

SB 261 BUDGET STABILIZATION RESERVE FUND STUDY: EVIDENCE FROM RESEARCH AND OTHER STATE APPROACHES

A Report Prepared for the
Legislative Finance Committee

By
LFD Staff

October 4, 2017



INTRODUCTION

Through [SB 261 \(2017 Session\)](#), the legislature adopted a budget stabilization plan that creates a Budget Stabilization Reserve Fund (BSRF) or “rainy day fund” (RDF) as a long term method of managing state budget volatility. SB 261 requires that deposits are made into the fund when the state has periods of excess general fund revenue. Available BSRF balance may then be used by the executive and legislature (with specific conditions and limits) to avoid deep reductions or tax increases during periods when revenues are lower than expected.

The legislature recognized that while the budget stabilization plan adopted in SB 261 is a substantial step forward to managing revenue volatility of the general fund, the long term plan may benefit from additional study. The Legislative Finance Committee (LFC) was assigned to study components of the plan and recommend any changes to the next legislature. The Office of Budget and Program Planning and the Legislative Fiscal Division (LFD) were assigned to provide analysis to the LFC. This report—which focuses on effective RDF policy design as identified in current literature, and the RDF approaches in other states—is the first of a series of LFD reports to the LFC throughout the 2019 interim.

Executive Summary

Based on the current academic and policy institute research, key components of effective RFD design include the following:

- Meaningful deposit and access rules, tied to observed revenue or economic volatility
- Fund size in the range of 10-15% of state expenditures

Research suggests well-designed RDFs help states smooth expenditures over the revenue cycle and lower state borrowing costs.

The Montana approach through SB 261 requires deposits into the BSRF when revenue growth is above a six-year average, thereby capturing a portion of overall revenue volatility. When the BSRF is full, the executive has unrestricted access to a portion of the funds if revenue fall below trend. Remaining funds may be accessed with corresponding expenditure reductions—\$1 of reduction for every \$2 of access.

The structure of Montana’s BSRF will limit the expansion of state expenditures during periods of temporarily heightened revenue, while allowing for transfers from the BSRF when revenue is low, thereby potentially reducing the need for deep expenditure reductions or tax increases.

RDFs IN OTHER STATES

Background

State use of RDFs expanded notably from the mid-1980s to the late 1990s. About 30 states adopted RDFs during this time (Rose, 2010). The academic study of RDFs coincided with this increase of RDF adoption, with the first significant studies of RDFs published during the mid to late 1980s. The vast majority of these studies come from the economics and public policy disciplines. In general, studies of RDFs focus on one (or more) aspects of this policy area: (1) the importance of the rules surrounding RDFs, (2) optimal fund size, and (3) the impact of RDFs on state finance outcomes. The following review summarizes academic findings in each of these areas.

Best Practices

The academic discussion of rainy day fund policy design, or “best practices,” can be distilled into three areas: the rules surrounding RDF policy, the optimal size of the RDF, and the impact of RDFs on state fiscal outcomes. The following sections summarize academic findings in each area.

1. Rule-Bound RDFs

There is a broad consensus across academic studies of RDFs that the rules surrounding these policies are of critical importance in determining their effectiveness. The primary rules of interest for RDFs are deposit rules and withdrawal rules. The former specify the conditions under which state dollars are deposited into the RDF, while the latter specify the conditions in which dollars may be pulled from the RDF and used to avoid expenditure reductions, tax increases, borrowing, or all of the above.

Rule Bound RDF Summary – Existing research suggests RDFs with meaningful deposit and access rules are far more effective at allowing states to smooth behavior over the revenue cycle than those without strict rules.

An early major investigation of the importance of RDF rules is Sobel and Holcombe (1996a), in which the authors explore the extent to which RDFs helped states weather the 1990-1991 recession. They conclude the mere presence of an RDF alone did not seem to matter *unless* the RDF had a meaningful mandatory deposit rule. Two studies by Knight and Levinson (1998, 1999) conclude rule-bound RDFs lead to more state saving and better state bond ratings. Wagner (2003) echoes these findings with a conclusion that RDFs

lead to more state saving and more positive state bond ratings. Wagner (2004) argues strict RDF deposit and withdrawal rules lead to lower state borrowing costs. Gonzalez and Paqueo (2003) find strict RDF deposit and withdrawal rules lead to higher RDF balances and lower levels of volatility in state social welfare expenditures. Elder and Wagner (2005) exhibit similar results with a conclusion that states with rule-bound RDFs show significantly less expenditure volatility than states whose RDFs are not constrained by strict rules. Zahradnik and Ribeiro (2003) contains numerous policy recommendations and largely follows the consensus of the rest of the literature summarized above: the authors argue that while strict deposit and withdrawal rules are critical in order to ensure a properly functioning RDF the rules should contain enough flexibility so that states may access the fund fairly easily during an economic downturn.

