Tax Policy Responses to Revenue Shortfalls

Elaine Maag  
Urban Institute  
2100 M Street, NW  
Washington, DC 20037  
Phone 202-261-5594  
e-mail EMaag@ui.urban.org

David Merriman  
School of Business Administration  
Loyola University Chicago  
25 E. Pearson Street  
Chicago, Illinois 60611  
phone 312-915-6071  
e-mail DMerrim@luc.edu

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Abstract: We compare state tax policy responses to the recessions that began in July 1990 and April 2001. Tax revenue declined more in the 2001 recession even though the output shock was smaller. In the early 1990s, states quickly altered tax policy to replace a large share of lost tax revenue. In the recent recession, states have made few tax policy changes to enhance revenue except for increasing tobacco taxes. We present some reasons for this behavior and argue that states are on the verge of missing an opportunity to improve their tax systems.
I. Introduction: Fiscal stress drives state tax policy change

Tax policy analysts advise state policymakers to design efficient, equitable and stable tax systems. That is, the tax system ought to be neutral and not favor particular economic activities over others. It ought to be fair to different groups of people and it should provide sufficient revenue for the state to weather economic cycles without undue disruption of basic services. We would like to believe that policymakers listen to this advice, form tax study commissions that consider an array of possibilities and deliberately choose tax systems designed to meet these fundamental goals.

Our reading of history suggests that this idealistic view is badly flawed. While policymakers are aware of - and care about - the criteria outlined above, political gridlock usually makes it very difficult to add to any group’s tax burden except in times of immense political stress, while reducing the tax burden of particular groups usually meets little resistance. Most statewide sales and income taxes were adopted only because of the national economic depression of the 1930s. Significant state tax increases usually occur only during economic downturns. The opportunity to increase some groups’ tax burden may lead to improved tax policy although tax reductions can also achieve economic goals of fairness and efficiency. Because the latter are more politically palatable than the former, opportunities to decrease taxes are more abundant than opportunities to enact increases. As Kee and Shannon (1992) colorfully argue “recession-induced fiscal crises…smash the iron grasp of the status quo. When …policymakers are suddenly
confronted with a large deficit they must often take drastic and innovative reform actions…in many cases [this generates] long-term institutional gain.”

Thus, in our view, times of economic stress present an unusual chance to radically change and possibly improve tax and expenditure policies. Although gradual increases in expenditure certainly contributed to recent fiscal imbalances, the immediate impetus, as documented below, was a dramatic decline in state revenue. In this paper we contrast changes in tax policy following the recessions of 1990 and 2001. We show that the relatively large decline in revenue in the recession of 2001 was partly the result of atypical economic conditions—unusual declines in capital gains—and, when compared to the previous recession, partly the result of an atypical policy response—state legislators’ unwillingness to raise taxes.

II. Patterns of revenue shortfalls

The state fiscal crisis of 2002-2004 is the result of a revenue drought rather than an expenditure flood. The National Conference of State Legislatures (NCSL 2003) found that “when developing their FY 2003 budgets, states faced an aggregate gap of $49.1 billion.” Virtually all of this budget gap can be explained by the dramatic downturn in state revenues after mid 2001. State tax revenues for FY2001, which ended June 2001 in most states, were almost $30 billion higher than they had been a year earlier. State tax revenues declined dramatically, thereafter. During FY2002 tax revenues were about $32 billion less than in FY2001. Thus, state revenues were an unprecedented $62 billion less than they would have been if revenue growth had matched the previous year. It is not surprising that these events caught at least some state policymakers unprepared and resulted in a major fiscal crisis.
While the scale of the current fiscal crisis is unusual, the proximate cause—sluggish or declining tax revenues—is not. An imbalance between federal revenue and expenditure may result from a war or other national emergency that raises expenditures, but state fiscal crises nearly always stem primarily from an unplanned dearth of revenue. Slower than expected economic growth is the major, but not the only, cause of unexpectedly low state tax revenues.

