# State Fiscal Crises: Are Rapid Spending Increases to Blame?

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During recessions, state governments frequently face substantial midyear budget shortfalls. Numerous states are now experiencing such crises again. These fiscal crises are often blamed on the cyclical decline in revenue growth or reductions in federal aid. Others have suggested that enacting rapid spending increases during expansionary years—rather than using the revenue windfalls for tax cuts or increases in rainy day funds—may be an important contributing factor to those budget shortfalls. Using data from the 2001 recession, we find support for that "overspending" hypothesis. While neither the mere presence nor the size of a rainy day fund were significant predictors of fiscal stress, faster increases in spending are positively and significantly associated with fiscal stress. When rainy day funds work, it is the strength of their withdrawal rules that matter. These results have important implications for fiscal policy choices. States that restrain spending growth during expansionary years and implement strong rainy day fund withdrawal rules are likely to face less severe fiscal crises during recessions.

Cyclical fluctuations of state tax revenue create challenges for politicians. In periods of economic expansion, revenues flow in faster than expected. How those windfall revenues are used can have a major

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impact on what happens during subsequent periods of economic contraction when revenues flow in slower than expected.[1] Politicians have three basic choices: (1) use the windfall revenues to fuel larger spending increases (by establishing new programs and expanding existing ones), (2) deposit them in a budget stabilization fund, often called a rainy day fund (RDF), or (3) return them to taxpayers by cutting taxes. Compared to options two and three, increased spending tends to create a larger "crisis" when revenue growth eventually slows due to a recession. The reason is that when that rapid spending growth is used to establish new programs, it creates new groups of beneficiaries who have an interest in maintaining and expanding those new programs. Furthermore, large spending increases in current years tend to create expectations for large spending increases in subsequent years (in part due to current services budgeting processes). In fact, when spending growth for a program falls—from say a 5 percent increase to a 4 percent increase—that slowdown in spending growth is often labeled a spending "cut." Those changed expectations do not tend to occur when windfall revenues are returned through tax cuts or saved for a rainy day.

The state fiscal crisis created during a recession is not caused solely by slower revenue growth. The fact that some state expenditures are countercyclical in nature (e.g., welfare, which accounts for about one-fourth of state general expenditures) further compounds the problem. This phenomenon makes revenue smoothing (through tax cuts), rainy day funds, and spending restraint all that much more important in periods of economic expansion. One way to assess whether spending increases have been excessive is to compare them to increases in incomes. According to Crain (2003: 1), "The typical state budget in the 1990s outpaced state income growth by nearly 1 percentage point annually." The expansionary years of the 1980s saw similar growth of state spending. From 2000 to 2007, despite a recession in 2001, the record has shown a similar disparity, with the average annual nominal growth of current state expenditures at 5.5 percent and nominal personal income growth of only 4.7 percent.[2]

That rapid spending growth has led some to blame the states for their own fiscal woes. As Schunk and Woodward (2005: 113)

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[1]Holcombe and Sobel (1997) explored the idea of revenue variability over the business cycle and gave a detailed account of the fiscal crises that variability causes.
[2]Authors' calculations based on data from the U.S. Bureau of Economic Analysis (www.bea.gov).

described it, "There is an ongoing debate as to whether the extensive fiscal distress of 2001–2003 resulted from increases in spending during the 1990s. *The Economist* (2001) said of the 2001 recession, "The states are in financial trouble again; and it's their fault," referring to large spending increases during the 1990s. During the 1990–91 recession, *The Economist* (1991) argued that "a decade of runaway state spending" in the 1980s was a "principal cause" of state budget troubles. Moore (1991) and Edwards, Moore, and Kerpen (2003) came to similar conclusions in supporting the overspending hypothesis. Gramlich (1991) examined the aggregate budget surplus (of all 50 states) over the period 1955–90. He found that the main cause of lower budget surpluses was the rapid increase in health care costs. Those higher costs have in turn led to higher state spending in that area. In contrast, political commentators often claim that reductions in federal aid are to blame. For example, *Washington Post* columnist David Broder (2002) asserted, "The problem is not that states are profligate spenders." He called for large increases in federal government aid to state governments. McNichol and Carey (2002) also dispute the claims of overspending, while Johnson (2002) blames the fiscal crises on the state tax cuts passed during the 1990s.

In the next section, we provide a discussion of previous literature in this area. We then explain the data and empirical model, and discuss the regression results, before offering our conclusions.

