

RECOMMENDATIONS

for the Structure of Montana's Rainy Day Fund



Governor's Office of Budget & Program Planning
June 2018

INTRODUCTION

Revenue volatility is a reality that all states must deal with and approaches to the management of this phenomenon vary widely among the states. Most states have budget stabilization reserve funds – nicknamed “rainy day funds” – that exist to help alleviate the budget pressures brought on by swings in revenue collections. The basic function of a rainy day fund is to effectively capture revenue windfalls that occur during times of economic prosperity, and to set these funds aside for use, if needed, during an economic downcycle when expenditure demands may increase. Without appropriate reserves, states can find themselves in challenging financial situations when revenues fail to meet expectations. Creating a functional rainy day fund is a tricky task. States are in continual search of how best to structure rainy day fund deposit/withdrawal rules to maximize the fund’s responsiveness to economic fluctuations.

The structure of rainy day funds differs across states, as do the funds’ effectiveness. The Great Recession was an event that brought to light many of the weaknesses in the construction of established rainy day funds. Mostly, states did not have enough in reserve to deal with the severity of the economic downturn and the associated sharp drop in revenues. Deposit rules likely limited the build-up of rainy day fund reserves in the economic boom years that preceded the Great Recession. Creating effective guidelines for rainy day fund deposits is key to ensuring that states take full advantage of revenue upcycles. Additionally, rules governing the withdrawal of rainy day fund balances should be designed so that states have access to adequate reserves that will help combat periods of economic distress.

Montana recently joined the group of states that have an official rainy day fund. Prior to the creation of this fund, Montana relied on healthy general fund balances to provide the financial cushion for the state. The legislation establishing Montana’s rainy day fund also contained provisions for further research regarding the structure of the fund, to be carried out by both the executive (Office of Budget and Program Planning) and legislative (Legislative Fiscal Division) branches. The following section outlines the executive recommendations for Montana’s rainy day fund, including comments on the existing structure and considerations for improvement.

RECOMMENDATIONS

Official executive branch recommendations were sent to the Legislative Finance Committee (LFC) in a May 1, 2018 memo.

Trigger levels in 17-7-140, MCA

The trigger levels in 17-7-140, MCA are effective in their current version and no changes should be made.

- Ratings agencies view the trigger language as a credit-positive for Montana. It is a management tool that allows the state to respond quickly in times of fiscal stress.
- Montana is unique in that it budgets biennially. The risk from fluctuations in revenues and expenditures is increased because of the length of time between regular legislative sessions. The language in 17-7-140, MCA is beneficial and aids the executive in making timely decisions.
- Recent bipartisan change to 17-7-140, MCA increased the mandatory minimum general fund ending balance in effort to adopt financial “best practice”.

Legislative and Executive Access to Budget Stabilization Reserve Fund

Executive access to the BSR fund must accommodate known expenditure pressures during periods of revenue and economic volatility. Increases in caseload under previously legislatively authorized eligibility criteria should be allowed for withdrawal from the BSR fund without expenditure reduction requirements.

Deposit Rules into the BSR fund

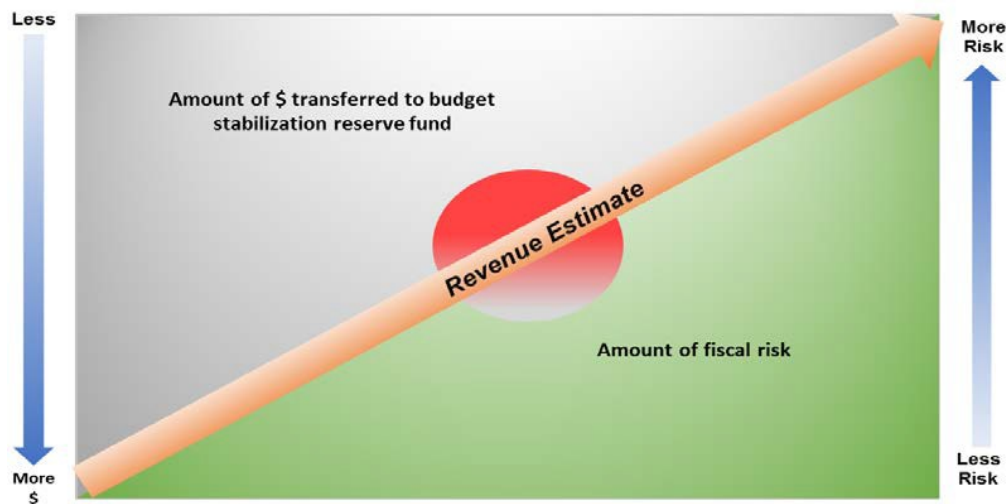
Montana must adopt a consensus revenue estimating process between the executive and legislative branches to implement a nationally recognized financial best practice, establish a consistent revenue base, and ensure accurate deposits in the BSR fund.

The current 4.5% BSR fund cap is inadequate based on historical revenue fluctuations. The maximum size of the BSR fund should be based on adjusted total risk requirements.

Compound annual growth rate methodology should be eliminated as it will not fund the BSR as intended.

- The compound annual growth rate (CAGR) methodology used to calculate deposits into the BSR fund adds unnecessary complexity to budget development and implementation. In an era where too many Montanans and legislators find the budget process difficult to follow or understand, simplification is advisable.
- The Joint Subcommittee on Taxes and the Changing Economy concluded that lags in tax revenues exist relative to the rest of the economy. This means that the BSR will not reach an appropriate level of funding using the CAGR method as will be shown below.
- The economy is experiencing rapidly increasing share of retired and fixed income individuals which will have a dampening effect on future growth.
- One-time-only revenues, timing discrepancies, accounting issues, and transfers will skew the CAGR formula as currently written.
- BSR fund deposit rules should remain tied to the official revenue estimate under a consensus estimating methodology. Any revenue received over the official estimate would flow automatically into the reserve based on a formula. This allows the legislative and executive branches to consider risk in real time.

Figure 1.



Level of Operating Reserves

The level of the general fund operating reserve should be increased from 8.3% to 14.6% of general fund appropriations in the second year of the biennium to ensure adequate cashflow for state operations. Further, the operating reserve target must be mandatory rather than permissively binding.

- The current cap of 4.5% of second year general fund appropriations on the level of BSR fund does not allow for a sufficient fund balance to develop to offset a downturn given historical business cycle fluctuations.
- The interaction of the 17-7-140, MCA fund balance trigger levels and the limit on the level of the operating reserve results in a very narrow window within which the state must balance revenues and expenditures. This limited flexibility increases the state's financial vulnerability disproportionately impacting low-income Montanans.
- Recent legislation has constrained the general fund by diverting funds elsewhere and leaving the general fund with fewer resources. The following diagrams illustrate how general fund revenue/expenditure flows have changed.

Figure 2.

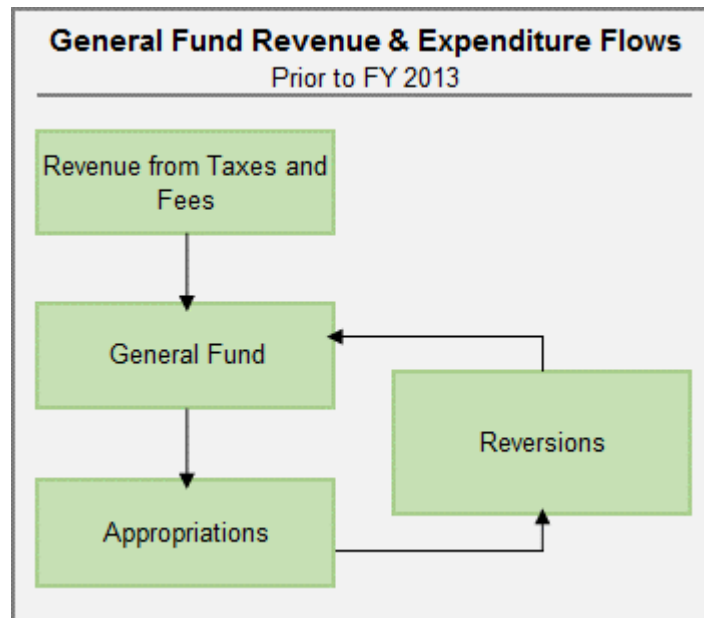


Figure 3.

