatility by balancing spending against the long-term rate of revenue growth. Each year, economists in the Chilean Ministry of Finance calculate a sustainable rate of revenue growth and Chile's executive and legislative branches use that figure to make their spending plans. If revenues come in above the long-term trend, they are kicked into a sinking fund, which can be used only to make up revenue shortfalls, to pay down the national debt, or to respond to emergencies. Jeffrey Frankel, "A Lesson From the South for Fiscal Policy in the US and Other Advanced Countries," 53 *Comparative Economic Studies* 3 (2011).

[15] Bakija and Slemrod, "Do the Rich Flee From High State Taxes? Evidence From Federal Estate Tax Returns," NBER Working Paper No. 10645 (2004).

[16] Government Accountability Office, "Tax Policy: Summary of Estimates of the Costs of the Federal Tax System," Report Number GAO-05-878, Washington, D.C. (2005).

In modern economies, the deadweight costs of taxation, while subject to even greater uncertainty than enforcement costs, are usually assumed to be larger — according to the GAO, 20 to 40 times collection costs. However, this assumption reflects the high tax rates characteristic of modern economies and the progressivity of their tax systems. As a rough rule of thumb, the deadweight burden of taxation is approximately equal to 0.5 times the average effective rate squared times the tax base, with an appropriate adjustment for the progressivity of the tax system in question. This simple rule of thumb reflects the presumption that the absolute price elasticity of demand for articles subject to taxation is approximately unitary.[17] Hence, France, with a proportional tax system and taxes equal to about 55 percent of GDP, would have a deadweight tax burden approximately equal to 16 percent of GDP. The United States, with much lower taxes but a more progressive tax system, would have a deadweight tax burden approximately equal to 2.4 percent of GDP, about $336 billion in 2007 (which is within the range of most estimates).

Again, the question is how much. Interjurisdictional tax differentials undoubtedly create deadweight efficiency losses at the state and local levels. High marginal income or property tax rates might, for example, cause some out-migration or other avoidance activities. Nevertheless, because average effective rates at the state and local levels are relatively low and state tax systems are not very progressive, these effects are probably small and, indeed, that is what the best evidence suggests.[18]

Our analysis of the deadweight burden of state and local taxation is consistent with this assessment: The losses are real but relatively small. Following Diewert, Lawrence, and Thompson,[19] we calculated the deadweight burden of state and local taxes (DW) according to the following algorithm:

DW in the i^{th} state =
Sum of the DW of each tax type used by the i^{th} state

DW of Income Taxes, i^{th} state = A_i*($EITR_i^2$/2) *
(Income Tax Base per $capita_i$)

Where A_i =
Adjustment for Income Tax System design, i^{th} state
= 1.08 for proportional State Income Tax
= 1.13 for degressive State Income Tax
= 1.16 for progressive State Income Tax
$EITR_i$ = Income Tax Revenue/
Income Tax Base in i^{th} state

DW of Sales Taxes, i^{th} state = ($ESTR_i^2$/2) *
(Sales Tax Base per $capita_i$)

Where $ESTR_i$ = Revenue from Taxes on Goods and Services/Consumption Tax Base

DW of Property Taxes in the i_{th} state =
($EPTR_i^2$/4)*(Property Tax Base per $capita_i$)

Where $EPTR_i$ = Property Tax Revenue/
Property Tax Base

Overall, both of our state and local tax efficiency estimates are pretty rough. For example, we divided the DW loss factor for property taxes in half to reflect the notion that if property taxes generate deadweight losses, they would do so only on improvements, not land. On average the portion of taxable real property represented by improvement in the United States is approximately half. Our approach is surely not entirely correct. Nevertheless, we make the rebuttable presumption that if we are consistent in our estimation procedures, the relative ranking produced will have some utility — the same assumption we made regarding the use of ITEP's state and local tax progressivity measures. Of course, the same caveats apply.

