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Building State Rainy Day Funds

Policies to Harness Revenue Volatility, Stabilize Budgets, and Strengthen Reserves

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Contents

- 1 Overview
- 2 Are states saving enough? The challenge of revenue volatility
- 4 Many states structure budget stabilization funds in ways that make building reserves a low priority
 - Fund caps are often set too low to manage budget volatility **4**
 - Debunking the '5 Percent Rule' **5**
 - Deposit rules often are not designed to harness volatility **6**
 - Deposits based on surpluses **7**
 - Deposits based on forecast error **8**
 - Ad-hoc or static deposits **8**
 - States without rainy day funds **9**
 - When to Withdraw? **9**
- 10 Deposit rules designed with volatility in mind
 - Rules tied to overall revenue volatility **10**
 - Rules tied to specific sources of volatile revenue **13**
 - Deposits tied to economic volatility **14**
 - Timing in Louisiana **14**
- 16 States are missing opportunities to harness volatile revenue
 - Research Methods: Calculating State Revenue Volatility **17**
 - Simulation 1: Florida could have harnessed the construction boom **17**
 - Simulation 2: Pennsylvania could have better weathered the downturn **19**
 - Simulation 3: South Carolina could have saved five times as much **19**
- 20 Policy recommendations
 - Require regular studies to identify specific drivers of volatility and present appropriate policy solutions **20**
 - Tie budget stabilization fund deposits to observed volatility **20**
 - Establish fund size targets that match the state's experience with volatility **21**
- 22 Conclusion

23	Appendix A: Methodology
	Deposit rule classification 23
	Analysis of state tax volatility 25
	Identifying major tax types 25
	Adjusting for tax policy changes 25
	Calculating volatility 25
	Counterfactual scenarios 26
27	Appendix B: Deposit rule classifications
32	Appendix C: Overall revenue volatility
33	Endnotes

About this report

Building State Rainy Day Funds is the second in a series of reports by The Pew Charitable Trusts that offers policymakers strategies to improve long-term fiscal health and manage budget uncertainty. The first report, “Managing Uncertainty: How State Budgeting Can Smooth Revenue Volatility,” examined patterns of revenue and economic volatility across the 50 states. This new report builds on that work and explores in detail how states can enhance their rainy day funds to harness fluctuations in revenue. The report reviews the rules that guide when, how, and how much states are saving—including deposit rules and fund caps—and compares these policies to each state’s experience with volatility to identify best practices.

Pew’s research methods are discussed in detail at the end of this report. The team analyzed major tax sources and total tax revenue data from the U.S. Census Bureau’s Annual Survey of State Government Tax Collections and rainy day fund statutes for all 50 states. To supplement this analysis, Pew interviewed key fiscal policymakers and independent analysts in 26 states.



Overview

Like most states, Massachusetts has a rainy day fund to cover revenue shortfalls and respond to unforeseen events. Since the fund's creation in the 1980s, it has proved relatively successful in building a cushion during growth years and mitigating strain during downturns.

But state leaders did not consider year-to-year swings in revenue when they initially determined when and how much to save, instead simply transferring available surpluses at the end of each fiscal year. This left the state unprepared to deal with the magnitude of revenue fluctuations in the late 2000s. In fiscal year 2007, Massachusetts collected \$2.2 billion in taxes on investment earnings—in other words, capital gains. The next year the Great Recession hit, and this revenue dropped more than 60 percent to just \$832 million.¹

This dramatic decline served as a catalyst for significant reforms in the state's saving policy. In 2010, Massachusetts adopted a rule for depositing money into its rainy day fund that involved setting aside high growth in capital gains as reserves. The goals were to limit spending that relied on this increasingly unpredictable revenue source and to enact a system based on state-specific trends that builds saving into the beginning of the budget process. Under the new rule, state leaders have restored much of the fund's balance, more than doubling it to almost \$1.7 billion in the years following the recession.²

Over the past several decades, rainy day funds—formally known as budget stabilization funds—have been key to helping states manage ups and downs in revenue, but some are more effective than others. As in Massachusetts, state policymakers across the country are finding that their financial cushions may not be sufficient to counter the pressures of increasing economic and revenue volatility. In many cases, balances have been inadequate to significantly offset revenue declines during recessions. For example, the 50 states collectively had about \$60 billion set aside in summer 2008,³ but they faced a combined shortfall of nearly twice that—\$117 billion—the following year.⁴ The Great Recession is an extreme example, but many rainy day funds were also insufficient during previous recessions. States could have set aside more in recent periods of growth if not for statutory limits on the total size of reserves and rules for deposits that make saving a low budget priority.

To help state policymakers craft effective policies and lessen the need for the most difficult budget choices, Pew researchers examined the mechanisms for depositing money into budget stabilization funds and compared these rules to tax volatility patterns and drivers in all 50 states. Researchers adjusted U.S. Census Bureau data to remove the effect of tax policy changes from 1994 to 2012, which helps to identify the underlying cyclical volatility in these tax sources. The research found that:

- Only 12 states connect the rules for when, how, and how much to deposit into their budget stabilization funds with underlying revenue or economic fluctuation.
- In many instances, caps on the size of the funds have prevented states from saving enough to substantially offset revenue losses.

Pew's research identified three promising practices that can help state policymakers design budget stabilization funds that respond to economic and revenue volatility in order to deliver reliable savings in times of growth:

1. **Require regular studies to identify major sources of volatility and present appropriate policy solutions.** These studies should determine which areas of the tax system are volatile, recommend ways to align budget stabilization fund policies with that volatility, and be revisited on a recurring basis. For example, every three years Utah produces a comprehensive report, which analyzes economic changes that affect state tax revenue, the interaction between the tax base and tax rate, and policy changes that modify the tax system.

These reports have directly informed the rules governing how and how much the state saves. In 2014, Utah expanded its volatility study to consider automatic deposit mechanisms for reserve funds.

2. **Tie budget stabilization fund deposits to observed volatility.** To ensure that policymakers set aside a portion of one-time or temporary revenue growth, rainy day fund deposits should be tied to extraordinary or unexpected revenue increases. This can allow states to save more in high-growth years when funds are available, and to set aside less in leaner years. Because each state's economic and fiscal characteristics are unique, the ideal rule will vary from state to state. Virginia ties deposits to growth in all major taxes; Massachusetts captures high capital gains collections; and Texas sets aside oil and gas revenue above a certain level.
3. **Set fund size targets that match the state's experience with volatility.** The amount of money states need to have on hand for downturns depends on their susceptibility to sudden swings. Even when deposits are linked to volatility, if the fund's cap is too low, it can hinder creation of an adequate financial cushion. Recently, states have begun to address this problem through legislation. For example, Minnesota law requires the state to examine economic patterns to determine the ideal size of its budget stabilization fund.

This report explores these findings and practices in depth. It highlights the problem of volatility in state budgets, outlines the limitations of current budget stabilization funds for managing that volatility, presents strategies to harness revenue fluctuations, and offers recommendations for improving rainy day funds in the context of increasingly volatile economic and revenue conditions.

Are states saving enough? The challenge of revenue volatility

Over the past decade, dramatic swings in revenue have become more common for state governments.⁵ Shifts in personal income patterns—particularly from traditional wages and salaries to investment income—made income tax collections harder to predict.⁶ Meanwhile, the traditional sales tax base narrowed relative to the underlying economy as consumers spent more on untaxed services and online sales, trends that also made sales tax collections less predictable.⁷ And a growing number of states rely heavily on tax revenue from the oil and gas industries, which fluctuates according to global commodity prices.⁸

Policymakers in all 50 states are coping with the impact that increased volatility has had on their budgets. Shaped by complex interactions of changing economic conditions, tax policy decisions, and events outside the control of state government, volatility can amplify forecast errors, influence the timing and size of shortfalls and surpluses, and force difficult and unexpected midyear budget choices in good times as well as bad.⁹

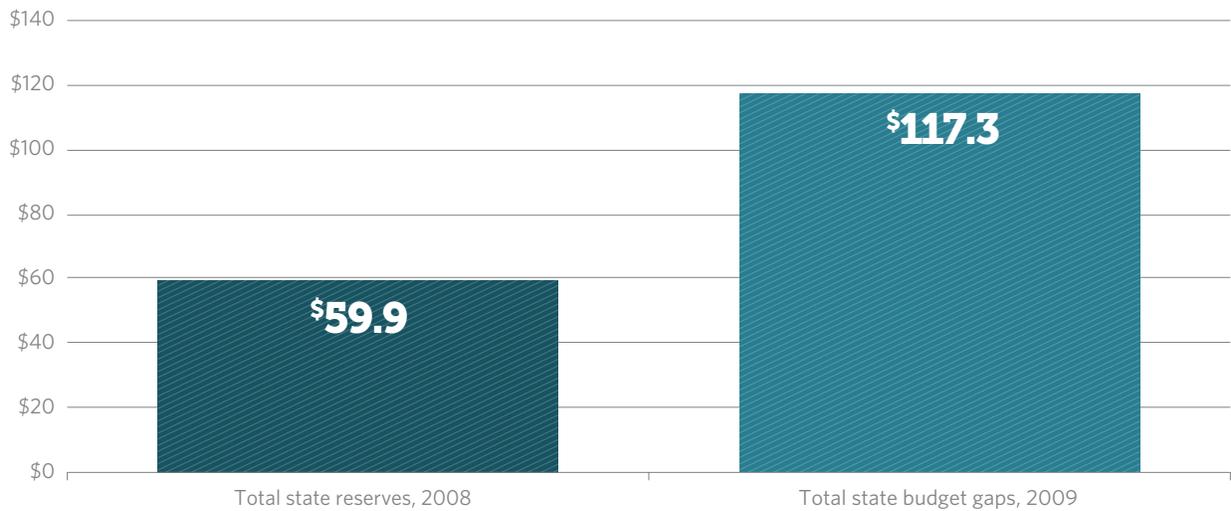
Budget stabilization funds are vital to managing these unexpected swings. These funds set aside money for general purposes and are meant to smooth budgets over multiple years and across different phases of the business cycle.¹⁰ By the late 2000s, all but a handful of states had established rainy day funds to help manage their finances. But few states designed their funds in the most effective manner to ensure that savings would be robust enough to counteract revenue fluctuations. States often fail to tie deposits to observed patterns of volatility, mistake one-time windfalls for long-term growth, set fund caps that provide inadequate protection against downturns, and make saving for the future a low priority within the budget process.

The Great Recession made the complexity of revenue volatility impossible to ignore. After several years of economic expansion, most states experienced sharp downturns and severe fiscal crises. Policymakers had to

Figure 1

State Shortfalls Outstripped Savings Nearly 2 to 1 in the First Year of the Great Recession

50-state total 2008 reserves and 2009 budget gaps, in billions of dollars



Sources: The Pew Charitable Trusts, *Fiscal 50: State Trends and Analysis*, <http://www.pewtrusts.org/fiscal50>; National Conference of State Legislatures, "State Budget Update: November 2010" (Dec. 7, 2010)

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address massive budget gaps by raising taxes, imposing deep spending cuts, or both. Few states had sufficient budget stabilization fund balances to address the downturns they experienced.