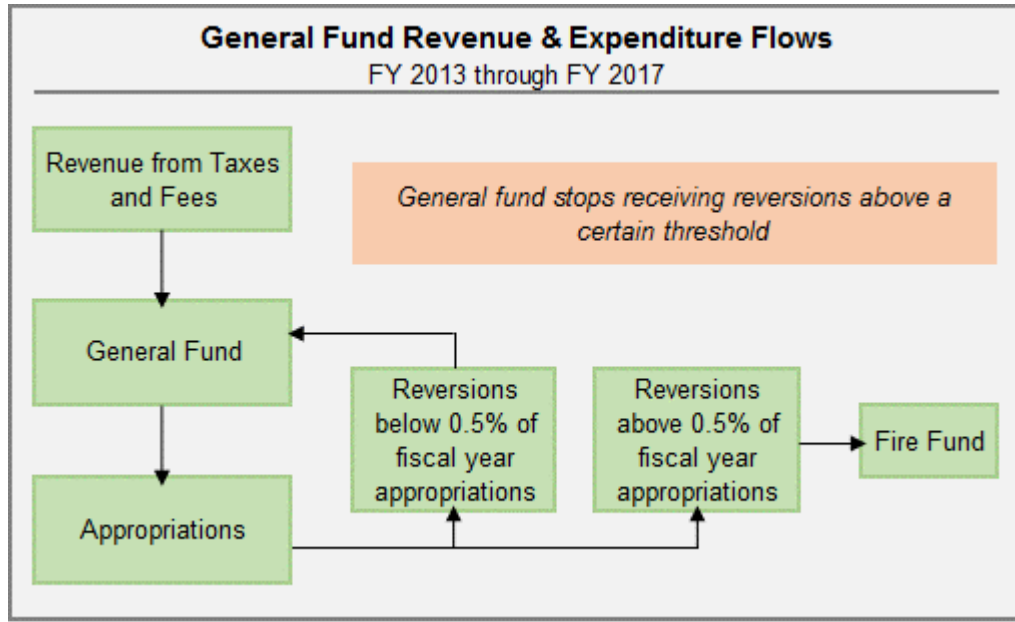
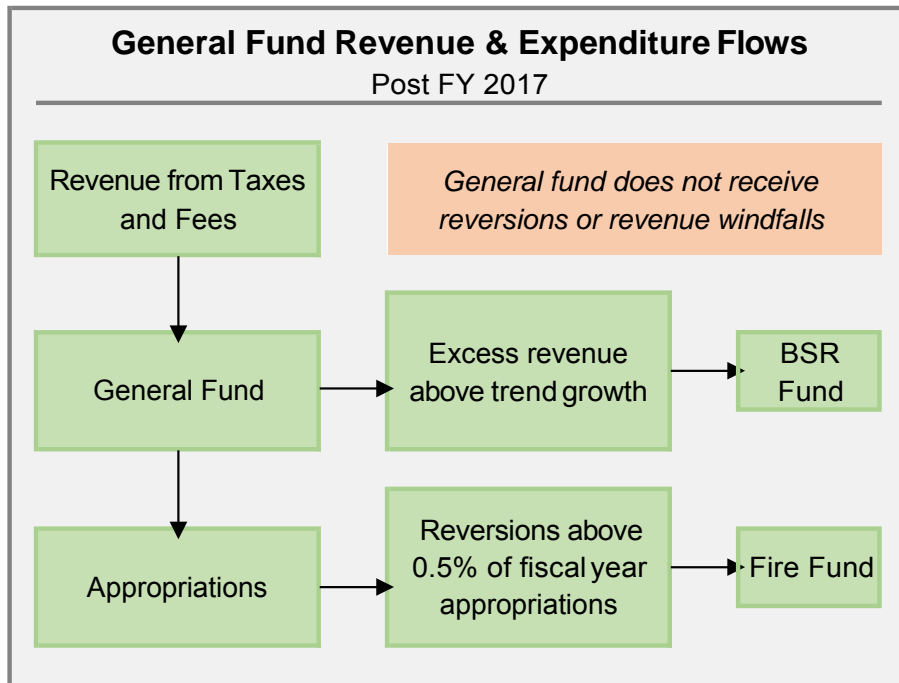


Figure 4.



STRUCTURE OF MONTANA'S BUDGET STABILIZATION RESERVE FUND

The 2017 Montana legislature passed Senate Bill (SB) 261 during the regular session to establish the state's first rainy day fund. There are rules in place dictating when funds are to be deposited/withdrawn from the BSR fund. Figures 5 and 6 illustrate the flow of funds affected by Montana's rainy day fund law.

The deposit rules for the BSR fund are fairly straightforward for the first five years of the fund's existence (FY 2017 through FY 2021). These rules are depicted in Figure 5. If revenue collections for a year exceed the official legislative revenue estimate by more than \$15 million, then the excess revenue above \$15 million is split evenly among the general fund and the BSR fund. For example, suppose revenue collections come in \$40 million above the official estimate. The amount of excess revenue would be \$25 million and \$12.5 million would be deposited into the BSR fund.

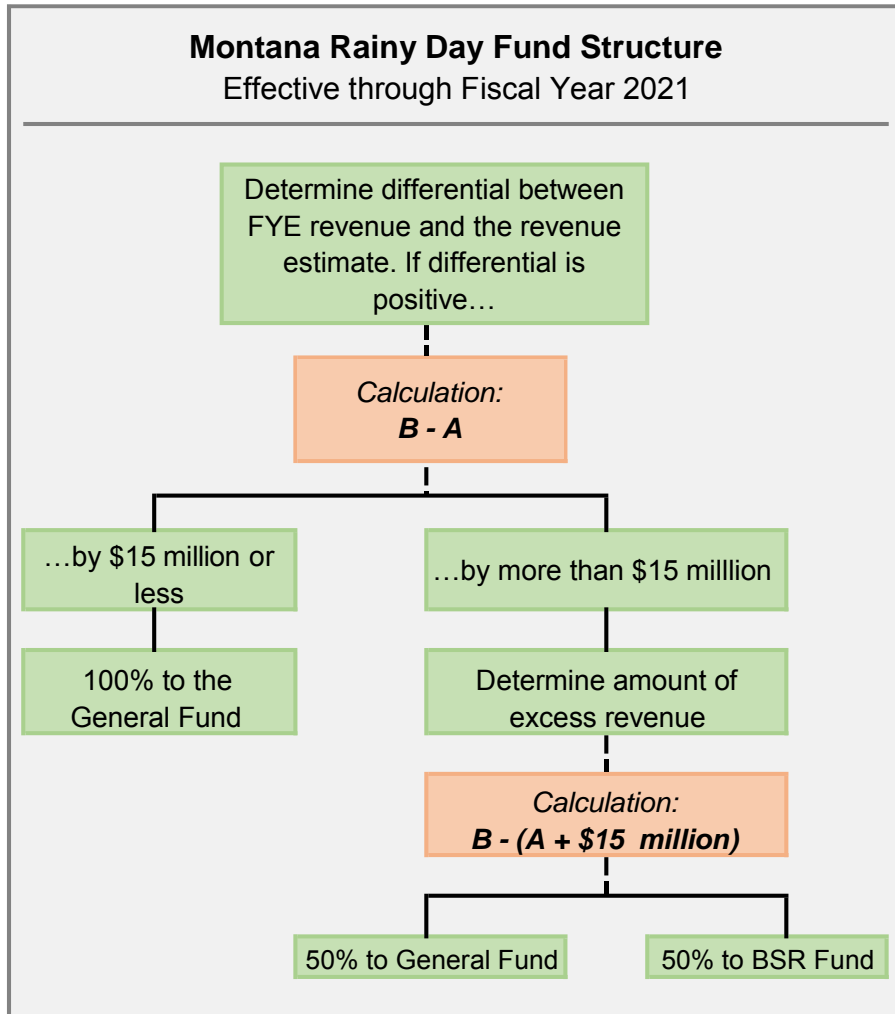
The BSR fund deposit rules become more layered and complicated starting in FY 2022, as shown in Figure 6. Calculation of the BSR fund operating reserve differential is an essential first step before determining how funds are to be deposited in years with excess revenue. Essentially, excess revenue is the amount above a trend-based measure of general fund revenue in a given year, but calculation of the exact figure is a multi-step process. If there is excess revenue in a year, the amount to be deposited into the BSR fund is dependent upon the level of the operating reserve differential. In the absence of an operating reserve differential the BSR fund receives 50% of the year's excess revenue. A positive operating reserve differential means that the BSR fund receives 50% of the year's excess revenue less the amount of the operating reserve differential. It is important to note, however, this amount could be \$0 if the operating reserve differential is larger than the 50% excess revenue figure.

