



University of Kentucky
UKnowledge

MPA/MPP/MPFM Capstone Projects

James W. Martin School of Public Policy and
Administration

2010

A Study of the Effects of Budget-Balancing Practices and Fiscal Policies on State Fiscal Health

Candice Schultheis
University of Kentucky

Follow this and additional works at: https://uknowledge.uky.edu/mpampp_etds



Part of the [Finance and Financial Management Commons](#), and the [Policy Design, Analysis, and Evaluation Commons](#)

[Right click to open a feedback form in a new tab to let us know how this document benefits you.](#)

Recommended Citation

Schultheis, Candice, "A Study of the Effects of Budget-Balancing Practices and Fiscal Policies on State Fiscal Health" (2010). *MPA/MPP/MPFM Capstone Projects*. 139.
https://uknowledge.uky.edu/mpampp_etds/139

This Graduate Capstone Project is brought to you for free and open access by the James W. Martin School of Public Policy and Administration at UKnowledge. It has been accepted for inclusion in MPA/MPP/MPFM Capstone Projects by an authorized administrator of UKnowledge. For more information, please contact UKnowledge@lsv.uky.edu.

A Study of the Effects of Budget-Balancing Practices and Fiscal Policies on State Fiscal Health

Candice Schultheis
April 15, 2010

Capstone in Public Policy
Martin School of Public Policy and Administration
University of Kentucky

Dr. Ginny Wilson, Faculty Advisor

TABLE OF CONTENTS

Executive Summary.....	3
Introduction.....	4
Overview of State Budgeting Concerns in Kentucky.....	5
Budget Policies and Strategies to Eliminate Budget Imbalances.....	7
Research Question.....	9
Literature Review.....	9
Data and Methodology.....	16
Table 1.....	17
Table 2.....	18
Empirical Analysis.....	22
Table 3.....	24
Table 4.....	27
Table 5.....	31
Discussion of Findings.....	32
Limitations and Conclusion.....	36
Appendix A.....	39
Appendix B.....	40

EXECUTIVE SUMMARY

During times of economic recessions, many states throughout the U.S. may experience budget pressures that impact their overall fiscal health. Kentucky, in particular, has been faced with structural budget imbalances, declining revenue receipts, and spending reductions. Although economic conditions greatly affect states' abilities to maintain balanced budgets, other factors may contribute to the variation among states' financial conditions. This study assesses the effect that budget-balancing strategies, processes, and policies have on states' fiscal health, as measured by state fiscal peril scores reported by the Pew Center on the States and year-end budget balances as a percentage of expenditures estimated by the National Association of State Budget Officers.

This analysis uses state-level economic, demographic, and fiscal data for 22 sampled states over the period 2001-2008. Three statistical models are presented to estimate the effects of fiscal policy-relevant variables on state fiscal health. Controlling for the effects of state economic and demographic characteristics, the results of the analysis indicate that various types of budget-balancing strategies, processes, and policies have an impact on state fiscal health. Policymakers in Kentucky may want to consider these types of practices; however, unique characteristics inherent to the state may limit the effectiveness of certain policies in Kentucky. The findings of this study are limited by the possibility of reverse causation, where fiscal health may affect the level and type of budget-balancing strategy used in a state. Future analysis using more recent data for 50 states is recommended to better understand the impacts of fiscal practices and policies.

INTRODUCTION

A budget is a planning mechanism that attempts to balance a state's expenditures with its revenues. It promotes fiscal responsibility by identifying how government resources are used to meet the demands for public services and how those services are funded. During the most recent U.S. economic recession, state governments throughout the country were suddenly faced with financial pressures that greatly undermined their fiscal health. With slowing or declining economic growth, state revenue receipts tend to drop as spending pressures rise, which can lead to budget imbalances and fiscal crises. Maintaining a balanced budget during tough economic times requires state governments to make difficult decisions related to tax, spending, and debt policies.

While some states are able to avoid financial crises in uncertain economic times, other states are more vulnerable to the impacts of a recession, leading some researchers to conclude that the state of the economy is not sufficient to explain the variation among states' fiscal health. The recent cyclical downturn of the economy has affected states differently, depending on state characteristics, demographic composition, tax structure, and fiscal policies (The Pew Center on the States, 2009). In addition to current economic conditions, a range of factors, including state demographic characteristics, policy changes, and budget procedures, affect state fiscal outcomes. States have employed various budget practices and policies in an effort to eliminate the imbalance between revenues and expenditures, and this report analyzes how fiscal policies influence state budget conditions.

This study outlines the current fiscal environment in Kentucky, identifies the factors leading to poor fiscal health, and describes how states respond to economic downturns in an attempt to maintain a balanced budget. It provides an overview of strategies used to improve budget conditions in states experiencing high and low fiscal peril. A statistical model is used to

estimate the impact of budget procedures and policies on state budget conditions, and limitations of the model are discussed. The results of the analysis are presented, along with their implications for Kentucky fiscal policy.

OVERVIEW OF STATE BUDGETING CONCERNS IN KENTUCKY

For the 2010-2012 biennium, the fiscal environment in Kentucky has become a major concern, as state officials are faced with addressing budget shortfalls, a structural imbalance, the depletion of available federal funds, and future obligations that must be satisfied. The “standing official estimate for the General Fund” for the fiscal year 2010 is \$8.2 billion, and it is estimated that a \$1.5 billion budget gap between general fund resources and spending exists for the 2010-2012 biennium (Governor’s Office for Economic Analysis, 2010). However, when considering additional spending needed for pension liabilities, adjustments due to prison population growth, health care for state employees, and economic development projects and investment, the budget gap increases to \$1.9 billion (Office of the State Budget Director, 2010). A budget gap occurs when revenues generated are not adequate to cover the current level of spending for services and assistance programs (McNichol & Johnson, 2009). Several factors have contributed to this budget gap.

Like many states, Kentucky has been experiencing budgeting strains during the most recent economic recession. Actual general fund revenues have declined for two consecutive fiscal years, with receipts dropping below the fiscal year 2006 level (\$8.4 billion). In addition, Kentucky has a structural imbalance problem “embedded in the current budget where expenditures already exceed recurring receipts” (Office of the State Budget Director, 2010). A structural deficit occurs when normal growth in expenditures exceeds normal growth in revenues or when recurring costs are greater than recurring revenue collections (KYA, 2010). For the fiscal year 2010, the official revenue estimate by the Consensus Forecasting Group is \$100

million less than continuing expenditures (Governor's Communication Office, 2010). If a balance between revenues and spending is not achieved, it will be difficult for the state to provide public services at existing levels.

Revenue concerns are expected to increase as available federal funds decline. The remaining Federal stimulus funds for Kentucky are \$268 million in state fiscal stabilization funds, and this amount is estimated to be exhausted in fiscal year 2011. The depletion of federal aid places greater strain on the state to maintain the balance between its revenues and expenditures by relying on other methods, such as reducing expenditures or increasing taxes and fees (Office of the State Budget Director, 2010). Along with declining revenues and being faced with expenditure cuts, state officials have obligations such as unfunded pension liabilities that contribute to the difficulty of balancing the state budget.