Rules other than deposit and withdrawal rules are sometimes associated with RDFs. The most significant of these is a cap on the size of the RDF (discussed further in the Optimal Fund Size section below). Rodriguez-Tejedo (2008) finds that the average cap size for state RDFs is just over 6% of annual expenditures. Zahradnik and Ribeiro (2003) argue that RDFs should not be capped in statute as a cap discourages additional saving and may lead to a fund that is not large enough for a state to ride out significant economic downturns. A handful of state RDFs are constrained by rules that mandate fund replenishment within some period of time. Zahradnik and Ribeiro (2003) and others argue that replenishment rules are counterproductive as they may lead to hesitation to use the RDF if there is a concern that the fund cannot be replenished within the set period of time. This concern is reasonable

when one considers the duration of economic downturns (when the RDF will be needed) is very difficult to predict (Owyang et al [2005] conclude the typical state recession lasts 20 months).

2. Optimal Fund Size

Many studies of RDFs focus on the optimal size of the fund. Funds that are too small run the risk of not being an effective countercyclical tool: small RDFs may not prevent states from having to raise taxes and/or reduce expenditures during an economic downturn. Very large RDFs also have some problems: first, there is a large opportunity cost associated with dormant state dollars in a reserve fund. Second, an overly large RDF may create a moral hazard: a large reserve fund may lead policymakers to believe they do not need to be concerned with a balanced state budget or expenditure growth.

While there is no single academic consensus on optimal fund size (despite the 5% of expenditures rule-of-thumb) there is significant consensus that RDFs are not a one-size-fits-all policy and states will have much different optimal RDF sizes depending on the characteristics of the state and the goals of their particular RDF policy. The Pew Charitable Trusts recommend states consider several factors before attempting to calculate the optimal size of their RDF: (1) the fund's purpose, (2) state revenue volatility, (3) the degree of risk the state wishes to offset. Academics have been studying the question of optimal fund size for the last 30 years with a wide variety of findings. Major findings are summarized below in roughly chronological order.

<p><u>Optimal Fund Size Summary</u> – Existing research suggests RDFs should probably be in the range of 10-15% of state expenditures, though the exact amount varies depending on state characteristics and policy goals.</p>
--

Pollock and Suyderhoud (1986) study fiscal conditions in Indiana (1969-1983) and determine the state would need an RDF of about 13% of expenditures to avoid changes in taxes and/or expenditures. They also find withdrawals from the fund would be needed in 31 of 59 quarters over this time period. Vasche and Williams (1987) examine state finances in California during the 1970s and 1980s. They focus on revenue forecasting error in addition to RDFs and conclude

an RDF of 10% would insure California against recession along with an additional reserve fund of 3-5% to offer forecast protection. Sobel and Holcombe (1996a) determine that for states to get through the 1990-1991 recession without increasing taxes or cutting expenditures state RDFs would need to be (on average) about 30% of 1988 general expenditures, although for some states this figure would be 5% or less. Navin and Navin (1997) argue against the “5%” convention and determine the optimal RDF size for Ohio is 11-13% of general fund revenue, with annual contributions of 4% of revenue needed in expansion years in order to build the fund. Sjoquist (1998) estimates Georgia needs an RDF of about 27%.

Joyce's (2001) “What's so Magical about Five Percent?” takes on the 5% of expenditures rule-of-thumb for RDFs. Joyce determines the 5% rule does not fit every state, and observes states do not seem to do a good job of matching RDF size with their own volatility level. He argues each state should design policy based on their needs and characteristics. Nelson and Cornia (2003) also argue RDFs must be highly customized due to the degree to which states differ. The authors also discuss the problems with an overly large RDF (discussed above), and argue the common 5% RDF cap is not evidence based. Nelson and Cornia (2003) determine an RDF of 2.86% of expenditures will offset 95% of budget shortfalls for Utah. Zahradnik and Ribeiro (2003) argue RDFs should be about 10-15% of state expenditures (or more, depending on individual state risk) and explicitly argue against capping RDFs.

