State budgets and the business cycle: Implications for the federal balanced budget amendment debate

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Introduction and summary

A proposal to amend the U.S. Constitution to require that the federal budget be balanced has been a part of the national debate for over 25 years. Following its inclusion as one of the central planks of the Republican Contract with America in 1994, the balanced budget amendment became a prominent item on the congressional agenda. The amendment easily passed the House by a vote of 300 to 132 in January 1995, but failed to achieve the two-thirds majority required in the Senate to send it back to the states. Since the proposal's most recent failure in the Senate, by one vote on March 4, 1997, it has been a less important agenda item because of the strength of the economy and the surplus in the federal budget. However, the issue is by no means dead. In January 1999, the amendment was again proposed in the House with the cosponsorship of 117 representatives.

Balanced budget amendment supporters frequently cite the experience of the states, most of which have statutory or constitutional balanced budget restrictions.[1] In this article, I question how the state experience with balanced budget restrictions can inform the federal debate on a balanced budget amendment. First, I address how the longstanding state restrictions compare with those contemplated at the federal level. I then investigate how state government revenues, expenditures, debt issuance, and asset holdings have responded to changes in the states' economic conditions, as measured by the unemployment rate, during the last two decades. I use regression analysis to ask how, controlling for a time trend and state fixed effects, state finances have reacted to fiscal year state unemployment rates from 1977 to 1997. I further question whether similar responses on the part of the federal government would be either feasible or prudent.

In my investigation of how state finances respond to business cycle conditions, I discover that states use four main mechanisms to maintain budget balances during downturns: they issue more short- and long-term debt; they rely more heavily on the federal government for funds while giving less to local governments; they increase tax rates; and they lower capital spending. This is not a feasible policy combination for the federal government for a number of reasons. Most importantly, the provisions of the balanced budget amendment would not allow the federal government to issue any new debt without a legislative supermajority. In this way, the federal balanced budget amendment differs significantly from the restrictions in place in the states. While the states use the issuance of debt as an important safety valve, this option would not be available to the federal government.

Of course, the opportunity to receive more from a higher level of government would also not be available to the federal government. However, the federal government could follow the states' lead by transferring less money to the states during difficult times. This would reverse the current relationship between federal government intergovernmental spending and the business cycle and would make it more difficult for the state governments to balance their budgets. Importantly, this suggests that one of the reasons that the states are able to balance their budgets is that the federal government does not.

The federal government could follow the states by increasing tax rates during economic downturns. This would be an unpopular policy for two main reasons. First, tax increases are always unpopular and difficult to pass. Second, unlike the state governments, the federal government is responsible for the condition

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of the macroeconomy. Tax increases during recessions would further depress disposable incomes and consumption and could prolong downturns.

The other state behavior open to the federal government would be to decrease capital spending during economic downturns. States get a lot of leverage out of their ability to cut capital spending during difficult times; my results show that this is among the most pronounced state responses to a deteriorating economic situation. The federal government may be unwilling to follow the states' lead by cutting capital spending during recessions because the bulk of federal capital spending, over 80 percent, is in the area of national defense (U.S. Government, Office of Management and Budget, 1999). By contrast, the majority of state capital spending is on highways (57 percent) and institutions of higher education (14 percent) (U.S. Department of Commerce, Bureau of the Census, 1977–87 and 1988–97). Whether it is prudent for the federal government to structure defense capital spending to maintain budget balance during downturns is an open question.

Because of the differences in the proposed federal balanced budget amendment and the measures in place in the states and the different responsibilities of the federal versus state governments, none of the four methods used by state governments during economic downturns is an obvious choice for the federal government. In summary, my results suggest that the ability of the states to function under their current balanced budget restrictions should not be used to argue in favor of the balanced budget amendment most recently proposed in Congress. However, this does not necessarily imply that other reasons advanced in favor of a balanced budget amendment are invalid or that the amendment should not be justified on other grounds.

Comparing state and federal balanced budget requirements

The provisions of the proposed federal balanced budget amendment are quite basic. The amendment as voted on in 1997 simply states that "[t]otal outlays for any fiscal year shall not exceed total receipts for that fiscal year, unless three-fifths of the whole number of each House of Congress shall provide by law for a specific excess of outlays over receipts by a roll-call vote." Additional provisions require a three-fifths majority to increase the debt limit or to increase revenues (U.S. Senate, 1997).

The amendment does not provide for separate funds to finance capital projects and, therefore, in the absence of a super-majority vote, does not allow the government to issue any new debt. In addition, the amendment does not provide for a reserve fund that can be used to carry over surpluses from one year to the next. Instead, surpluses that were neither spent nor returned to citizens would be used to reduce the existing debt. This arises from the provisions that outlays must be financed by total receipts from the same fiscal year—it does not allow for the use of receipts from previous years. Both of these features would be in contrast to the provisions in the states. In short, the amendment simply requires that the budget be balanced every year.

State balanced budget restrictions are far more complex than the federal proposal. There is no prototypical requirement at state level; each state has a unique set of provisions. However, the following state provisions are comparable to the federal proposal: balanced budget requirements, restrictions on deficit carryovers, and restrictions on long-term debt issuance.

Before addressing how these three types of restrictions interact to affect state behavior, it is important to briefly explain the role of capital budgeting in the states. Most states have capital budgets that are separate from their operating budgets.[2] The construction of new facilities and the repair, maintenance, remodeling, and rehabilitation of existing facilities are funded separately.[3] One important feature that distinguishes state balanced budget requirements from those at the federal level is that most of these requirements only mandate that the operating budget be balanced. In cases where the capital budget also needs to be balanced, proceeds from the issuance of debt are counted as revenues. Therefore, the balanced budget restrictions do not stop states from issuing debt. This contrasts with the federal proposal, which explicitly excludes receipts derived from borrowing from government revenues. The ability of states to borrow for capital projects reconciles the common perception that states have balanced budgets with a thriving and substantial municipal bond market.

Submitting, passing, or signing a balanced budget

When commentators write that most states have balanced budget restrictions, they are usually referring to constitutional or statutory provisions that require that the governor must submit, the legislature must pass, or the governor must sign a balanced budget. These provisions do not explicitly require that the year-end budget end up balanced, but rather that the budget as proposed, passed, or signed be balanced in expectation. For example, the Illinois constitution requires that the governor submit and the legislature pass a balanced budget. The document states, "[t]he Governor shall prepare and submit to the General

Assembly, at a time prescribed by law, a State budget for the ensuing fiscal year. … Proposed expenditures shall not exceed funds *estimated* to be available for the fiscal year as shown in the budget." It further states that "[a]ppropriations for a fiscal year shall not exceed funds *estimated* by the General Assembly to be available during that year" (italics added) (State of Illinois, 1970, Article 8, Section 2). Note that in both cases expenditures cannot exceed estimated revenues.