Altogether, between general fund balances and budget stabilization funds, the 50 states had about \$60 billion set aside in the summer of 2008, but in fiscal 2009, budget gaps across the country totaled \$117 billion, about twice what states had in reserve.¹¹ (See Figure 1.) The budget gaps continued to grow in 2010 and many states struggled with shortfalls for three or more years.

The inadequacy of states' reserves to weather the Great Recession prompted many policymakers to reexamine whether their current strategies would adequately insulate them from similar shocks in the future. Although the size of the budget gaps experienced during the Great Recession was extraordinary, this pattern of under-saving is not new. In fiscal 2002, facing a smaller recession, the median state rainy day fund balance was \$95.7 million, but the median budget gap was \$394.8 million.¹²

The challenges states face during recessions often reflect the choices they make during expansions. In many cases, states have treated periods of extraordinary growth—such as the 1990s and mid-2000s—as if they would never end, using temporary windfalls to cut taxes and increase spending while setting very little aside for leaner years. For example, since 2000, Connecticut has collected \$5.4 billion in surplus revenue above the state's spending cap, but less than a third of that money was directed to reserves.¹³

Because these choices can affect budgets for years to come, it is critical that states be able to distinguish short-term windfalls from revenue that is likely to recur. Some instances of one-time revenue—such as large legal settlements—are easy to identify, but others are more difficult to define.

For example, federal tax rate increases on personal income from capital gains scheduled to take effect in 2013 prompted many taxpayers to realize more of those gains in 2012 than they normally would have. As state legislators created their budgets for the coming fiscal year, revenue departments in 41 states reported significantly more revenue than expected.¹⁴ Although slow and steady improvements in employment and a booming stock market certainly contributed to these gains, at least some of the growth was due to higher-than-expected tax collections that are unlikely to recur.¹⁵ Few states have systematically examined the long-term patterns and causes of volatility to determine when growth is unusual and to monitor how unexpected revenue is used in the budget.

Even when states do study volatility, their budget stabilization funds often have caps on the maximum fund size and deposit rules (the mechanisms that trigger a payment to the fund) that do not reflect the states' unique revenue fluctuations. These caps and rules hinder states' ability to grow reserves in line with those observed revenue patterns. States often make saving the last priority in the budget process, impeding careful consideration of deposit amounts and risking insufficient resources to provide an adequate fiscal cushion.

In summer 2013, aggregate state revenue surpassed prerecession peaks, the first increase in state governments' purchasing power in almost five years.¹⁶ Although conditions vary, many states have reason to be more optimistic about their budgets when compared with recent years. But even as revenue recovers, increased volatility may make predicting ups and downs in the budget more difficult than a decade ago.¹⁷

Undeniably, setting aside money for the future requires trade-offs. Although many state leaders have emphasized the need to rebuild savings, each dollar directed to a budget stabilization fund is a dollar that cannot be spent on public programs or tax reductions or used to pay down long-term debt. But these savings can mitigate tough decisions during recessions and help make state budgets more consistent and predictable throughout the business cycle. As the economy expands and states continue to see their revenue increase, policymakers have both a fiscal responsibility to rebuild budget stabilization funds and a unique opportunity to significantly improve them.

Many states structure budget stabilization funds in ways that make building reserves a low priority

States establish rainy day funds to manage budgetary uncertainty. Specific goals for these funds include dealing with forecast errors, preventing severe expenditure cuts and tax increases, stabilizing revenue, and coping with unforeseen emergencies. In many cases, the design and structure of these funds hinder states' ability to set aside enough money during the good times to meet these goals. While each state faces unique challenges, policymakers can improve several aspects of fund design. In particular, state-specific revenue fluctuations can inform decisions about caps and deposit rules.

Fund caps are often set too low to manage budget volatility

States commonly set a cap, or limit, on the total balance allowed in a rainy day fund. An ideal cap allows the fund to grow to an adequate level to offset revenue volatility over the business cycle without putting aside more than is necessary. As with most budgeting choices, there are trade-offs states should consider when determining the optimal cap size. An oversized fund locks away money that could be used for other purposes. If the cap is set too low, however, the state may not save enough to offset typical downturns in the economy.

Although most states recognize the importance of having a fund to smooth the booms and busts of the revenue cycle, few base the size of their rainy day fund on their own typical revenue fluctuations. Before the Great

Recession, 37 states set caps using a fixed percentage of appropriations or revenue, most commonly 5 or 10 percent.¹⁸ While this may be adequate for some states, researchers have questioned a one-size-fits-all approach to setting budget stabilization fund balance levels.¹⁹ (See “Debunking the ‘5 Percent Rule,’” below.) Each state has a unique set of economic conditions, tax sources, and tax structures that affect the volatility of revenue streams and the severity of downturns. States should consider these factors when setting fund caps.

Debunking the ‘5 Percent Rule’

The National Conference of State Legislatures’ Fiscal Affairs and Oversight Committee notes that a conventional standard for states’ financial adequacy is to have 5 percent of total revenue or expenditures in a combination of its end-of-year balance and its budget stabilization fund.[†] State experiences during the Great Recession, however, demonstrated that the 5 percent rule is not universally applicable. In fact, the committee notes that the appropriate financial cushion for each state ultimately depends on state-specific factors.[‡] Standard & Poor’s and Moody’s currently give top scores to states with savings equal to or greater than 8 percent and 10 percent, respectively, of annual revenue or spending.[§] Furthermore, the Government Finance Officers Association suggests even higher balances of up to two months’ worth of operating revenue or expenditures.[§] States with high levels of revenue volatility already acknowledge this reality. Alaska, which has the nation’s highest overall volatility due to its reliance on the severance tax, had rainy day fund balances that equaled 263 percent of its fiscal 2014 expenditures.^{**} While Alaska is an extreme case, it highlights the importance of understanding unique sources of revenue volatility when building a budget stabilization fund. Two other states with traditionally high volatility, North Dakota and Wyoming, reported total 2014 balances of 26 percent and 53 percent of expenditures, respectively.^{††}

* National Conference of State Legislatures, “NCSL Fiscal Brief: State Balanced Budget Provisions” (October 2010), 7, <http://www.ncsl.org/documents/fiscal/statebalancedbudgetprovisions2010.pdf>.

† Ibid.

‡ Jim Showalter, “Budget Reserve Report 2014,” Minnesota Management and Budget (January 2014), 1, <http://mn.gov/mmb/images/budget-reserve-report-jan2014.pdf>.

§ Government Finance Officers Association, Best Practice: “Determining the Appropriate Level of Unrestricted Fund Balance in the General Fund” (2002 and 2009), <http://www.gfoa.org/determining-appropriate-level-unrestricted-fund-balance-general-fund>.

** The National Governors Association and National Association of State Budget Officers, *The Fiscal Survey of States* (Spring 2013), Table 25, <http://www.nga.org/files/live/sites/NGA/files/pdf/2013/FSS1306.PDF>.

†† Ibid.

Many states saved up to their funds’ maximum balances in the years before the Great Recession, and often, these caps prevented them from saving enough to weather the crisis. Budget gaps during the Great Recession led some states, including Minnesota and Virginia, to reexamine and raise their caps.

Minnesota experienced several years of above-average revenue growth during the mid-2000s. The state was diligent in depositing money to its Cash Flow Account and Budget Reserve Account. By July 2005, both funds had reached their maximums—a total of slightly more than \$1 billion. Although the state continued to see above-average revenue growth for the next two years, it made no additional deposits before the downturn hit in 2008. After adjusting for tax policy changes, Minnesota’s revenue declined an estimated \$1.4 billion from fiscal 2008 to 2010.²⁰ When the recession ended, the state had drained its Budget Reserve Account and had only \$95 million

left in its Cash Flow Account. To cover the remaining deficit, the state delayed payments to education funding.²¹ Since fiscal 2010, Minnesota's Department of Management and Budget has used a methodology developed by the State Budget Trends Study Commission in 2008 to annually recommend an appropriate target level for the state's savings.²² In 2014, state lawmakers passed a bill increasing the total cap on budget reserves by \$150 million based on the department's recommendation.²³

Before the Great Recession, Virginia had a 10-percent cap on its Revenue Stabilization Fund. State policymakers made consistent, constitutionally mandated deposits into the fund beginning in fiscal 2003, before hitting the maximum balance at the end of fiscal 2006 and again in fiscal 2007.²⁴ Despite reaching the cap, rainy day fund withdrawals were only sufficient to cover 15 percent of the total budget gap that occurred from fiscal 2008 to 2010.²⁵ Virginia voters approved a constitutional amendment in 2010 to raise the maximum allowable balance in the fund to 15 percent of annual revenue. If the cap had been set at this level before the recession, the state would have had an additional \$594 million available to address budget shortfalls.²⁶ Virginia's general fund revenue collections declined by \$1.4 billion between fiscal 2008 and 2009.²⁷ Had the cap been raised earlier, the additional savings would have offset more than 40 percent of those losses.

Other states, including Hawaii, Idaho, Oklahoma, South Carolina, Tennessee, and Vermont, also passed measures in recent years to raise their caps or create additional rainy day funds.²⁸ These changes were fueled in part by concerns about the feasibility of further reducing state budgets, given the depth of cuts made in response to the Great Recession. "While we hope the Great Recession was an anomaly, we know we will have more downturns, and I think there is a concern that the 5 percent that we held in reserves was not enough. Even for a modest downturn, I don't know that it would be enough," said Idaho Division of Financial Management Administrator Jani Revier. "If we were to hit another recession in the next couple of years, we don't have a lot of fat from which to make more cuts without decreasing services. Most of our cuts were made without significantly impacting services to the average citizen."²⁹

States should analyze the amount of savings needed to effectively mitigate volatility, and they should routinely evaluate whether those levels are still appropriate. For example, Utah's existing revenue volatility report indicated the need to increase rainy day fund targets in 2009 and again in 2012.³⁰ Future Pew research will further examine how states can set budget stabilization fund caps and targets that reflect their specific sources of volatility.