In *The Fiscal Survey of States* report, the National Association of State Budget Officers (2009) provides budgetary information regarding state general fund revenue and spending since the general fund "represents the primary component of discretionary expenditures of revenue derived from general sources, not earmarked for specific items." As of December 2009, budget cuts made in Kentucky were estimated to be \$163.2 million and \$273.8 million for fiscal years 2009 and 2010, respectively, with budget reductions for the fiscal year 2010 currently on-going (NASBO, 2009). Appendix A presents estimations of budget cuts made in other states during fiscal year 2009 and 2010.

Appendix B presents state averages of various fiscal, economic, and demographic data for the period 2001-2008 (U.S. Census Bureau & U.S. Bureau of Labor Statistics). From 2001 to 2008, the average unemployment and poverty rates in Kentucky were 5.86 percent and 14.1 percent, respectively. Compared to other states, Kentucky's average unemployment and poverty rates were relatively high. Kentucky was among the top five states with the highest average

unemployment and poverty rates over these years. With an average population size and population density of 4,158,830 and 101.7, respectively, Kentucky ranked 10th highest out of the 22 states in terms of average population size and 8th highest out of the 22 states in terms of average population density. Over the eight year period, Kentucky had the third lowest average per capita personal income (\$33,657.68) and the third lowest average tax revenue per capita (\$4,525.78). Compared to other states, the average size of Kentucky's economy was smaller and the state collected fewer tax revenues relative to other states. In terms of average debt per capita (\$2,547.67), average federal aid per capita (\$1,713.91), and average expenditures per capita (\$5,904.07), Kentucky fell close to the midpoint within the sample of states for the period 2001-2008.

In addition, based on data presented in Appendix B (NASBO, 2009) , Kentucky is among the 13 out of 22 states with a debt service limit, and one of the 10 states with a biennial budget cycle. Of the sample, for the period 2001-2008, 10 states, including Kentucky, had a consensus revenue forecasting process, and three states, California, Michigan, and Wisconsin, allowed deficits to be carried forward to the next fiscal year (NASBO, 2008). In three of the eight years, Kentucky reported higher actual tax revenues than estimated, which is a relatively small number compared to the times other states reported this occurrence. In terms of strategies used to close budget gaps during 2001-2008, Kentucky did not report increasing usage fees or employee layoffs over that period. From 2001-2008, Kentucky implemented across-the-board percent cuts in three of the eight years and used rainy day funds in one of the eight years (NASBO, 2009).

BUDGET POLICIES AND STRATEGIES TO ELIMINATE BUDGET IMBALANCES

State governments face a budget constraint in which expenditures and revenues must be aligned at various stages in the economic cycle. Budgets are tools used by governments to

“fulfill their appropriate role in delivering services demanded by the public through policy decisions and reasonable use of available resources” (Mikesell, 2007). A balanced budget occurs when expected revenues generated from taxes, fees, and intergovernmental transfers are sufficient to cover planned spending on public services. The budget process allows governments to manage spending with fiscal responsibility, to focus financing and resource allocation to programs and projects of high priority, and to measure performance as a gauge of efficiency (Mikesell, 2007). When states experience budget imbalances and structural deficits, serious consequences, affecting both state residents and the nation as a whole, occur. Poor fiscal health can result in “higher taxes, layoffs of state workers, longer waits for public services, more crowded classrooms, higher college tuition, and less support for the poor and unemployed” (The Pew Center on the States, 2009).

In order to avoid and prevent fiscal crises, state governments have the ability to enact budget-stabilizing policies and employ a variety of strategies. For budgets to be balanced, current spending plus debt service from past borrowing must be no greater than current revenues and new borrowing. Therefore, states can balance their budgets by raising revenue through taxation or fees, reducing program and project expenditures, or borrowing additional funds. Before implementing tax and spending policies, states must consider the volatility associated with a tax, equity concerns, the implications of a tax increase or program spending cuts on behavior and public welfare, and the adequacy of the policies in preventing future budget gaps (NASBO, 2008).

States usually cannot issue debt to balance operating budgets. However, borrowing is considered for long-term capital projects or liabilities. Debt financing is often limited by constitutional and legal constraints; a majority of states have debt limits and requirements for voter approval before the issuance of general obligation debt (Mikesell, 2007). Debt has serious

implications for state governments. While it allows states to fund infrastructure projects benefiting economic development in the region, required debt service payments can force expenditure cuts in other areas, and high debt increases the likelihood of default, affecting bond ratings and interest rates (Mikesell, 2007).

RESEARCH QUESTION

Although multiple factors contribute to states' budget conditions, policymakers have the ability to influence only some of those factors in the short run. This study examines whether state budget-balancing strategies and budget policies have an impact on states' fiscal health. Of the various methods states employ to reduce budget gaps and to balance their budgets, four strategies are analyzed in this study to estimate their impact on fiscal outcomes, which include increasing usage fees, enacting across-the-board percent cuts, using rainy day funds, and laying off state employees. In addition, various budget policies and processes are established by states to promote fiscal responsibility and balance between revenues and expenditures. Among the fiscal policies and processes used by states, the following are included in this analysis: debt service limits, frequency of the budget cycle, consensus revenue forecasts, carry-over-deficit rules, and constitutional requirements related to balanced budgets.

Specifically, this study addresses whether these strategies used by states in low and high fiscal peril are effective in promoting fiscal health and better budget outcomes. The analysis controls for other factors affecting state fiscal conditions to isolate the impact of each budget-balancing strategy and procedure.

LITERATURE REVIEW

Factors Affecting State Fiscal Outcomes

Previous research on state budget policies and procedures has identified various factors leading to poor fiscal health. The most common among these factors is the condition of the state

and national economy. Economic cycles impact both revenue and spending. In a time of economic downturn, revenue growth may decline while spending pressures for social services increase (NASBO, 2004). High unemployment, declines in consumer spending, decreases in personal income, and slowing economic development greatly influence the level of revenues generated by state governments, and as state residents increase their demand for social services, balancing spending with revenues becomes more challenging (NASBO, 2004).

Fiscal stress during a recession can be intensified in states with rising spending needs related to demographic trends, reductions in Federal grants, and demands for local government aid. Growing elderly and poor populations can lead to a rise in costs for health care and related services and to a decline in income tax revenues as more people retire. Federal aid can provide state governments with the ability to offer services that would otherwise be infeasible, so as the amount of these grants decrease, states are forced to rely on another method of financing or cut spending. While receiving funds from the Federal government, states also provide aid to local governments. Fiscal troubles in large cities can create pressures for state governments to allocate more funds to local governments (Poterba, 1994).

Another set of factors affecting fiscal outcomes centers on budget procedures and institutions. Budget cycles can either be annual, when appropriations are provided for one fiscal year, or biennial, when a budget is developed for the two upcoming fiscal years (NASBO, 2008). In a study analyzing the impact of budget frequency, Bohn and Inman (1996) concluded that “biennial budgeting—whether in states meeting annually or only every other year—has no statistically significant effect on state deficits.” However, Kearns (1994) estimated that states with biennial budgets spend more than those with annual budget, all else equal.