Deficit carryover provisions

In the event that circumstances change during the year and a budget that was expected or estimated to be balanced was not, state provisions either allow or do not allow deficits to be carried over from one fiscal year to the next. If the state does not allow deficits to be carried over, the state must either cut spending or increase revenues to eradicate the deficit by fiscal year-end. Such deficit carryover provisions represent the teeth of the balanced budget requirements, because they prohibit the state from issuing debt to finance a shortfall. The National Conference of State Legislatures reports that 13 states have no restriction on carrying over a deficit and a total of 21 may carry over a deficit if necessary (Snell, 1999). Illinois is one of the states allowed to carry over deficits. The Illinois constitution states that "[s]tate debt may be incurred by law in an amount not exceeding 15 percent of the State's appropriations for that fiscal year to meet deficits caused by emergencies or failures of revenue" (State of Illinois, 1970, Article 9, Section 9).[4] Note that all states do allow surpluses to be carried over from one year to the next and 45 states have special "rainy day funds" for surplus carryovers (Eckl, 1998).

State long-term debt provisions

The final parts of states' budget restrictions are provisions limiting their ability to issue long-term debt. Nearly all long-term debt is used to finance specific capital projects in conjunction with the state's capital budget. While federal Treasury bonds, notes, and bills are very general in nature, most state government debt is very specific and is issued to benefit particular capital projects. State debt can be backed by either the full faith and credit or the taxing power of the government, and can be redeemed from general revenues or be nonguaranteed and be backed by specific income streams.

Most states have a restriction limiting the issuance of long-term debt. Some state constitutions require that debt cannot be issued until it receives majority support in a statewide referendum; in some states debt can only be issued up to a prespecified limit; and other states allow no debt to be issued at all.[5] However, state courts have interpreted these constitutional requirements as only applying to debt backed by the full faith and credit of the government. As a result, states can issue nonguaranteed debt limited only by the constraints of the capital market. In fact, despite restrictions on long-term debt that in some cases seem quite severe, in every year since 1977 every state has issued some long-term debt.

In sum, the restrictions on the states are far more lenient than that contemplated for the federal government. In particular, all states can and do issue long-term debt and many states can issue debt to finance deficits.

Nonetheless, the states' experience with budget restrictions is frequently used to support balanced budget restrictions at the federal level. For example, Michigan's Governor John Engler in his State of the State Address in 1997 said, "I support the balanced budget amendment and so do Michigan voters. When Congress takes up this historical amendment next month, I urge them to pass it and submit it to the states. I invite this legislature to join the debate, call upon your colleagues in Congress to act and help the federal budget look more like Michigan's budget—balanced" (Engler, 1997). Similarly, in his 1997 State of the State address Oklahoma Governor Frank Keating stated that "We Oklahomans know the wisdom of a constitutional mandate for fiscal common sense. Let's send some Oklahoma values to Washington by being the first to ratify this vital amendment" (Keating, 1997).

While the current state restrictions and the contemplated federal restrictions are quite different, the general perception that states are more fiscally responsible is warranted. States do a better job on two dimensions. First, they have a lower level of overall debt relative to their financial obligations. Between 1977 and 1997, net interest payments on the federal debt averaged 12.7 percent of outlays and 15.0 percent of receipts (U.S. Government, Office of Management and Budget, 1999), while state interest payments averaged 3.7 percent of expenditures and 3.4 percent of revenues (U.S. Department of Commerce, Bureau of the Census, 1977–87 and 1988–97).[6] Similarly, gross federal debt outstanding averaged 2.3 times outlays and 2.7 times receipts, while state gross debt outstanding averaged 0.5 times revenues and 0.6 times outlays over the same period. Second, the states do a better job of smoothing over the business cycle. A 1 percentage point increase in the state unemployment rate increases the average state's budget deficit (expenditures – revenues) by $23 per capita or about 9 percent (relative to the mean), while a 1 percentage

point increase in the national unemployment rate increases the federal government deficit by $134 or about 16 percent.

Next, I investigate how state budget items respond to business cycle conditions. If a federal balanced budget amendment were to pass, the federal government would need to find ways to either raise additional funds or cut expenditures to compensate for the decline in tax revenues that accompanies downturns. The assumption that the federal government could mimic the cyclical behavior of the states is implicit in the argument that state experience is a valid example for the federal government. I ask what the states do and whether the state experience could or should be mimicked by the federal government.

Data and methodology

To look at how state finances change over the business cycle, I need data on both business cycle conditions within a state and on various attributes of state government finances.

Measuring the business cycle

To measure business conditions in the state, I use the average monthly state unemployment rate during the fiscal year for which the state finance data are collected. For the most part, the analysis focuses on state fiscal years (FY) 1977–97. Most states' fiscal year begins on July 1 and ends on June 30.[7] Since January 1978, the Bureau of Labor Statistics has calculated a monthly unemployment rate for every state (expect California, first calculated in 1980). Since FY 1979, I calculate the fiscal year unemployment rate as the average monthly unemployment rate during the fiscal year. Prior to FY 1979, I calculate the fiscal year unemployment rate as a weighted average of the unemployment rates in the state in the two calendar years that comprise the fiscal years. The weights depend on the fraction of months for which the fiscal and calendar years overlap.

While the national business cycle is usually discussed in terms of changes in gross domestic product (GDP), the unemployment rate is a better measure of economic conditions in the state than gross state product (GSP). There are problems concerning the accuracy of GSP numbers. GSP is gross output minus the value of intermediate inputs. Evaluating the worth of intermediate inputs for the same company across different states is surely a daunting task. While such transfer pricing issues also arise for GDP, linkages across nations are both weaker and more carefully monitored than those across states. The final advantage of the unemployment rate is that during most of the period of study, it was measured monthly. This allows me to calculate a measure that corresponds in timing to the state financial year. By contrast, GSP is measured only yearly and is therefore more difficult to match accurately with the financial data. However, if I were to use the percentage change in GSP per capita as the measure of state fiscal condition instead of the fiscal year unemployment, I would arrive at a set of results broadly similar to those discussed below.[8]

Fiscal data

The data I use to measure state financial variables come from the annual survey of state government finances conducted by the U.S. Census Bureau (U.S. Department of Commerce, Bureau of the Census, 1977–87 and 1988–97). The survey measures approximately 450 different aspects of state revenues, expenditures, debts, and assets. I use the survey data from 1977–97; the 1998 data have not yet been released and the data prior to 1977 are not available in electronic form. Importantly, this is not accounting data drawn from state budgets, but is statistical in nature. Budgetary data would not be as comparable across states or over time. The variables measured over this period have been relatively consistent. One important exception is that major changes in measurement of debt occurred in 1988. (Throughout, dollar numbers are in GDP-deflated 1997 dollars.)