Elder and Wagner (2004) model optimal RDF amounts for each state given certain conditions. Their specific conclusion for Montana: for the state to be 90% certain of maintaining constant revenue during economic downturns the state would need an RDF of 5.7% of revenue (9.2% to be 95% certain). Elder & Wagner (2007) argue state should save 3-3.5% of revenue during expansion periods (last on average for 4.3 years) to be able to cover economic contractions (last on average for 1.7 years). Elder and Wagner (2013) argue a nationally pooled RDF (between states) would be beneficial as state

business/revenue cycles are not perfectly synchronized. A system of this type would lower the required average savings by about 30% relative to a self-funded RDF.

3. RDF Impacts

Budget stabilization funds are very common policy tool among U.S. states: after the passage of SB 261, only two states do not have a rainy day fund (Illinois and Colorado). A number of academic studies investigate the effectiveness of this broadly used state fiscal management tool. The general consensus in this research area is that RDFs are effective in helping states save, and well-designed RDFs lower the probability that states will need to increase taxes and/or reduce spending during economic downturns. Several studies in this area are summarized below.

Sobel and Holcombe (1996a) argue that while RDFs effectively smooth expenditures over the revenue cycle they have an additional benefit: RDFs can force states to deal with long-term budget issues as they prevent states from using temporary revenue increases to avoid dealing with long-term budget increases (as some portion of these heightened revenues are deposited into the RDF). Douglas and Gaddie (2002) study the 1990-1991 recession and conclude the presence of a RDF is only one piece in state ability to weather that particular crisis – other fund balances were important as well in determining state fiscal health during that recession. McGranahan (2002) also studies the 1990-1991 recession and concludes RDFs helped states weather this downturn, but recommends state expand RDF size as recessions are often not as “short-term” as perceived.

RDF Impact Summary – Existing research suggests well designed RDFs help states smooth behavior over the revenue cycle and lower state borrowing costs. In most states RDFs alone were not sufficient to weather the “Great Recession.”

Zahradnik and Ribeiro (2003) argue properly designed RDFs (strong deposit rules and withdrawal rules that permit access during crisis) help states endure economic downturns with a lower probability of disruption to tax policy or expenditures. Hou (2003b) concludes RDFs significantly support state spending during economic contractions and that RDFs seem to have displaced the use of general fund balances as a countercyclical fiscal management tool over time. Hou (2005) examines all fifty states over the period

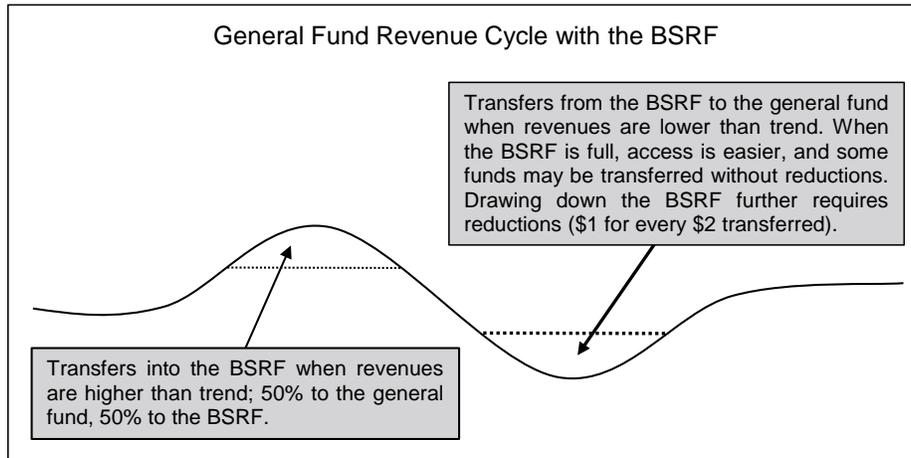
1979-1999 in order to assess the significance of RDFs and general fund balances. The author concludes fiscal reserves of both types have significant and positive effects on state expenditure patterns during economic downturns – although the RDF impact is much larger than that of the general fund balance. Additionally, Hou (2005) argues RDFs have taken the place of general fund balances as the primary state countercyclical fiscal tool. Elder and Wagner (2005) study the 2001 recession and conclude states with rule-bound RDFs exhibited significantly less expenditure volatility over this recession than those without such a fund.

Rainy day funds aided states in coping with the so-called “Great Recession” of 2007-2009 (Conant et. al 2013) but in almost all cases were too small to permit states to deal with an economic contraction of such magnitude without making other adjustments. This experience is in part what leads the Pew Charitable Trusts to recommend RDFs be uncapped and increased in size (as discussed above).