3. Results

Figure 6. Most Efficient State and Local Tax Systems
Alaska
Oregon
Washington
Florida
Wyoming
Tennessee
South Dakota
Massachusetts
New York
Hawaii

Summing our two efficiency measures, we obtained the rankings shown in Figure 6 and Figure 7:

What accounts for the difference between the most efficient and the least efficient state and local tax systems? Glancing at the two lists suggests that most of the efficient states have somewhat idiosyncratic tax structures. Surprisingly, New York and Massachusetts are the only states in the top 10 with typical, balanced tax structures. Conventional wisdom holds that a broader, more balanced tax portfolio would spread revenue-raising across a variety of tax types, allowing reduced rates across the board and presumably significantly lower deadweight losses; it is sometimes acknowledged that this benefit might be partly offset by higher administrative costs.

[17]Irwin Diewert, Denis A. Lawrence, and Fred Thompson, "The Marginal Costs of Taxation and Regulation," in *Handbook of Public Finance,* 135-173 (1998).
[18]*See* Bakija and Slemrod, supra note 15.
[19]*Supra* note 17.

Figure 7. Least Efficient State and Local Tax Systems
North Dakota
West Virginia
New Mexico
Louisiana
Michigan
Pennsylvania
Vermont
Illinois
Alabama
Kentucky

Further, it is generally assumed that reliance on a variety of tax types would have the effect of reducing revenue volatility (although given the covariance of the chief tax bases, that effect would be small). Consequently, it is typically presumed that many states rely inefficiently on either the income or sales tax and would be better off under a more balanced tax system (in other words, the three-legged stool).

What we find is that state and local tax efficiency costs are not very high. Figure 8 shows our results for all 50 states, with state rank on the vertical axis (best at the top, worst at the bottom) and per-capita efficiency cost divided by the state's 2007 median income on the horizontal axis. (To get the chart to look right, we subtracted this value from one.) In other words, per-capita state and local tax efficiency costs averaged between 0.3 percent and 0.8 percent of median income. These are very small numbers, although in the aggregate they add up to more than $30 billion.

Also, with the exception of some outliers at the top (Alaska is at the top right in Figure 8), interstate differences are small. The per capita tax efficiency costs of 40 states fell between 0.65 percent and 0.8 percent of median income. Evidently, Dale Jorgenson, Samuel W. Morris University professor of economics at Harvard University, was correct when he asserted that the efficiency cost of taxes at the federal, state, and local level would be "approximately the same if the state and local taxes were excluded from the analysis."[20] Indeed, it appears that the higher administrative cost from using multiple tax types more than offsets the lower deadweight cost. This suggests that even if portfolio effects were far greater than they appear, the payoff to balancing sales and income taxes at the state level would not — under the current tax regime, in which taxpayers can deduct state income or sales

[20]GAO, *supra* note 16, at 22.