Methodology

In analyzing state fiscal behavior, I look at how a change in the fiscal year unemployment rate changes a variable measuring a fiscal outcome. I measure all fiscal outcomes in per capita terms to make the numbers comparable across states. Throughout, the unit of analysis is an individual state and states are not weighted in terms of population. I look at how a 1 percentage point change in the fiscal year unemployment rate (say, a jump from 4.2 percent to 5.2 percent) affects the per capita measure of a fiscal variable. Throughout the remainder of the analysis, I omit the state of Alaska. Alaska's fiscal behavior differs drastically from that of the other 49 states, mainly due to the revenues Alaska receives from oil production.

I also include a series of state fixed effects. This allows the average value of a variable to differ across states. This is especially important when looking at state expenditure patterns because the role of the local governments in service provision differs quite dramatically across states. Importantly, I do not include any measures of the nature or severity of state balanced budget requirements. One might want to include these interacted with the unemployment rate

to investigate whether fiscal variables in states with stricter requirements are more responsive to changes in the unemployment than states with more lax requirements; however, I do not do so here. I believe that the issuance of debt by all states implies that their provisions are more similar than different.[9] I am more interested in how all states behave because states as a whole are perceived as being more fiscally responsible than the federal government. I also include both a linear and a quadratic time trend to account for the fact that there was an upward secular trend in state spending during this entire period.

The regression estimated for each fiscal variable is:

$$\frac{\textit{fiscal variable}_{st}}{\textit{population}_{st}} = \alpha + \beta \times \textit{unemployment rate}_{st} + \chi \times (\text{year} - 1977)_t + \delta \times (\text{year} - 1977)_t^2 + \phi \times \textit{state dummies}_s + \varepsilon.$$

In the tables, I only present the coefficient on the unemployment rate, β. This coefficient can be interpreted as the effect of a 1 percentage point increase in the unemployment rate on the per capita amount of the fiscal variable. Note that the typical peak to trough difference in the unemployment rate is greater than 1 percent. For example, the average fiscal year state unemployment rate rose from 6.0 percent in 1981 to 9.8 percent in 1983. In the milder 1991 recession, the average fiscal year state unemployment rate increased from 5.2 percent in 1990 to 6.7 percent in 1992; it retreated to 5.0 percent in FY 1997. In some places I compare the behavior of the states to the behavior of the federal government. To do so, I use federal data from the Budget of the United States (U.S. Government, Office of Management and Budget, 1999). This is accounting data, unlike the state data. In the case of the federal data, I estimate the same regression presented above, excluding the series of state dummies.

I break the analysis into four parts—first, I look at the gap between state expenditures and revenues (the deficit or surplus); second, at state revenues; third, at expenditures; and finally, at state indebtedness and asset accumulation. In each section, I look separately at finances inside and outside the insurance trust funds run by the states. The states administer a number of different insurance trust systems, including employee retirement systems, unemployment compensation, workers' compensation, and other smaller funds (including disability and sickness policies). The budget items outside the insurance trust system are considered "general" budget items.[10]

Responsiveness of the surplus to the business cycle

Between 1977 and 1997, average state general fund revenues exceeded average state general fund expenditures by almost $64 per capita while average state insurance trust fund revenues exceeded average state insurance trust fund expenditures by nearly $189 per capita (see table 1, column 1). While these calculations imply that states operate with a general fund surplus on average, this is somewhat misleading because state expenditure data exclude state payments into their insurance trust systems. State contributions to their insurance trust systems average just over $70 per capita yearly. These contributions are almost

TABLE 1

Per capita budget deficit or surplus, 1977–97
(dollars)

Budget category	Average per capita value	Effect of 1 percentage point increase in unemployment rate
Total surplus (revenues – expenditures)	252.00	–23.03 (6.943)
General fund surplus	63.50	–10.85 (4.642)
Insurance trust surplus	188.50	–12.18 (5.822)
General fund surplus net of interest payments	163.87	–10.92 (4.526)

Notes: Absolute t-statistics are in parentheses. The final column of each row represents the coefficient on the unemployment rate in a separate regression. Other variables included in all regressions are a linear and quadratic time trend, a constant, and a series of state fixed effects.
Source: Author's calculations from U.S. Department of Commerce, Bureau of the Census, 1977–87 and 1988–99, *State Government Finances*.

exclusively payments by states into their employee retirement systems. If these intragovernmental transfers were included as general fund expenditures and insurance trust revenues, the average general surplus would become slightly negative and the average insurance trust surplus would increase.

When I run the regression specified above to look at how state surpluses are affected by changes in the unemployment rate, I find that a 1 percentage point increase in the unemployment rate decreases state surpluses by $23.03 per capita, [11] as shown in the last column of table 1. This combines a $10.85 ($2.34)—number in parentheses indicates the standard error—per capita drop in the general fund surplus with a $12.18 ($2.09) per capita drop in the insurance trust surplus. This result suggests that state budgets as a whole do respond to the business cycle. Below, I investigate the sources of this business cycle variation by exploring revenues and expenditures separately.

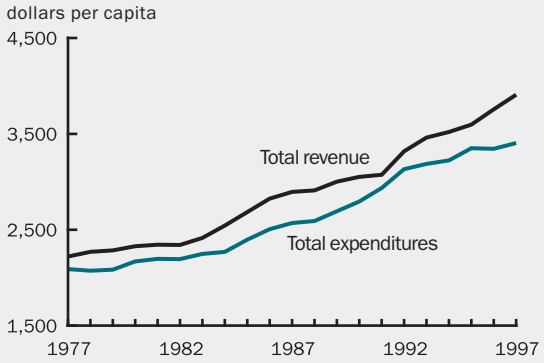
Responsiveness of revenues to business cycle

Between 1977 and 1997 average state yearly revenues per capita were $2,893. This breaks down into $2,448 raised by the general fund and $445 raised by the insurance trust systems. Total revenues per capita were growing rather steadily over the period, from $2,220 in 1977 to $3,908 in 1997 (see figure 1). These revenues come from five distinct sources: taxes, intergovernmental transfers from both the federal government and local governments, government charges for service provision, [12] funds from miscellaneous other sources including lotteries and property sales, and contributions to the trust systems run by the state. Table 2 presents both totals and the breakdown of average yearly per capita revenues during this period and the responsiveness of budget items to the unemployment rate. Figure 2 depicts the percentage contribution to total revenues from each of these sources. The table and figure demonstrate that the great majority of state government funds come from taxes, intergovernmental transfers from the federal government, and insurance trust contributions.