Deposit rules often are not designed to harness volatility

While it is important to set a target for the size of a budget stabilization fund, state policymakers also need to decide when and how they will make deposits to reach those goals. Pew examined the statutes governing deposits to these funds across all 50 states. Researchers used three peer-reviewed academic sources as well as studies from the National Conference of State Legislatures and the Center on Budget and Policy Priorities to determine the extent to which each deposit rule is linked to volatility.³¹

This research revealed that 38 states do not have rules that tie rainy day deposits to underlying economic or revenue conditions. Of these, 21 states use year-end fiscal positions (i.e., their balances at the end of the fiscal year) to guide deposit decisions, five use forecast error (the difference between actual and projected revenue), eight make deposits on an ad-hoc basis or based on static requirements, and four do not have a budget stabilization fund. (See Figure 2.)

coming year. By putting funds into savings before state legislators begin creating a budget, Minnesota effectively prioritizes savings ahead of other expenditures. Some states, such as Georgia and Nebraska, set aside the entire surplus each year. Others, like North Carolina and Pennsylvania, which both direct 25 percent of their unspent revenue to savings, split the unused funds, sending a portion to the budget stabilization fund and allocating the rest for other uses.³⁴

Deposits based on forecast error

Five states—Nebraska, New Jersey, Oklahoma, Utah, and Wisconsin—use forecast error, or the difference between actual and projected revenue, to determine their deposits, setting aside any amounts that come in above the forecast. Wisconsin, for example, transfers half of the difference between expected and actual revenue to its budget stabilization fund. In many instances, revenue that comes in above forecast is unlikely to recur, and it makes sense to set those dollars aside.

On the other hand, using forecast error can be misleading. If, for example, budget officials estimate a downturn when revenues are actually stagnant, collections would still come in above forecast, and could force contributions at the expense of maintaining other budget commitments at levels similar to the previous year. Conversely, if collections are booming relative to the prior year but forecasters predicted even higher growth, there is no requirement to save, which would result in missed opportunities to build reserve balances when it makes the most sense to do so. New Jersey's Surplus Revenue Fund, for instance, was empty from 2009 to 2014, as state revenue repeatedly failed to meet expectations. David Rosen, legislative budget and finance officer, said the fund was designed "to lop off the extra money from the peaks and put it away for the valleys, and it hasn't really done that very effectively." Furthermore, New Jersey's rule does not include the state's income tax, which is constitutionally dedicated to property tax relief. Rosen explained, "Forty percent of our revenue stream is not part of the determination of excess revenue, which is significant, because the income tax tends to be the most volatile source."³⁵

Ad-hoc or static deposits

States that use forecast error or year-end fiscal position to determine deposits could do more to align savings with revenue trends. But eight states—Alabama, Arkansas, Florida, Maryland, Missouri, Rhode Island, South Carolina, and Wyoming—do even less, employing no formal consideration of either volatility or budget conditions.³⁶ In some of these cases, such as Missouri, saving is a static, inflexible process. The state requires a certain percentage of revenue as a balance for the fund, but that percentage does not change with ups and downs in either revenue or the economy. In 2014, Missouri lawmakers passed a provision to create a second fund that would capture a share of revenue in 2015, but this is a one-time change.³⁷

In other of these states, such as Arkansas and Wyoming, deposits are based only on legislative appropriation, leaving savings entirely to the discretion of lawmakers. This strategy has had mixed results: Wyoming is one of the states with the most saved to manage uncertainties—while Arkansas has a history of inadequate reserves.³⁸ States that have other mechanisms often allow additional deposits by appropriation. When placed in the context of other well-thought-out rules, this type of discretion can be an effective tool for maintaining flexibility. But relying on discretionary transfers alone can have the effect of making saving an inconsistent practice subject to intense political debates around every transfer.

States without rainy day funds

Four states—Colorado, Illinois, Kansas, and Montana—do not have a budget stabilization fund as defined in this report. (See Appendix A.) Colorado and Kansas maintain mandatory general fund balances, but these reserves do not respond in any way to changing economic or fiscal conditions. Similarly, Montana maintains a statutory end-of-year fund balance of 1 percent of general fund appropriations and traditionally keeps a surplus above that amount to manage volatility.³⁹ Illinois' Budget Stabilization Fund has a stringent repayment provision that requires all withdrawals from the fund to be repaid in full within the fiscal year, making it, in effect, a working-cash fund rather than a rainy day fund. In states without rainy day funds, saving does not reflect changing fiscal and economic conditions and limits the ability to prepare for the future during times of growth.

When to Withdraw?

Deposit rules that adequately prepare states for economic downturns are critical and provide much-needed budgetary flexibility. Equally important are withdrawal rules that allow states to access these savings to achieve the specific goals the funds were designed to meet—particularly minimizing budget disruption during downturns. In a recession, adequate reserves can improve states' ability to keep promises already made, whether those are in the form of spending commitments, tax policies, or both.

Designing the rules that govern when states can take money out of budget stabilization funds requires a delicate balancing act. When withdrawals are fairly unrestricted, states may make shortsighted use of fund balances, leaving themselves with less flexibility to respond to emergencies. For example, in New Jersey, if revenue comes in under projections, money in the rainy day fund can be accessed. "That's a pretty low bar," said Rosen, the state's legislative budget and finance officer. "When we've had balances of some size in the rainy day fund, we simply used that as our budgeted surplus and drew it down if we needed to."

On the other hand, some states have set strict conditions for withdrawals. When these rules are too restrictive, states may be unable to access reserves, even when they are most needed. In Missouri, a two-third majority in each house is required to withdraw resources from the state's constitutionally required rainy day fund. As a result, the state did not tap its fund despite significant shortfalls throughout the Great Recession.[‡] According to Missouri budget director Linda Luebbering, the fund hasn't been accessed since the 1990s, with the last withdrawal being used to address devastation caused by floods rather than an economic downturn. She noted that the repayment requirement was a significant obstacle. "The fact that you have to repay it over the next three years, it prevents [the fund] from being used for this purpose. The way it's designed in Missouri, it's really more for a catastrophic one-time event than it is for an economic downturn event," she said.[‡]

Future Pew research will examine in detail the rules that govern when and how a state is able to withdraw funds.

* The Pew Charitable Trusts, interview with David Rosen, New Jersey legislative budget and finance officer, April 4, 2014.

† Elizabeth McNichol and Kwame Boadi, "Why and How States Should Strengthen Their Rainy Day Funds," Center on Budget and Policy Priorities (Feb. 3, 2011), 15, <http://www.cbpp.org/files/2-3-11sfp.pdf>.

‡ The Pew Charitable Trusts, interview with Linda Luebbering, Missouri budget director, March 28, 2014.

Deposit rules designed with volatility in mind

By linking savings to volatility, states can take advantage of revenue increases while ensuring a greater level of budget flexibility in the future. Pew identified several promising practices across 12 states that require deposits into a budget stabilization fund when the state experiences unusual or above-average revenue or economic growth. As a group, these states are no more or less volatile than their peers. Capturing unexpected growth for a rainy day is a smart strategy for states regardless of how dramatically revenue fluctuates over the course of the business cycle. Of the 12 states, five tie deposits to overall revenue volatility; four use a specifically volatile revenue source; and three link savings to economic volatility. (See Figure 3, next page.) This analysis suggests that connecting rainy day fund deposits to observed volatility makes saving a reliable and responsible practice in years when conditions are good.

Although each of the 12 states in this category employ promising policies, they all have ample room for improvement and refinement. In some cases, such as Idaho and Texas, the thresholds for defining when revenue should be set aside are out of date or ill-suited to the fluctuations they address. Other states have set caps at a level that prevents them from capturing additional volatility once the fund is full, even in extraordinarily good years. Louisiana, for example, caps its fund at 4 percent of revenue despite having highly volatile tax collections. Still others time the actual transfer of money in ways that skew the alignment with observed conditions. Virginia delays deposits to its rainy day fund until nearly two years after a high-growth year. Moreover, not all states in this category conduct regular studies of their patterns and drivers of volatility, which would offer guidance for ensuring the optimal design of budget stabilization funds.

Rules tied to overall revenue volatility

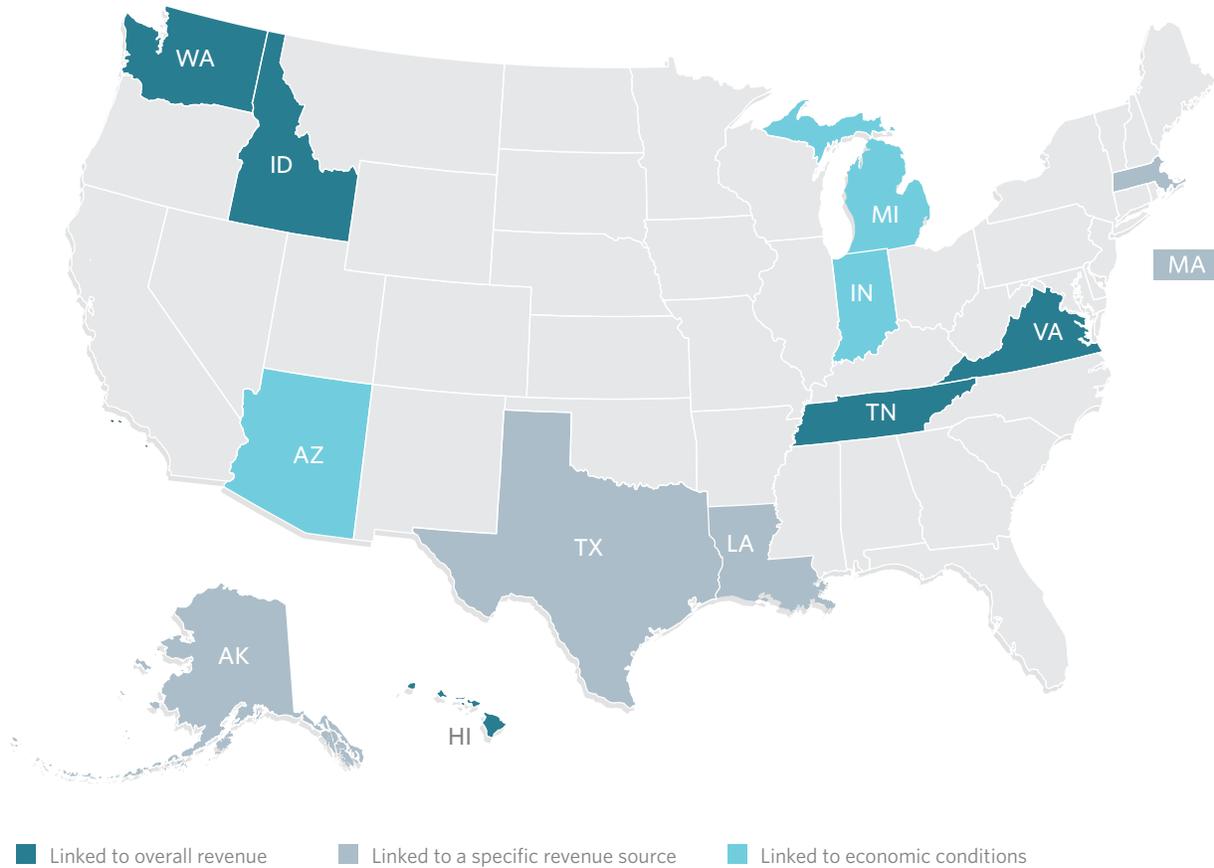
Virginia, Tennessee, Idaho, Washington, and Hawaii tie rainy day fund deposits to volatility within their major or total revenue streams.