The majority of states have some form of balanced-budget requirement. States can require that the governor submit a balanced budget, that the legislature passes a balanced budget,

or both. According to Poterba (1996), rules to submit and pass a balanced budget are relatively weak if “the actual budget may be in deficit and the state can borrow to carry the deficit forward to future years.” However, these balanced-budget rules can be combined with a provision that prohibits carrying deficits forward to the next fiscal year to create a more stringent constraint (Poterba, 1996). Bohn and Inman (1996) found that requirements to submit or pass a balanced budget, used in combination with a no-carryover-deficit rule, reduce the likelihood that states run deficits. “Balanced-budget rules that do not allow a carryover of deficits into the next fiscal year are substantially more effective than rules that permit such a carry-over”(Bohn and Inman, 1996).

In an attempt to contain debt financing, many states have adopted debt service limits. According to von Hagen (1991), evidence was presented that although states enact general-obligation debt limits, it is possible for government officials to use other alternatives to state-backed borrowing to circumvent these types of limitations. Additionally, a study conducted by Kiewiet and Szakaly (1996) suggests that states with more stringent restrictions, such as limits on the quantity of debt and requirements for voter approval, issue less general obligation debt and more revenue debt than states that do not have such limits or requirements. “State revenue-based limits have no significant impact, while limits that require a legislative supermajority result in significantly more debt” (Krol, 2007).

Along with balanced-budget rules and debt limits used as tools to stabilize fiscal outcomes, states can adopt a consensus revenue forecasting process. Revenue forecasting establishes the “parameters for the allocation of dollars among competing priorities” in such a way as to minimize uncertainty (Rodgers & Joyce, 1996). When actual revenues fall below estimates, state governments must find additional sources of revenue or reduce expenditures mid-year. Certainly, every forecast has some level of error because it is developed based on

assumptions; however, having a consensus forecasting process may reduce that error because it produces unbiased estimates. A group of independent experts uses modeling tools to “reach consensus about which baseline to use during the budget process,” and the resulting estimates are not based on political agendas (KYA, 2008).

State Fiscal Peril Scores

Fiscal peril can be defined as the increased risk of a budget crisis, rising spending pressures and declining revenue flows, in a state. In a study of state budget conditions, the Pew Center on the States identifies states in fiscal peril by developing a scoring system based on the following indicators: (1) Size of the Budget Gap, (2) Change in Revenue, (3) Change in the Unemployment Rate, (4) Foreclosure Rate, (5) Supermajority Requirement to Raise Revenues and Ratify Budgets, and (6) The Government Performance Project “Money” Grade. According to the Pew Center, states in high fiscal peril are characterized as experiencing frequent declines in actual revenues and increases in expenditures; experiencing budget deficits, high unemployment levels, and high foreclosure rates; relying heavily on debt financing to fund programs and services; and defaulting on their financial obligations (The Pew Center on the States, 2009).

Size of Budget Gaps for fiscal year 2010: As state tax receipts continue to decline, states may raise taxes or cut program expenditures if other revenue sources cannot be identified in order to have a balanced budget. However, tax increases and expenditure cuts may “remove demand from the economy by reducing the amount of money people have to spend on goods and services and by eliminating jobs, cutting benefit payments to individuals, cancelling contracts to vendors, and lowering payments to organizations that provide direct services” (McNichol & Johnson, 2009).

Change in Revenue: The Pew Center calculates the percent change in revenue using the difference between revenue collected in the first quarter of 2009 and that in the first quarter of 2008 divided by revenue collected in the first quarter of 2008. As individuals and households are affected by the recession, consumption and spending habits may change. If people are spending less and unemployment increases, states receive less tax revenue, and a decrease in revenue indicates that states have to balance the budget by “using rainy day funds, cutting spending, issuing additional debt, or relying on the federal government for funds” (The Pew Center on the States, 2009).

Change in the Unemployment Rate: Using quarterly unemployment data, the Pew Center calculated the change in unemployment from the second quarter 2008 to the second quarter 2009. An increase in unemployment has multiple implications for state budgets. High unemployment levels keep “state income tax receipts at low levels and increase demand for Medicaid and other public services provided by states” (McNichol & Johnson, 2009). Payroll and sales tax revenues for states decline with high unemployment rates as the number of job losses increases and consumption decreases (The Pew Center on the States, 2009).

State Foreclosure Rates in the first quarter of 2009: Foreclosure rates can be used as indicators of “how severely a state has suffered since the nation’s housing market bubble burst” (The Pew Center on the States, 2009). A rise in foreclosures may not only reduce the base of state and local property taxes but also increase the likelihood that individuals and households will assume more debt or file for bankruptcy. States’ sales tax revenues are negatively affected as the price and demand for housing and related-construction services decrease (The Pew Center on the States, 2009).

Supermajority Requirement: The requirement that a supermajority vote is necessary to pass tax increases, budget bills, or both may limit policymakers’ ability to address budget

shortfalls. According to Besley and Case (2003), supermajority requirements have a negative impact on taxes collected by a state. Tax revenues in states with supermajority rules are eight percent lower than revenues in non-supermajority states (Besley and Case, 2003). This legal obstacle makes it difficult for state governments to make immediate decisions and provide solutions in a timely manner.

GPP Money-Management Grade: The Pew Center on the States' Government Performance Project (GPP), based on 2007 state-level fiscal management data, evaluates the states' effectiveness in managing their finances, their employees and human resources system, their infrastructure, and their information technology. Money management is a key component in the budget process because states must be able to raise revenues, meet debt obligations, cover expenditures, and forecast future tax receipts and program costs. The GPP report "evaluated the degree to which a state takes a long-term perspective on fiscal matters; the timeliness and transparency of the budget process; the balance between revenues and expenditures; and the effectiveness of a state's contracting, purchasing, financial controls, and reporting mechanisms" (The Pew Center on the States, 2008).

After evaluating the budget conditions of each state using the six indicators described above, the Pew Center on the States observed four commonalities among the states in most fiscal peril, making them more susceptible to budget crises than others (The Pew Center on the States, 2009). These commonalities include:

- 1.) *Unbalanced economies:* States such as Michigan, Florida, Nevada, and Oregon have struggled financially, in part, because "their economies have depended on a particular industry hit heavily by this recession" (The Pew Center on the States, 2009). Relying on a single industry to provide the state with revenues can increase the risk of fiscal peril when a recession occurs.

- 2.) *Revenues and expenditures out of alignment:* A number of high-fiscal-peril states “have repeated [budget] shortfalls” (The Pew Center on the States, 2009). The revenues collected continue to fall, and reducing expenditures is becoming a major challenge.
- 3.) *Limited ability to act:* States can adopt laws that limit policymakers’ ability to respond to fiscal crisis. Many state legislatures cannot increase taxes without voter approval, and spending can also be restricted to specific programs such as Medicaid or state pension contributions (The Pew Center on the States, 2009).
- 4.) *Putting off tough, long-term decisions:* During this challenging economic time, nearly every state has had to make tough decisions regarding long-term program spending reductions and tax increases. State legislatures may neglect their responsibility “by asking voters or governors to make the call or by relying heavily on borrowing or accounting methods that put off harder decisions until later” (The Pew Center on the States, 2009).