Overall per capita revenues are somewhat responsive to changes in the fiscal condition in the state as measured by the state fiscal year unemployment rate. In particular, as presented in table 2, I find that a 1 percentage point increase in the state unemployment rate decreases total state revenues by $13.80 ($4.16) per capita. This combines a $20.08 ($3.47) decrease in general revenues with a $6.28 ($2.12) increase in the revenues of the insurance trust funds. The changes mask considerable variation within the various categories in the budget.

FIGURE 1

Expenditures and revenues, 1977–97



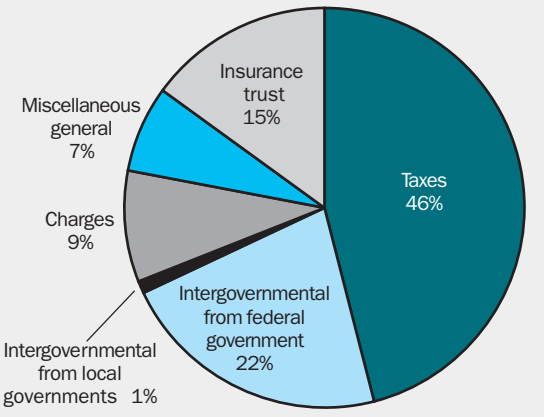
Note: Dollars are measured in 1997 dollars.
Source: Author's calculations from U.S. Department of Commerce, Bureau of the Census, 1977–87, *Survey of State Government Finances*, Washington, DC: Government Printing Office, and U.S. Department of Commerce, Bureau of the Census, 1988–97, *Survey of State Government Finances*, available on the Internet at www.census.gov/govs/state/ www.census.gov/govs/state/.

Taxes

Not surprisingly, taxes are among the most fiscally sensitive of state revenue sources. Although the lion's share of such revenues comes from sales and income taxes, state governments also assess license taxes and taxes on miscellaneous items such as stock transfers. Table 2 shows the breakdown in per capita tax revenues into these three categories and their responsiveness to a 1 percentage point change in the

FIGURE 2

State revenue sources, 1977–97



Source: Author's calculations from U.S. Department of Commerce, Bureau of the Census, 1977–87, *Survey of State Government Finances*, Washington, DC: Government Printing Office, and U.S. Department of Commerce, Bureau of the Census, 1988–97, *Survey of State Government Finances*, available on the Internet at www.census.gov/govs/state/www.census.gov/govs/state/.

TABLE 2

Average yearly revenue per capita, 1977–97 (dollars)

Budget category	Average per capita value	Effect of 1 percentage point increase in unemployment rate
Total revenues	2,892.54	–13.80 (3.313)
General fund revenues	2,447.97	–20.08 (5.788)
Tax revenues	1,318.45	–21.04 (8.728)
Sales taxes	662.80	–10.90 (7.524)
Income taxes	460.83	–10.50 (7.331)
Other taxes	194.82	0.36 (0.270)
Intergovernmental revenues	649.95	3.24 (2.040)
Federal intergovernmental revenues	625.70	2.74 (1.850)
Public welfare	276.85	4.51 (4.047)
Education	111.96	–1.27 (4.707)
Other	236.88	–0.50 (0.513)
State intergovernmental revenues	24.26	0.50 (1.409)
Charges	261.09	–2.01 (2.898)
Miscellaneous general revenues	218.47	–0.26 (0.188)
Insurance trust	444.57	6.28 (2.958)
Contributions	223.68	0.55 (0.669)
Investment revenue	208.22	–2.73 (1.390)
Federal unemployment insurance advances	12.67	8.46(12.479)

Notes and source: See table 1.

unemployment rate.[13] Some tax revenues are more sensitive to the business cycle than others. As table 2 indicates, sales and income tax receipts are far more sensitive to the business cycle than other taxes.

While I find that income and sales taxes are equally sensitive to the business cycle, I would expect income taxes to be far more sensitive. This expectation arises from the fact that while income is highly sensitive to the unemployment rate, individuals dip into savings in order to smooth consumption during downturns. As a result of this smoothing, total sales, and hence sales tax receipts, are not thought to be as sensitive as income taxes to the business cycle.

The lower than expected income tax numbers can be explained by the fact that these numbers represent the change in actual tax collections and do not account for the fact that states often make statutory changes in their tax structures to counteract the effects of the business cycle. In particular, states tend to raise tax rates during times of economic difficulty and lower taxes in times of economic strength. In the absence of such statutory changes, the cyclicality of state revenues would be more pronounced.[14] One potential explanation for the income tax number not being larger than the sales tax number is that income tax levels are more often statutorily adjusted than sales tax levels in response to economic conditions. This conjecture certainly holds true of the current economic expansion. In their yearly reports on *State Tax Actions* from 1995 to 1998, the National Conference of State Legislatures (NCSL) reported that income tax reductions and, in particular, reductions in the personal income tax "dominated state tax reduction efforts" (NCSL, 1995); were "the primary focus of state tax cuts" (NCSL, 1996); "dominated legislative tax actions" (NCSL, 1997); and were "the main focus of cuts" (NCSL, 1998). In contrast, in most years excise and sales tax changes were relatively small. In total, the tax reductions put into effect between 1995 and 1998 reduced state taxes by a staggering $16.8 billion dollars.

Even though states counteract some of the effects of the business cycle on tax receipts by changing tax rates, states are still faced with declining resources during times of economic difficulty. The tax rate changes do not totally counteract the fiscal effects of recession.

Intergovernmental revenues

Intergovernmental transfers are the second major source of state revenue. While states receive payments from both the federal and local governments, the amount from the federal government far exceeds the amount from the local governments (see table 2). As shown in table 2, intergovernmental revenues are relatively unresponsive to business cycle conditions. Looking at the breakdown into local and federal intergovernmental revenues yields a similar picture—in both categories per capita revenues increase slightly when the unemployment rate increases.