Intertwined in the BSR deposit rules is a withdrawal condition that directs a transfer from the BSR fund to the general fund based on the level of the general fund ending balance. The transfer is initiated if the general fund ending balance for the prior year is less than 6.8% of all general fund appropriations in the second year of the biennium. This mechanism is designed to allow access to dollars in the BSR fund when the general fund balance is expected to be inadequate to meet expenditure needs.

Reserve funds can also be accessed in the event of a projected general fund budget deficit in accordance with 17-7-140, MCA. In this case, for every \$1 reduction in spending, \$2 is available for transfer from the BSR fund.

The reserve level in the BSR fund is limited to an amount up to 4.5% of general fund appropriations in the second year of the biennium. For FY 2018 this amounts to a little over \$100 million. Additionally, SB 261 advises, but does not require, that the level of the operating reserve (contained in the general fund) be equivalent to 8.3% of second year general fund appropriations. Calculating this figure for FY 2018 results in an operating reserve level of about \$200 million. Regarding the level of the operating reserve, the BSR fund legislation dictates that the general fund ending balance for the adopted budget should be greater than or equal to the level of the operating reserve; however, this is not a strict requirement.

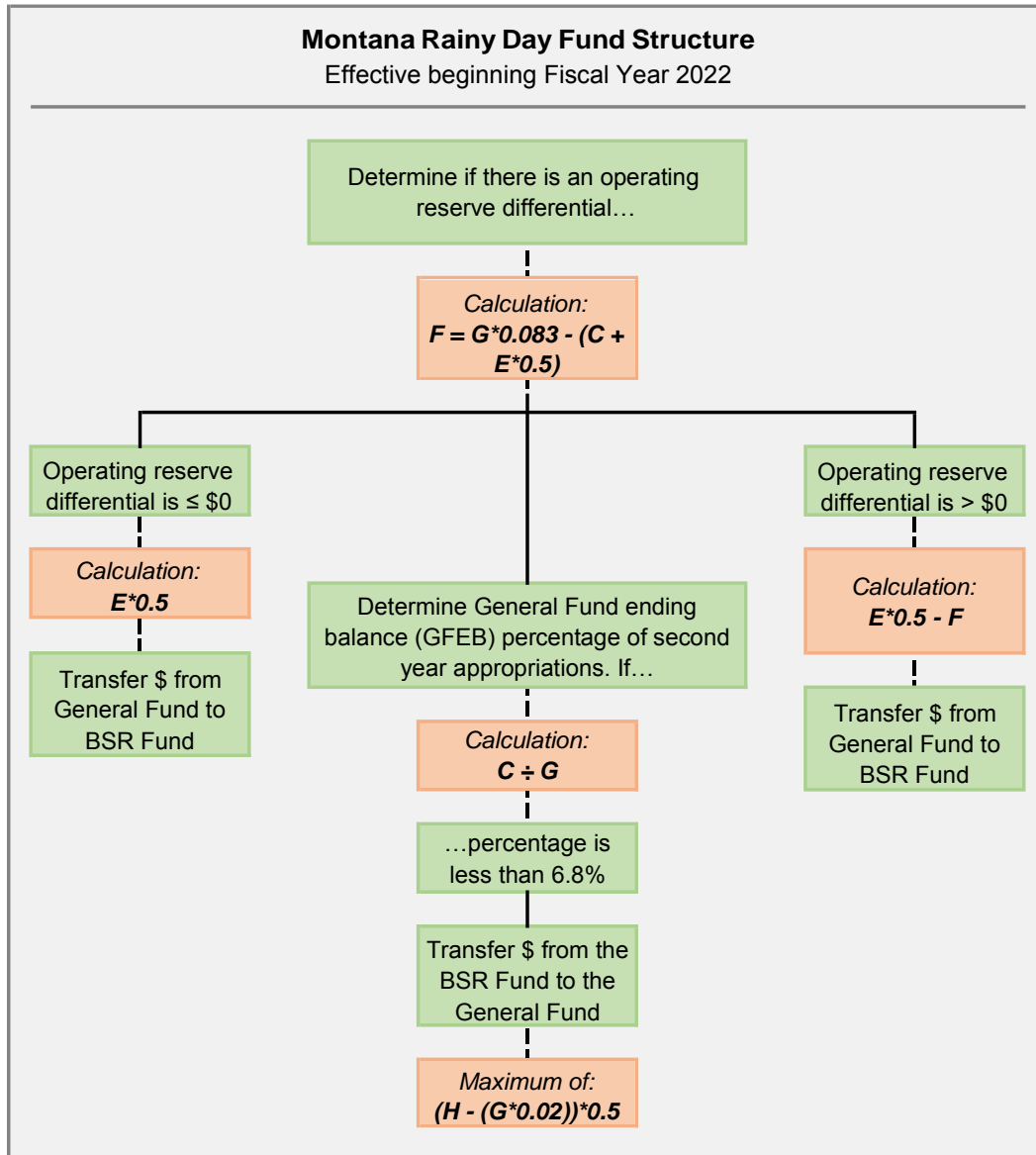
Figure 5.



Key

- A = Official revenue estimate (5-5-227, MCA)
- B = FYE General Fund revenue and transfers certified by DOA
- C = General Fund ending balance for the prior fiscal year
- D = Adjusted revenue (B + (B*I))
- E = Excess revenue from the prior fiscal year (B - D)
- F = Operating reserve differential
- G = All General Fund appropriations in the second year of the biennium
- H = Budget Stabilization Reserve Fund balance
- I = Compound average growth rate of General Fund revenue for six most recent fiscal years

Figure 6.