Use of Budget Balance as a Percentage of Expenditures to Indicate Fiscal Health

While the Pew Center’s fiscal peril score serves as a potential measure of fiscal health, a more common, measurable indicator is states’ year-end total budget balance as a percentage of expenditures. Year-end total budget balances as a percentage of expenditures equal the “ending general fund balance plus the rainy day fund balance” divided by “general fund expenditures” (NASBO, 2009). Maintaining a balance equal to five percent of spending is regarded “as an acceptable cushion against revenue and expenditure fluctuations” (Poterba, 1994). According to NASBO (2009), the informal rule-of-thumb is to “build up budget reserve balances to a level that equals at least five percent of total expenditures,” though actual practices may vary, depending on a state’s economic and fiscal situation. During times of strong economic growth and stability,

states may have greater ability to meet or exceed a balance level of at least five percent of expenditures. In times of slowing or declining economic growth, this balance can serve as a safety net used to eliminate revenue shortfalls or to cover unexpected spending needs. However, balance levels may begin to deteriorate as states draw down reserves to mitigate disruptions during economic downturns. From this measure of fiscal health, analysts can infer which states are able to cover their expenditures, which states are able to “set aside [funds] to use during economic downturns” and build a reasonable cushion, and which states are more vulnerable to the state of the economy (Cummins, 2008).

Appendix B provides a comparison among 22 states, regarding average total year-end balances as a percentage of expenditures over the period 2001-2008, as well as the fiscal peril scores reported in 2009. States with high fiscal peril scores, ranging from 21 to 30, tend to have lower average year-end budget balances as a percentage of expenditures than those states with low fiscal peril scores, ranging from 6 to 12. Kentucky’s average year-end budget balance as a percentage of expenditures over the years 2001-2008 was 4.99 percent.

DATA AND METHODOLOGY

To estimate the effect of fiscal policies on budget outcomes, this study uses fiscal, economic, and demographic data for 22 states over the years 2001-2008. These states were selected for comparison based on the fiscal peril scores determined by the Pew Center on the States. The fiscal peril scores are determined by “weighting each indicator equally and splitting the data into quintiles to assess which states emerged as the worst in each category” (The Pew Center on the States, 2009). A state is assigned five points for a given indicator if it falls in the worst quintile. Each state received a numerical score, ranging from six to thirty, that reflects its current fiscal conditions. A score of thirty, the highest possible score, indicates a state in greatest

fiscal peril. The sample consists of the top eleven states, to include Kentucky, with the highest fiscal peril scores and the bottom eleven states with the lowest scores.

Table 1: Sampled States for Analysis			
State	Fiscal Peril Score	State	Fiscal Peril Score
California	30	West Virginia	12
Arizona	28	New Mexico	12
Rhode Island	28	South Dakota	12
Michigan	27	Pennsylvania	11
Nevada	26	Utah	11
Oregon	26	Texas	9
Florida	25	North Dakota	9
New Jersey	23	Montana	9
Wisconsin	22	Nebraska	7
Illinois	22	Iowa	7
Kentucky	21	Wyoming	6

Source: The Pew Center on the States. 2009. *Beyond California: States in Fiscal Peril*.

Because of their designation by the Pew Center as either high or low fiscal peril states, these 22 states are used in the study to estimate the effects of budget policies and processes on fiscal health.

Table 2 summarizes the data, organized by the different categories of variables: (1) dependent variables, (2) strategies to eliminate budget imbalances, (3) budget procedures and policies, (4) state revenue, debt, and expenditures, (5) economic factors, and (6) demographic factors.

TABLE 2: DESCRIPTIVE STATISTICS

Variable	Variable Description	Mean (N=176)
<i>Dependent Variables</i>		

Year-End Total Balance as a Percentage of Expenditures ^a	Year-end total balance divided by annual expenditures	9.881
Fiscal Peril Score ^b	Score on a scale from 6 to 30	17.409
<i>Strategies to eliminate budget imbalances</i>		
Increase usage fees ^a	Dummy = 1 if state enacts usage fee increases	0.068
Across the Board Percent Cuts ^a	Dummy = 1 if state makes across the board percent cuts	0.205
Use Rainy Day Fund ^a	Dummy = 1 if state uses rainy day fund to close budget gap	0.176
Layoffs ^a	Dummy = 1 if state enacts layoffs of public employees	0.085
<i>Budget Procedures and Policies</i>		
Has a debt service limit ^c	Dummy = 1 if state has a debt service limit	0.591
Budget cycle is annual ^c	Dummy = 1 if state has an annual budget process	0.545
Has a consensus revenue forecast ^c	Dummy= 1 if state has a consensus revenue forecast process	0.455
Carry over deficit allowed ^c	Dummy = 1 if states allows carry over deficit	0.136
Constitutional Requirement for the Governor to submit a balanced budget ^c	Dummy = 1 if governor is required to submit a balanced budget	0.773
Constitutional Requirement for the Legislature to pass a balanced budget ^c	Dummy = 1 if legislature is required to pass a balanced budget	0.864
<i>State Revenue, Debt, and Expenditure Variables</i>		
Tax collection higher than estimate ^a	Dummy = 1 if state tax collections are higher than estimate	0.528
Real Tax Revenue Per Capita ^d	State tax revenue per capita (2008 dollars)	\$2,537.92
Real Debt Per Capita ^d	State debt outstanding per capita (2008 dollars)	\$3,157.51
Real Expenditures Per Capita ^d	State general expenditures per capita (2008 dollars)	\$5,896.52
Real Federal Aid Per Capita ^d	State Federal aid per capita (2008 dollars)	\$1,768.16
<i>Economic Factors</i>		
Unemployment Rate ^e	State unemployment rate	5.096
Real Personal Income Per Capita ^d	State personal income per capita (2008 dollars)	\$40,000
<i>Demographic Factors</i>		
Population ^d	State population in millions	7.088
Poverty Rate ^d	Percent of population under the poverty line	12.011
Population Density ^d	People per square mile	178.418

^aNational Governors Association and the National Association of State Budget Directors. *The Fiscal Survey of the States*. Various editions.

^bPew Center on the States. November 2009. *Beyond California: States in Fiscal Peril*.

^cNational Association of State Budget Officers. 2008. *Budget Processes in the States*.

^dU.S. Census Bureau, *State Revenues and Expenditures and State Characteristics*, various years.

^eU.S. Bureau of Labor Statistics. State Historical Unemployment Rates.

Annual state-level data provided by the U.S. Census Bureau, U.S. Bureau of Labor Statistics, the National Governors Association, the National Association of State Budget Directors, and the Pew Center on the States for the period 2001-2008 are used in this analysis. While the budget strategies; state revenues, debt, and expenditures; and the economic and demographic data gathered are annual measures, the budget procedures and policies and population density do not change over the period 2001-2008. Data for these 22 states over eight years (2001-2008) yields 176 observations.