The revenue declines associated with the fiscal crisis that began in late 2001 are far more severe than would have been predicted based on the performance of the usual economic indicators alone. As shown in figure 1A, GDP decline in the recession that began in April 2001 was shallower and less persistent than GDP decline during the recession of 1990. State tax revenue changes were strongly correlated with GDP changes in the recession of 1990 (figure 1B). Initially, tax revenues fell less than GDP, recovered about two quarters after GDP began to recover, and then increased faster than GDP. The recession of 2001 looks quite different. Early in the recession state tax revenues fell as fast, or faster, than GDP. Tax revenues continued falling even when GDP growth resumed. In fact, even data from the fourth quarter of 2002 shows annualized tax revenues only slightly greater than those in the previous quarter, though GDP had been increasing for five consecutive quarters.

Many analysts have attributed the extraordinary decline in state tax revenue in the 2001 recession to an extraordinary decline in income tax revenue. The income tax revenue decline, in turn, is largely attributed to the decline in capital gains income as a result of the stock market downturn in the period leading up to the recession of 2001 (Scheppach 2003). Sjoquist and Wallace (2003) show that capital gains increased as a
share of taxable income in the mid and late 1990s and argue that states with the greatest reliance on capital gains for revenue suffered the greatest fiscal stress. Whatever the reason, as shown in Figure 1C, real state income tax revenue certainly fell much more sharply in the 2001 recession than in the previous recession. In the recession of 1990 state income tax revenue began to increase only one calendar quarter later than GDP and had recovered to its level at the start of the recession within five calendar quarters. In contrast, seven calendar quarters after the start of the recession of 2001, when GDP growth had been underway for four consecutive quarters, state income tax revenue was still falling and was only about 87 percent of the level it had been at the start of the recession.

While the collapse of income tax revenue in the current recession was unusual it was not the only factor that contributed to the overall decline in state tax revenue. As figure 1D shows real state sales tax revenue was also much more sluggish in the current recession than in the recession of 1990. In 1990, the upturn in sales tax revenue lagged GDP growth by two quarters. In the recession of 2001, growth in sales tax revenue lagged GDP growth by at least three quarters and appears quite modest even in the latest available data (fourth quarter of 2002). The sluggishness of sales tax revenue is especially surprising because consumer spending generally performed better than expected in this recession (Council on Competitiveness, 2002).

Revenue shortfalls have been widely spread across the states. We measured shortfalls as the difference between a state’s actual total tax revenue and revenue predicted on the basis of a five year time trend. Figure 2 compares the distribution of state revenue shortfalls three calendar quarters after the beginning of the recessions of
1990 and 2001. By this measure, the recession of 2001 was somewhat more severe. In
the 1990 recession more than 60 percent of states had a revenue shortfall of 5 percent or
less while only one-half the states had a shortfall that small in the recession of 2001.
About one out of five states had a shortfall of 10 percent or more in 2001 but only about
12 percent had this large a shortfall in 1990. Of course, the relatively large shortfalls in
2001 are partially explained by the trend toward rapidly increasing tax revenues over the
previous five years. Nonetheless, many policymakers were surprised to find revenues far
below the level to which they had become accustomed.

What explains the recent revenue drought? One possibility is that there has been
a fundamental economic change that altered the relationship between economic
performance and state tax bases in the period between the recession of 1990 and April
2001. For example, some analysts believe that state income tax bases have become more
volatile because of the increased importance of income from equity investments. Others
believe that Internet sales have dramatically altered the sales tax base.

Certainly, it appears that in the recession of 2001 both state income and sales
taxes under-performed expectations and continued to under-perform for an extended
period. However, we should remember that tax revenue is determined by both the size of
the tax base and tax policy. Tax policy changes, or lack thereof, could be an important
part of the explanation for relatively low tax revenues, particularly in calendar year 2002.
Tax policy changes made during the mid to late 1990s may have made it inevitable that
there would be a revenue decline once an economic downturn hit. This policy change
could have been obscured because unusual income growth, particularly among high
earners and capital gains recipients, buoyed tax receipts in the late 1990s. In the next
section we provide some historical data about state tax policy change and compare policy change immediately before and during the recessions of 1990 and 2001.