Virginia's constitutional deposit rule uses a formula to determine when revenue collections are high enough to warrant a transfer to the rainy day fund. This formula compares the performance of the states' major tax sources in the most recent fiscal year to the average revenue growth over the preceding six years—called the trend growth rate. Half of the above-the-trend revenue is automatically deposited in the state's Revenue Stabilization Fund.⁴⁰ State leaders also have the option to make discretionary deposits into the fund.

Virginia's policy arose from a state-mandated review commission that studied its budgeting process, specifically rainy day funds, as a means of coping with shortfalls.⁴¹ The intent of the formula is to allow the fund to keep pace with inflation and the state's economic growth.⁴² By depositing 50 percent of above-average revenue growth into the fund, the state avoids using all of the above-trend revenue—much of which is likely to be a one-time increase—to fund program expansions that will become recurring expenditures. According to Virginia's secretary of finance, Ric Brown, "If the year that you were in performed above average historically, then it was assumed you had some sort of abnormal growth. ... That growth rate is unsustainable probably for the future, and you need to reserve some of that money to stabilize swings in revenues in the future."⁴³

Over time, Virginia's rule has ensured a consistent savings pattern in growth years. The state's prerecession balance as a share of expenditures was the same as the median for all 50 states, 7 percent.⁴⁴ In just three fiscal years—2004 to 2006—the state was able to grow its balance from under \$250 million to more than \$1 billion and could have saved more if it had not hit the fund balance cap.⁴⁵ The fund is projected to reach \$1.2 billion by June 2017, up from its postrecession low of less than \$300 million in 2010.⁴⁶ The deposit rule has also helped in

Figure 3
 12 States Link Rainy Day Funds to Observed Conditions
 Budget stabilization deposit rules, by state



Source: The Pew Charitable Trusts' analysis of state statutes
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the credit markets, with Moody's Investors Service noting, "Virginia's reserve rebuilding mechanism is a strong feature of its Aaa rating and will help to prepare it for future downturns."⁴⁷

Tennessee also ties its rainy day fund deposits to an overall measure of revenue volatility. The state sets aside 10 percent of total year-over-year revenue growth, which the governor includes in the annual budget document and the general appropriations bill. Unless negative growth is expected, the state does not deviate from this practice, making savings a straightforward, predictable practice, rather than a yearly debate.

Due largely to this reliable system, Tennessee's fund balance more than tripled from 2003 to 2008 as a share of general fund revenue, reaching \$750 million.⁴⁸ As a share of expenditures, Tennessee's maximum prerecession balance was 6.8 percent.⁴⁹ Although this was just below the 50-state median, Tennessee is among the least volatile states in the country, so these savings were considerable. As a result, Tennessee was better prepared to weather the Great Recession than many other states. It used all but \$284 million of the fund balance between

2008 and 2011 and was set to restore the fund to \$456 million by June 30, 2014, thanks to strong revenue performance.⁵⁰

A key difference between Tennessee's deposit rule and Virginia's is how each state chooses to compare revenue across years in order to set deposit amounts. In Virginia, policymakers compare current tax revenue with the average revenue growth over the preceding six years. In Tennessee, the latest year's revenue is measured against only the previous year. As a result, Virginia's practice protects against deposits that are too high or too low based on a single abnormal year, but Tennessee risks setting aside too much money during the fragile first year of an economic recovery.

Idaho's Budget Stabilization Fund also captures extraordinary revenue gains. Any time general fund growth exceeds 4 percent, it triggers a transfer from the general fund to the Budget Stabilization Fund, up to a maximum of 1 percent of revenue. This rule recognizes that growth above 4 percent per year may be unsustainable, but the contributions are all or nothing. Even in the most booming years, the law does not set aside more than 1 percent of revenue, and when growth is below 4 percent, the rule saves nothing.

Additional deposits have also been made to the fund over time. Before the Great Recession, these took the form of individual appropriations. More recently, Idaho's "surplus eliminator" legislation mandated that any unanticipated surplus in the general fund over \$20 million be transferred to the stabilization fund.⁵¹ In recent years, the surplus eliminator has yielded far larger contributions to the fund than the deposit rule. In fiscal 2013, Idaho had a direct statutory transfer of \$25.8 million, or 1 percent, as well as a surplus eliminator end-of-year balance transfer of \$85 million.⁵² Leading into the recession, Idaho's fund balance as a share of expenditures was capped at 5 percent of total general fund receipts. In 2014, lawmakers passed a measure to double the cap to 10 percent.⁵³

Washington and Hawaii recently updated their rules to link fund deposits to overall revenue volatility. In 2010, voters in Hawaii amended their state's constitution, providing the option to set money aside in the Emergency and Budget Reserve Fund following two consecutive years of revenue growth above 5 percent. Previously, those funds were automatically used to provide a tax rebate, but the new system leaves the decision to the Legislature. To date, no deposits have been made as a result of the change—the state has not experienced the required growth conditions—but the Legislature has made discretionary deposits to the fund.⁵⁴

During the 2000s, Washington made almost no contributions to its Budget Stabilization Account.⁵⁵ In 2007, voters passed a constitutional amendment to establish more stringent rules regarding reserves, including a requirement to set aside 1 percent of revenue each year. State leaders were able to add funds to the account under this rule only once before the Great Recession hit. Afterward, the state took note of missed opportunities to build its fund using revenue spikes during the mid-2000s. In 2011, voters approved another amendment, adding a provision similar to Virginia's deposit rule, with three-quarters of "extraordinary revenue growth" transferred to the budget stabilization account during windfall years.⁵⁶ Jason Mercier of the Washington Policy Center noted that this rule is designed specifically to ensure state leaders save when there is growth that is likely unsustainable, "It's there to capture whatever the next bubble is."⁵⁷ In the past few years, the state has made regular contributions to the fund, but, as in Hawaii, revenue growth has not been strong enough to trigger "extraordinary" deposits.⁵⁸

Rules tied to specific sources of volatile revenue

In some states, volatility is predominately driven by specific revenue sources, such as the capital gains tax in Massachusetts or the severance tax in Texas. These particular streams are typically also significant contributors

to the overall revenue portfolio. Four states—Alaska, Louisiana, Massachusetts, and Texas—link rainy day fund deposits to specific tax streams.

Massachusetts' rule links deposits to its Commonwealth Stabilization Fund to highly volatile capital gains taxes, a rule the state instituted after drawing down its budget stabilization fund during the Great Recession. The state now sets aside all capital gains revenue above a threshold that grows with the economy—\$1.05 billion for fiscal 2015.⁵⁹ After adopting this new deposit rule, Massachusetts more than doubled the size of its fund, from \$670 million in 2010 to almost \$1.7 billion in 2012.⁶⁰

Like many states, Massachusetts saw a spike in capital gains in 2013. As Rob Dolan, its director of finance, noted, "Nationwide, a lot of budget officials were grappling with whether to bake this one-time surplus into the budget or segregate it, but we never had to have that discussion."⁶¹ Using the deposit rule to isolate growth in capital gains helped the state manage incoming revenue and rebuild reserves. That year, state leaders set aside \$468 million of those collections.⁶²

Massachusetts' deposit rule includes a second component that directs the funds from one-time legal settlements in excess of \$10 million to the budget stabilization fund. This is another way in which the state controls for revenue that drives fluctuations from year to year.⁶³

Texas' Economic Stabilization Fund captures growth from its most volatile, significant revenue source—the severance tax on oil and gas production—by depositing three-quarters of any revenue above a benchmark year (1987) into the fund. The state's prerecession fund balance as a share of expenditures was 14.8 percent, well above the median for all 50 states.⁶⁴ And because oil and gas extraction has grown significantly since 1987, the state has made large deposits in recent years. Texas expected to see the fund grow from an already sizable \$8 billion in 2013 to nearly \$12 billion by 2015.⁶⁵

Despite the success, this fund structure poses some challenges. Basing deposits on oil and gas revenue from 25 years ago may be incompatible with current conditions. According to a senior budget analyst, "The way ours is set up, you have to make deposits into the rainy day fund even when you don't have enough money and you're going to have less than you had in the previous session."⁶⁶ Setting appropriate benchmarks for when revenue should be set aside is a difficult task, so choosing one that adjusts to a state's economy can help mitigate discrepancies between historically established thresholds and current conditions. Conducting regular studies of revenue volatility could help Texas and other states ensure that the details of their deposit rules don't get in the way of their efforts to manage uncertainty.

Louisiana sets aside funds in its Budget Stabilization Fund when severance tax collections on mineral production and exploration exceed \$850 million.⁶⁷ No money from excess mineral revenue was deposited into the fund between 2006 and 2009, due to a cap of 4 percent of revenue.⁶⁸ After a withdrawal in 2009, state officials declined to contribute severance tax revenue designated for the fund.⁶⁹ The state's deviation from this deposit rule has led to legal action. (See "Timing in Louisiana," next page.) As in Texas, the rule's design can hamper its alignment with fiscal and economic conditions in the state.

In Alaska, deposits are made to the Constitutional Budget Reserve Fund as the result of legal settlements tied to mineral production. This nontax revenue, which arises from court decisions rather than taxes on economic activity, is fundamentally unpredictable and can contribute significantly to surpluses in some years.

For states in which a specific revenue source is a significant and volatile contributor to overall collections, connecting budget stabilization fund deposits to fluctuations within that source can be an effective method for managing uncertainty. While this approach can be applied to any source of volatile revenue, it should be informed

by a state-specific analysis of volatility and should distinguish between fluctuations caused by economic factors and the impact of tax policy decisions.

Deposits tied to economic volatility

Some states have deposit rules that are tied to underlying economic conditions, rather than changes in revenue. States' economic characteristics can significantly influence their individual revenue swings.⁷⁰ Arizona, Indiana, and Michigan all use fluctuations in personal income—a broad measure of economic well-being that captures total earnings from wages, investment interest, and other sources—to trigger their deposits.

Rules that are tied to underlying economic conditions make the most sense if an explicit purpose of the fund is to serve as a countercyclical fiscal tool. When the economy is strong, states ideally collect enough revenue to set some aside for leaner years. When the economy weakens, states are able to use these funds to increase demand in the economy either directly through spending increases or indirectly through tax reductions. This strategy, however, may not be optimal for maintaining stability in government spending. Nevertheless, a well-designed deposit rule based on economic conditions could work reasonably well for a state with both a volatile economy and revenue that tracks closely with economic performance, but only some states that use this kind of rule have those characteristics.