To look at the relationship between federal intergovernmental revenues and the business cycle a bit more closely, I break revenues into three categories—education, public welfare and other. Public welfare consists of grants for income support and medical assistance programs. I expect intergovernmental spending on public welfare revenues to be more cyclically sensitive than spending in the other categories. The results in table 2 support this picture. Intergovernmental revenues for public welfare increase when the economy worsens, while spending in the other two categories declines. Importantly, the welfare reform legislation passed in 1996 will reduce the cyclicality of public welfare grants because it replaced an open-ended matching grant with a fixed block grant.[15]

Charges

Charges include government fees for service provision and revenues from the sale of products in connection with general government activities. For example, the air transportation measure of charges includes landing fees at airports and rents for concession stands. I also include the revenues of public utilities and liquor stores in this category. As is shown in table 2, revenues from charges only decline slightly during a downturn.

Miscellaneous revenue sources

Miscellaneous revenue sources consist of monies coming into the state that cannot be easily categorized elsewhere. These include proceeds from special assessments and property sales and monies from interest earnings, rents, royalties, fines, forfeits, and state lotteries. The analysis of miscellaneous revenues differs from that of other revenue sources because a major code change in FY 1988 makes a couple of the subcategories noncomparable before and after this date. Since 1988, a 1 percentage point change in the unemployment rate has increased miscellaneous revenues by $4.82 ($2.06), while prior to 1988, a 1 percentage point change in the unemployment rate decreased revenues by $3.39 ($1.88). (I present the regressions for the entire period in table 2 so that the subcategories can add up to the total). The more recent experience suggests that state governments can expect revenues to go up slightly in the future when the economy worsens.

One argument regarding how the federal government might adjust its budgeting in order to achieve budget balance in times of economic stress is that it might engage in "increased sales of public lands" (Eisner et al., 1997). I explore whether the state governments engage in the analogous activity by increasing property sales during times of high unemployment. Because the category "property sales" did not experience a definitional change in 1988, I look at behavior over the entire sample period.[16] I find no evidence of increased property sales during times of economic stress. While this does not mean that the federal government, with its far more extensive land holdings, would not engage in this behavior, it does suggest that states do not sell property to compensate for budget shortfalls.[17]

Insurance trust revenues

Revenues for insurance trust programs come from three different sources (aside from within the state itself): contributions from employees, contributions from other governments (both local and federal), and interest revenues.[18] As shown in table 2, overall insurance trust revenues are countercyclical, increasing $6.28 ($2.13) when the unemployment rate increases by 1 percentage point.

Not surprisingly, most of the variation within this category over the business cycle occurs in unemployment compensation. In particular, federal advance contributions, the amounts credited to the states when contributions and interest cannot pay unemployment benefits due, increase by $8.46 ($0.68) per capita when the unemployment rate increases by 1 percentage point. By contrast, contributions and investment revenues are much less sensitive to the state of the economy.

Revenue results and implications

During times of economic difficulty, state revenues drop by about $23 per capita. This drop is mostly driven by declining tax revenues and in particular by declining income and sales tax receipts. There are three principal reasons that this decline is not more pronounced. First, state income tax rates are often increased when times are bad. Although this does not emerge directly from this analysis, the recent declines in state tax rates highlight this phenomenon. Second, the states get more money from the federal government during downturns, particularly in terms

of intergovernmental funds for public welfare and federal advances from the unemployment insurance system. Third, state governments rely on a number of income sources that are fairly acyclical. Only 44 percent of state revenues come from taxes and only 15 percent come from the highly sensitive income tax. By contrast, 53 percent of federal government revenues came from taxes in 1991 and 47 percent came from income taxes (U.S. Department of Commerce, Bureau of the Census, 1994).

While state revenues decline in recessions, federal government revenues have historically declined even more. Between 1977 and 1997, a 1 percentage point increase in the national unemployment rate reduced federal government revenues per capita by $115.75 ($30.00), 2.5 percent of the mean federal revenue level of $4,674.06; by contrast the drop in state revenues is about 0.8 percent of mean revenues ($23.03 of $2,892.54).

The methods that states use to mitigate this decline, heavier reliance on the federal government, tax increases, and use of less cyclically sensitive revenue sources, would not be as readily available to the federal government. Heavier reliance on a higher level of government is obviously not an option for the federal government. Tax increases during downturns are a possibility but would aggravate recessions by decreasing disposable income and consumption during recessions. States are able to increase tax rates because they are not responsible for the condition of the macroeconomy. Eventually the federal government may want to seek out less cyclically sensitive revenue sources. One such possibility would be a national sales tax that could be less sensitive than the income tax to downturns.

Because of the super-majority requirement for revenue increases enshrined in most balanced budget proposals, it is unlikely that much of the adjustment in recessions would occur via revenues. Indeed, this is exactly the point for some proponents of the measure—they seek an amendment that would force Congress to cut spending during difficult times. Next, I investigate what happens to state expenditures during recessions.

Responsiveness of expenditures to business cycle

State government expenditure is divided into five different categories—current spending, capital spending, intergovernmental expenditures, interest on the debt, and insurance trust expenditures. The breakdown of expenditures is presented in the first column of table 3 and in figure 3. Like revenues, state per capita expenditures have been steadily increasing since 1977 (see figure 1).

Overall expenditures are somewhat sensitive to business cycle conditions, although less so than revenues. The first row of table 3 shows that a 1 percentage point increase in the unemployment rate increases overall expenditures by $9.23 ($4.14) per capita. This is the combination of a $9.23 ($3.75) decline in general fund expenditures with an $18.46 ($0.95) increase in insurance trust expenditures. Falling general fund expenditures are more than offset by rising insurance trust spending.

Current expenditure

Current expenditure represents the biggest portion of state government expenditure at just over half of the entire category. Current operations include spending on a vast array of goods and services including transportation, hospitals, state educational institutions, and public welfare.[19] As shown in table 3, current expenditure is rather flat over the business cycle, increasing by an insignificant amount when the unemployment rate rises.

Breaking current operations expenditures down by the function they support, I find that during downturns public welfare spending increases, while spending on education (mostly higher education) and other services falls. The increase in public welfare is not surprising given that during downturns a greater fraction of the population relies on the government for support.

Capital expenditure

Capital expenditure is much more sensitive to the business cycle than current expenditure. Table 3 shows that capital expenditure per capita drops by $6.94 ($1.23) when the unemployment rate increases by 1 percentage point. This drop is evenly split between a decline in spending on construction and a decline in other capital outlay (mostly comprising land and equipment).[20]

Given that the benefits of capital projects are less immediately apparent, spending on capital projects may be politically easier to cut. In addition, states have more discretion over capital spending because it is less likely than current spending to arise from entitlement programs. Capital spending is also naturally less persistent. Although a state cannot easily close a university to bring about budget balance, it can slow down major capital projects or wait to begin new ones.