For the selected states, the mean year-end total balance as a percentage of expenditures over the period 2001-2008 is 9.9 percent, which is greater than the generally-accepted threshold of maintaining a balance level of 5 percent of expenditures. Reported year-end total budget balances as a percentage of expenditures ranges from a low of -18.5 percent to a high of 56.7 percent. The mean fiscal peril score for the 22 states used in the sample is 17.4, with six being the lowest score and 30 being the highest in the sample.

Over the eight year period, approximately 6.8 percent of the 22 sampled states enacted usage fee increases as a method of raising revenues, and 20.5 percent of those states made across-the-board percent cuts to reduce expenditures. It is estimated that from 2001 to 2008 17.6 percent of the 22 states used reserves in the rainy day fund to eliminate budget imbalances while 8.5 percent of states reduced state employment levels. When addressing fiscal concerns during the period 2001-2008, the sampled states seemed more likely to cut spending than to increase fees and more likely to use reserve funds before laying off employees.

From 2001 to 2008, the majority of the selected states have a debt service limit (59.1%), an annual budget cycle (54%), and constitutional requirements for the governor to submit a balanced budget (77.3%) and for the legislature to pass a balanced budget (86.4%). In addition, over the eight year period, approximately 10 of the 22 states, or 45.5 percent, have a consensus

revenue forecast process and 13.6 percent of those states allow a deficit to be carried over to the next budget period.

Based on state revenue variables for the period 2001-2008, 52.8 percent of the 22 selected states reported having tax collections higher than estimated. The average tax revenue per capita in real 2008 dollars for those states is \$2,537.92. Over the years 2001-2008, the mean debt per capita in real 2008 dollars is \$3,157.51, and the mean expenditure per capita in real 2008 dollars is \$5,896.52. The mean tax revenue collected per capita is less than the mean expenditure per capita, showing that the sampled states, on average, spend more per person than they collect in taxes. However, this behavior is not problematic since states also rely on fees and intergovernmental transfers as sources of revenue, so it does not indicate that the sampled states spend more than they collect in total revenue. Additionally, the mean debt per capita is greater than the mean tax revenue per capita, which may contribute to states not being able to satisfy debt obligations in the long run. For the sampled states from 2001 to 2008, the average amount of federal aid per capita, categorized as intergovernmental revenue, is \$1,768.16, easing the financial burden of the states.

Statistical Model

Using state-level data for the period 2001-2008, three statistical models are estimated. Each model has 176 observations, determined by 22 states over 8 years. A pooled-data regression model is estimated using two different dependent variables, fiscal peril scores and year-end balance as a percentage of expenditures, and 20 explanatory variables related to budget-balancing strategies; budget procedures and policies; state revenue, debt, and expenditures; economic factors; and demographic characteristics. State revenue, expenditure, debt, federal aid,

and income data are all per capita figures in real 2008 dollars^f to allow for comparisons among states over time.

In addition, using the same explanatory variables and only year-end balance as a percentage of expenditures as the dependent variable, a fixed-effects model is estimated to account for measured and unmeasured variables that do not vary over time. The fixed-effects model estimates the effect of those variables that vary over time for a given state. The variables that remain fixed over time for a given state are included in the fixed effect.

The models estimate how much of the variation in fiscal health is due to increasing usage fees, enacting across-the-board percent cuts, using rainy day funds, laying off state employees, and establishing various budget polices, controlling for state economic and demographic characteristics.

$$\text{Pooled-Data Model: } y_{jt} = \beta_0 + x_{1jt} \beta_1 + x_{2jt} \beta_2 + x_{3jt} \beta_3 + x_{4jt} \beta_4 + x_{5jt} \beta_5 + \varepsilon$$

$$\text{Fixed-Effects Model: } y_{jt} = \beta_0 + x_{1jt} \beta_1 + x_{2jt} \beta_2 + x_{3jt} \beta_3 + x_{4jt} \beta_4 + x_{5jt} \beta_5 + \sum_{j=1}^{n-1} d_j \alpha_j + \varepsilon$$

For the models shown above, y is the mean fiscal peril score or year-end balance as a percentage of expenditures. With fiscal peril score as a dependent variable, the model estimates the gain in fiscal peril, an undesirable outcome; whereas, using the alternative measure of fiscal health as the dependent variable, the model estimates the gain in budget balance as a percentage of expenditures, a favorable outcome. x_1 is a vector of budget-balancing strategy variables; x_2 is a vector of budget policy variables; x_3 is a vector of state revenue, debt, and expenditure variables; x_4 is a vector of state economic variables; x_5 is a vector of state demographic variables; ε is a disturbance term. In the fixed effects model, α_j is the fixed effect for state j .

The coefficients, β_i , provide an estimate of the relationship between specific explanatory variables and fiscal health. The null hypothesis is that each of the explanatory variables in the

^f Adjusted for inflation using the implicit price deflator for state and local government purchases (U.S. Department of Commerce, Bureau of Economic Analysis, 2010).

model has no effect on the gain in fiscal peril score or budget balance as a percentage of expenditures. The alternative hypothesis is that there is a statistically significant effect on fiscal health. If an increase in fiscal health is related to the specific types of budget-balancing activities and policies, holding other variables constant, a policy focusing on those activities may improve the financial conditions of the states.

EMPIRICAL ANALYSIS

Based on the results presented in Table 3, several policy-relevant variables have an effect on fiscal peril scores. According to the Pew Center on the States, high fiscal peril scores, with 30 being the highest score, are indicators of poor financial health. None of the four strategies of interest used by states to balance budgets has a statistically significant effect on fiscal peril scores. At the 95 percent confidence level, the variables with statistical significance in predicting higher fiscal peril scores include having a biennial budget and allowing a deficit to be carried over to the next fiscal year. For those sampled states that have annual budget cycles, fiscal peril scores, on average, are 2.084 points lower than the scores reported for states with biennial budgets. On average, states allowing deficits to be carried over to the next fiscal year have fiscal peril scores that are 3.76 points higher than those for states prohibiting a deficit from being carried forward, holding all else constant.

The following explanatory variables are statistically significant and have an effect on fiscal peril scores at the 99 percent confidence level: having a constitutional requirement for the governor to submit and the legislature to pass a balanced budget, receiving less Federal aid, having a higher unemployment rate and poverty rate, and being a state with high population density. From the sampled states, those with a constitutional requirement for the governor to submit and the legislature to pass a balanced budget have, on average, fiscal peril scores that are 5.216 and 9.202 points higher, respectively. So, having these types of requirements relates to

higher fiscal peril scores. Additionally, higher amounts of federal aid per capita are associated with lower fiscal peril scores. On average, for every dollar increase in federal aid per capita, states' fiscal peril scores are 0.005 points lower, so an increase in federal aid of \$200 per capita reduces a state's fiscal peril score by one point.

Higher unemployment and poverty rates are related to higher fiscal peril scores. In addition, a one percent decrease in states' unemployment and poverty rates, on average, increases fiscal peril scores by 1.49 points and 0.60 points, respectively, holding all else constant. In addition, higher population density is related to higher fiscal peril scores. A one person per square mile increase is associated with a 0.008 point increase in the fiscal peril score, on average.