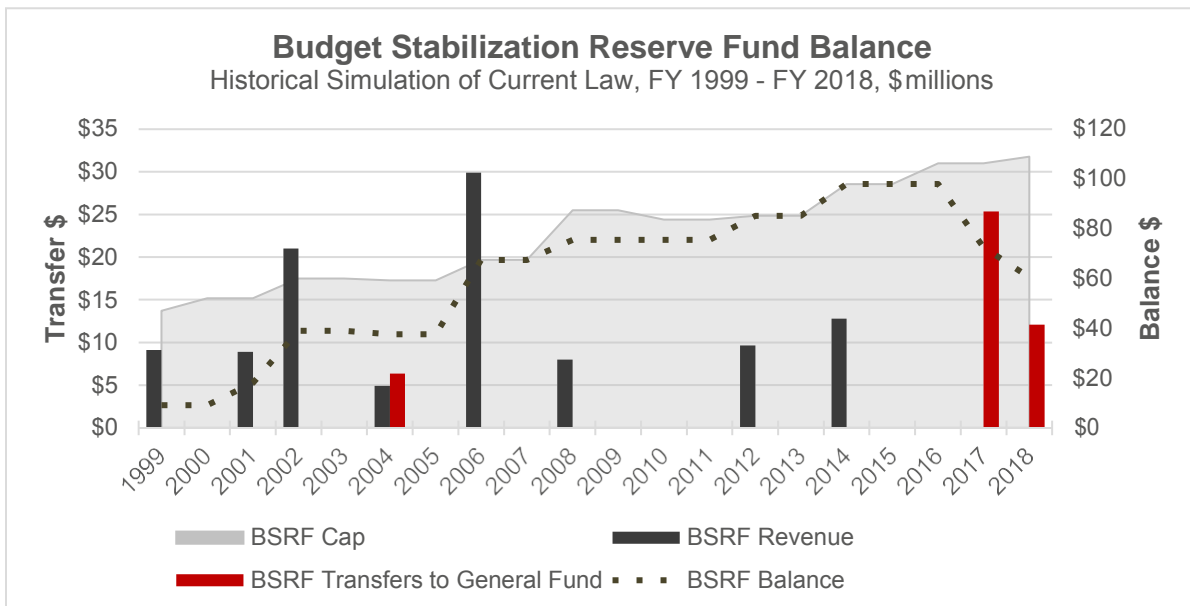
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BUDGET STABILIZATION RESERVE FUND SCENARIOS AND SIMULATIONS

Historical simulations of Montana’s rainy day fund law help illustrate how its provisions affect state finances in practice.¹ Figure 7 displays one such simulation for the period FY 1999 – FY 2018. The simulation assumes the rainy day fund law as it exists in SB 261 goes into effect in FY 1999, and shows the law’s impact on transfers to and from the BSR and the evolution of the fund’s balance over the period. BSR fund transfers for the first five years of the simulation are determined by excess general fund revenue above the official estimate. After five years, BSR fund transfers are calculated using the CAGR method. The BSR fund balance is depicted by the dotted black line. The gray area in the chart represents the BSR fund cap, which is equivalent to 4.5% of general fund appropriations in the second year of the biennium. Numerous deposits in the early to mid-2000s result in the BSR fund hitting its cap in FY 2006 and FY 2007. The cap is again reached in FY 2014 and FY 2015. By FY 2018, the cap grows to \$109 million, well exceeding the BSR balance of \$60 million, which is reduced due to transfers out of the fund in FY 2017 and FY 2018. Transfers from the BSR fund to the general fund occur when the ending balance of the general fund for a given year falls below 6.8% of general fund appropriations.

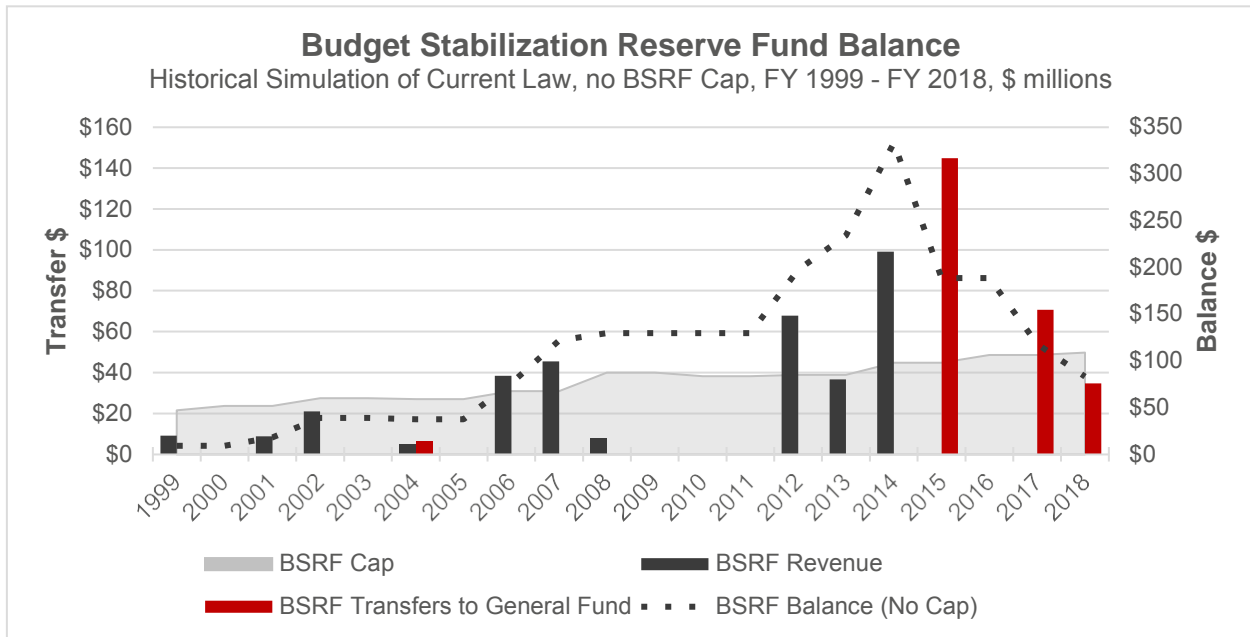
Figure 7.



For comparison purposes, Figure 8 shows how the simulation would differ if there were no cap on the level of the BSR fund. From FY 1999 - FY 2014, there are ten years with BSR fund deposits and only one year with a withdrawal. Thus, the fund’s balance grows to a peak of \$330 million in FY 2014. A large transfer out of the BSR fund occurs in FY 2015, a result of the FY 2014 general fund ending balance dipping below the 6.8% threshold. More withdrawals follow in FY 2017 and FY 2018. The BSR fund balance declines rapidly from its FY 2014 peak to settle at \$80 million by FY 2018. Without any constraints on its balance, the BSR fund accrues significantly more reserves during the simulation period. The fund’s FY 2014 peak balance of \$330 million is \$230 million greater than its peak balance (reached in FY 2014 and maintained through FY 2016) with the cap restriction. Regarding the transfers out of the BSR fund to the general fund, the simulation assumes the maximum amount possible is withdrawn.

¹The simulations are built upon a relatively static view of the past, and do not account for any legislative or executive action that would likely occur in response to deposits/withdrawals from the BSR fund. One dynamic element that was incorporated into the simulations was adjusting the general fund ending balance for transfers to and from the BSR fund in effort to more accurately replicate the effects of the rainy daylaw.

Figure 8.



MONTANA REVENUE, RECESSIONS AND RESERVES

This section of the report addresses many of the issues advanced in the March 12, 2018 memo to the Legislative Finance Committee (LFC). The memo, *Statistical Analysis of Variability of General Fund Revenue in Montana*, contains research regarding the appropriate size of a rainy day fund for Montana.² The main paper used to inform the Legislative Fiscal Division’s (LFD) modeling options for an appropriately sized revenue stabilization fund is Zhao (2014)³, which covers the prior literature, research, and methodological issues well. The LFD analysis replicates the methodology presented by Zhao (2014) for Montana. Short-term revenue fluctuations are separated from a modeled long-term trend to estimate the appropriate size of a rainy day fund. The analysis presented below investigates if the results are scaled correctly for Montana.

The general point is that the work advanced to date is appropriate, however there are reasons why the estimate derived is inadequate to protect the state and citizens of Montana. The goal of this section is to work with a few practical examples to summarize what the statistical modeling in the LFC paper seeks to accomplish and show that due to historical revenue collections in Montana, timing of mitigation, the duration of below trend revenue events, and the size of proposed reserve level is too low.