The role of this reduction in capital spending is interesting in light of the fact that state capital budgets are outside the operating budgets directly affected by balanced budget restrictions. It suggests that

TABLE 3

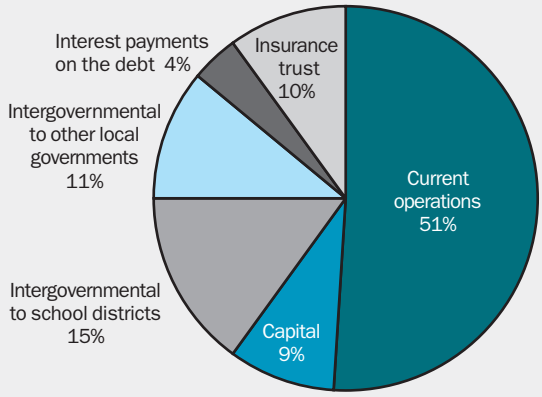
Average yearly expenditure per capita, 1977–97
(dollars)

Budget category	Average per capita value	Effect of 1 percentage point increase in unemployment rate
Total expenditures	2,640.54	9.23 (2.232)
General fund expenditures	2,384.47	–9.23 (2.462)
Current operations	1,349.71	2.75 (1.102)
Education	358.64	–2.43 (4.190)
Public welfare	404.66	7.09 (4.776)
Other current operations	586.41	–1.91 (1.288)
Capital expenditure	239.85	–6.94 (5.640)
Construction	192.98	–3.57 (3.398)
Other capital outlay	46.88	–3.37 (7.996)
Intergovernmental expenditures	694.54	–4.97 (3.180)
To school districts	386.76	–4.22 (3.158)
To other local	302.19	–0.77 (0.648)
To federal government	5.59	0.02 (0.294)
To education	464.57	–3.74 (3.077)
To public welfare	43.42	2.00 (4.254)
To other	186.55	–3.23 (4.248)
Interest payments on the debt	100.37	–0.07 (0.118)
Insurance trust expenditure	256.07	18.46 (19.500)
Unemployment benefits	99.23	17.71 (28.736)
Other trust payments	156.84	0.75 (1.039)

Notes and source: See table 1.

FIGURE 3

State expenditure areas



Source: Author's calculations from U.S. Department of Commerce, Bureau of the Census, 1977–87, *Survey of State Government Finances*, Washington, DC: Government Printing Office, and U.S. Department of Commerce, Bureau of the Census, 1988–97, *Survey of State Government Finances*, available on the Internet at www.census.gov/govs/state/ www.census.gov/govs/state/.

states reduce pressure on their operating budget by reducing capital spending. When I compare debt issuance to capital spending, I find that if all revenues from debt issuance were spent on capital projects, only 60 percent of the money for capital projects would be financed by debt.[21] This indicates that states finance a large portion of capital expenditure out of current revenues.

Intergovernmental expenditure

States transfer money to local governments and to the federal government. The great majority of these funds go to school districts and to general-purpose local governments, such as county, municipal, and township governments. Only a small sum is transferred to the federal government. As shown in table 3, overall intergovernmental expenditures fall when the economy worsens.

I break up intergovernmental expenditures in two different ways. First, I divide them by recipient government: school districts, other local governments, and federal government. Second, I divide them by

function: education, public welfare, and other. While transfers to the federal government and to local governments are relatively flat over the business cycle, transfers to school districts drop off significantly when the economy worsens. The functional breakdown yields the same picture, with declines in education spending being the main explanation for the overall reduction in intergovernmental revenues. By contrast, as with federal intergovernmental revenues and current operations, public welfare intergovernmental spending increases during downturns as states transfer more money to localities to support swelling public assistance rolls.

Interest expenditures

States pay interest on general debt and interest on the debts of public utilities, with the general debt accounting for the bulk of interest paid. As shown in table 3, interest expenditures are largely acyclical. Although state debt may increase during difficult economic times, as explained further below, the stock of debt and, hence, interest payments are quite flat over time.

Insurance trust

Insurance trust expenditures are benefit payments to recipients under the state's employee retirement, workers compensation, unemployment insurance, and other trust funds. In total, as shown in table 3, insurance trust expenditures are highly procyclical, increasing by $18.46 ($0.95) or about 7 percent of the mean when the unemployment rate increases by 1 percentage point.

Given that unemployment benefits are one source of insurance trust expenditures, the size of this increase is not surprising. During times of high unemployment, unemployment benefit benefits greatly increase. In fact, all of the increase in insurance trust spending that occurs when unemployment is high can be attributed to increases in spending for unemployment benefits.

Expenditure results and implications

During times of economic difficulty, states are able to decrease their general fund expenditures by $9 per capita in spite of increasing pressure on public welfare spending. States do this in three ways: They decrease higher education current expenditure; they drastically reduce capital expenditure; and they cut the funds going to school districts.

The implications of this for the federal government are mixed. There is no reason to believe that the federal government would not be able to cut current expenditure in some areas in response to recessions. While the size of federal government entitlement programs limits government flexibility, the federal government has some areas of responsibility that are akin to state governments' higher education responsibilities. The most obvious area is that of education, training, employment, and social services, but cuts in other areas would also be possible.

The states' ability to decrease capital spending is important in helping them to achieve budget balance. In fact, the drop in state capital spending almost totally offsets the increase in current public welfare expenditure brought about by a 1 percentage point increase in the unemployment rate. However, whether the federal budget would or should follow the states' lead in this arena is a difficult question. Some of the same factors causing the states to decrease capital spending during recessions may also affect the federal government. In particular, because capital spending has current costs and longer term benefits, cuts in capital spending may be politically easier to swallow than cuts in federal spending on education or job training. In addition, the absence of a federal capital budget may make federal capital spending even more responsive to economic conditions. It is possible that states do not reduce their capital spending further because they can issue debt for capital projects. Therefore, their ability to alleviate general budget pressures is limited by the portion of capital spending that is being financed by current revenues.

However, there is one important reason that federal capital spending may not be as susceptible to the business cycle as state capital spending. While the majority of state capital spending is for highways and higher education, projects that may be easy to delay, the great majority of federal capital expenditure goes to finance defense. Between 1977 and 1997, 82 percent of the money spent on direct federal capital expenditure was used for defense.[22] In no year did defense spending drop below 70 percent of total direct capital expenditure. It seems unlikely that federal defense spending would or should be a function of business cycle conditions. A brief glance at the numbers demonstrates that, historically, defense capital spending has been more a function of the political climate and whether the nation is at war than of the unemployment situation. For example, from 1943–46, at the height of U.S. involvement in World War II, defense capital goods represented about 99 percent of federal capital expenditure on average. The federal government could cut capital spending in other areas, but nondefense capital spending is a very small part of the budget—averaging only 1.6 percent between 1977 and 1997 (total capital spending averaged 9 percent of the federal budget over the same period).