Figure 8.
Per-Capita State and Local Tax Efficiency Costs

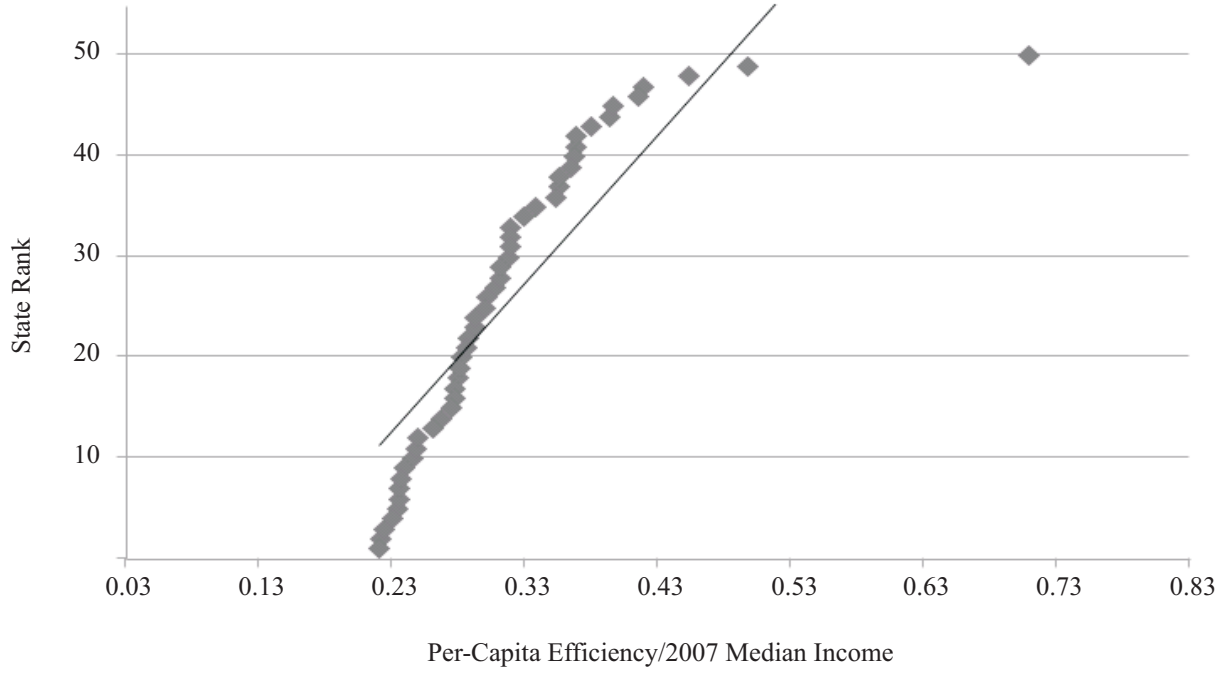


Figure 9.
Overall Rankings of State and Local Tax Systems

1	New York	6	Massachusetts	14	Florida	31	Montana	46	Louisiana
2	Oregon	7	California	15	Missouri	32	Iowa	47	Alabama
3	Virginia	8	Maryland	16	Connecticut	33	West Virginia	48	Oklahoma
4	Wisconsin	9	Hawaii	17	Ohio	34	Idaho	49	New Hampshire
5	North Carolina	10	South Carolina	18	Utah	35	Arizona	50	North Dakota
		11	Georgia	19	Kentucky	36	Pennsylvania		
		12	Vermont	20	New Jersey	37	Mississippi		
		13	Minnesota	21	Washington	38	Nevada		
				22	Nebraska	39	Wyoming		
				23	Kansas	40	Illinois		
				24	Michigan	41	Tennessee		
				25	Arkansas	42	Alaska		
				26	Colorado	43	South Dakota		
				27	Maine	44	Texas		
				28	Rhode Island	45	New Mexico		
				29	Delaware				
				30	Indiana				

taxes payments, but not both — redress the increase in national, personal income tax payments, which reliance on both sales and income taxes entails.

This issue deserves further analysis, which ought to be a moderately high priority for students of state and local taxation. Is the relationship we see here valid? How much does the composition of a state's portfolio of tax types affect overall tax efficiency? What is the relationship between tax efficiency and tax compliance? What, if any, is the relationship between tax efficiency and tax imports/exports?

Conclusion

Weighing each set of ranks equally, we obtained the overall rankings of the progressivity, growth, and efficiency of state and local tax systems shown in Figure 9. Figure 9 reports the sum of Z-scores for all three measures.

The states in the left-hand column typically have high ranks on all three measures (where 1 is highest and 50 lowest). The states in the right-hand column typically have low ranks on all three measures. Those in the second column from the left include two above average ranks and one below average. The second column from the right is just the reverse.

Our rankings presume that more tax progressivity, more growth, and greater efficiency are all inherently good things insofar as state and local tax systems are concerned. We are comfortable with the resulting implications, one of which is that from a structural standpoint, New York looks like the poster child for state and local tax systems. Figure 10 shows our result for New York.