Montana Revenue Volatility

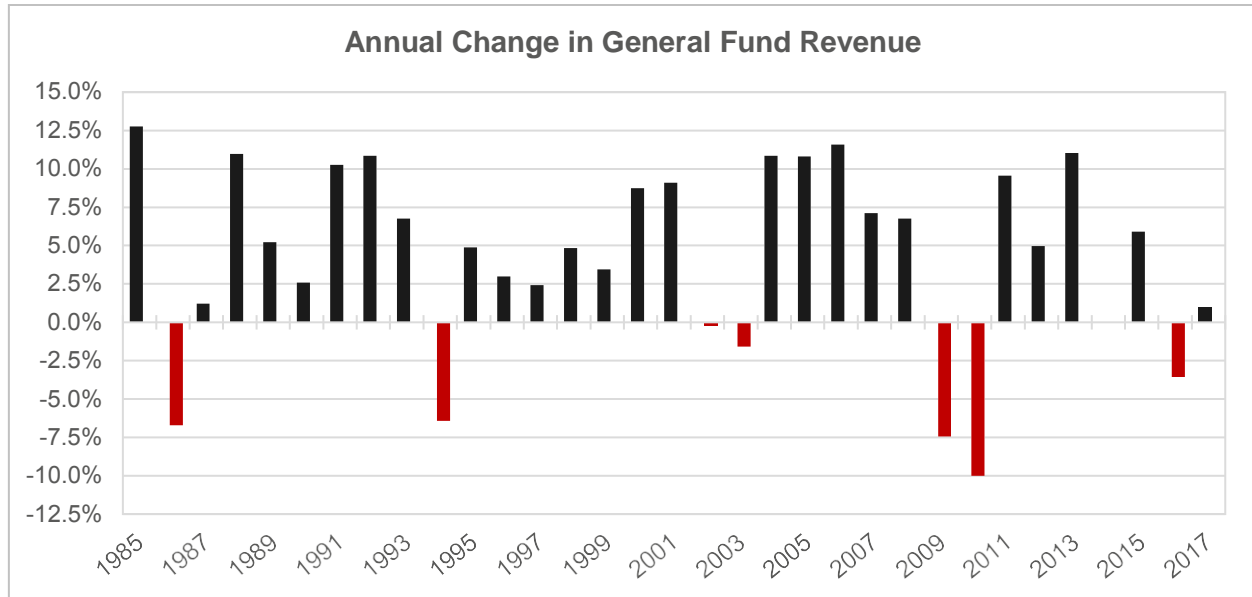
A review of Montana revenue flows illustrates the volatile nature of state tax receipts. Revenue collections can deviate from state economic trends. This is a fundamentally important consideration executive and legislative policymakers face when budgeting and appropriating for state services. This analysis uses the same data

² Schaefer, Sam. 2018. *Statistical Analysis of Variability of General Fund Revenue in Montana*. A memo submitted to the Legislative Finance Committee. March 12. Available at: <http://www.leg.mt.gov/content/Publications/fiscal/interim/March-2018/rainy-day-fund-memo.pdf>

³ Zhao, Bo. 2014. *Saving for a Rainy Day: Estimating the Appropriate Size of U.S. State Budget Stabilization Funds*. Federal Reserve Bank of Boston, Research Department Working Paper No. 14–12. October 2014.

used by the LFD, but only reaching back to FY 1985 as there is a significant break in the relationship between general fund collections and gross state product (GSP) before 1985.⁴ Further, this analysis uses data series for calendar years 1984 through 2017 (generally historical Montana GSP as compiled by IHS Markit as of March 2018) and general fund collections for FY 1985 through FY 2017. The annual percent change in revenue collections shown in Figure 9 illustrates the volatility of tax receipts.

Figure 9.

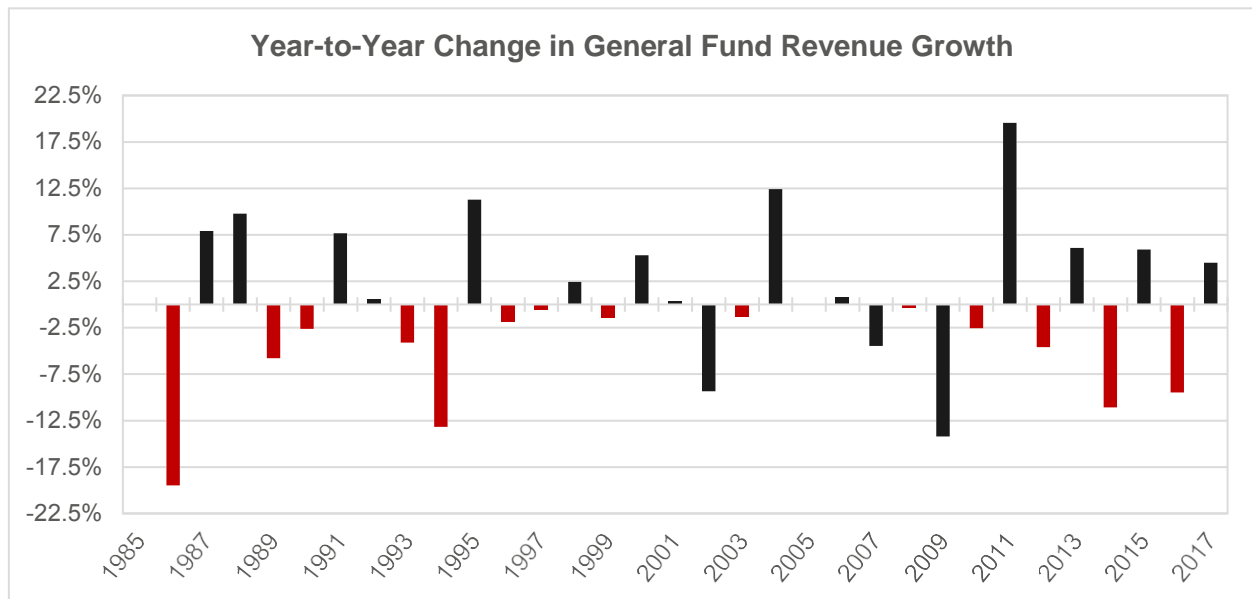


The pattern of actual change in collections shows that seven of the last 33 years have been years of revenue decline. These negative episodes have been of relatively short duration, lasting one or two fiscal years. While revenue declines clearly present challenges for policymakers, significant decelerations in revenue growth can present problems as well. Abrupt, downward changes in the pace of revenue growth can put unexpected strain on state finances, the severity of which is linked to the magnitude of the revenue deceleration. From the perspective of general fund collections, it is informative to recognize that the 2001 recession, while minimally affecting employment, triggered a decline in revenue growth that resulted in the need for a special session in August 2002 to balance the budget. A similar set of budget balancing special sessions were held in 1992 and 1993 in the aftermath of the 1991 and 1992 mild recessions.

Figure 9 above suggests that the maximum risk the state faces, if it were to experience a downturn similar in magnitude to the Great Recession, would be a two-year, cumulative decline in revenue of 17.5%. History suggests that more frequent mid-range recessions carry an average risk of 7% revenue decline. The implications for a \$2,300 million revenue base would be maximum downside risk of \$400 million, with more frequent, but less severe revenue plunges occurring in the range of \$65 to \$160 million. With only seven negative revenue growth events in 33 years, this might appear to be a small problem. However, the pace of revenue growth does not necessarily have to dip below zero for issues to arise.

⁴ There are two main contributors to the change in the relationship between general fund revenue and gross state product. One, the change in GSP estimation methodology; and two, change in the coverage and mix of taxes deposited in the general fund.

Figure 10.