## Previous Literature

Regardless of the cause, the smoothing of state government spending over the business cycle could help to alleviate the severity of the fiscal crises that occur during recessions. Wagner and Elder (2007) use a Markov switching regression to estimate the size of revenue shortfalls during recession. They find that the typical state will see a revenue shortfall of 13 to 18 percent of revenue during a normal downturn. In order to accumulate sufficient funds to offset that shortfall, states would have to save 2.5 to 2.8 percent of revenue per year during expansion periods. Schunk and Woodward (2005) provided simulation results of two spending stabilization rules. They found that if a rule had been in place to limit increases in real per capita spending to 1 percent per year from fiscal year 1994 through fiscal year 2004, spending would have been only 3 percent less than it actually was in fiscal year 2004. However, the spending reductions

made during the 2001 recession would not have been necessary. One potential drawback of such a rule, as the authors concede, is the accumulation of large budget reserves (about 20 percent of total spending under the rule allowing 1 percent real per capita spending growth). Holcombe and Sobel (1997) estimated that for states to have had large enough rainy day funds to avoid slower spending growth during the 1990–91 recession, they would have had to accumulate rainy day funds as large as 30 percent of their budgets. It may be difficult politically to allow such large reserves to remain unused during expansionary years.

Furthermore, it is possible that rainy day funds are seen by state politicians as substitutes for general fund surpluses, so that increases in RDF balances do not increase state savings proportionally because they are partially offset by reductions in general fund balances. Indeed, Wagner (2003) finds evidence of this. A $1 increase in per capita RDF balances was found to increase state savings by only 44 to 49 cents. In addition, the widespread adoption of rainy day funds occurred simultaneously with the adoption of tax and expenditure limits (TELs). Some of those TELs required that general fund surpluses (or at least a portion of them) be returned to the taxpayers. Wagner and Sobel (2006) suggest that some rainy day funds were adopted to allow legislators to avoid those rebate requirements by simply depositing the surplus in an RDF and then removing it later. They found that states with a TEL were more likely to adopt an RDF that had only weak restrictions on deposits and withdrawals than states without one.

The primary mechanism used for the accumulation of reserves is the RDF, although general revenue surpluses, which are typically easier to spend, are also a factor.[3] Thus, much of the empirical work on state fiscal crises has focused on rainy day funds. For example, examining data from the 1990–91 recession, Sobel and Holcombe (1996) found that the mere existence of an RDF did not significantly reduce the "fiscal stress" felt by states during that downturn, where fiscal stress was defined as the sum of the reduction of spending below trend growth rates and discretionary tax increases during the recession years (measured as a percentage of the state budget). Only those rainy day funds into which governments were required to make deposits significantly reduced fiscal stress.

[3]Hou (2005) found that while general fund surpluses can have an effect on fiscal conditions during recessions, their coefficients were only about one-quarter the size of those for rainy day funds.

Using a similar approach, Douglas and Gaddie (2002) expanded upon these findings by adding several variables, including one for the size of the RDF at the start of the 1990–91 recession (balance at the end of fiscal year 1988, measured as a percentage of spending in that year), and modifying others. They found that the presence of an RDF with deposit requirements, multiple rainy day funds, and the size of balances in other funds significantly reduced fiscal stress. Curiously, the size of the RDF was found to have a positive, though insignificant, relationship with fiscal stress.

Hou (2003) found that the size of the RDF (as a percentage of spending) had a significant positive effect on the deviations of general fund spending from trend. The relationship was particularly strong during recession years, in which a 1 percentage point increase in the RDF was associated with a one-quarter percentage point reduction in the negative gap between actual spending and trend spending. Hou (2005) also found that RDF balances had a positive effect on expenditures in downturn years.

Knight and Levinson (1999) examined the impact of rainy day funds on government savings (defined as total balances, which includes both rainy day funds and general revenue surpluses), higher levels of which would presumably reduce fiscal stress. They found that states with a RDF had higher levels of savings. Like others, they found that what matters most are the specific rules governing the RDF. States with RDFs having deposit requirements, withdrawal restrictions, and high or no limits on the size of the fund had higher savings. Moreover, when those factors were controlled for, the mere presence of an RDF actually reduced savings. The authors also found that states with larger RDF balances had higher overall savings.