III. Patterns of Tax Policy Response

During times of fiscal stress, policymakers have the option of decreasing spending or increasing revenues to balance their budgets. During the recession that began in July 1990, policymakers quickly increased taxes to bring budgets into balance. In the recession that began in April 2001, policymakers shunned significant tax policy changes. Instead, thus far, states have relied on solutions such as rainy day funds, tobacco securitization, and expenditure cuts. These measures have made it possible for states to delay more profound changes, but they have not resolved the fiscal imbalance. We analyze the difference in tax policies during the two recessions as well as choices made in the intervening years.

Overall

We display information about legislated tax policy changes compiled by the National Association of State Budget Officers in Figures 3A, B, and C. Aggregate nationwide permanent and total (temporary plus permanent) tax changes are displayed in Figure 3A. In most years, the majority of tax policy changes are permanent. However, in the late 1990s, temporary tax cuts were important.

In each of the three fiscal years immediately prior to the recession of 1990 (i.e. FY1988 to FY1990), states enacted net tax increases. The net tax increase of FY1988 was the combined result of substantial increases in sales and motor fuel taxes and substantial cuts in the personal income tax (see Figures 3B and C). Almost 70 percent ($1.1 billion) of the $1.6 billion in personal income tax cuts was accounted for by
California’s temporary cut in response to its expenditure limitation while Florida’s sales
tax increase of $737 million accounted for two-thirds of the national increase. In
contrast, the $1.2 billion increase in motor fuel taxes was spread among 17 states. In
FY1989 modest ($50 million) cuts in personal income taxes were more than offset by
increases in the sales, business, motor fuel and other taxes for an overall increase of about
$815 million. In FY1990, even before the national recession had begun, states enacted
significant tax increases. Legislators faced with revenue shortfalls increased taxes by
$10.3 billion and $14.2 billion in 1991 and 1992, respectively. This was approximately
0.2 percent of GDP in each of those years. While the largest share of revenue increases
came from personal income taxes, there were also significant increases in taxes on sales,
business income, motor fuels, tobacco, and other products. Tax increases were
widespread with 16 states enacting income tax increases in FY1991 and 20 additional
states enacting such increases in 1992. A large number of states also enacted increases in
their business income and sales taxes. About a dozen states increased their tobacco and
motor fuel taxes in each year.

States continued to legislate net tax increases through FY1994 but over the next
seven years, from FY1995 through FY2001, states enacted significant tax reductions.
Some of the cuts were temporary, but most were permanent. In FY2002 states’ tax
policy left net revenues almost unchanged while a net tax increase of a little less than
seven billion dollars was enacted in FY2003. The tax policy changes in response to the
recession of 2000 were smaller and of a different character than those in response to the
recession of 1990.
Figure 4 breaks out tax policy changes by type of tax for the two fiscal years following the onset of these recessions. In FY1991 states enacted tax policy changes that increased revenue by about $10 billion or 3.3 percent. The following year tax policy changes increased revenue about 4.2 percent. In contrast, in FY2002 states enacted policy changes that increased total net revenues by only 2 tenths of one percent. In FY2003 policy changes increased state tax revenues only 1.4 percent.

To put the matter in a different way, states would have raised about $33 billion more in tax revenue in FY2003 if they had enacted the same percentage tax increases in FY2002 and FY2003 that they enacted in FY1991 and FY1992. This would have closed two-thirds of the fiscal gap confronting their FY2003 budgets. In FY1990 and FY1991, states increased a variety of taxes but got most (56 percent) of their increased revenues from the traditional mainstays of the income and sales taxes. In FY2001 and FY2002, only tobacco and business income taxes were increased substantially. Sales and income tax policy changes provided only 26 percent of increased revenue. Increased tobacco taxes provided 44 percent of all new revenues. Below we discuss briefly major categories of tax change.