There have been around twelve special sessions devoted to budgetary issues since FY 1985. This suggests unexpected revenue shortfalls are more common than they first appear. As figure 10 shows, revenue collections can accelerate and decelerate rapidly. Unexpected rapid revenue decelerations occurring shortly after the adjournment of the legislature and/or back-to-back years of revenue deceleration can create budget management challenges. These data show that years of acceleration and deceleration are roughly balanced. An easy approximation of the size of a reserve fund may be informed by calculating the cumulative percentage of sequential revenue decelerations and the monetary value associated with these declines. For the period presented above, the average cumulative percentage of sequential revenue declines is -12.1%, the minimum is -2.4%, and the maximum is -21.6%. Assuming a \$2,300 million revenue base, 12.1% amounts to \$277 million, while the largest decline of -21.6% is equivalent to \$497 million. Presumably, policymakers would want to guard against something more than the average downturn.

Another way to look at the problem, as summarized by Kodrzycki (2014), is to understand that collections tend to grow faster than economic growth on upswings and deteriorate faster than economic growth on downswings.⁵ In response to this phenomenon, the work by both Zhao (2014) and Schaefer (2018) focuses on separating the long-term trend from short-term (cyclical) components of changes in revenue. Their work is an effort to determine adequate reserves needed to weather an unexpected downturn and the associated strain on state finances. Budgetary pressures rise both from the decline in revenue and the counter-cyclical need for certain expenditures in downturns. During the cyclical upturns, any “extra” revenue can be used to replenish reserve funds. The challenge for forecasters is to identify downturns and upswings relative to trend. For policymakers, the challenge is how to use this information to fund the reserve and forgo current expenditures to do so. Given the lags in economic information and the timing delays between economic activity and the tax

⁵ Kodrzycki, Yolanda. 2014. Smoothing State Tax Revenues over the Business Cycle: Gauging Fiscal Needs and Opportunities. Federal Reserve Bank of Boston, Research Department Working Paper No. 14-11. October 2014.

receipts realized from that activity, it is difficult to assess in real-time the magnitude of the cyclical swings in revenue collections.

An added challenge to assessing the size of rainy day fund reserves is increasing revenue volatility. Kodrzyki (2014) shows empirically that individual income tax receipts are the chief cause of greater cyclicity of state tax revenue. The author's work shows that there was a marked increase in the elasticity of income tax receipts to statewide personal income in the 2000s relative to the 1980s and 1990s. Nationwide this is attributable to the increasing cyclicity of investment income and the growing share of capital gains in total income. The upshot is that estimates based on a long historical trend, in which the past has significantly lower volatility, may result in reserve levels that are unfit to effectively counteract real-time revenue swings.

Montana Economic and Revenue Trends and Implications for Rainy Day Fund Size

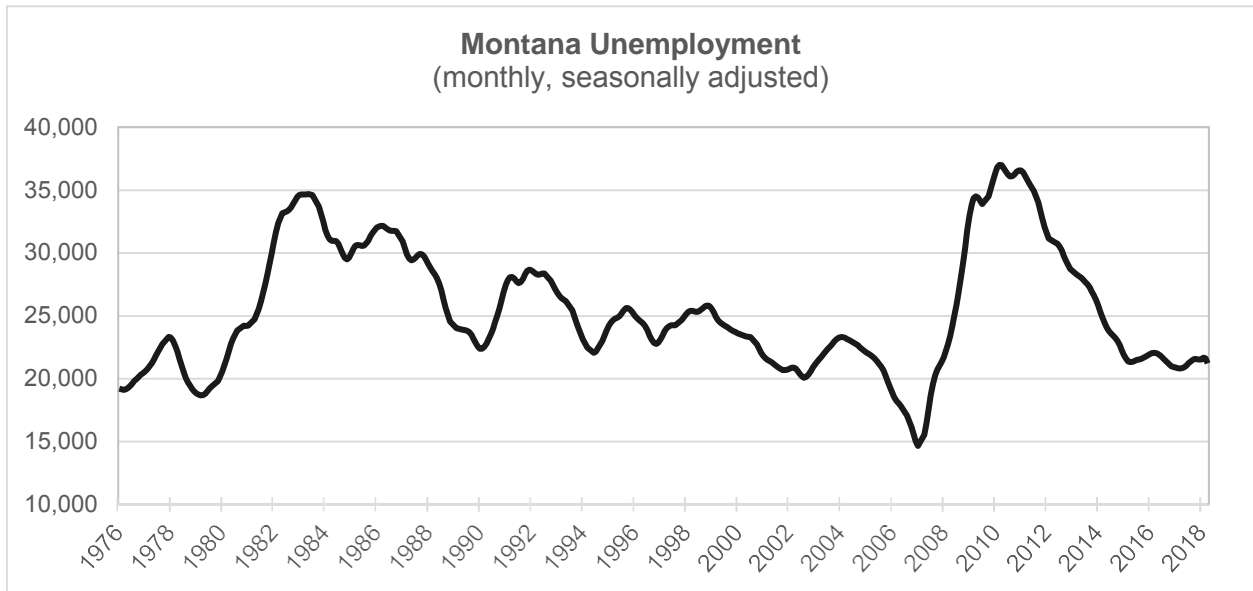
Economic Trends

Assessing the persistence of either positive or negative deviations in revenue collections from trend is a challenge for policymakers. Wagner and Elder (2007) looked at this issue for the states in January 2006 prior to the Great Recession. Using quarterly data covering the fourth quarter of 1979 through the fourth quarter of 2006, they calculated that business cycles in Montana last a little over eight years, consisting of seven years of above trend growth, and slightly over one year of below trend growth.⁶

To further illustrate this point, Montana monthly employment data for 1976 through 2017 from the Bureau of Labor Statistics (revised in February 2018) are used to classify periods of labor expansion and labor contraction. These data are displayed in figure 11. The entire period includes nine complete cycles. Its length helps capture changing demographics in the state. Expansions are defined as any period with six or more months of falling unemployment while contractions consist of any period of rising unemployment longer than six months. This analysis indicates that the average expansion is just over 30 months long (excluding the current cycle in progress) and the average contraction is 24 months long. The longest expansion lasted 52 months (January 2011-April 2015) and the longest contraction lasted 50 months (April 1979-May 1983). There was a 46-month contraction during the Great Recession, extending from March 2007-December 2010. The contraction phase of the business cycle in Montana almost always exceeds 12 months (there was one 11-month downturn). The average length of a contraction is just over two years. The duration of economic cycles is an important factor to consider for Montana, since the state budgets for a two-year window. In terms of optimum reserve fund size, the question of how long revenue growth stays below trend is even more important for Montana because its biennial budgeting process exposes the state to unique interim risks.

⁶Wagner, G. A. and E. M. Elder. 2007. Revenue Cycles and the Distribution of Shortfalls in U.S. States: Implications for an 'Optimal' Rainy Day Fund. *National Tax Journal* 60(4): 727-742.

