

Finding the Right Mix

Tax Mix Trade-offs Across States

BY DENNIS HEFFLEY, MARYJANE LENON
AND RAYMOND SALANI III

Connecticut may finally have a budget by the time this issue goes to press, but we're not holding our breath. Governor Rell and the Legislature are locked in a debate about whether to cut programs or raise taxes. But even a prolonged budget crisis may have an upside if it forces officials to scrutinize spending and taxes and perhaps improve the mix of both. Unfortunately, spending cuts often incur the wrath of special interests, and our analysis here suggests that policymakers may not have much wiggle room to close the budget gap by tinkering with the tax mix.

If nothing else, all this fiscal soul-searching raises some interesting questions. Is it fair, wise, or politically prudent to raise taxes on high-income households who already pay a large share of income taxes? Can we afford to hike business taxes in a recession, especially if nearby states hold the line? Could we add revenue by raising selective sales taxes on smoking or other socially harmful behaviors? But if such questions had simple answers, we'd have a budget by now.

Whatever the optimal mix of taxes might be, it will inevitably depend on demand and supply conditions in the markets taxed. And because these markets vary across states, it's unlikely that the best tax mix will be the same for all states at once, or even for the same state at different times. Still, it's worth considering how various tax mixes affect government revenues.

MODELING THE TAX TAKE

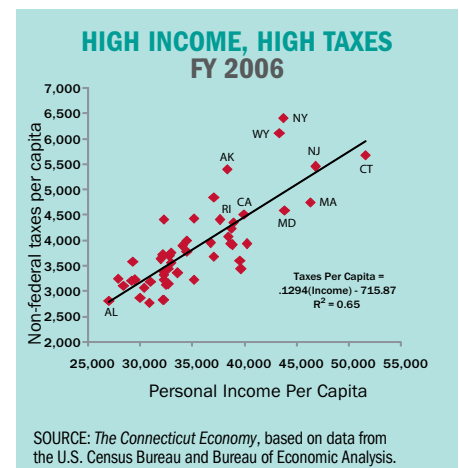
The forms and functions of government vary by state, making tax or spending comparisons a bit complicated. The absence of county governments in New England states makes comparisons with other states difficult. Lacking that additional county layer, Connecticut pushes some responsibilities "up" to the state level, while pushing others "down" to municipalities. Consequently, both state and local governments in New England may appear to be larger than peer institutions in other states, where county governments relieve the state and towns of certain tasks. We deal with this issue by following the U.S. Census Bureau in lumping together all state, county, and municipal government activities within a state into a single category. But instead of the Census Bureau's "state and local" designation, we'll just describe this consolidated layer of government as "non-federal."

In any year, non-federal tax revenue per capita varies considerably across states. In fiscal year 2006 (FY06, for short), it ranged from \$2,782 in Alabama to \$6,413 in New York. The scatter plot suggests that much of the difference is driven by income: per capita income alone explains 2/3 of the variation in taxes. Although Connecticut's non-federal tax revenue per head (\$5,685) ranked 3rd, this figure was about \$275 less than expected, based on its top-ranked per capita income of \$51,600 in FY06 and the fitted line in the graph. Other states, with combinations of income and non-federal taxes above the fitted line, tax more heavily than income alone might dictate. So what other state charac-

teristics, besides income, affect the tax take?

To explore the sources of interstate variation in tax revenue per person, not just for the most recent year but also over time, we compiled U.S. Census Bureau data on non-federal revenues for all 50 states over 12 fiscal years, from FY93 through FY06 (data for FY01 and FY03 were unavailable). The explanatory variables used in our multiple regression analysis included some obvious ones like personal income per capita, state land area (acres) per person, and variables describing the state's tax mix: the percentage shares of non-federal tax revenue from property taxes, general sales taxes, selective sales taxes, individual income taxes, corporate income taxes, and all other taxes.

The tax shares always sum to 100%, so we had to omit one share in the regression analysis. But the choice of the omitted share affects the interpretation of results. For example, the estimated regression coefficient for an included share gives the net change in revenue per capita from a one-point *increase* in that share and a simultaneous one-point *decrease* in the omitted share, since the other shares in the



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regression are statistically “held constant.” We therefore ran six regressions, omitting a different share in each, to obtain the full range of net effects showing how an increase in each share affects revenue per capita, depending on which other (omitted) share is reduced.