This body of academic literature suggests well-designed rainy day funds effectively smooth state tax and expenditure behavior over the business/revenue cycle. In addition to this impact there is also evidence (discussed above) properly designed RDFs improve state bond ratings which lower state borrowing costs.

Montana Approach

SB 261 incorporates several components identified as RDF best practices in the available literature, including deposit rules, timely response rules, and codified expenditure reductions. The deposit rules require deposits into the BSRF when revenue growth is above a six-year average, and capture a portion of overall revenue volatility. The timely response rules ensure the state has a proactive and timely response to more difficult revenue cycles. Finally, expenditure reductions are clearly defined and tied to BSRF access.



The structure of Montana's BSRF will limit the expansion of state expenditures during periods of temporarily heightened revenue, while allowing for transfers from the BSRF when revenue is low, thereby potentially reducing the need for deep expenditure reductions.

ALL STATE COMPARISONS

Details of how states manage their rainy day funds vary widely; however, fund characteristics such as deposit and withdrawal rules, fund caps, and payback rules are organized by category and can be compared across states. Pew Charitable Trusts, through their State and Local Fiscal Health project, has extensively researched fiscal policies across the nation and has worked closely with Montana in the development of the new Budget Stabilization Reserve Fund. The RDF comparisons across states will be based on Pew categorizations where possible.

Deposit Rules

Pew research suggests that deposit rules tied to observed revenue volatility allow for RDF growth when revenue is unusually high, and makes the process of setting aside such funds consistent and explainable ([Building State Rainy Day Funds](#)). As shown in the following table, seventeen states—Montana included—tie their RDF deposit rule to some type of revenue volatility.

Budget Stabilization Fund Deposit Rules--All States		
Deposit Rule Category	Count	States
Specific Revenue Volatility	10	Alaska, California, Connecticut, Louisiana, Maryland, Massachusetts, New Mexico, North Dakota, Oklahoma, Texas
Overall Revenue Volatility	7	Hawaii, Idaho, Montana, North Carolina, Tennessee, Virginia, Washington
Economic Volatility	3	Arizona, Indiana, Michigan
Forecast Error	4	Nebraska, New Jersey, Utah, Wisconsin
Surplus	16	Delaware, Georgia, Iowa, Kentucky, Maine, Minnesota, Mississippi, Nevada, New Hampshire, New York, Ohio, Oregon, Pennsylvania, South Dakota, Vermont, West Virginia
Static	4	Florida, Missouri, Rhode Island, South Carolina
By Appropriation	3	Alabama, Arkansas, Wyoming
To Be Determined	1	Kansas
No Rainy Day Fund	2	Colorado, Illinois