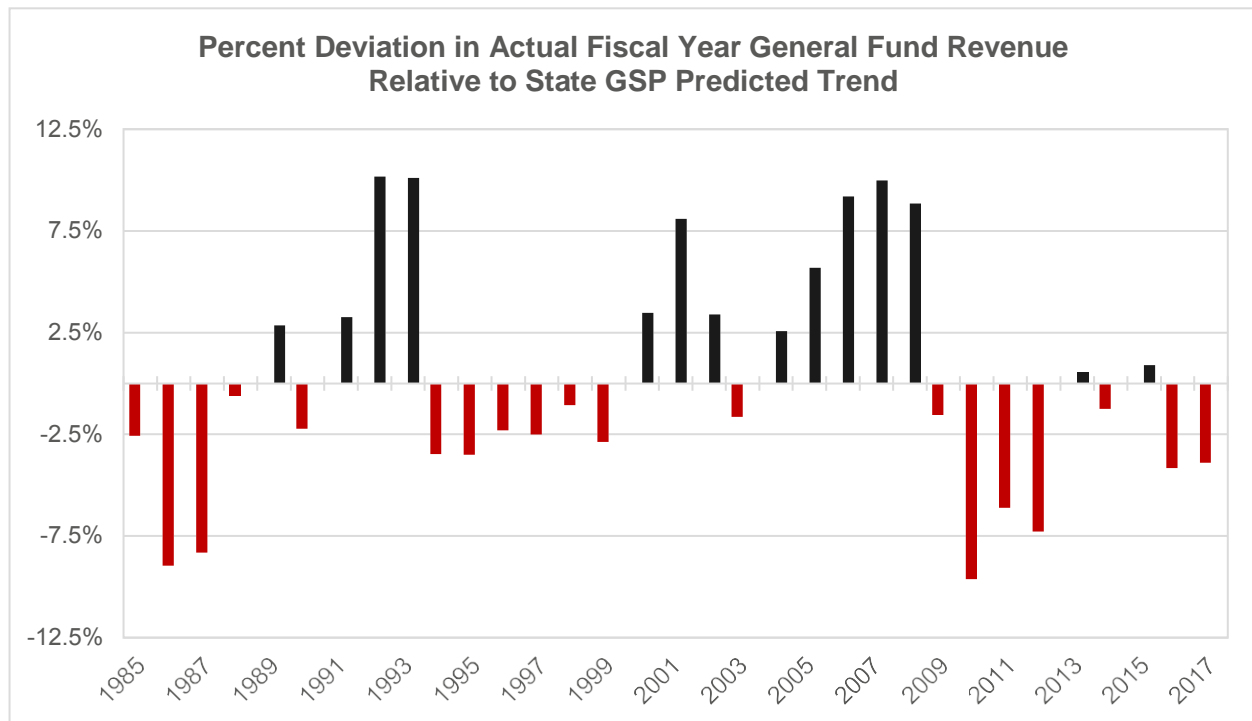
Figure 11.



Revenue Trends

To address the question of how long below trend revenue collections persist, fiscal year collections data are modeled using prior calendar year gross state product (assuming a six-month lag between economic activity and tax collections) in a simple regression analysis. The results suggest periods of below-trend collections last between four and five fiscal years (see figure 12). The regression is a log-log model with the natural log of nominal fiscal year general fund collections regressed against the natural log of nominal Montana GSP for the prior calendar year. Revenue is a function of overall economic activity. The model fit is strong based on an adjusted R^2 measure of 0.98 and the residuals appear to be well distributed. The trend in general fund revenue collections predicted by the regression model is the expected level of collections given a certain level of economic activity in the state. The following chart displays the percent deviation in actual general fund collections from the regression model predicted trend. The graphical depiction of the residuals illustrates the cyclical nature of revenue collections in Montana. Years of negative deviations from trend tend to occur in sequence, and likewise for years with positive deviations from trend. There are 19 fiscal years with below trend growth and 14 fiscal years with above trend growth in the period analyzed. Revenue growth in above-trend years averaged 5.6%. During the downswings the average decline in revenue was -3.9%. The graph illustrates another problem for funding a rainy-day reserve: revenue does not necessarily revert to above trend growth rapidly.

Figure 12.



Recent LFC discussion has explored the apparent change in state revenue buoyancy as it relates to state economic activity. Many states have shown reductions in their collections relative to gross state product since FY 2008. Changing economies and static tax systems may be contributing factors. These factors may be linked to the nature of recent recessions. Most recessions were driven by drops in consumer spending which over time built-up backlogs of “pent-up” demand that, when released, created relatively rapid “V-shaped” recoveries in the past. The most recent recessions have been driven by financial sector problems bleeding into the real economy, leading to long and slow recoveries that are more “L-shaped”. The graph above suggests a critical change since the last severe downturn (note the relative size of the bars above trend since FY 2008). While this phenomenon is likely related to shifts in the gearing of tax collections to GSP, it may also reflect demographic changes that are affecting growth. This is an area for further investigation, but if the change is due to the relationship between the tax structure and the economy, past positive surges in revenue may have moved to a new lower trend, indicating that replenishing reserves may take longer than history suggests.

The chart of deviations in collections from their expected trend level is also useful in assessing the appropriate size of a reserve fund based on historical realizations. The chart displays the magnitude of departures in revenue collections from trend as well as the persistence of those departures. Consecutive years of below-trend revenue collections can cause fiscal pressures to mount over the course of a budget cycle. The three-year period -- the typical range of official revenue estimate forecasts -- with the greatest cumulative percentage decline gives an approximation of how large a rainy day reserve might need to be to combat budgetary stress and offer certainty to those relying on state appropriations. Historically, the stretch from FY 2010 - FY 2012 represents the largest cumulative three-year revenue shortfall. The total decline over this span amounted to 23% below trend. The period in the late-1980s was large as well, accumulating a total negative departure from trend of 19.8%. The cumulative deviation from trend for a three-year downcycle is 8.4% on average. Assuming a \$2,300 million revenue base, these percentages translate into reserves of \$529 million for a Great Recession type event, \$455 million for an event similar in size to the late-1980s decline, and \$193 million for the average

decline. These numbers, while larger than the estimates presented in the LFD paper, roughly correspond to those estimates once certain other factors are taken into account.

One way to assess the above estimates is to compare them to actual budgeting and forecasting experience during the Great Recession. As the severity of the crisis started to unfold, the Office of Budget and Program Planning (OBPP) cut about \$130 million in expenditures and reduced the revenue forecast by \$115 million in December 2008. These decisions were difficult considering revenues were still growing at a healthy pace in October 2008, prior to the 2009 session. Year-over-year revenue growth even accelerated between December 2008 (2%) and March 2009 (5.9%), only to then plummet each month thereafter through March 2010. Revenue in the last quarter of FY 2009 took a \$115 million (18.7%) plunge from the same quarter the prior year. That continued for three more quarters, with revenue falling a total of \$339 million from the prior year's equivalent quarters, and nearly \$400 million from OBPP's downwardly revised December 15th revenue projection for the three-year forecast period. In nominal terms, the total revenue decline was \$515 million from the initial revenue estimate in November 2008 (in 2017 terms that is about \$580 million). The experience and tools developed during the Great Recession should prove helpful in identifying and measuring the likely impact of future downturns. But even with high levels of vigilance, reductions can happen faster than the official economic data arrives.

REVISIONS TO ECONOMIC VARIABLES

Economic data arrives with a lag and is frequently revised. This means the economic base upon which a forecast is built may turn out to be much different than indicated by initial data, which can contribute materially to forecasting error. Data revisions have both positive and negative effects to the basis of the revenue outlook. Since Montana uses a three-year revenue projection to inform the state budget (with a chance to re-estimate in the third year subsequent to the majority of the biennium), forecasters have less flexibility to adjust the revenue outlook once data revisions are known.

To illustrate, Figure 13 shows the relative change in calendar year Montana GSP growth estimates at various point in time when revenue forecasts were released before, during, and after the 2017 regular legislative session. The GSP data are projections from IHS Markit, and underlie revenue forecasts made in October 2016 (initial adoption of House Joint Resolution 2 by the Revenue and Transportation Interim Committee), April 2017 (adjustments to HJ 2), and September 2017. The data are current as of the April 2018 IHS Markit Montana-specific forecast. Figure 13 displays both net and cumulative changes in GSP data for calendar years 2015 - 2019. Data values are indexed at their original levels contained in the October 2016 IHS forecast to show the evolution of the revisions.

Figure 13.