Changes to Personal Income Tax

In FY1991, five of the fifteen states that enacted tax increases increased rates for a broad group of people; five additional states made large changes to the income tax base, independent of federal actions. Other changes reflected conforming to the federal tax code and changing withholding schedules. Similar patterns were observed in FY1992 when twenty states increased taxes. Of those, fifteen states increased rates or significantly
broadened their bases, independent of federal actions. Rate increases largely fell on higher income households.

In FY1995 when personal income tax cuts began to overwhelm tax increases, some states modified their personal income tax code to provide increased assistance to low-income households – although this was not an entirely new strategy. Credits aimed at low-income families included dependent care credits, low-income housing credits, and earned income tax credits. Between FY1995 and FY2003, five states (California, Colorado, Iowa, Maryland, and New York) enacted or increased tax credits to offset child care costs, seven states enacted or increased Earned Income Tax Credits (Indiana, Kansas, Maryland, Massachusetts, Minnesota, New York and Wisconsin), and two states enacted or increased low-income housing credits (Massachusetts, and Maryland). A range of other measures were also expanded or adopted to provide assistance to low-income families via the income tax code. Arizona decreased tax rates, concentrating on lower income levels, and established a family income tax credit based on family size and income. Georgia established a food tax credit. New Mexico expanded its Low Income Comprehensive Tax Rebate. Pennsylvania increased exemptions for low-income families; Hawaii reduced and subsequently repealed a food tax credit and enacted a low-income refundable tax credit. Massachusetts and West Virginia increased their tax thresholds, and Indiana increased their low-income tax deduction. In total, these items accounted for a cumulative 9 percent of legislated personal income tax cuts during this period. While cuts for low-income households were widespread the lion’s share of tax cut dollars benefited higher income households.
As small amounts of low-income assistance were legislated into the tax code, the previous trend of increasing rates and expanding bases was reversed. Between FY1995 and FY2001, thirty-six states enacted income tax cuts totaling $19.1 billion while 11 states enacted income tax increases, totaling only $291 million. Despite legislative cuts, tax revenue increased as a result of large increases in personal income.

In FY2002 and FY2003, legislators did not follow the actions taken by their predecessors in the previous recession. Legislators may have found it particularly difficult to increase taxes after such long periods of tax cuts – unlike the trend leading up to the early 1990s recession. In FY2002, $671 million in personal income tax cuts were enacted and, despite the urgent fiscal crisis of FY2003, only $843 million of personal income tax increases were enacted. In fact, 13 states legislated personal income tax reductions in FY2003.

Changes to Business Income Taxes

Over time the share of state tax revenue derived from business income taxes has been shrinking (from almost 10 percent in 1980 to about 7 percent in 1990, for example). Legislated cuts in state business income taxes accompanied cuts in personal income taxes in each year between FY1996 and FY2001. However, business income taxes were increased in both FY2002 and FY2003.

Increases in the business income tax were relatively small (less than two percent in FY2002 and about five percent in FY2003) but concentrated in only a few states. Six states increased business income taxes in FY2002 and eight states followed suit in FY2003. New Jersey’s $815 million increase in FY2003 accounted for more than half of
the net increase nationwide. Nearly as many states enacted business income tax cuts as increases with eight states adopting cuts in FY2002 and five adopting cuts in FY2003.

Changes to Sales Taxes

Legislators increased sales taxes in the period following the 1990 recession. Net increases in legislated sales taxes continued until FY1996. From FY1996 until FY2002 relatively small net cuts were legislated (see figure 3B). Unlike state income taxes, sales tax cuts during this period were not sufficient to offset previously legislated increases. In FY2002 when income taxes were cut, sales taxes were increased slightly. In FY2003 about $1.4 billion of net sales tax increases were enacted while only about $800 million of net income tax increases were approved. This is a sharp contrast with the recession of 1990 when policymakers increased personal income taxes far more than sales taxes.