Timing in Louisiana

During the recession, total tax collections fell by more than \$2 billion in Louisiana, prompting state officials to make withdrawals from the budget stabilization fund.^{*} But at the same time, revenue from severance taxes continued to spike—a condition that required a deposit into the fund.

State officials decided not to deposit the excess severance tax revenue into the budget stabilization fund when they were also withdrawing from it. But the deposit rule had not been designed with the flexibility to respond to situations such as this, and by law, policymakers were obligated to make the deposits, even in the middle of the downturn. Lawmakers attempted to address this problem by adding a provision to state statute to suspend the deposit requirement until revenue recovered, but a former state representative and a co-plaintiff filed a lawsuit, charging that Louisiana officials violated the state's constitution by disrupting the flow of oil and gas revenue to the fund. Settlement discussions were ongoing as of June 2014.[†]

* The Pew Charitable Trusts' analysis of the U.S. Census Bureau's Annual Survey of State Government Tax Collections data.

† Associated Press, "Bobby Jindal Seeking to Rework 'Rainy Day' Repayment," *Times Picayune*, March 12, 2014, http://www.nola.com/politics/index.ssf/2014/03/bobby_jindal_seeking_to_rework.htm.

Arizona, an economically volatile state, uses a formula to identify high points in the business cycle. This method, however, only provides a recommendation, and the state has not always followed it; lawmakers have deposited more than recommended in some years and less in others. According to Hans Olofsson, chief economist for Arizona's Joint Legislative Budget Committee, "The fact that it's not a mandatory deposit into the fund—it's more a discretionary decision—makes the recommendation less valuable. It's pretty rare for the legislature to actually follow the formula."⁷¹ A benefit to using a formula, according to the committee's former director, Ted Ferris, is that it removes some of the politics from the decision to make a deposit. "At the end of the day, it's always going to be a political decision, but at least this gives the policymakers an impartial, more scientific, fact-based rationale for when you put money in."⁷²

Tying budget stabilization fund deposits directly to measures of the economy can work well for some, but not all, states. Economic performance is often a good proxy for revenue collections, but economies and revenue rarely move in tandem.⁷³ Both Indiana and Michigan set aside funds when personal income grows more than 2 percent. Unlike Arizona, however, these states exhibit patterns of revenue volatility that are not aligned well with economic fluctuations. As a result, strong fiscal performance is not captured by looking only at changes in personal income. For this reason their rules may not prove as effective as similar models in other states.

Michigan, for example, deposited little in its Countercyclical Budget and Economic Stabilization Fund during most of the 2000s because the state's economy was stagnant or declining. Without income growth to trigger it, Michigan's deposit rule never required the state to set more money aside, regardless of the government's fiscal health. As a result, Michigan entered the Great Recession with only \$2.2 million in its rainy day fund.⁷⁴ While the state's fund has grown tremendously in recent years (as of 2013, it had a balance of \$505.6 million), this turnaround is due in large part to one-time appropriations, rather than to deposits based on their formula or improvements to the rule.⁷⁵

Designing all aspects of a budget stabilization fund with volatility in mind is critical to the success of a state's savings policy. Even among those leading the way in tying deposits to volatility, no one state is doing everything it could to connect savings policies with revenue fluctuations. Many factors contribute to the health of a rainy day fund, including deposit rules, caps, withdrawal rules, replenishment rules (requirements for repaying withdrawals), state economic trends, natural disasters, and political considerations, among others.

As a result, comparing states can be difficult, and fund balances are best considered in the context of each individual state's situation. Still, key elements of the policies that link savings to changing conditions can be instructive for states that have not adopted such practices. (See Figure 4.)

Figure 4

No One-size-fits-all Rule for Connecting Savings to Volatility

3 methods used by states to identify and set aside extraordinary revenue growth



Tied to overall
revenue volatility



Tied to particularly
volatile revenue streams



Tied to economic
conditions

Note: Because each state's economic and fiscal characteristics are unique, the ideal rule will vary from state to state. In Pew's analysis, some states deposit money to their rainy day funds when total or major revenue is growing rapidly. Others make contributions when they see a boom in specific, highly volatile revenue sources. A third category saves when economic conditions are particularly strong.

Source: The Pew Charitable Trusts' analysis of state statutes
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Capturing unexpected growth for a rainy day is a smart strategy for states regardless of how dramatically revenue fluctuates over the course of the business cycle.

States are missing opportunities to harness volatile revenue

The practices followed by the 12 states that tie deposits to volatility stand out as examples of how revenue and economic fluctuations can be harnessed to smooth over changes in the business cycle. But these states are not alone when it comes to the challenges they face in managing uncertainty. As a group, the remaining 38 states are just as volatile.⁷⁶ (See Appendix C.) In addition, the 12 states vary in terms of geography, size, tax structure, and politics. Each state should examine their unique drivers of volatility and design their savings policies accordingly, but the deposit rules in place in these states can serve as models for others seeking to improve their budget stabilization fund policy.

To demonstrate how states could have built a larger financial cushion during the economic expansion of the 2000s by linking budget stabilization fund deposits to volatility, Pew selected three large states that had steady revenue growth during this period but did not tie rainy day fund deposits to volatility—Florida, Pennsylvania, and South Carolina. Pew staff then applied a model based on Virginia’s deposit rule to the three states’ actual 2003-08 tax revenue. Virginia’s deposit rule, which sets aside half of all revenue above a six-year average, was selected because it allows fund growth to keep pace with inflation and economic expansion over time. Furthermore, since this rule uses an average of past performance to determine excess revenue, it is automatically calibrated to the volatility in the state where it is applied.

Florida, Pennsylvania, and South Carolina were chosen because they are large states, have different economies and tax systems, grew during the mid-2000s, and have deposit rules that are not connected to volatility. They also experienced few tax policy changes and did not make withdrawals from their funds over the years included in Pew’s study, simplifying the hypothetical scenarios.⁷⁷

Pew then compared each state’s simulated fund balance to actual rainy day fund balances in 2008. In each case, deposit rules tied to volatility would have authorized state officials to save more than they did before the Great Recession. (See Figure 5.) These scenarios are intended only to illustrate the scale of missed opportunities to stabilize revenue, not to suggest specific policy changes for a specific state.

Research Methods: Calculating State Revenue Volatility

In order to calculate overall revenue volatility and volatility of specific tax streams within each state, Pew collected tax data from the U.S. Census Bureau's Annual Survey of State Government Tax Collections historical data series for 1994–2012.* After identifying 192 major taxes across the 50 states (two to six per state), Pew researchers used data from the National Conference of State Legislatures' *State Tax Actions* reports to control for the effects of tax policy change and isolate underlying cyclical volatility in the sources.† The year-over-year change was then calculated for each tax type and for total tax revenue for each state. Finally, Pew calculated the standard deviation of year-to-year changes as a measure of volatility that shows how much variation from the average exists. For a full methodology, see Appendix A.

* Data are available for download at <http://www.census.gov/govs/statetax>.

† Data are available for download at <http://www.ncsl.org/research/fiscal-policy/state-tax-actions-database.aspx>.

Simulation 1: Florida could have harnessed the construction boom

Nationwide, Florida's Budget Stabilization Fund deposits are among the least tied to the state's revenue conditions. The balance is maintained at a mandatory 5 percent of general fund revenue, with the option to appropriate funds above that level. During the 2000s, the fund size was static at this statutory level, despite a construction boom and three consecutive years of double-digit growth.⁷⁸ Tax collections grew from \$27 billion in 2003 to a peak of \$40 billion in 2006, but the state set aside just \$151 million in the rainy day fund during this period. Although Florida kept additional savings in the balance of the general fund in these years, those dollars were not subject to the same rules as money in the budget stabilization fund.

Florida was one of the first states to experience the economic downturn. In the first two years of the recession, however, it continued to set aside money, despite declining revenue. By 2008, the state had saved another \$262 million, bringing the balance to \$1.4 billion.⁷⁹

If Florida had used a rule similar to Virginia's, it would have set aside an additional \$4.6 billion over the four-year boom, giving the state more than four times as much in savings going into the Great Recession.

It is important to note that Florida caps its budget stabilization fund at 10 percent of general fund revenue—or about \$2.2 billion in 2006.⁸⁰ This cap would have prevented it from setting aside the full amount recommended by the simulated deposit rule, but even at this maximum balance, the additional savings could have helped close more than \$20 billion in budget gaps during the downturn.⁸¹

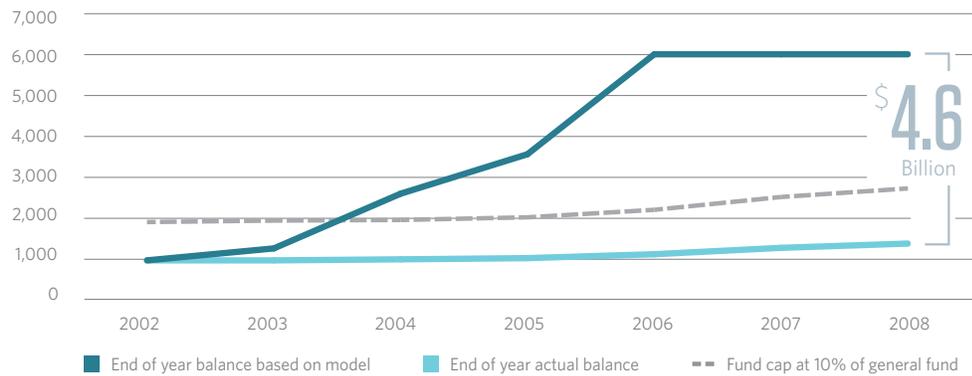
In spring 2008, state legislators cut \$1.5 billion from the budget of the fiscal year that was ending and another \$4 billion from the 2009 budget.⁸² Over the next 12 months, they also withdrew more than \$1 billion from the Budget Stabilization Fund, the majority of the available balance.⁸³ Budget gaps continued through fiscal 2013.⁸⁴

Figure 5

States Could Have Captured More Growth as Savings During the 2000s

Potential rainy day fund deposits in Florida, Pennsylvania, and South Carolina based on a rule like Virginia's, in millions of dollars