TABLE 3: ESTIMATED POOLED REGRESSION MODEL OF FISCAL HEALTH AMONG STATES

DEPENDENT VARIABLE: FISCAL PERIL SCORES			
EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	t-statistic	p-value
<i>Strategies to eliminate budget imbalances</i>			
Increase usage fees	-1.081	-0.60	0.549
Across the Board Percent Cuts	0.217	0.22	0.829
Use Rainy Day Fund	1.153	1.09	0.277
Layoffs	-0.786	-0.56	0.576
<i>Budget Procedures and Policies</i>			
Has a debt service limit	-0.656	-0.67	0.502
Frequency of budget cycle is annual	-2.084*	-2.32	0.022
Has a consensus revenue forecast	-0.659	-0.73	0.467
Carry over deficit allowed	3.755*	2.30	0.023
Constitutional Requirement for the governor to submit a balanced budget	5.216**	3.18	0.002
Constitutional Requirement for the legislature to pass a balanced budget	9.202**	8.52	0.001
<i>State Revenue, Debt, and Expenditure Variables</i>			
Tax collection higher than estimate	-0.248	-0.28	0.776
Real Tax Revenue Per Capita	0.003	1.66	0.100
Real Debt Per Capita	0.000	-0.16	0.874
Real Expenditures Per Capita	-0.001	-1.19	0.236
Real Federal Aid Per Capita	-0.005**	-4.61	0.001
<i>Economic Factors</i>			
Unemployment Rate	1.494**	5.27	0.001
Real Personal Income Per Capita	0.188	0.99	0.326
<i>Demographic Factors</i>			
Population	-0.101	-1.17	0.244
Poverty Rate	0.597**	2.79	0.006
Population Density	0.008**	2.60	0.01
Constant	-9.661	-1.31	0.191
R-Squared	0.731		
F-value	47.910		
Prob > F	≤0.001		
Number of Observations	176		

* denotes that an estimated coefficient is significant at the 0.05 level

** denotes that an estimated coefficient is significant at the 0.01 level

The second dependent variable, year-end total budget balance as a percentage of expenditures, is used as another measure of fiscal health. As indicated in Table 4, at least one variable from every category, except demographic factors, is statistically significant in explaining state fiscal health conditions. At the 95 percent confidence level, the statistically significant variables in predicting higher year-end total budget balances as a percentage of expenditures include having a biennial budget, a no-carry-over-deficit rule, and a low unemployment rate. In this model, having an annual budget cycle is associated with lower year-end budget balances as a percentage of expenditures. On average, year-end budget balances as a percentage of expenditures for states with annual budgets are 5.01 percent lower than those for states with biennial budgets, all else equal. For those states allowing deficits to be carried over to the next fiscal year, year-end budget balances as a percentage of expenditures are, on average, 6.26 percent lower than those for states having a no-carry-over rule. In addition, for every one percent decrease in the unemployment rate, the sampled states' year-end budget balances as a percentage of expenditures increase by 1.3 percent.

Of the four budget-balancing strategies of interest, both usage fee increases and layoffs are statistically significant at the 0.05 significance level. For the selected states that increase usage fees, year-end total balances as a percentage of expenditures, on average and, are 3.84 percent higher than those for states choosing not to increase fees. Year-end total balances as a percentage of expenditures are 4.77 percent lower for the sampled states that layoff public employees, compared to states maintaining current employment levels.

The following variables have a statistically significant effect on fiscal health at the 99 percent confidence level: debt service limits, consensus revenue forecast, real tax revenue per capita, real expenditures per capita, and real federal aid per capita. On average, states with debt service limits and high expenditures per capita have year-end total balances as a percentage of

expenditures that are 5.16 percent and 0.007 percent lower, respectively, than those for states without a debt services limit and states with fewer expenditures per capita,. Those states with consensus revenue forecasts, actual tax collections greater than estimates, and higher real tax revenue per capita and real federal aid per capita have higher year-end total balances as a percentage of expenditures. From the sample of 22 states, those states with a consensus revenue forecast have year-end budget balances as a percentage of expenditures that are 4.4 percent higher, on average, than those for states without these forecasts. On average, states with actual tax collections greater than estimates have year-end budget balances as a percentage of expenditures that are 3.76 percent higher than those for states with estimates lower than actual revenues. In addition, for every dollar increase in tax revenue per capita and federal aid per capita, states' year-end budget balances as a percentage of expenditures, on average, increase by 0.013 and 0.008 percent, respectively.

TABLE 4: ESTIMATED POOLED REGRESSION MODEL OF FISCAL HEALTH

DEPENDENT VARIABLE: YEAR-END TOTAL BALANCE AS A PERCENTAGE OF EXPENDITURES			
EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	t-statistic	P-VALUE
<i>Strategies to eliminated budget imbalances</i>			
Increase usage fees	3.842*	2.45	0.015
Across the board percent cuts	-0.929	-0.70	0.484
Use Rainy Day Fund	-0.312	-0.22	0.829
Layoffs	-4.770*	-2.34	0.021
<i>Budgetary Procedures and Policies</i>			
Has a debt service limit	-5.160**	-3.42	0.001
Frequency of budget cycle is annual	-5.006*	-2.53	0.012
Has a consensus revenue forecast	4.405**	3.20	0.002
Carry over deficit allowed	-6.255*	-2.31	0.022
Constitutional Requirement for the Governor to submit a balanced budget	1.860	0.81	0.420
Constitutional Requirement for the Legislature to pass a balanced budget	-2.458	-1.04	0.298
<i>State Revenue, Debt, and Expenditure Variables</i>			
Tax collection higher than estimate	3.760*	3.10	0.002
Real Tax Revenue Per Capita	0.013**	3.58	≤0.001
Real Debt Per Capita	0.001	0.96	0.337
Real Expenditures Per Capita	-0.007**	-5.01	≤0.001
Real Federal Aid Per Capita	0.008**	4.3	≤0.001
<i>Economic Factors</i>			
Unemployment Rate	-1.296*	-2.61	0.010
Real Personal Income Per Capita	-0.231	-0.80	0.422
<i>Demographic Factors</i>			
Population	0.185	1.53	0.129
Poverty Rate	0.415	1.04	0.299
Population Density	-0.003	-0.93	0.353
Constant	16.773	1.39	0.167
R-squared	0.5616		
F-value	10.5		
Prob > F	≤0.001		
Number of observations	176		

* denotes that an estimated coefficient is significant at the 0.05 level

** denotes that an estimated coefficient is significant at the 0.01 level

When comparing the two statistical models in which each dependent variable is intended to measure fiscal health, statistical significance varies for some variables. State unemployment and poverty rates, population density, and balanced-budget requirements lose statistical significance when year-end total balance as a percentage of expenditures is the dependent variable. Usage fee increases, layoffs, debt service limits, consensus revenue forecasting, higher-than-estimated tax collections, and real tax revenues and expenditures per capita are not statistically significant with fiscal peril scores as the dependent variable; whereas, these variables do have an effect on year-end budget balances as a percentage of expenditures.