Other Taxes

In a typical year, personal income and general sales taxes each account for approximately one-third of state tax revenues. Taxes on business income, selective sales and motor fuels taxes each account for five to seven percent of the total. State taxes on property, tobacco, and alcohol each typically account for less than two percent of revenues.

The personal income and sales taxes increased two to four percent and accounted for 50 to 60 percent of the legislated revenue increases in FY1991 and FY1992. There were slightly larger percentage increases in alcohol, motor fuel, tobacco, business income and other taxes. However, each of these taxes accounted for only a small share of total revenue increases.
The response to the recession of 2001 has been quite different. In FY2002 and FY2003, 20 states increased their tobacco and cigarette taxes by a total of $100 million in FY2002 and $3.0 billion in FY2003. During that same period, taxes on alcoholic beverages typically, thought of in a similar ‘sin tax’ vein, increased only $13 and $8 million, respectively and the net increase in motor fuel taxes was essentially zero. Evidence from our interviews with lawmakers suggests that they were resistant to alcohol taxes increases because these taxes are thought to harm small businesses such as restaurants and bars. In FY2003 permanent tobacco taxes increases were as great as the increase in all other types of taxes combined. At the same time, many states securitized (i.e. sold the right to proceeds from) future tobacco payments from the multi-state tobacco settlement as a way to bridge budget gaps.

IV. Explanations and Implications

Why have states, thus far, made so little use of tax policy changes to increase revenues in response to the recession of 2001? We think there are three primary reasons: (1) new political constraints, (2) new legal constraints and (3) unusual access to and appeal of short-term methods of coping.

In part, response to the 2001 recession was a reaction to the fact that some elected officials paid a high political price for their support of tax increases in response to the recession of 1990. For example, in New Jersey, then Governor Florio relied heavily on tax increases to close New Jersey’s budget gap. Many people attribute his failed re-election bid in 1993 to this action. His successor, Republican Governor Christine Todd
Whitman won national prominence and a cabinet level position in the administration of President George W. Bush for her determination to cut taxes.

During the late 1990s it was relatively easy to legislate tax cuts because rapid economic growth stimulated rapid revenue growth. Many state level politicians, including the governors of Michigan and Florida, aspired to be known as tough on taxes. Legislators that honed their political rhetoric during this era of growing revenues would find it difficult to make the transition to supporting tax increases when the need arose.

Even if they had wanted to legislate tax increases many state officials would have found themselves impeded by new legal constraints. For example, Colorado’s 1992 Taxpayer Bill of Rights limits revenue growth after adjustments for inflation and population growth. Colorado voters must approve any policy that increases revenue beyond this formula. Since 1993 the State of Washington has required a two-thirds vote by the legislature and a majority of the general electorate to approve certain tax increases. These policies limit the ability of legislators to cope with fiscal stress and may explain the lack of tax policy change since the onset of the recession in April 2001.

Finally, but perhaps most importantly, policymakers had access to an unusually rich array of short-term coping mechanisms to deal with fiscal stress in FY2002 and FY2003 (Finegold, Schardin and Steinbach, 2003.) States had large general account balances and rainy day funds accumulated during the economic boom of the late 1990s. Most states could gain access to significant resources by securitizing their share of the tobacco industry’s settlement of a lawsuit related to state healthcare payments for ill smokers. Nationally at least 17 states or counties did this. Also, the rapid growth of the late 1990s led states to plan for the expansion of existing or initiation of new programs in
a number of areas. Since staff had not yet been hired and clients had not yet become accustomed to receiving services these programs often could be eliminated or delayed without a large political backlash. In New Jersey, for example, enrollment in a new program to provide health care for low-income families (NJ Family Care) was capped. Michigan responded to the fiscal crisis by canceling its plan for new state-funded summer school programs.

The appeal of short-term fiscal solutions may have been enhanced by the new and widespread adoption of term limits for state elected officials. In several states (e.g. Michigan and Florida) term limits resulted in high levels of legislative turnover. This had two distinct effects. First, many legislators were relatively inexperienced and had not built up a sufficient level of trust with their legislative counterparts to engage in the risky political strategy of supporting a general tax increase. Secondly, many departing legislators did not want their political legacy to be a tax increase and sought out temporary solutions.