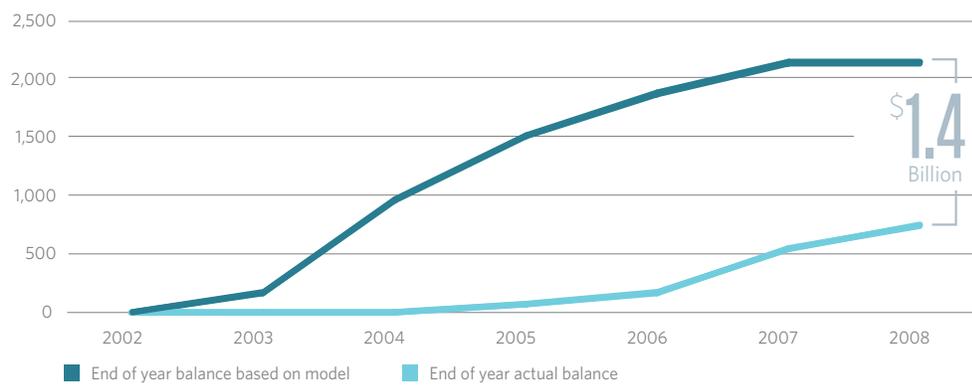
Florida



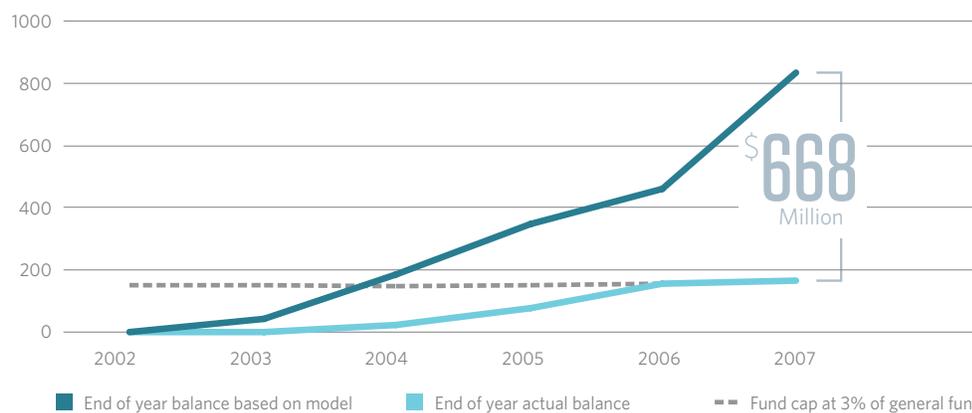
Note: This analysis compares each state's simulated rainy day fund balance with historical balances. In each case, deposit rules tied to volatility would have authorized state officials to save more than they did before the Great Recession. These scenarios are intended only to illustrate the scale of missed opportunities to stabilize revenue, not to suggest specific policy changes for any individual state.

Sources: The Pew Charitable Trusts' analysis of data from the U.S. Census Bureau's Annual Survey of State Government Tax Collections and Comprehensive Annual Financial Reports from Florida, Pennsylvania, and South Carolina © 2014 The Pew Charitable Trusts

Pennsylvania



South Carolina



Simulation 2: Pennsylvania could have better weathered the downturn

Like many states, Pennsylvania transfers a portion of surplus revenue at the end of the fiscal year to its Budget Stabilization Reserve Fund. During the 2000s, however, legislators changed the statute several times to allow them to skip the deposit for a particular year.⁸⁵ The state set aside close to \$750 million during the mid-2000s—about 2.3 percent of 2008 total tax revenue.⁸⁶

If Pennsylvania had followed a deposit rule tied to volatility, it could have had almost \$2.1 billion—nearly three times as much—in its rainy day fund heading into the Great Recession. The state could have used the extra cushion. In 2010, tax collections were more than \$2 billion below 2008 levels.⁸⁷ Between 2009 and 2012, state leaders had to close \$17 billion in budget gaps.⁸⁸

Simulation 3: South Carolina could have saved five times as much

South Carolina and Virginia have nearly identical levels of overall tax revenue volatility.⁸⁹ Unlike Virginia, however, South Carolina makes deposits to its General Reserve Fund that are not connected to that volatility; instead it maintains a static mandatory balance.⁹⁰ In the mid-2000s, South Carolina deposited \$168 million into this fund.⁹¹

A deposit rule based on past revenue growth would have prompted the state to save \$835 million, nearly five times as much. Like Florida, South Carolina caps its rainy day fund well below this amount—at 5 percent, raised from 3 percent in 2010.⁹² In this case, the mandatory balance functions as both a maximum and a minimum.⁹³ Additional savings could have helped state leaders budget through the years of falling revenue: Tax collections dropped from \$8.7 billion in 2007 to \$7.3 billion by 2010.⁹⁴ Throughout the recession, policymakers closed more than \$4 billion in shortfalls through spending cuts, tax and fee increases, and drawdowns on reserves.⁹⁵

These three simulations demonstrate the approximate scale of missed opportunities for states to save. Virginia's rule is not necessarily the right model for all states—or even for Florida, Pennsylvania, and South Carolina. Some states may be better served by tying deposits to a single, particularly volatile revenue stream. California, for example, has the most volatile income tax in the country and one of the most volatile tax systems overall.⁹⁶ In November 2014, voters will decide on a constitutional amendment that would set aside money when capital gains taxes exceed 8 percent of general fund revenue, a rule similar to the Massachusetts mechanism.⁹⁷

State policymakers interested in improving budget stabilization fund policies need to examine their own tax systems and economies. Because there is no single source of volatility across all states, there will not be a one-size-fits-all rule for identifying or depositing extraordinary revenue growth.

The choice to save is not always an easy one. Setting aside revenue often means forgoing tax cuts or additional spending on programs. Over the long run, however, the tough choices states make in good times can prevent them from having to make even tougher ones during bad times, when residents may be least able to absorb the impact of tax increases or cutbacks in spending. Linking savings to actual fluctuations can harness growth without requiring contributions during lean years.

In the process, these policies can also help states better align recurring revenue with ongoing spending commitments. Setting aside unusual or unexpected growth as “one-time” revenue can help keep budgets in balance and can serve as an indicator that annual costs are too high or revenue is too low, information that is key to maintaining long-term fiscal health.

Policy recommendations

Pew's research identified three best practices for designing budget stabilization funds that allow states to effectively manage the ups and downs of the business cycle.

Require regular studies to identify specific drivers of volatility and present appropriate policy solutions

State policymakers need to regularly study volatility in order to understand the fluctuations unique to their state's economy and revenue structure. These studies should establish a framework for identifying growth that exceeds expectations so that state leaders can better understand how revenue fluctuates over the business cycle and what constitutes unusual growth. Officials should also examine major sources of volatility within their state's tax portfolio. Knowing which elements of total tax collections fluctuate most dramatically gives policymakers precision tools for harnessing revenue spikes during good years in order to guard against budget gaps during bad years.

For example, Utah's volatility study—conducted every three years—allows for regular analysis of the state's tax portfolio. Utah incorporates the study's recommendations into its rainy day fund policies: To ensure that savings remain commensurate with observed levels of volatility, policymakers increased the limits on Utah's two budget reserve funds, the General Fund Reserve Account and the Education Budget Reserve Account, in 2009 and again in 2012. In 2014, legislators expanded the study mandate to include an examination of whether automatic deposit mechanisms for the funds would help increase savings. This analysis positions Utah to become a leader among the states.⁹⁸

In 2012, the Montana Legislative Fiscal Division produced a one-time study to determine ways the state could manage budget uncertainty stemming from volatility. Although the state does not have a rainy day fund, the report analyzed volatility across multiple budgets to recommend an adequate end-of-year general fund surplus to offset revenue volatility during a biennium. Additionally, the report defined above-trend growth in each revenue stream, and for overall revenue. Based on these findings, the report provided legislators with a series of recommendations for saving nonrecurring revenue.⁹⁹

Tie budget stabilization fund deposits to observed volatility

Once completed, state-specific analyses of volatility like those described above should inform decisions about rainy day fund policy, such as connecting fund deposits to volatility, setting dynamic thresholds, and adjusting the timing of payments.

Linking deposit rules directly to extraordinary or unexpected growth makes saving a consistent, reliable practice in good times. A dozen states capture above-trend growth by tying savings to overall revenue volatility, specific tax stream volatility, or economic performance, but policymakers often also have the option to employ multiple, complementary deposit mechanisms, which can maximize savings and allow for flexibility. For example, states may opt to capture surplus growth in multiple revenue streams or include both a mandatory savings rule, to make saving consistent and predictable, and a discretionary one, for added flexibility in periods of exceptional growth. As policymakers reflect on what type of deposit rule may be best for their state, it is critical that they consider their unique economic and revenue conditions and tailor policies accordingly.

Establishing the right deposit rule—one that effectively saves during years of growth—also means defining what constitutes unusual or above-trend growth. States that use thresholds to define above-average growth need to update them by conducting regular volatility studies. The consequences of a static threshold can be seen in Texas, which still uses 1987 as a benchmark to identify unusual severance tax growth. This practice has prompted large deposits to the state’s rainy day fund but has significantly constrained budgetary flexibility. The state continues to save sizable amounts even while making dramatic cuts to major budget areas, fueling tension within the state over the size of the fund relative to a shrinking budget. Massachusetts, on the other hand, adjusts its threshold annually based on growth in nominal gross domestic product. Establishing such a dynamic threshold is a good policy choice that allows states to plan for a longer time horizon.

Finally, the timing of deposits is a key detail states should consider when designing rainy day funds. Saving should be a high budget priority: Deposits should not be left until the end of the year when all other decisions have been made. It is also important to consider the appropriateness of deposits at all points in the business cycle, particularly when revenue performance weakens.

Linking deposit rules directly to extraordinary or unexpected growth makes saving a consistent, reliable practice in good times.

For example, Virginia deposits revenue into its rainy day fund whenever total collections exceed a six-year trend. Because of a lag built into the process of determining growth, however, the state winds up moving money into its fund after the close of a surplus year. During the Great Recession, Virginia policymakers found themselves on the hook for deposits in years when they were also withdrawing funds. In 2008, the state withdrew \$352 million to cover revenue declines, but was also required to deposit \$115 million because of growth in fiscal 2006.¹⁰⁰ Ideally, Virginia would have been able to deposit its 2006 revenue the same year it was collected.

By contrast, in Massachusetts, deposits from capital gains tax revenue are determined as part of the consensus revenue forecast, at the start of the process. By the time budget negotiations open in earnest, the share of these taxes directed into savings is already off the table.

Establish fund size targets that match the state’s experience with volatility

The Great Recession highlighted the inadequacy of state budget stabilization funds to protect against economic downturns, prompting several states, including South Carolina, Tennessee, and Georgia, to raise the caps on their rainy day fund balances. But few states are using a rigorous analysis of state-specific volatility and risk to inform decisions about the optimal size of these funds. The “5 percent rule” has been largely discredited. (See “Debunking the ‘5 Percent Rule,” Page 5.). Establishing an optimal fund size that is informed by observed volatility allows policymakers to set appropriate savings goals and encourages them to revisit balance targets on a regular basis, as volatility changes over time.