More recently, Wagner and Elder have done much work in this area. Although using a different methodology, they have tended to find results that are similar to previous work in terms of the importance of the specific characteristics of a state's RDF. Specifically, states with strict rules regarding deposits and withdrawals to their RDF were found to have higher savings levels (Wagner 2003), lower borrowing costs (Wagner 2004), and less expenditure volatility (Wagner and Elder 2005).

One common response to budget shortfalls during a recession is to raise taxes. Such discretionary revenue increases are one of the two factors used in the "fiscal stress" variable described above.

Blackley and DeBoer (1993) found that per capita spending growth and the change in average salary for state government workers during the prior expansion (1983–90) was positively and significantly associated with discretionary revenue changes during the 1990–91 recession. This finding offers some support for our hypothesis that rapid spending increases lead to worse fiscal crises. The authors also found that the change in federal aid from 1983 to 1990 was significantly associated with larger tax hikes. The result that more federal aid led to a greater need for revenue increases contradicts the hypothesis that fiscal crises are caused by reductions in federal aid.

Building on earlier work by Greene (1993), Sobel (1998) examined the political costs faced by elected officials who increase taxes or cut spending during a recessionary year. Using state legislature data from 1990, Sobel found that turnover was affected by both tax increases and expenditure decreases. Increases in discretionary tax as a percentage of the state budget in fiscal years 1989 and 1990 led to more turnover. Furthermore, when expenditures fell below real trend growth as a percent of the state budget, legislative turnover also increased.

Knight and Levinson (1999) found mixed results for the impact of per capita government expenditures on government savings. In their primary sample, they found that states with higher spending saved more. Presumably states with higher spending would need to save more in preparation for revenue slowdowns during recessions. However, in a secondary sample (which added Alaska, Hawaii, and Nebraska) used to test for robustness, they found that higher spending states actually saved less.

Finally, Poterba (1994) used panel data to examine the impact of budget institutions on state responses to fiscal crises. He found that states with TELs raised taxes less in response to fiscal crises than did states without them. Presumably, part of the reason is that those TELs led to slower spending growth during boom years. However, as Poterba emphasizes, some of this spending slowdown is endogenous: voters in states that enact strict controls may be more supportive of fiscal restraint. He also found that states with strict anti-deficit rules cut spending more during recessions than did other states. So, TELs reduce fiscal stress, but strict anti-deficit rules increase it. Krol (2007) also found that TELs were effective fiscal constraints, and he provides an overview of the more recent literature in this area.[4]

[4]Including a dummy variable for the presence of a TEL did not substantially alter our results. The coefficients for that variable were all highly statistically insignificant, so it was not included.

Most previous work on fiscal stress has focused on the 1990–91 recession. Following the approach of Sobel and Holcombe (1996) and Douglas and Gaddie (2002), this article expands on the literature by examining data from the 2001 recession and by including a variable for spending growth during the expansion (thus allowing us to test the overspending hypothesis).

## Data and Empirical Model

Following Sobel and Holcombe (1996), we use "fiscal stress" as our dependent variable. "Fiscal stress" is defined as the sum of two items, measured as a percentage of general fund spending before the recession (fiscal year 2000): (1) the amount by which general fund spending falls short of trend growth during recession years, and (2) the amount of discretionary tax increases during recession years.[5] For the 2001 recession, the fiscal impacts were concentrated in the 2001–2003 fiscal years, so our dependent variable is the sum of fiscal stress for each of those three years.[6]

The independent variable used to test our hypothesis regarding spending increases is the average annual increase in general fund spending over the expansionary period 1991–2001. To adjust for state-by-state differences in the growth of population and income, we also measure spending in per capita terms and as a percentage of personal income. The expected sign on each of these three variables is positive.

In addition to the spending variable, we follow the previous literature in including a number of control variables. A dummy variable for the presence of a rainy day fund (1 for states that have an RDF, 0 for states that don't) is expected to have a negative sign, because the existence of such a fund should reduce the need for spending cuts or tax increases during a recession. The effectiveness of RDFs varies

[5]Sobel and Holcombe (1996) used 1984–92 to estimate trend growth, where 1984 was the first post-recession fiscal year where the budget process took place in a period of expansion and 1992 was the first fiscal year that fully took place during a period of expansion. Similar logic would suggest using 1993–2003 to estimate trend growth for the 2001 recession, which is what we have done. Unless otherwise indicated, the state finance data in this article come from the National Association of State Budget Officers' semi-annual (Fall and Spring) publication *Fiscal Survey of the States*. The spending data come from Appendix Table A-1 in the Fall editions. The discretionary tax increase data come from the table in each Fall edition entitled "Enacted Revenue Actions by Type of Revenue and Net Increase or Decrease."
[6]The year-by-year fiscal stress data for each state, the summary statistics, and the correlation coefficients are available from the authors upon request.