In addition, the nature of the relationship between the dependent variable and some explanatory variables changes, depending on the measure of fiscal health used. Allowing a deficit to be carried over to the next fiscal year is associated with higher fiscal peril scores and lower year-end balances as a percentage of expenditures, so on average, it has a negative effect on fiscal health. Increases in federal aid per capita and unemployment rates reduce fiscal peril scores and increase year-end balances as a percentage of expenditures, having a positive effect on fiscal health in both cases. Having an annual budget produces conflicting results, as it is associated with lower fiscal peril scores but lower year-end balances as a percentage of expenditures. Therefore, it is difficult to determine whether annual budget cycles have a positive or negative effect on fiscal health. The differences between the two estimated models may be due to the time frame over which data were gathered. The fiscal peril scores are based on more recent state budget data ranging from 2007 to 2010, a relatively short time span; whereas, year-end budget balances as a percentage of expenditures and the explanatory variables are based on 2001 to 2008 data. The models using long-term data may be able to capture more variation over time, but more recent data could provide a clearer picture of the current situation.

Table 5 presents the fixed effects model estimation, accounting for measured and unmeasured variables having no variation within states over time. Of the explanatory variables included in the model, increasing usage fees; having higher-than-estimated tax collections, lower real debt per capita, and lower real personal income per capita; and being a more populated state are statistically significant in explaining higher year-end total balances as a percentage of expenditures at the 95 percent confidence level.

Increasing usage fees is the only one of the four strategies analyzed to affect states' fiscal health, all else equal. Because of the positive relationship between increasing usage fees and year-end budget balance as a percentage of expenditures, for states that increased fees, year-end total balances as a percentage of expenditures are, on average, 6.25 percent higher than those for states that did not increase fees. In addition, states reporting higher actual tax collections than estimated have, on average, year-end total balances as a percentage of expenditures that are 3.12 percent higher than those for states with fewer tax collections than estimated, controlling for other factors. An additional decrease in the amount of debt per capita is associated with a 0.004 percent increase in the sampled states' year-end total balances as a percentage of expenditures, on average. On average, a \$1,000 increase in the selected states' personal income per capita relates to a 1.7 percent decrease in year-end budget balances as a percentage of expenditures. Also, more populated states are more likely to have higher year-end total balances as a percentage of expenditures, on average. Holding other factors constant, an increase in population is related to a 3.38 percent increase in year-end total balances as a percentage of expenditures.

At the 99 percent confidence level, the only variable that is statistically significant in predicting better fiscal health is having higher real tax revenue per capita. For every additional

dollar in tax revenue per capita, states' year-end total balances as a percentage of expenditures rise by 2.4 percent.

When a fixed-effects model is estimated, the following variables no longer have a statistically significant effect on fiscal health: expenditures per capita, federal aid per capita, and unemployment rates. The effects of the variables included in the budget procedures and policies category and population density are not estimated because these variables remain constant within states over the eight-year period, so coefficient estimates for these policy-relevant variables are precluded, a limitation of the fixed-effects model (Yaffee, 2003). However, under the fixed-effects model, debt per capita, personal income per capita, and population have a statistically significant effect on year-end budget balances as a percentage of expenditures; whereas, they are shown to have no effect in the pooled-data regression model. The differences between the two may be attributed to the consideration of fixed variables within the states over time.

TABLE 5: ESTIMATED FIXED EFFECTS MODEL OF FISCAL HEALTH

DEPENDENT VARIABLE: YEAR-END TOTAL BALANCE AS A PERCENTAGE OF EXPENDITURES			
EXPLANATORY VARIABLE	ESTIMATED COEFFICIENT	t-statistic	p-value
<i>Strategies to eliminate budget imbalances</i>			
Increase usage fees	6.251*	2.52	0.013
Across the board percent cuts	0.190	0.10	0.920
Use Rainy Day Fund	-0.184	-0.10	0.920
Layoffs	-3.843	-1.58	0.116
<i>Budget Procedures and Policies</i>			
Has a debt service limit	(dropped)		
Frequency of budget cycle is annual	(dropped)		
Has a consensus revenue forecast	(dropped)		
Carry over deficit allowed	(dropped)		
Constitutional Requirement for the Governor to submit a balanced budget	(dropped)		
Constitutional Requirement for the Legislature to pass a balanced budget	(dropped)		
<i>State Revenue, Debt, and Expenditure Variables</i>			
Tax collection higher than estimate	3.117*	2.45	0.015
Real Tax Revenue Per Capita	0.0240**	6.84	≤0.001
Real Debt Per Capita	-0.004*	-2.57	0.0110
Real Expenditures Per Capita	-0.004	-1.61	0.110
Real Federal Aid Per Capita	-0.005	-1.37	0.172
<i>Economic Factors</i>			
Unemployment Rate	-0.930	-1.48	0.140
Real Personal Income Per Capita	-1.733*	-2.33	0.021
<i>Demographic Factors</i>			
Population	3.384*	2.10	0.038
Poverty Rate	-0.049	-0.10	0.919
Population Density	(dropped)		
Constant			
Constant	42.59	1.37	0.172
R-squared (within)	0.469		
F-value	9.57		
Prob > F	≤0.001		
Number of observations	176		
Number of groups	22		
Fraction of the variance due to fixed effects	0.966		

* denotes variables statistically significant at the 0.05 level

** denotes variables statistically significant at the 0.01 level

DISCUSSION OF FINDINGS

The empirical analysis from the pooled regression model using fiscal peril scores as the dependent variable indicates that none of the four strategies used to balance state budgets affects the fiscal peril scores when controlling for state economic and demographic factors. However, based on the empirical results, having an annual budget cycle has a positive effect on fiscal peril scores, meaning that scores are reduced. Having an annual budget may reduce the fiscal peril score because states may be able to make timely, year-to-year adjustments based on current changes in the economy. Allowing deficits to be carried over to the next fiscal year and having constitutional requirements for the governor to submit and the legislature to pass a balanced budget both have negative effects on fiscal peril scores, meaning they are associated with higher scores. States restricting deficit carryovers may be more likely to address balanced-budget problems in the current fiscal year rather than dealing with them in the future, which can compound the issue. An explanation for the relationship between fiscal peril scores and balanced-budget requirements may be that even with these requirements, states may still experience shortfalls at the end of the fiscal year as estimates differ from actual revenues and expenditures over the course of a year.

According to the results of the pooled regression model using year-end total budget balance as a percentage of expenditures as the dependent variable, there is a positive relationship between year-end total balances as a percentage of expenditures and consensus revenue forecasts, actual tax collections that are greater than estimates, and tax revenue per capita. One possible reason for this relationship is that states with independent consensus revenue forecasting groups may be less likely to have revenue shortfalls. However, as shown by the current fiscal environment in Kentucky, states with a consensus revenue forecasting function can still experience gaps between actual and estimated revenue receipts that may be related to other

economic factors. Having higher-than-estimated actual revenues and higher tax revenue per capita may allow states to have a year-end surplus and maintain rainy day fund balances, net of expenditures.