For example, after completing a legislatively mandated volatility study in 2008, officials in Minnesota found that tax base volatility had increased substantially since the late 1990s. Policymakers concluded that the budget stabilization fund cap of \$653 million was set too low to sufficiently protect the state from downturns in tax collections. In 2014, it established a new maximum fund size of \$1.9 billion for the current biennium. Officials will re-evaluate this amount on an annual basis, allowing the state to regularly assess whether reserves are sufficient to smooth cyclical volatility and to boost savings in years of exceptional growth.¹⁰¹



Conclusion

State leaders, regardless of their policy goals, have good reason to be concerned about revenue and economic volatility. Whether policymakers aspire to reduce taxes, provide high-quality infrastructure and services, pay down liabilities, or spur economic development, wide swings in state resources from year to year can undermine those efforts. States can manage revenue fluctuations by studying their unique patterns of volatility and connecting those observations to concrete rules that guide when, how, and how much to save. A handful of states have adopted some best practices, but no state is doing everything it could. With continued growth forecast for most states, the next several years offer a critical opportunity to make strategic adjustments to budget stabilization funds that will prepare states for the effects of volatility for years to come.

Appendix A: Methodology

For this report, Pew collected statutes defining budget stabilization fund deposit rules for all 50 states and evaluated their connection to volatility, calculated year-over-year changes in tax revenue for all states and adjusted them for tax policy changes, and conducted three simulations to demonstrate how stronger deposit rules would have helped states weather the Great Recession.

Deposit rule classification

Pew researchers cataloged the mechanisms for depositing money into budget stabilization funds in all 50 states. States use a number of funds to set aside money for various purposes. To focus on the challenge of managing volatility, Pew narrowed the scope of this report to include only budget stabilization funds, using the definition set forth by Yilin Hou in *State Budget Stabilization Funds*.¹⁰² Hou's definition identifies three key characteristics of budget stabilization funds: enabling legislation; operation across fiscal years and over the whole economic cycle (i.e., not working cash funds for use during the fiscal year or legacy funds like North Dakota's), and service as a government-wide reserve for general purposes (i.e., not for Medicaid or education specifically).

To assemble the list of qualifying funds, Pew built upon previous research efforts examining these types of reserves, collecting data from three peer-reviewed academic sources as well as the National Conference of State Legislatures, or NCSL, and the Center on Budget and Policy Priorities.¹⁰³ The researchers cross-referenced these five sources to develop a list of 52 budget stabilization funds across 46 states. These funds were further verified by identifying their enabling legislation.

For all valid funds, Pew examined the enabling statute, along with any previous studies, to identify the mechanism for depositing money into the fund. States were grouped into nine categories—three tied to volatility and six not linked with revenue or economic fluctuations. After making a determination, the classification for each fund in each state was verified twice by different researchers. The table below explains the definition of each category.

States often used several different mechanisms to contribute to a budget stabilization fund. In these cases, Pew classified the state based on the mechanism most connected to underlying budget volatility. For example, Texas deposits half of any general fund surplus and 75 percent of gas production taxes above a certain threshold, plus legislators can appropriate additional funds. Because of the gas production tax aspect of the rule, this fund is classified in the study as *linked to severance tax volatility*. Similarly, a handful of states have more than one budget stabilization fund; in these cases, Pew classified states based on the most tied fund. For example, New York's Tax Stabilization Reserve Fund is linked to end-of-year surpluses, while deposits to its Rainy Day Reserve are solely based on appropriations. This report considers New York a state that uses surpluses to set aside deposits. For a full list of all budget stabilization fund names, enabling legislation, and deposit rule categorizations, see Appendix B.

Interviews with government officials and experts in 26 states supplemented Pew's understanding of the variation across states and helped to classify complex rules.¹⁰⁴

Table A1

States Grouped by Deposit Rules

Definitions of categories and number of states using each

Tied to Volatility?	Category	Conditions for deposit	Number of states
Yes	Linked to economic growth	Personal income in the state exceeds a threshold or a level based on past performance	3
Yes	Linked to specific revenue growth	Revenue from a specific source (such as capital gains taxes, severance taxes, or settlements) exceeds a threshold or a level based on past performance	5
Yes	Linked to total revenue growth	Current revenue exceeds a threshold or a level based on past performance	4
No	Based on surpluses	Revenue exceeds expenditures, resulting in a surplus or unappropriated fund balance	21
No	Revenue forecast error	Actual revenue exceeds forecast	5
No	Static deposits	A set amount each year	1
No	Required static balance	To keep the fund at a set level	4
No	By appropriation	At the legislature's discretion	3
No	State has no fund	There is no fund that functions as a true budget stabilization fund.	4

Source: The Pew Charitable Trusts' analysis of state deposit rules

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Analysis of state tax volatility

Pew compared deposit rules with the patterns and drivers of volatility in each state. Specific tax source volatility was calculated using data from the U.S. Census Bureau's Annual Survey of State Government Tax Collections historical data series from 1994 to 2012.¹⁰⁵ This data source provides the most detail on taxes and fees and is the only census data to enumerate severance tax collections, a major influence on volatility in many states.

Identifying major tax types

The analysis looked at overall tax collections as well as all major tax sources, which were defined as any tax or fee collected in the last year of the data (2012) that made up at least 5 percent of total tax revenue over the 10-year period from 2003 to 2012. Taxes that made up a smaller share of taxes or that were not in use in 2012 were unlikely to be significant to policymakers. Moreover, swings in small tax sources from year to year can be highly volatile and hard to compare with taxes that yield much larger amounts of money each year. This process resulted in 192 major taxes across the 50 states, two to six major taxes per state. Pew then calculated the year-over-year change in each of these tax types and of total tax revenue for each state.

Adjusting for tax policy changes

Much of the change in tax collections from year to year is the result of changing conditions in the economy or shifts in taxpayer behavior, but changes in tax policy—either the rate or the definition of what gets taxed—can cause significant variation as well. To control for the effects of tax policy change and isolate underlying cyclical volatility in these tax sources, Pew used data from the National Conference of State Legislatures' *State Tax Actions* reports for 1994-2012.¹⁰⁶ These reports, based on information provided by legislative fiscal offices, reflect the tax and revenue changes enacted by state legislatures and the results of tax measures that were voted on during elections. These reports ask state staff to quantify the expected fiscal impact of tax changes and provide totals by tax type. For each year and tax type, Pew calculated the impact of tax policy changes as a percent of previous-year revenue and then removed these increases or decreases from the calculation of year-over-year percentage change. For example, if a tax cut resulted in a 5 percent decrease in sales tax collections and actual collections decreased by 3 percent, in order to measure volatility, Pew's analysis would consider that a 2 percent increase.

Calculating volatility

After determining major tax types and removing the effect of known policy changes, Pew calculated the standard deviation of year-to-year changes as a measure of volatility. Standard deviation shows how spread out the data points are, specifically how much variation there is from the mean or average. In the context of this report, a low value means that changes in revenue are more similar from year to year and a high value indicates that revenue grew and shrank more dramatically.

Large outliers in the data heavily influence standard deviation—one or two data points can have an outsized impact on overall volatility. To avoid unfairly categorizing taxes or states as volatile on the basis of a single year, which may be attributable to an error in data collection or a change in tax policy that was not covered by the NCSL report, Pew removed outliers where the maximum and minimum value for a tax type more than doubled the standard deviation. Out of 4,244 total data points, this process removed 32 values.

Counterfactual scenarios

To illustrate the potential impact of deposit rules tied to volatility, Pew ran three counterfactual scenarios that simulate what Florida, Pennsylvania, and South Carolina would have allocated to rainy day funds during the economic expansion preceding the Great Recession (2003-08), if they had used deposit mechanisms similar to those for Virginia's Revenue Stabilization Fund. Virginia's deposit rule, which sets aside half of all revenue above a six-year average, was selected because it allows fund growth to keep pace with inflation and economic expansion over time. Furthermore, since this rule uses an average of past performance to determine above-trend revenue growth, it is automatically calibrated to the volatility in the state where it is applied. This simulation eliminates the lag between revenue collections and rainy day fund deposits that is part of the actual process in Virginia.

To run this scenario, Pew calculated annual deposits and fund balances for Florida, Pennsylvania, and South Carolina based on tax revenue data obtained from the Census Bureau (without controlling for tax policy changes). This analysis assumes no economic impact to the state from saving this revenue rather than using it for additional appropriations, tax reductions, or another purpose. These calculations were compared with data on actual deposits and balances obtained from state documents.¹⁰⁷ These three states were chosen because they are large, have different economies and tax systems, experienced economic growth during the mid-2000s, and have deposit rules that are not connected to volatility. They also experienced few tax policy changes and made no withdrawals from the fund over the years included in Pew's study, simplifying the hypothetical scenarios. For South Carolina, the scenario runs from 2003-07 because policymakers withdrew money from their fund in 2008. The model did not suggest additional deposits in 2008.

Appendix B: Deposit rule classifications

Table B1

Only 12 States Connect Rainy Day Funds to Volatility

Budget stabilization fund deposit rules across the 50 states

State	Fund name	Tied to observed volatility?	Method for determining deposits	Statute
Alabama	General Fund Rainy Day Account		By appropriation	Ala. Const. Art. XIV, § 260.02 (2013)
Alaska	Constitutional Budget Reserve Fund Statutory Budget Reserve Fund	Yes	Linked to oil and gas settlement income By appropriation	Alaska Const. art. IX, § 17 (2013) Alaska Stat. § 37.05.540 (2013)
Arizona	Budget Stabilization Fund	Yes	Linked to personal income growth	Ariz. Rev. Stat. § 35-144 (2013)
Arkansas	Rainy Day Fund		By appropriation	Ark. Code Ann. § 19-6-486 (2013)
California	Special Fund for Economic Uncertainties Budget Stabilization Fund		Based on surpluses Static deposits	Cal. Gov. Code § 16418 (2013) Cal. Const. Art. XVI § 20 (2013)
Colorado	State has no budget stabilization fund, requires a general fund balance		No fund	
Connecticut	Budget Reserve Fund		Based on surpluses	Conn. Gen. Stat. § 4-30a (2013)
Delaware	Budget Reserve Account		Based on surpluses	Del. Const. art VIII, § 6 (2013)
Florida	Budget Stabilization Fund		Required balance	Fla. Stat. § 215.32 (2013)

State	Fund name	Tied to observed volatility?	Method for determining deposits	Statute
Georgia	Revenue Shortfall Reserve		Based on surpluses	Ga. Code Ann. § 45-12-93 (2013)
Hawaii	Emergency and Budget Reserve Fund	Yes	Linked to total revenue growth	Hawaii Rev. Stat. § 328L-3 (2013)
Idaho	Budget Stabilization Fund	Yes	Linked to total revenue growth	Idaho Code § 57-814 (2013)
Illinois	State has no budget stabilization fund, Budget Stabilization Fund is effectively a working cash fund		No fund	
Indiana	Countercyclical Revenue and Economic Stabilization Fund	Yes	Linked to personal income growth	Ind. Code Ann. § 4-10-18-4 (2013)
Iowa	Economic Emergency Fund		Based on surpluses	Iowa Code § 8.57 (2013)
Kansas	State has no budget stabilization fund, requires a general fund balance		No fund	
Kentucky	Budget Reserve Trust Fund Account		Based on surpluses	Ky. Rev. Stat. § 48.705 (2013)
Louisiana	Budget Stabilization Fund	Yes	Linked to severance tax collections	La. Rev. Stat. 39:94 (2013)
Maine	Budget Stabilization Fund		Based on surpluses	Maine Rev. Stat. tit. 5, § 1536 (2013)
Maryland	Revenue Stabilization Account		Required balance	Md. State Fin. & Procurement Code § 7-311 (2013)
Massachusetts	Commonwealth Stabilization Fund	Yes	Linked to capital gains tax collections	Mass. Gen. Laws ch. 29, § 5C (2013); Mass. Gen. Laws ch. 29, § 5G (2013);