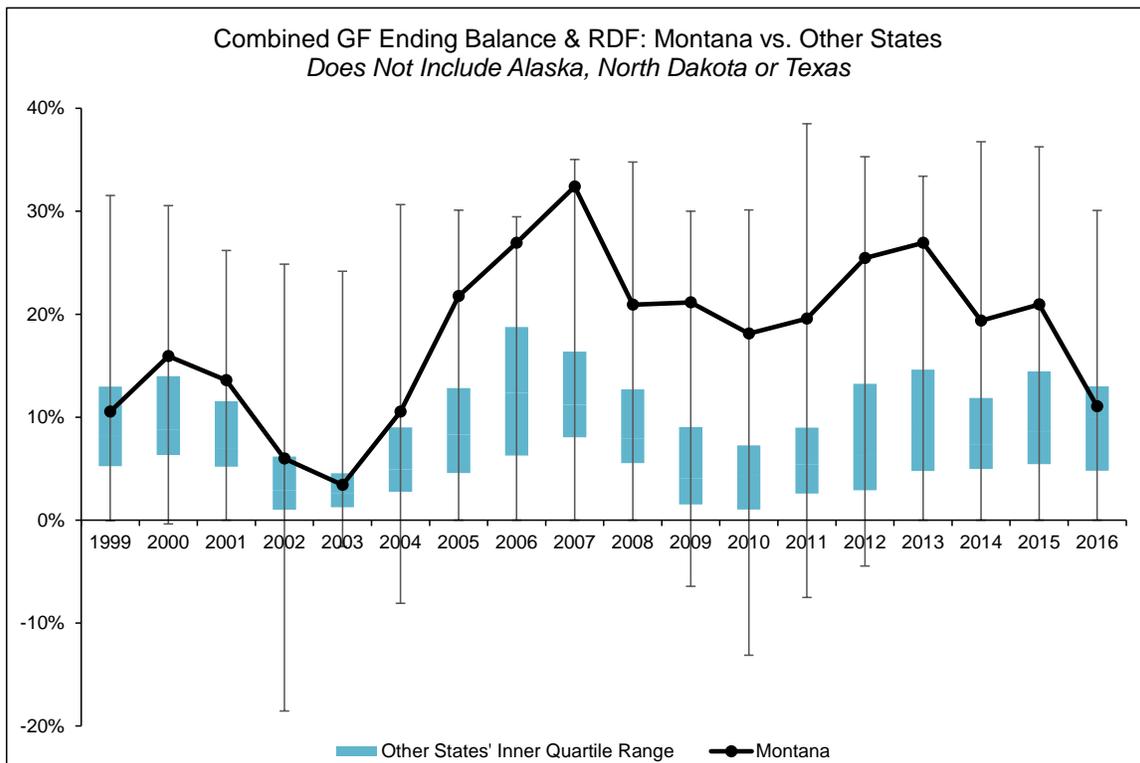
Withdrawal Conditions

Research by Pew on when states should be able to access RDF balances concludes that states should provide clear withdrawal conditions, based on revenue or economic volatility. Optimal withdrawal conditions should allow for access to funds at the low point of the business cycle or during periods of unexpected revenue declines, but should discourage fund use during revenue or economic expansion ([When to Use Rainy Day Funds](#)). As shown in the following table, fifteen states tie their RDF withdrawal conditions to volatility. Montana is the only state that requires corresponding expenditure reductions as a condition of fund access.

Budget Stabilization Fund Withdrawal Conditions--All States		
Withdrawal Condition Category	Count	States
Triggered Expenditure Reductions	1	Montana
Volatility	15	Alaska, Arizona, Arkansas, California, Connecticut, Hawaii, Indiana, Louisiana, Massachusetts, Michigan, Minnesota, Oregon, Pennsylvania, Texas, Washington
Forecast Error	11	Iowa, Mississippi, Missouri, Nevada, New Hampshire, New Jersey, North Dakota, Rhode Island, Vermont, Virginia, Wisconsin
Budget Gap	14	Alabama, Delaware, Florida, Georgia, Idaho, Maine, New Mexico, New York, South Carolina, South Dakota, Tennessee, Utah, Vermont, West Virginia
To Be Determined	1	Kansas
No Condition	6	Kentucky, Maryland, Nebraska, North Carolina, Ohio, Wyoming
No Rainy Day Fund	2	Colorado, Illinois

Combined Resources: RDF and General Fund Ending Balance

In the past, Montana has used the general fund ending fund balance for managing volatility like other states use their RFDs. The following chart illustrates that for combined general fund ending balances and RFDs as a share of general fund expenditures, Montana—shown with the bold black line—has historically been above the 75th percentile of other states. In many years, Montana’s combined balance was near the maximum of other states’ combined balance share of expenditures. Note that the balances of Alaska, North Dakota, and Texas have been excluded.



Other Factors—To Be Addressed in December 2017 Report

Other components of budget stabilization policies that vary across states include fund maximums, repayment rules, additional natural disaster funds, and rules governing executive access to funds. These topics will be the subject of the December 2017 LFD volatility report to the LFC.

PEER STATE COMPARISONS

While most states are struggling with increased revenue volatility due to a growing share of capital gains income which fluctuates with changes in the stock market and timing of tax payments, and a higher reliance on individual income tax, Montana’s general fund revenue has some additional challenges:

- Biennial revenue estimates
- More closely tied to the natural resources sector
- Relatively small population
- No statewide sales tax

The table below shows the deposit rule categories and withdrawal conditions of selected peer states. Similar to the comparison across all states, Montana’s peer states have made varying choices with regard to the structure of their funds. Montana joins Idaho in linking RDF deposits to overall revenue volatility, while is it unique in requiring expenditure reductions as a condition for fund withdrawal.

Budget Stabilization Fund Deposit Rules & Withdrawal Conditions--Peer States			
State	Legislature	Deposit Rule	Withdrawal Condition
Montana	Biennial	Overall Revenue Volatility	Triggered Expenditure Reductions
Idaho	Annual	Overall Revenue Volatility	Budget Gap
New Mexico	Annual	Specific Revenue Volatility	Budget Gap
North Dakota	Biennial	Specific Revenue Volatility	Forecast Error
Oklahoma	Annual	Specific Revenue Volatility	Volatility
Oregon	Annual	Surplus	Volatility
South Dakota	Annual	Surplus	Budget Gap
Texas	Biennial	Specific Revenue Volatility	Volatility
Wyoming	Annual	By Appropriation	No Condition