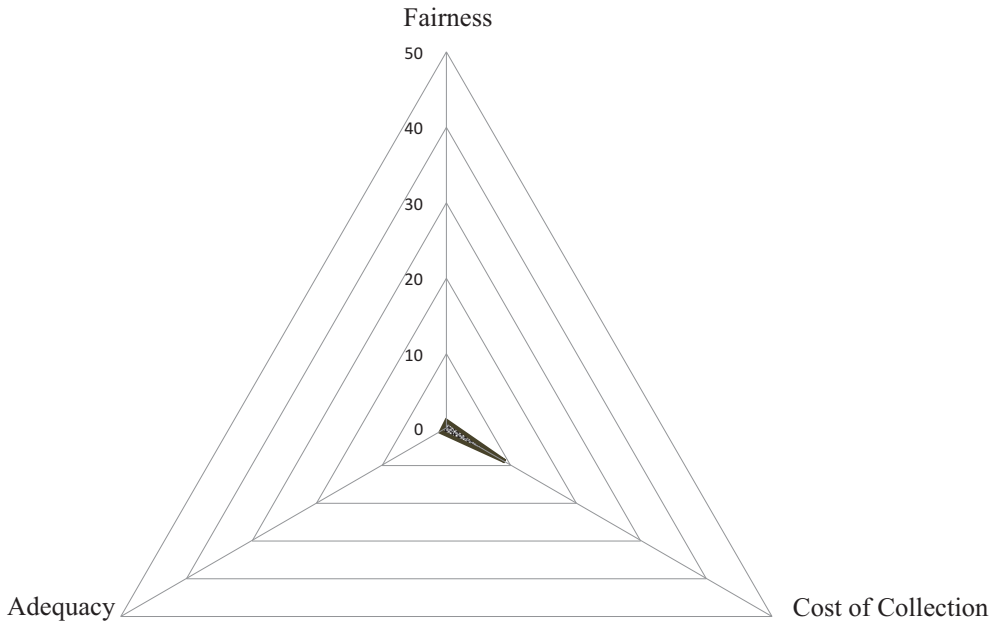
Not everyone will be comfortable with such an assessment. The website Money Rates, for example, ranks states on the basis of average income, adjusting for tax rates and cost of living; once those factors are accounted for, Washington, Virginia, and Texas rank one, two, and three, while New York has the 36th highest average adjusted income and Oregon ranks slightly better; California worse. In other words, their results are very different from ours.

We ought to have a better understanding of these anomalies and their drivers. At the very least, these comparisons raise unanswered questions about the relationship between tax-system design and long-term economic performance, not to mention other, more focused questions about state and local fiscal behavior. These questions can be far-reaching: Do good tax systems encourage fiscal profligacy? Why? How? They can also be more narrow: Why don't states with relatively high marginal income tax rates spend more on tax administration? Presumably, high marginal tax rates call for better tax administration. This is a critical information management problem. The failure to perform it well leads to avoidable non-reporting and underreporting of income.

We hope these rankings will encourage others to answer these questions. Finally, regarding the coherence of state and local tax systems, we offer the following observations:

- Tax progressivity, revenue growth, and volatility are all closely related, so much so that they may all be considered manifestations of the same underlying phenomenon, although the basic distinction between stocks and flows increases the complexity of this phenomenon.

Figure 10.
Overall Rank of New York's Tax System



- Other things being equal, a broader portfolio of tax types reduces revenue volatility only when tax bases (income, consumption, wealth) are uncorrelated.
- Actual tax portfolios reduce revenue volatility by combining regressive and progressive tax designs. It's the regressivity of the designs included in the portfolio that reduces revenue volatility, not a portfolio effect. (Although, obviously, if one combines a sales tax that is more regressive than the underlying consumption base with an income tax that is more progressive than the underlying income distribution, the revenue flows from the two taxes will be more weakly correlated than the tax bases themselves.)
- The deadweight losses accruing to state and local taxes are relatively insignificant. They are more than offset by tax compliance and enforcement costs.
- Adding tax types in state and local tax systems increases tax compliance and enforcement costs.
- State sales tax compliance and enforcement costs appear to be nearly as high as the incremental compliance and enforcement costs associated with state income taxes.
- Property taxes are associated with much lower tax compliance and enforcement costs per dollar collected.
- More progressive, faster growing, more volatile tax systems are characterized by greater revenue leakage to other states; states with low tax rates are the principal beneficiaries from this leakage.
- It is unclear how much this leakage would be reduced by more effective tax enforcement.
- We could better assess the coherence of state and local fiscal affairs if transfers were treated as a component of tax systems rather than as a component of outlay systems. ☆