It is difficult, maybe even impossible, to quantify the relative contributions of each of our three explanations for the lack of tax policy change after April 2001. Perhaps it is more important to ask what implications our explanations carry for future policy.

Unless states see a rapid change in state revenues soon, policymakers will have exhausted short-term coping strategies as they prepare FY2004 budgets. Legal constraints and political inertia may make it very difficult to develop political consensus for income or sales tax increases. It may be somewhat easier to achieve a political consensus for increases in business income, motor fuel and other taxes.
Unfortunately, these changes in tax policy are not likely to improve the equity, efficiency or stability of state tax systems. State tax policy changes in the mid-to-late 1990s tended to make states somewhat more reliant on slow growing consumption taxes. Despite the fact that some cuts have been targeted to low-income families, the net effect of recent changes in state tax policy probably has been regressive (Johnson and Lav 1997). In any case, the sales tax base is clearly threatened by the growth of the service sector and the gradual expansion of remote sales through the Internet. States also have become more reliant on tobacco taxes. However, these taxes are designed to discourage growth of the base (tobacco consumption) and will not lead to a stable long-term source of revenue. Business income taxes are likely to be inefficient and, in any case, are difficult to sustain because of interstate competition and evasion by accounting sleight of hand.

What could states do to both enhance revenue and bring their tax systems closer to the theoretical ideal? The sales tax should be modernized to reflect changes in economic structure. In particular, consumer services should be included in the sales tax base. This would enhance revenue, equity, stability and efficiency. An interstate agreement so that states could collect the sales and use tax on remote sales also would be beneficial. In 2000, a Streamlined Sales Tax Project began (with all but ten states participating) that attempts to develop measures to test and implement a sales and use tax system that radically simplifies state sales and use taxes.

There is more controversy about appropriate changes in state income tax systems. The elimination of deductions for pension income could enhance revenue slightly in some states. States also might increase tax rates but raise the standard deduction in order
to trim the tax rolls. This might be have fewer negative consequences than other ways of balancing the budget (Orszag and Stiglitz 2001).

However, probably the most important income tax changes states need to consider relate to the treatment of capital gains. Capital gains tend to be more volatile than labor income and--because much of this income accrues to high-income households--its influence on revenues is magnified in states with rising marginal income tax rates. At a minimum, policymakers should carefully track the components of the personal income tax base to anticipate future volatility. More dramatic policy change is conceivable. For example, budgetary policy might designate some portion of the revenue derived from capital gains as “windfalls” and require that they be budgeted as temporary rather than permanent revenues. Policymakers also should recognize that the progressivity of the income tax system may affect its ability to weather economic cycles (Dye and McGuire 1991). In a state with a progressive income tax a relatively large temporary rate increase may be required to balance the budget during an economic slowdown. States with flatter taxes will probably want to consider smaller permanent rate increases.

We do not argue that policymakers have painless options available to close their fiscal gaps. Rather we argue that the fiscal crisis that began in 2001 presented state policymakers with an opportunity to reform their tax systems, especially their sales and personal income tax systems, to provide a more stable, efficient and fair source of revenue for the future. Little change in this direction occurred in FY2002 or FY2003. The FY2004 budget season provides states’ another opportunity to improve, rather than simply amend, their tax systems.
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Most, but not all, states operate on a July 1 to June 30th fiscal calendar. To assure uniformity across states we measure revenues over this (July to June) calendar period even when it does not correspond to a particular state’s fiscal year.

The nationwide recession of 1990 began in July while the most recent recession began in April of 2001. We measure revenue shortfall for the 2001 recession over the last nine months of the calendar year and measure revenue shortfall in 1990 over the last six months of the year and the first calendar quarter of 1991. Some states may have quickly reacted to the downturn and changed tax policy to enhance revenue beginning in January 1991. Thus, our methodology may comparatively understate the revenue shortfall in the 1990 recession as a result of economic activity alone.