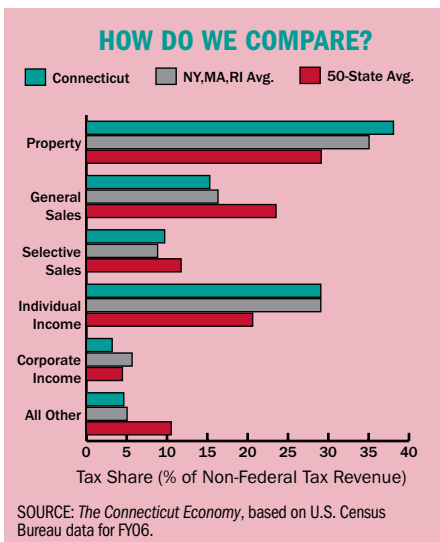
Another set of explanatory variables reflects the behavior of surrounding states. Tax policies are not made in a vacuum: when a state considers a new tax mix, it must anticipate the response of “competitor” states. For example, an increase in Connecticut’s general sales tax rate could raise or lower revenues, depending not only on how much consumers trim their purchases or shift them to online sources or other states, but also how other states react to Connecticut’s policy change. To capture the effects of this “tax competition” on a state’s non-federal revenue, we included a set of share variables that reflect the average tax mix in neighboring states. Again, since this set of six adjacent-state average tax shares also sum to 100%, one of those shares was also dropped in each regression.

Finally, in this “panel data” study of non-federal taxes per head, across states and over time, we also allowed for state-level differences and time-period differences by including 49 state-specific indicator or “dummy” variables and 11 fiscal year dummy variables—one fewer in each case than the number of states or time periods, as required by the estimation method.

The bar graph also shows that Connecticut’s tax mix is more like its neighbors’ average mix than the national norm—probably evidence of tax competition. Just as market competition causes prices to converge, tax competition forces tax mixes to converge. Compared with the 50-state averages, Connecticut and its neighbors rely more on property taxes and individual income taxes, and less on both kinds of sales taxes and the residual “all other” category. Connecticut depends less on corporate income taxes than do our neighbors or most other states. In FY06, the corporate share of non-federal taxes in the state was 3.2%, lower than in 34 other states, including our three adjacent competitors: Massachusetts (6.1%), New York (7.3%), and Rhode Island (3.6%). It should be emphasized that these are revenue *shares*, reflecting the mix of taxes, as opposed to tax *rates*. New York’s larger corporate tax share, for instance, could just reflect the presence of a larger corporate tax base, rather than a higher tax rate.

The key results of the six panel-regression analyses are shown in the table, but first let’s look at some results that are common to all the regressions. Each estimated model accounts for 97% of the total variation in non-federal tax revenue per person across the 50 states and over the 12 fiscal years in the study. Non-federal tax revenue is positively related to income and land area. Each \$1,000 of extra income per capita boosts non-federal revenue per head by an average of \$94. And an extra acre of land per head, which in FY06 varied from 0.64 acres in New Jersey to about 626 acres in Alaska, is associated with roughly a \$7 increment in per capita revenue.

Of the 49 state-level dummies (not shown), 43 are statistically significant, reflecting the tax revenue effects of each state’s unique features that remain essentially constant over the study period, such as location, natural resource endowments, or average climate. The dummy variables for fiscal years are less



PATTERNS AND RESULTS

Over the study period, Connecticut’s non-federal tax shares were relatively stable. The brief recession of 2001 brought a lower share of tax revenue from individual and corporate income taxes, and somewhat greater reliance on property taxes, but those changes in the state’s non-federal tax mix were reversed within a few years, returning it to the pattern shown by the dark green bars in the graph for FY06.

significant, but they still help to control for general economic conditions that vary over time and may affect all states.

The table summarizes the main results for the tax share variables from each of the six regressions. Again, each share coefficient shows the estimated net effect—the dollar change in non-federal tax revenue per person—of *increasing* that share by a percentage point and *reducing* the omitted share by one point. For example, the first row indicates that, after controlling for the factors described above, a one-point increase in the property tax share is associated with a revenue *loss*, regardless of which other share is trimmed, although the size of the loss varies from -\$3.20 up to -\$43.11. So, in this case, if a state wants to rely more on property taxes it should probably do so by reducing its general sales tax share, since this would have the smallest negative effect on revenue per head (-\$3.20). Each row is interpreted in a similar manner, but only coefficients with p-values (in parentheses) below about 0.100 are statistically reliable.