based in part on whether there is a requirement that politicians actually deposit money into the fund. Therefore, we use a dummy variable that takes the value of 1 for states with a deposit requirement and 0 otherwise; it is expected to have a negative sign. Similarly, restrictions on withdrawals from rainy day funds can also increase their effectiveness. We use a dummy variable that takes the value of 1 for states with a withdrawal rule and 0 otherwise; it is expected to have a negative sign. Wagner and Sobel (2006) separate these deposit requirements and withdrawal rules into four categories based on the strength of the rule. Thus, we include a variable measuring the strength of the RDF deposit requirement and a variable measuring the strength of the RDF withdrawal rule, where a value of 1 refers to the weakest rule and a value of 4 refers to the strongest rule. Those with no rule are given a value of 0. The coefficients of each of these two variables are expected to have a negative sign.

The size of a state's rainy day fund would also be expected to have a negative association with fiscal stress. We use a variable that measures the RDF balance at the beginning of the recession (fiscal year 2000), as a percent of general fund spending in that year. We expect states with multiple RDFs to be better prepared for a recession. Thus, we use a dummy variable that takes the value of 1 for states that have more than one fund and 0 otherwise; the expected sign is negative.

Finally, the severity of a recession can vary substantially from state to state. One way to measure a recession's severity is by examining its impact on state revenues. We follow Sobel and Holcombe (1996) and Douglas and Gaddie (2002) in employing a severity variable calculated as the average annual change in general fund revenue during the recession, fiscal year 2000–03, not including revenues derived from discretionary tax increases. The expected sign is positive.

Due to substantial differences in their state fiscal situations, it is common to drop Alaska and Hawaii from studies of this nature. We have followed that convention.

## Regression Results

To account for heteroskedasticity, the models are estimated using White robust standard errors. The variance inflation factors were calculated and did not provide evidence of the presence of multicollinearity. As column (1) in Table 1 indicates, spending increases during good years were positively and significantly associated with fiscal stress. For

TABLE 1
FISCAL STRESS (AS A PERCENTAGE OF 2000 GENERAL FUND SPENDING), 2001–2003

| Variable | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| General fund spending, average annual increase, 1991–2001 | 2.195*** (4.30) | | | |
| Per capita general fund spending, average annual increase, 1991–2001 | | 2.599*** (3.19) | | |
| General fund spending, as a % of personal income, average annual increase, 1991–2001 | | | 2.531*** (2.74) | |
| Rainy day fund | −0.094 (1.12) | −0.106 (1.22) | −0.11 (1.24) | −0.143 (1.38) |
| Rainy day fund with a deposit requirement | 0.005 (0.34) | 0.013 (0.91) | 0.015 (0.97) | 0.012 (0.65) |
| Strength of RDF deposit requirement | 0.010 (0.84) | 0.024*** (2.72) | 0.021** (2.38) | 0.013 (1.10) |
| Rainy day fund with a withdrawal rule | 0.031 (0.78) | 0.017 (0.50) | 0.028 (0.79) | 0.018 (0.28) |

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TABLE 1 (*continued*)

FISCAL STRESS (AS A PERCENTAGE OF 2000 GENERAL FUND SPENDING), 2001–2003

| Variable | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| Strength of RDF withdrawal rule | −0.017** | −0.021*** | −0.021*** | −0.024*** |
| | (2.29) | (2.81) | (2.77) | (2.72) |
| Rainy day fund balance, as a % of general fund spending, 2000 | −0.174 | −0.102 | −0.091 | −0.081 |
| | (0.74) | (0.48) | (0.43) | (0.28) |
| Multiple rainy day funds | 0.009 | 0.024* | 0.020 | 0.008 |
| | (0.82) | (1.70) | (1.30) | (0.36) |
| Severity of recession | 1.501*** | 1.343*** | 1.404*** | 1.323*** |
| | (4.51) | (4.47) | (4.68) | (3.31) |
| Constant | 0.097 | 0.098 | 0.215** | 0.281*** |
| | (1.10) | (1.00) | (2.44) | (3.06) |
| N | 48 | 48 | 48 | 48 |
| R-squared | 0.588 | 0.577 | 0.560 | 0.419 |