Some form of balanced budget requirements exist in 49 of the 50 states.

This information is published in the semi-annual series entitled Fiscal Survey of the States. We collected data from the fall publications. Net tax policy change is calculated as tax increases minus tax cuts. We include suspension of a previously scheduled tax cut with tax increases and vice versa.

It also seems that about two-thirds of the difference in nominal revenue growth during the two recessions can be explained by differences in tax policy responses. During FY1990 and FY1991 states legislated a cumulative eight percent increase in revenue and had a total (nominal) revenue increase of 9.8 percent. During FY2001 and FY2002 states legislated a cumulative 1.6 percent increase in revenues while total (nominal) revenue remained essentially unchanged. The difference in tax increases (8.0-1.6=6.4) accounts for about two-thirds of the 9.8% difference in nominal revenue growth.

This calculation measures the cumulative impact of all policy-induced changes in tax revenues reported in the National Association of State Budget Officers' Fiscal Survey of the States. The calculation assumes that a permanent policy change that reduces revenues by $X in one year will also reduce them by $X in each succeeding year unless it is repealed.

Johnson 2002 concludes that the total revenue loss from tax cuts in the late 1990s was about $40 billion.
Figure 1A: Index of real GDP in last two recessions

Recession starting after March 2001

Recession of 1990

Source: Bureau of Economic Analysis, US Department of Commerce and author's calculations.
Figure 1B: Indicies of Real GDP and Real Annualized State Total Tax Revenue in Last Two Recessions

Source: Bureau of Economic Analysis, US Census Bureau, Governments Division and author's calculations.
Figure 1C: Indicies of Real GDP and Real Annualized State Income Tax Revenue in last two recessions

Source: Bureau of Economic Analysis, US Census Bureau, Governments Division and author's calculations.
Figure 1D: Indicies of Real GDP and Real Annualized State Sales Tax Revenue in last two recessions

Source: Bureau of Economic Analysis, US Census Bureau, Governments Division and author's calculations.
Figure 2. Distribution of revenue shortfalls* in two recessions**

More than 10% 5 to 10% 5% to zero Increase

July 1990 through March 1991 April through December 2001

Source: US Census Bureau, Governments Division and author's calculations.

**“revenue shortfall” is the difference between the state's actual annual total tax revenue and revenue predicted on the basis of a five year time trend. Revenue shortfalls were measured three calendar quarters after the start of the recession.

**For the 1990 recession we were unable to calculate revenue shortfalls for the states of Iowa, Kansas, Michigan, New Mexico, Nevada, South Carolina and North Carolina due to missing data. We had complete data on all the states during the 2001 recession.

*See text for methodology used to measure revenue shortfalls.

** For 1990 we were unable to estimate revenue shocks for Iowa, Kansas, Michigan, New Mexico, Nevada, S. Carolina and S. Dakota due to missing data. Complete data is available for 2001.
Figure 3A. Permanent net policy changes and all net policy changes in state taxes
FY1988 - FY2003

Change (billions current $s)

Year


Source: National Association of State Budget Officers and authors' calculations.

*We calculate net tax policy change as tax increases minus tax cuts. Suspension of a planned tax increase is counted as a tax cut, and vice-versa.
Figure 3B. Net policy changes in state sales and income taxes
FY1988 - FY2003

Source: National Association of State Budget Officers and authors’ calculations.
Figure 3C. Net policy changes in tobacco, motor fuel and other state excise taxes
FY1988-FY2003

- Tobacco
- Motor Fuels
- Other excise

Source: National Association of State Budget Officers and authors' calculations.
Figure 4. Fiscal Year Net Tax Policy Change as a Share of Prior Calendar Year Revenue in two Recessions: FY1991, FY1992 and FY2002, FY2003

Increased by 35%

Source: National Association of State Budget Officers, US Census Bureau, Governments Division and authors' calculations.