State	Fund name	Tied to observed volatility?	Method for determining deposits	Statute
Michigan	Countercyclical Budget and Economic Stabilization Fund	Yes	Linked to personal income growth	Mich. Comp. Laws § 18.1352 (2013); Mich. Comp. Laws § 18.1302 (2013)
Minnesota	Budget Reserve Account		Based on surpluses	Minn. Stat. § 16A.152 (2013)
Mississippi	Working Cash-Stabilization Reserve Fund		Based on surpluses	Miss. Code Ann. § 27-103-213 (2013)
Missouri	Budget Reserve Fund		Required balance	Mo. Const. Art. IV, § 27(a) (2013)
Montana	State has no budget stabilization fund		No fund	
Nebraska	Cash Reserve Fund		Revenue forecast error	Neb. Rev. Stat. § 77-4602 (2012)
Nevada	Account to Stabilize Operation of State Government		Based on surpluses	Nev. Rev. Stat. Ann. § 353.288 (2013)
New Hampshire	Revenue Stabilization Reserve Account		Based on surpluses	N.H. Rev. Stat. Ann. § 9:13-e (2013)
New Jersey	Surplus Revenue Fund		Revenue forecast error	N.J. Stat. § 52:9H-16 (2013)
New Mexico	General Fund Operating Reserve		Based on surpluses	N.M. Stat. Ann. § 6-4-4 (2013)
	General Fund Tax Stabilization Reserve		Based on surpluses	N.M. Stat. Ann. § 6-4-4 (2013)
New York	Tax Stabilization Reserve Fund		Based on surpluses	N.Y. State Fin. Law § 92 (2013)
	Rainy Day Reserve Fund		By appropriation	N.Y. State Fin. Law § 92-cc (2013)

State	Fund name	Tied to observed volatility?	Method for determining deposits	Statute
North Carolina	Savings Reserve Account		Based on surpluses	N.C. Gen. Stat. § 143C-4-2 (2013)
North Dakota	Budget Stabilization Fund		Based on surpluses	N.D. Cent. Code, § 54-27.2-02 (2013)
Ohio	Budget Stabilization Fund		Based on surpluses	Ohio Rev. Code Ann. § 131.44 (2013)
Oklahoma	Constitutional Reserve Fund		Revenue forecast error	Okla. Const. Art. X, § 23 (2012)
Oregon	Rainy Day Fund		Based on surpluses	Ore. Rev. Stat. § 293.146 (2012)
Pennsylvania	Budget Stabilization Reserve Fund		Based on surpluses	Pa. Stat. tit. 72 § 1702-A (2013)
Rhode Island	Budget Reserve and Cash Stabilization Account		Static deposits	R.I. Gen. Laws § 35-3-20.1 (2012)
South Carolina	General Reserve Fund Capital Reserve Fund		Required balance Static deposits	S.C. Const. Ann. Art. III, § 36 (2012) S.C. Code Ann. § 11-11-320 (2012)
South Dakota	Budget Reserve Fund		Based on surpluses	S.D. Codified Laws § 4-7-32 (2013)
Tennessee	Reserve for Revenue Fluctuations	Yes	Linked to total revenue growth	Tenn. Code Ann. § 9-4-211 (2013)
Texas	Economic Stabilization Fund	Yes	Linked to severance tax collections	Texas Const. Art. III, § 49-g (2013)
Utah	Budget Reserve Account		Revenue forecast error	Utah Code Ann. § 63J-1-312 (2013)

State	Fund name	Tied to observed volatility?	Method for determining deposits	Statute
Vermont	General Fund Budget Stabilization Reserve		Based on surpluses	Vt. Stat. Ann. tit. 32, § 308 (2012)
	Rainy Day Reserve		Based on surpluses	Vt. Stat. Ann. tit. 32, § 308c (2012)
Virginia	Revenue Stabilization Fund	Yes	Linked to total revenue growth	Va. Const. Art. X, § 8 (2013)
Washington	Budget Stabilization Account	Yes	Linked to total revenue growth	Wash. Const. Art. VII, § 12 (2013)
West Virginia	Revenue Shortfall Reserve Fund		Based on surpluses	W.Va. Code § 11B-2-20 (2013)
Wisconsin	Budget Stabilization Fund		Revenue forecast error	Wis. Stat. § 16.518 (2012)
Wyoming	Legislative Stabilization Reserve Account		By appropriation	Wyo. Sess. Laws 191 (2005); The Pew Charitable Trusts' interview with Don Richards, budget and fiscal manager, Wyoming Legislative Service Office, Oct. 23, 2013

Source: The Pew Charitable Trusts' analysis of state statutes
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Appendix C: Overall revenue volatility

Table C1

States With Rainy Day Funds Tied to Fluctuations Are as Volatile as Other States

Standard deviation of year-over-year change in total tax revenue, 1994-2012

Rank	State	Volatility	Rank	State	Volatility
1	Alaska	34.2%	27	Virginia	5.5%
2	North Dakota	14.6%	28	South Carolina	5.2%
3	Wyoming	12.2%	29	North Carolina	5.2%
4	Vermont	11.9%		United States	5.1%
5	California	8.8%	30	Indiana	5.0%
6	Colorado	8.5%	31	Kansas	5.0%
7	Arizona	8.4%	32	Maine	5.0%
8	New Mexico	7.6%	33	Missouri	4.9%
9	Florida	7.1%	34	Alabama	4.7%
10	Utah	7.0%	35	Rhode Island	4.6%
11	Massachusetts	7.0%	36	Wisconsin	4.6%
12	Delaware	6.8%	37	Ohio	4.4%
13	Louisiana	6.6%	38	Tennessee	4.4%
14	Connecticut	6.6%	39	Washington	4.3%
15	Oklahoma	6.6%	40	Nebraska	4.2%
16	Oregon	6.6%	41	Mississippi	4.1%
17	Idaho	6.4%	42	Iowa	4.0%
18	New York	6.3%	43	New Hampshire	4.0%
19	Nevada	6.1%	44	Arkansas	4.0%
20	Minnesota	6.1%	45	Pennsylvania	3.9%
21	Georgia	6.0%	46	West Virginia	3.8%
22	Illinois	5.9%	47	Michigan	3.7%
23	New Jersey	5.8%	48	Maryland	3.6%
24	Hawaii	5.8%	49	Kentucky	3.0%
25	Texas	5.7%	50	South Dakota	2.6%
26	Montana	5.6%			

Note: Volatility is measured as standard deviation of year-over-year changes in total tax revenue, after controlling for legislated tax policy changes. Standard deviation shows how much variation there is from the mean or average. In the context of this report, a low value means that changes in revenue are similar from year to year, and a high value indicates that revenue grew and shrank more dramatically. For a full explanation of the methodology behind these data, see Appendix A. Bolded states in blue have deposit rules tied to volatility.

Sources: The Pew Charitable Trusts' analysis of the U.S. Census Bureau's Annual Survey of State Government Tax Collections, multiple years (1994-2012); National Conference of State Legislatures' *State Tax Actions*, multiple years (1994-2011)

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Endnotes

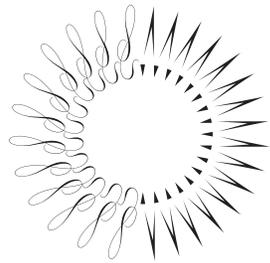
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- 89 In Pew's analysis of state revenue volatility, the overall standard deviation for South Carolina was 5.2 percent, compared with 5.5 percent in Virginia. The standard deviation of all major tax streams was also very similar: 7.6 percent in South Carolina and 7.3 percent in Virginia for the income tax; 5.1 percent and 5.4 percent for the general sales tax; and 3.6 percent and 2.6 percent for the motor fuels sales tax.
- 90 South Carolina also has a second budget stabilization fund, the Capital Reserve Fund, which receives an annual appropriation of 2 percent of revenue, regardless of conditions. If necessary to maintain the General Reserve Fund balance, funds are drawn from the Capital Reserve Fund. If not, the balance in the Capital Reserve Fund is returned to the general fund at the end of one fiscal year and then replenished with the next year's appropriation. Because this fund is also not tied to volatility and stays essentially at a static level, we excluded it from this scenario for simplicity. Including the \$23 million of growth in the Capital Reserve Fund, South Carolina's combined savings grew by \$191 million from 2002 to 2007. S.C. Code Ann. § 11-11-320 (2012).
- 91 South Carolina Budget and Control Board, "Historical Analyses: A Compilation of Analyses of Certain Revenue, Appropriation, Expenditure, FTE, and Other Data" (Oct. 31, 2010), 1, http://dc.statelibrary.sc.gov/bitstream/handle/10827/5293/Historical_Analyses_2010-10-31.pdf.
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- 93 In 2008, the General Reserve Fund was capped at 3 percent of revenue, and the Capital Reserve Fund was capped at 2 percent; Thatcher, "State Budget Stabilization Funds."
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- 101 Minnesota sets aside a portion of projected revenue surpluses into the rainy day fund. Determining how much to set aside is a two-step process. First, a share of unanticipated revenue is transferred to the state's reserves, up to a cap of \$810,992,000. The state then uses remaining surplus dollars to meet other obligations related to school funding and property tax shifts. If surplus dollars remain after meeting these obligations, Minnesota takes the second step of transferring additional money to its budget reserve account, up to a target size. This target is reviewed and adjusted annually.
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- 103 Hou, *State Government Budget Stabilization*; Rose and Smith, "Budget Slack"; Wagner and Elder, "The Role of Budget Stabilization Funds"; Thatcher, "State Budget Stabilization Funds."; McNichol and Boadi, "Why and How States Should Strengthen Their Rainy Day Funds."
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- 105 Data are available for download at <http://www.census.gov/govs/statetax/>.
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- 107 "2013 Florida Tax Handbook," 27; Commonwealth of Pennsylvania, *Comprehensive Annual Financial Report* (2011), 224, <http://www.portal.state.pa.us/portal/server.pt?open=512&objID=4574&&PageID=473437&mode=2>; South Carolina Budget and Control Board, "Historical Analyses," 1.



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