NOTE: Numbers in parentheses are absolute values of t-statistics. To account for heteroskedasticity, the models are estimated using White robust standard errors.
***Two-tailed statistical significance at 99 percent confidence, **95 percent confidence, *90 percent confidence.

example, a one standard deviation increase in the average annual change in general fund spending (0.017) was associated with a 3.7 percentage point increase in fiscal stress. This supports the overspending hypothesis and is consistent with the findings of Blackley and DeBoer (1993), which used only the discretionary revenue increases portion of our fiscal stress index as their dependent variable.

To adjust for changes in spending demands, columns (2) and (3) use spending increases measured on a per capita and percentage of personal income basis, respectively. The results are similar to those for total spending in column (1). Faster increases in spending were positively and significantly associated with fiscal stress. A one standard deviation increase in the average annual change in per capita general fund spending (0.014) was associated with a 3.6 percentage point increase in fiscal stress. For general fund spending as a percentage of personal income, the marginal effect was an increase in fiscal stress of 3.5 percentage points. This result provides further support for our hypothesis that rapid spending increases during boom years are positively associated with fiscal stress during the subsequent recession.

Our findings indicate that the mere presence of a RDF did not have a statistically significant effect on fiscal stress during the 2001 recession. The size of that RDF also was found to be insignificant, although both of those variables did have the expected negative sign. Those results are generally consistent with the previous findings of Sobel and Holcombe (1996) and Douglas and Gaddie (2002). One possible explanation is that the specific characteristics of the RDF are the primary determinants of its effectiveness at reducing fiscal stress. For example, a deposit requirement should make it more likely that excess revenues will be deposited into the RDF. And a withdrawal rule should help assure that those funds will be removed only in the times of fiscal crisis. Rainy day funds without those characteristics are less likely to be effective.

As Table 1 indicates, neither the existence of an RDF deposit requirement nor a withdrawal rule had a statistically significant effect on fiscal stress. These results contradict previous findings. One possible explanation is that, as Wagner and Sobel (2006) indicated, the strength of these rules varies widely from state to state. Our findings provide some support for that explanation. In all four regressions, we found that the strength of the withdrawal rule had the expected negative association with fiscal stress. A one standard deviation increase in

the withdrawal rule's strength (1.115) was associated with a decrease in fiscal stress of about 2.3 percentage points. However, in two of the four regressions, the strength of the deposit requirement was unexpectedly found to have a positive and statistically significant coefficient.

The only other variable that consistently had a statistically significant coefficient was the severity of the recession within the state. It was positively and significantly associated with fiscal stress. A one standard deviation increase in the severity of the recession (0.026) was associated with an increase in fiscal stress of about 3.8 percentage points. The findings for the severity of the recession are similar to those of Sobel and Holcombe (1996) and Douglas and Gaddie (2002). As column (4) indicates, all of these results were largely unchanged when the spending increase variable was dropped.

## Conclusion

The past two recessions have led to substantial fiscal crises for state governments. The current slowdown in economic growth is creating similar problems in many states. There has been much debate about the cause of those crises. *The Economist* (2001 and 1991) as well as Moore (1991) and Edwards, Moore, and Kerpen (2003) have suggested that in part states themselves are to blame because they have used too much of the revenue windfalls that occur during good times to fund new government programs and expand existing ones, rather than increasing rainy day funds or cutting taxes. This article has examined that overspending hypothesis. While other factors undoubtedly also played a role, our results suggest that rapid spending increases during the preceding expansionary years did indeed play a substantial role in worsening the fiscal crises faced by states during the 2001 recession. In addition, like previous research on the 1990–91 recession, our results indicate that the mere presence of a rainy day fund did not reduce fiscal stress in the 2001 recession. It is the characteristics of that RDF that matter. These results have important implications for fiscal policy choices during expansionary years. States that restrain spending growth are likely to face less severe fiscal crises when the business cycle turns downward than those that allow spending growth to rapidly increase.

## References

Blackley, P. R., and DeBoer, L. (1993) "Explaining State Govern-

ment Discretionary Revenue Increases in Fiscal Years 1991 and 1992." *National Tax Journal* 46 (1): 1–12.