In addition to reducing current spending for education and capital expenditure, state governments reduce overall intergovernmental grants, especially those to school districts. In general the states take advantage of their unique position in the intergovernmental structure by procuring additional grants from the federal government while sending less money to the local governments. The federal government could follow the states lead here by reducing intergovernmental expenditures to the states during times of economic stress. While this may improve the federal government's budgeting position, it would make it more difficult for the states to balance their budgets. Part of the reason state governments are able to come close to balancing their budgets is that the federal government does not achieve a balanced budget.

The federal government could not avail of the overall expenditure strategy relied on in the states because of its unique responsibility to provide for national defense. By contrast, the federal government may be able to follow the states' lead in cutting current expenditure and in cutting grants to lower levels of government. The wording of the federal balanced budget amendment implies that the government would need to cut spending to compensate for the entire drop in revenues. However, state governments have an important safety valve in their ability to issue debt to fund capital projects. Next, I investigate the extent to which they take advantage of this safety valve.

What happens to debt and assets?

The combination of the revenue and expenditure pictures for both the general and insurance trust funds is not very consistent with the common notion of budget balance. During difficult times, general fund revenues fall more than expenditures, and trust fund expenditures increase more than revenues. This implies that states must either deplete assets or issue debt when the economy deteriorates. In other words, their net asset position must worsen. Below, I look at what happens to state debt issuance and state reserve funds, both inside and outside the insurance trust system.

Short-term debt

Short-term debt is issued to account for unexpected shortfalls. This category includes debt payable within one year of issuance or debt backed by taxes to be collected in the same year. It includes items such as tax anticipation notes and short-term warrants and obligations, but excludes accounts payable and similar less formal non-interest-bearing obligations. States that are not allowed to carry over deficits still sometimes have short-term debt in the form of tax obligation notes and similar liabilities.

The Census Bureau only collects two short-term debt items (in stark contrast to the approximately 50 different measures of long-term debt)—the amounts outstanding at the beginning and the end of the fiscal year. I use the amount outstanding at the end of the year; given that most short-term debt has a maturity of under one year, this is a reasonably good proxy for issuance.[23] As table 4 shows, short-term debt is fairly responsive to the business cycle, increasing by about $2.41 ($0.56) for a 1 percentage point increase in the unemployment rate. However, this only goes part of the way in explaining how states finance the growing gap between revenues and expenditures during downturns. States also rely on additional long-term debt issuance.

Long-term debt and government assets

Because long-term debt and asset data before and after 1988 are not comparable (due to a classification change in 1988), I use data from 1989 onwards. State government long-term debt and asset data are far more complicated than other financial data for three main reasons. First, over 40 percent of state government debt is "public debt for private purposes." This debt is issued using the tax-exempt status of state governments to finance expenditures by private firms. I analyze this debt separately from government purpose debt.[24] Second, not all debt issuance funds contemporaneous expenditures. Some debt is issued to refund previously issued debt. Because a lot of state debt is callable (that is, it can be redeemed prior to maturity for a prespecified premium), when interest rates are falling, states can realize savings if they call debt and refund it at a lower interest rate. Because I am interested in debt issuance that contributes to the state's concurrent fiscal situation, I would ideally like to look only at new government purpose debt issued, that is, net of refunding. Unfortunately, I cannot do this because debt issued for refunding cannot be separated into public and private purpose debt. Third, an analysis of debt cannot be separated from an analysis of government assets because two of the three state government asset measures are directly related to debt. The sinking fund contains money explicitly saved for debt redemption, while the bond fund contains the proceeds of bond issuance prior to disbursement. Only the "other funds" category contains assets not explicitly linked to debt. Because these assets are all stocks rather than flows, I look at the change in value per capita from one year to the next as the appropriate measure of government assets.[25]

TABLE 4

Debts and assets, 1989–97
(dollars)

Budget category	Average per capita value	Effect of 1 percentage point increase in unemployment rate
Short-term debt, 1977–97		
Outstanding at end	14.94	2.41 (4.299)
Long-term debt, 1989–97		
Issuance		
Governmental purposes	155.86	16.06 (2.604)
Private purposes	145.37	10.90 (1.755)
Refunding	37.50	10.89 (2.680)
Redemption/retirement		
Governmental purposes	104.77	18.99 (4.228)
Private purposes	109.64	8.26 (1.815)
Retired by refunding	36.11	9.93 (2.619)
Government assets, 1989–97		
Change in sinking fund	–8.10	–10.97 (2.553)
Change in bond fund	0.71	–7.51 (2.432)
Change in other funds	35.83	3.61 (0.489)
Insurance trust assets, 1978–97		
Change in employee retirement	183.01	2.84 (0.466)
Change in unemployment insurance	7.43	–8.54 (7.730)
Change in worker's compensation	8.35	–0.33 (0.268)
Change in other trust assets	0.11	0.04 (0.524)

Notes and source: See table 1.

Table 4 shows the relationship between the state unemployment rate and the state long-term debt issuance, redemption, and asset measures. The first thing to notice is that all measures of debt issuance increase significantly during downturns. Because nearly all long-term debt is used to finance capital projects and because capital spending drops off quite significantly during downturns, the increase in debt issuance suggests that state governments finance a higher percent of their capital spending with debt during recessions. This implies that states use debt issuance as an important safety valve during recessions. The decrease in the state bond fund, also shown in table 4, supports this finding. Although states spend less on capital projects, they both draw down unspent monies from previous bond issuance and issue more bonds.

As with issuance, all three measures of debt redemption also increase during downturns (also in table 4). This result is more intuitive than it may appear when combined with the information on the change in the value of the sinking fund.[26] States redeem more debt during downturns, but it appears that this extra money is coming from a combination of debt refunding (which increases by $9.93 per capita) and a drop in the value of the sinking fund (which decreases by $10.97 per capita) rather than from current revenue sources. The transfers from the sinking fund probably occur because of cyclical changes in financial market conditions. In particular, states have an incentive to pay off debt using sinking fund assets when they are paying more interest on existing debt than they are receiving from fund assets. In short, during good times, states accumulate assets in their sinking funds that are then spent to call bonds when the economy worsens and interest rates fall. Finally, there is no evidence of changes in the assets of non-bond-related funds.