Revisions to Past and Forecast Values of Montana GSP Growth as of April 2018 (Percentage Points)					
Net Change Since: CY 2015 CY 2016 CY 2017 CY 2018 CY 2019					
October 2016	-1.0	-0.2	-1.3	-0.1	0.8
March 2017	0.0	-1.0	-1.2	-0.3	0.8
<u>August 2017</u>	0.1	0.5	-0.7	-0.5	0.8
Cumulative Change in the Level of GSP as of April 2018					
Change Since:	CY 2015	CY 2016	CY 2017	CY 2018	CY 2019
October 2016	-1.0%	-1.2%	-2.5%	-2.6%	-1.8%
March 2017	0.0%	-1.0%	-2.2%	-2.5%	-1.7%
<u>August 2017</u>	0.1%	0.6%	-0.1%	-0.6%	0.2%

The fiscal implications of economic data revisions can be significant. Assuming tax collections lag economic activity by about six months (CY 2016 data most heavily influences FY 2017, CY 2017 influences FY 2018, etc.), a \$2,200 million revenue base (FY 2017), and 4.5% trend growth, the numbers above indicate the three-year impact to the forecast from revisions to Montana GSP data to be \$116 million downdraft since October 2016, \$106 million downdraft since March 2017, and \$3 million updraft since August 2017.^{7,8} These kinds of shifts highlight the importance of the level of the operational reserve and have cashflow implications when paired with 17-7-140, MCA triggers.

OPERATIONAL RESERVES AND CASHFLOW

Revenue downturns have implications for the cashflow of day-to-day state operations. Reserves above the bare minimum needed to maintain normal cash operations improve the state's ability to manage during revenue declines and help avoid unexpected cash shortfalls. It also reduces or eliminates financing costs from tax receipt anticipation notes (TRANS) or other short-term options. For a given fiscal year, the expenditure side of the ledger is well known in terms of the timing and size of payments from the general fund. The revenue side is less predictable and the timing of collections does not always line up with the timing of large expenditures. Without sufficient coverage in the state checking account, it is possible for daily expenditures to exceed available cash resources. Cash balance tracking is important for understanding the interplay between general fund cash receipts and payments.

Cashflow

Figure 14 shows maximum and minimum fiscal year cash balances and the variance between the high and low points. These data are displayed at monthly, weekly, and daily intervals for the years that such measures are available. The high-low range for each fiscal year is presented in both nominal and inflation-adjusted dollars. The nominal monthly measurements show that the smallest range between maximum and minimum cash was

⁷ This assumes historically average tax policy over the period, so the impact of tax behavior occurs only through the change in the economic fundamentals, which lags policy change, and as such would be muted in these estimates.

⁸ These estimates are scaled to account for the elasticity of general fund revenue as it relates to Montana GSP.

\$149 million in FY 2011 and the largest range was \$303 million in FY 2008. In 2017 dollars those values are equivalent to \$165 million to \$348 million, respectively. The monthly figures understate the full amount of the cash balance swing within the fiscal year when compared to weekly and daily figures. Weekly measurements, in inflation-adjusted terms, show that the cash balance range amounted to a low of \$246 million in FY 2011 and a high of \$364 million in FY 2013. The daily numbers indicate the smallest variance was \$302 million in FY 2014 and the largest was \$363 million in FY 2015. For the years with monthly, weekly, and daily data points (FY 2014 - FY 2017), the daily numbers reveal information about state cash flows that the monthly, and to a certain degree the weekly, data do not. Taking FY 2015 as an example, the monthly cash balance figures indicate the total swing between the high and low balance to be approximately \$260 million. The daily numbers, however, reveal the total swing to be \$100 million higher at \$360 million. Tracking cash balances at a daily frequency is important to fully understanding the state's cash needs during the course of a fiscal year and determining appropriate reserves that will meet those needs.

Figure 14.

Fiscal Year Cash Balances: High and Low Points (\$ millions)												Averages		
	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	Entire FY 2014 - Period FY 2017	
End of Month Basis														
Max	378.8	511.1	562.8	520.0	440.0	376.6	502.5	620.5	544.6	561.9	512.5	322.5		
Min	<u>154.0</u>	<u>302.8</u>	<u>260.1</u>	<u>362.8</u>	<u>170.5</u>	<u>227.2</u>	<u>308.9</u>	<u>368.1</u>	<u>344.3</u>	<u>308.1</u>	<u>234.3</u>	<u>49.0</u>		
Range	\$224.8	\$208.3	\$302.7	\$157.2	\$269.5	\$149.3	\$193.6	\$252.4	\$200.3	\$253.8	\$278.2	\$273.5		
Range in 2017 Dollars	\$275.3	\$249.8	\$348.1	\$181.0	\$302.4	\$164.7	\$207.4	\$265.9	\$207.7	\$263.7	\$285.3	\$273.5	\$252.1	\$257.6
End of Week Basis														
Max						375.4	493.3	658.3	575.9	562.3	524.4	336.2		
Min						<u>181.9</u>	<u>283.2</u>	<u>355.3</u>	<u>323.6</u>	<u>302.2</u>	<u>225.5</u>	<u>35.3</u>		
Range						\$193.5	\$210.1	\$303.0	\$252.3	\$260.1	\$298.9	\$300.9		
Difference between Weekly and Monthly basis						44.16	16.50	50.60	51.97	6.31	20.65	27.43		
Range in 2017 dollars						\$246.4	\$257.3	\$363.5	\$290.1	\$299.5	\$335.4	\$332.0	\$303.5	\$314.3
Incremental Percent of Monthly Range						29.6%	8.5%	20.0%	25.9%	2.5%	7.4%	10.0%	20.4%	22.0%
Daily Basis														
Max									586.1	605.3	524.4	336.2		
Min									<u>323.6</u>	<u>290.3</u>	<u>215.7</u>	<u>30.9</u>		
Range									262.5	315.0	308.7	305.3		
Difference between Daily and Monthly basis									62.17	61.20	30.44	31.81		
Range in 2017 dollars									\$301.9	\$362.7	\$346.3	\$336.8	\$336.9	\$336.9
Incremental Percent of Monthly Range									31.0%	24.1%	10.9%	11.6%	33.7%	30.8%
Difference between Daily and Weekly basis									\$10.2	\$54.9	\$9.8	\$4.4		
Percent of Weekly Range									4.0%	21.1%	3.3%	1.5%		

Operating Reserve

Montana's rainy day fund law (SB 261, 2017 regular session) informs the level of what is called the "operating reserve", which is essentially the balance of the general fund at the end of the biennium. The state's ability to cashflow effectively is tied closely to the level of the operating reserve. Based on current appropriations, the state's target operating reserve is roughly equivalent to \$200 million. This is significantly less than the over \$330 million average variance in the general fund cash balance that occurs within a fiscal year. To ensure adequate cash resources are available for funding day-to-day state operations, a higher level for the operating reserve is strongly suggested. The state does have the ability to borrow from other state funds in cases of general fund cash shortages and did so in FY 2018, however, during a recovery period following significant borrowing and transfers, that option is limited by reduced fund balances in state special revenue and other accounts. In general, relying on inter-fund borrowing to ensure general fund cash solvency is not best practice. More resources in the operating reserve would help guard against the need to borrow.

CONCLUSION

Montana has historically used its general fund ending fund balance as its rainy day fund. This allowed maximum flexibility to cover revenue shortfalls without necessitating expenditure reductions to critical services while simultaneously providing for adequate cash flow. The state is now grappling with the task of determining if the structure of its new rainy day fund is adequate to sustain services in times of economic hardship. The OBPP recommendations above ensure a balanced approach to fiscal management. By maintaining the trigger language in 17-70-140, MCA, simplifying the BSR deposit and fund balance rules, improving revenue estimates and estimating processes, and altering access to the fund for our most vulnerable citizens in times of economic hardship, Montana can minimize short and long-term fiscal impacts on taxpayers and citizens.



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