Broder, D. (2002) "States in Fiscal Crisis." *Washington Post* (22 May): A37.

Crain, W. M. (2003) *Volatile States: Institutions, Policy, and the Performance of American State Economies*. Ann Arbor, Mich.: University of Michigan Press.

Douglas, J. W., and Gaddie, R. K. (2002) "State Rainy Day Funds and Fiscal Crises: Rainy Day Funds and the 1990–1991 Recession Revisited." *Public Budgeting and Finance* 22 (1): 19–30.

*The Economist* (1991) "The Tax-and-Spend States Get Their Come-Uppance" (22 June): 25–26.

_____ (2001) "Red Ink Rising" (9 August).

Edwards, C.; Moore, S.; and Kerpen, P. (2003) "States Face Fiscal Crunch after 1990s Spending Surge." Cato Briefing Paper 80 (12 February). Washington: Cato Institute.

Gramlich, E. M. (1991) "The 1991 State and Local Fiscal Crisis." *Brookings Papers on Economic Activity* (2): 249–73.

Greene, K. V. (1993) "An Economic Investigation of Interstate Variation in Legislative Turnover." *Public Finance Quarterly* 21 (1): 84–99.

Holcombe, R. G., and Sobel, R. S. (1997) *Growth and Variability in State Tax Revenue: An Anatomy of State Fiscal Crises*. Westport, Conn.: Greenwood Press.

Hou, Y. (2003) "What Stabilizes State General Fund Expenditures in Downturn Years: Budget Stabilization Fund or General Fund Unreserved Undesignated Balance?" *Public Budgeting and Finance* 23 (2): 64–85.

_____ (2005) "Fiscal Reserves and State Own-Source Expenditure in Downturn Years." *Public Finance Review* 33 (1): 117–44.

Johnson, N. (2002) "The State Tax Cuts of the 1990s, the Current Revenue Crisis, and Implications for State Revenues." Washington: Center on Budget and Policy Priorities (18 November).

Knight, B., and Levinson, A. (1999) "Rainy Day Funds and State Government Savings." *National Tax Journal* 52 (3): 459–72.

Krol, R. (2007) "The Role of Fiscal and Political Institutions in Limiting the Size of State Government." *Cato Journal* 27 (3): 431–45.

McNichol, E. C., and Carey, K. (2002) "Did States Overspend During the 1990s?" Washington: Center on Budget and Policy

Priorities (15 October).

Moore, S. (1991) "State Spending Splurge: The Real Story behind the Fiscal Crisis in State Government." Cato Policy Analysis 152 (23 May). Washington: Cato Institute.

National Association of State Budget Officers (various years) *Fiscal Survey of the States*. Washington: National Association of State Budget Officers.

Poterba, J. M. (1994) "State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics." *Journal of Political Economy* 102 (4): 799–821.

Schunk, D., and Woodward, D. (2005) "Spending Stabilization Rules: A Solution to Recurring State Budget Crises?" *Public Budgeting and Finance* 25 (4): 105–24.

Sobel, R. S. (1998) "The Political Costs of Tax Increases and Expenditure Reductions: Evidence from State Legislative Turnover." *Public Choice* 96 (1–2): 61–80.

Sobel, R. S., and Holcombe, R. G. (1996) "The Impact of State Rainy Day Funds in Easing State Fiscal Crises During the 1990–1991 Recession." *Public Budgeting and Finance* 16 (2): 28–48.

Wagner, G. A. (2003) "Are State Budget Stabilization Funds Only the Illusion of Savings? Evidence from Stationary Panel Data." *Quarterly Review of Economics and Finance* 43 (2): 213–38.

_____ (2004) "The Bond Market and Fiscal Institutions: Have Budget Stabilization Funds Reduced State Borrowing Costs?" *National Tax Journal* 57 (4): 785–804.

Wagner, G. A., and Elder, E. M. (2005) "The Role of Budget Stabilization Funds in Smoothing Government Expenditures Over the Business Cycle." *Public Finance Review* 33 (4): 439–65.

_____ (2007) "Revenue Cycles and the Distribution of Shortfalls in U.S. States: Implications for an Optimal Rainy Day Fund." *National Tax Journal* 60 (4): 727–42.

Wagner, G. A., and Sobel, R. S. (2006) "State Budget Stabilization Fund Adoption: Preparing for the Next Recession or Circumventing Fiscal Constraints?" *Public Choice* 126 (1–2): 177–99.