The pattern in the first row further suggests that many states already depend too heavily on property taxes for non-federal revenue, and should perhaps reduce their property tax shares if they want to generate more revenue. This apparent over-reliance on property taxes could reflect the fact that many states limit their local governments' revenue instruments to property taxes, plus building permits and other minor fees. This may be a particular problem in Connecticut, where towns are forced to rely very heavily on property taxes, causing Connecticut to draw a larger share (38.1%) of its non-federal revenue from property taxes than in neighboring states (35.1%) or nationally (29.1%), as seen in the earlier bar graph.

With the current financial squeeze, many states are seeking fiscal adjustments that would boost their revenues. In the table, net effects that might do so are ones that are both positive and

statistically significant; these policy “plums” are highlighted in red. Shifts toward selective sales taxes (row 3) away from property taxes (\$14.24) or general sales taxes (\$11.04), or toward individual income taxes (row 4) away from property taxes (\$11.90), would tend to increase non-federal revenue per person. But by far the largest per capita gains come from shifts toward the nebulous “all other taxes” (e.g., license fees; estate or gift taxes; or taxes on document or stock transfers) and away from any of the other five taxes. Each of the larger positive coefficients (row 6) is relatively large and highly significant ($p < 0.001$). However, many of the taxes in this “underutilized” group are unpopular with one special interest or another, suggesting that state and local governments forego a certain amount of extra revenue to avoid the wrath of vocal, politically active, or well-heeled groups.

AT THE PEAK

The most intriguing feature of the table is the apparent lack of opportunities to substantially boost non-federal tax revenue by changing the tax mix. The larger “targets of opportunity” involve raising politically

unpopular selective taxes or alienating special interests. Many of the other coefficients are quite small or statistically indistinguishable from zero. This could simply indicate that most states, in most periods, have found—by solid analysis, tax competition, or sheer luck—tax mixes that come close to maximizing their non-federal tax yield, leaving painfully little room for further “tweaking” of tax codes. This finding also helps to explain why, in many states, the tax mix has remained pretty stable over time, and why elected officials (like ours in Connecticut) feel so constrained in trying to close budget deficits: spending cuts always face some foes, while changing the tax mix may be ineffective in boosting revenue.

Maybe we won't have that budget by press time.

MaryJane Lenon is Associate Professor of Economics and MBA Director at Providence College. Raymond Salani III holds an MA degree in Economics from the University of Connecticut.

ESTIMATED NET EFFECTS OF CHANGING NON-FEDERAL TAX SHARES

...If reduction is made in share of taxes from:

	property taxes	general sales	selective sales	individual income	corporate income	all other taxes
property taxes	0 (0.516)	-3.20 (0.516)	-14.24 (0.018)	-11.90 (0.027)	-8.31 (0.303)	-43.11 (0.000)
general sales	3.20 (0.516)	0	-11.04 (0.097)	-8.70 (0.146)	-5.11 (0.565)	-39.91 (0.000)
selective sales	14.24 (0.018)	11.04 (0.097)	0	2.34 (0.729)	5.93 (0.478)	-28.87 (0.000)
individual income	11.90 (0.027)	8.70 (0.146)	-2.34 (0.729)	0	3.60 (0.695)	-31.20 (0.000)
corporate income	8.31 (0.303)	5.11 (0.565)	-5.93 (0.478)	-3.60 (0.695)	0	-34.79 (0.000)
all other taxes	43.11 (0.000)	39.91 (0.000)	28.87 (0.000)	31.20 (0.000)	34.79 (0.000)	0

SOURCE: *The Connecticut Economy*, based on panel-data regression analysis of Census Bureau data for all 50 states over 12 fiscal years.

Estimated coefficients are expressed as dollars per capita. Figures in parentheses are p-values. A p-value is the chance of finding such an extreme value for the coefficient, if in fact no relationship actually exists between the dependent and independent variable. The smaller the p-value, the more statistically significant the result.