Assets of the trust funds

One of the most frequently articulated worries about a balanced budget requirement is that it would lead to the depleting of social security reserves in a downturn. Do state government deplete the assets of state managed trust funds in downturns? I look at the change in the assets of all four types of government trust funds—employee retirement, workers

compensation, unemployment insurance, and others. The employee retirement trust fund is the only one that is directly comparable to social security. The other funds, particularly the unemployment insurance trust fund, are *supposed* to fall during recessions.

Table 4 shows that there is little evidence of systematic raiding of the trust funds. While state unemployment insurance trust funds decline dramatically during downturns, there is no evidence that the assets of other trust funds fall.

Debt and assets results

I find that states issue more short-term and long-term debt during recessions. As mentioned above, the federal balanced budget amendment does not allow any new debt issuance short of a super-majority vote. Therefore, this avenue would not be open to the federal government. Instead, the federal government would be compelled to find areas in which to cut spending in order to confront revenue declines.

Conclusion

Both state and national balanced budget supporters frequently cite the experience of the states to demonstrate the feasibility of a federal balanced budget amendment. State governors and U.S. presidents alike have claimed that the state experience is a relevant example to the federal government. In this analysis of the way that state budgets respond to the business cycle, I find few examples of methods for budget balance used by the states that are directly relevant to the federal government. This is the case for four principal reasons.

First, state balanced budget requirements differ in one major way from the amendment currently contemplated at the federal level. State governments can and do issue both short-term and long-term debt to finance shortfalls and capital projects, respectively. The states are able to issue long-term debt because state capital projects are outside the restrictions imposed by the balanced budget amendments.

Second, despite the fact that state capital budgets are separate, states cut capital spending quite drastically during downturns in order to relax budgetary pressures. The current costs and delayed benefits of capital spending make it politically easier to cut. The federal government may not find capital spending so easy a target because most federal capital spending is for defense.

Third, states take advantage of their unique position in the federal system to cut funds going to local governments while drawing on increased funds from the federal government. The federal government can not draw down more money from a higher level of government, but could potentially decrease the money it sends to the states.

Finally, states increase tax rates during downturns and decrease them during booms. The states are able to engage in this behavior because, unlike the federal government, they are not perceived as being responsible for the macroeconomy.

Overall, the state experience with budget balance and business cycles is not a very relevant model for the federal government. State governors are not responsible for the macroeconomy or for national defense and, in general, confront a more relaxed budget restriction than that proposed for the federal government. Policymakers need to consider carefully how budget balance at the federal level could be achieved during an economic downturn under a balanced budget restriction—for example, which taxes could be increased, which programs could be cut, or which assets could be sold.

NOTES

[1]Briffault (1996) provides an interesting set of quotations suggesting that the state experience is relevant to the federal government.

[2]The National Association of State Budget Officers (1997) states that 40 of 48 states that responded to a survey report that their capital planning occurs in a capital budget.

[3]The exact definition of what capital spending consists of differs by state. This is the most common definition.

[4]Forty-eight states have either a constitutional or statutory balanced budget requirement. One state that does not is not permitted to carry over deficits. These combine to generate the frequently cited figure that 49 states have balanced budget restrictions. The exception is Vermont.

[5]For a further discussion of limits on long-term debt, see McGranahan (1999b).

[6]These comparisons actually underestimate the difference between the states and the federal government because, while the federal numbers are net of trust fund interest revenues, the state numbers are gross. I do not net out state interest revenues because the definition of interest revenues changed in 1988 to include revenues from public debt for private purposes. Therefore, it is impossible to calculate a net number for the states that is consistent over time. The gross numbers for the federal government would be 18 percent for expenditures and 21 percent for revenues.

[7]The year refers to the calendar year in which the fiscal year ends, so fiscal 1999 ended in most states on June 30, 1999. Some states

have different fiscal years. I take these differences into account when calculating the fiscal year unemployment rate.

[8]One disadvantage of using the unemployment rate is that it is often viewed as a lagging indicator of economic activity.

[9]For a discussion of the effects of different balanced budget restrictions in the states, see Poterba (1994).

[10]This division is analogous to the separation between on-budget and off-budget in the federal context, because the federal budget excludes most social security funds.

[11]With a standard error of $3.32; note that table 1 shows t-statistics rather than standard errors.

[12]I include receipts of utilities and liquor stores run by the state in charges. In Census Bureau statistics, these are treated separately. They are generally very small and do not warrant separate treatment.

[13]Sales taxes refer to all sales and gross receipt taxes, including general sales, gas, and tobacco taxes. Income taxes refer to both individual and corporate income tax collections.

[14]For a discussion of tax revenue changes taking statutory changes into account, see Dye and McGuire (1998).

[15]For further discussion of this issue, see McGranahan (1999a).

[16]The classification manual defines property sales as "amounts received from sale of real property, buildings, improvements to them, land easements, rights-of-way, and other capital assets (buses, automobiles, etc.), including proceeds from sale of operating and nonoperating property of utilities. Includes sale of property to other governments."

[17]Interestingly, the historical relationship between federal property sales and the unemployment rate has been negative, indicating that the federal government sells less when the economy is bad.

[18]Contributions by the state to its own insurance trust systems are considered within government transfers and do not enter the revenue tabulations.

[19]I include spending on assistance and subsidies in the current expenditure category. It is only a small portion of total current expenditure. In published Census tables, assistance and subsidies (which include scholarships, veterans benefits, and some welfare payments) are usually presented separately.

[20]There were some minor changes in coding of some of the capital outlay variables in 1988. Looking only at data from after this change yields very similar conclusions—capital expenditure falls off, mostly driven by changes in spending on equipment and existing land and structures.

[21]The 60 percent number represents the average of debt issuance divided by capital spending from 1988–97. Debt issuance excludes debt for private purposes but is not net of refunding.

[22]Direct capital expenditure excludes grants. Many grants are to state governments for highways and other programs.

[23]The U.S. Department of Commerce, Bureau of the Census (1995) reports that "obligations having no fixed maturity date (even where outstanding for more than one year if payable from a tax levied for collection in the same year it was issued)" are included in short-term debt.

[24]The major reclassification in 1988 pertains to changes in the categorization of public debt for private purposes. Prior to 1988 it is not possible to fully separate it from other debts. The spending supported by public debt for private purposes does not show up in the states' expenditure measures.

[25]This is not the per capita change, but the change per capita where the population is the population in the second year.

[26]I subtract the value of public debt for private purposes outstanding from the sinking fund numbers to account for the fact that the value of collateral pledged for private purpose debt is included in the sinking fund numbers.

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