The following variables display a negative relationship with year-end total budget balances as a percentage of expenditures in the pooled regression model: having a debt limit policy and an annual budget cycle, allowing deficits to be carried over to the next fiscal year, and spending more per capita. A debt limit policy may not guarantee that a state relies less on debt financing. While some types of debt such as general-obligation bonds can be capped, states can issue revenue bonds to bypass the limit. Also, having an annual budget cycle may present more opportunities to increase spending or reduce taxes, which may produce smaller budget balances. As discussed previously, allowing deficits to be carried forward into the future may reduce states' year-end budget balances in the next fiscal year because it creates another obligation that requires the use of state revenues and even rainy day funds. In addition, spending more per capita may be associated with smaller year-end total budget balances as a percentage of expenditures, as ending budget balances are reduced and expenditures are high.

In the pooled regression model, states that enacted layoffs of state employees had lower year-end budget balances than states that maintained employment levels, holding all else constant. Because of the possibility of reverse causality, one explanation for this result is that layoffs are viewed as a last-resort solution to reducing expenditures. States laying off employees may already be experiencing budget troubles, and with no other reasonable spending reductions available, government officials may announce employment reductions. However, this form of cost reduction may limit the operational ability of the government. If states lose valuable and knowledgeable workers, they may be less effective in delivering public services to residents.

Layoffs might also reduce the attractiveness of working for the state, reducing the number of future applicants for positions.

When considering the results of the fixed-effects model, a positive relationship is identified between year-end total budget balances as a percentage of expenditures and higher-than-estimated actual revenues and tax revenue per capita, similar to the results of the pooled regression model. However, there is a negative relationship between debt outstanding per capita and year-end budget balances as a percentage of expenditures. A possible reason for this result is that states with higher amounts of debt outstanding may have higher debt service obligations, increasing their level of spending and reducing ending balances.

Based on the estimates provided by the pooled and fixed-effects models with year-end budget balance as a percent of expenditures as the dependent variable, states that increased usage fees show greater gain in year-end budget balances as a percentage of expenditures, holding all else constant. Using the table presented in Appendix B, five out of the six states employing this revenue-generating strategy received high fiscal peril scores, indicating financial stress. States in high fiscal peril, on average, had lower average budget balances as a percentage of expenditures over 2001-2008. Other factors contributing to lower budget balances may explain this overall result, but when controlling for these other factors, increasing usage fees, on average, has a positive effect on fiscal health. User fees, like taxes, provide states with revenue. So, with an additional source of revenue, states may be able to maintain higher balances and rainy day funds, if existing spending levels and other factors remain constant. More information regarding the amount of fees and for what services these fees are being charged is needed to understand impacts on consumer behavior. If individuals no longer use the service as a result of higher fees, the state may not generate additional revenue.

In all three statistical models, there are variables not under the control of policymakers, especially in the short run, that have an effect on the sampled states' fiscal health indicators. Federal aid per capita and the unemployment rate have a positive effect on fiscal peril scores and year-end total balances as a percentage of expenditures. Receiving more federal aid per capita is associated with lower fiscal peril scores and higher year-end total balances as a percentage of expenditures, controlling for other variables. Federal aid is a source of revenue for state governments and may contribute to the likelihood of states maintaining fiscal stability. However, federal grants are dependent on the spending policies of the federal government and may fluctuate from year to year, affecting state budgets. State unemployment rates are related to higher fiscal peril scores and lower year-end total balances as a percentage of expenditures. Unemployment may reduce income and sales tax collections while increasing the demand for public services.

Based on the results of the pooled regression model using fiscal peril scores as the dependent variable, state poverty rates and population densities are associated with higher fiscal peril scores. Increases in the poverty rate may increase the need for public services, such as health care, directed toward low-income individuals and households. With a higher proportion of the population under the poverty line, state expenditures may increase. Also, increases in population density may affect the demand for public services and assistance, such as parks, public safety, and infrastructure.

In the fixed-effects model, population and state personal income per capita have a positive and negative effect, respectively, on year-end total balances as a percentage of expenditures. Although more populated states may have to provide more public services, their tax bases are larger, so revenue receipts may be higher than less populated states. Personal income per capita is an indicator of the relative size of a state's economy compared to other

states, controlling for differences in population. Larger per capita personal income may be intuitively associated with increasing year-end total balances as a percentage of expenditures; however, the findings of this study suggest the opposite. Higher levels of per capita personal income may be related to declining year-end total balances as a percentage of expenditures because wealthier states may be more likely to spend more per capita. Toikka et. al. (2004) found that “states [with] less fiscal capacity spent less per capita on social welfare programs than states with higher per capita incomes.” States with less per capita personal income are also more likely to reduce spending on non-health services than wealthier states (Toikka et.al., 2004).

LIMITATIONS AND CONCLUSION

An overriding limitation of this study is that states possess unique characteristics that affect their ability to generate revenue and require different levels of spending. Geographic location, available natural resources, and major industry all impact a state’s financial resources. However, policymakers can make little to no changes, particularly in the short run, to improve these factors as they are inherent to the state. Also, fiscal conditions prior to 2001 may impact a state’s ability to manage and balance its budget during economic downturns.

A limitation of using fiscal peril scores as an indicator of fiscal health is the uncertainty surrounding the Pew Center’s methodology used to compose those scores. It is unclear how the states’ money-management scores are created, and how the components of that score are measured. In addition, the variables used by the Pew Center in determining the fiscal peril scores are measured using short-term data. Although understanding current state fiscal environments is important, understanding long-term trends leading up to the time of budget crises is also important. Therefore, the scores reported by the Pew Center may be limited by the span over which data were gathered.

Another limitation is the use of year-end budget balance as a percentage of expenditures as a measure of fiscal health. The level at which states maintain a budget balance as a percentage of expenditures is debatable, depending on the size of a state's budget and the volatility of the state's economic, fiscal, and demographic characteristics. The Government Finance Officers Association (GFOA) suggests that states, regardless of size should "maintain an unreserved fund balance in their general fund of no less than 5 to 15 percent of regular general fund operating revenues or of no less than 8 to 16 percent of regular general fund operating expenditures" (2002). States' year-end balances as a percentage of expenditures are somewhat dependent on the timing of revenue collections and expenditures, so states may be able to avoid reporting an imbalance for one year by paying bills at the start of the new fiscal year or accelerating tax collections (Gold, 1995). States rely on different sources of revenue and have different tax structures which can also influence the ability of states to maintain a budget balance of 5 percent of expenditures.

The findings of this study are limited by the possibility of reverse causation, meaning that the dependent variable may explain changes in explanatory variables. The implementation of strategies to eliminate or reduce budget gaps-increasing usage fees, implementing across-the-board percent cuts, using rainy day funds, and laying off employees-may depend on the size of year-end budget balances as a percentage of expenditures. These decisions may be responses to fiscal stress as opposed to practices to avoid it. In this study, increasing fees and laying off employees are found to affect states' year-end budget balances as a percentage of expenditures; however, these budget-balancing strategies may only be implemented during extreme fiscal crises. When states are not in fiscal stress, they may be less likely to increase fees or lay off employees.

In this analysis, the policy-driven variables having an effect on states' fiscal health, as measured by fiscal peril scores and year-end budget balances as a percentage of expenditures, indicate ways in which states can achieve balanced budgets. Before implementing fiscal policy changes, administrators in Kentucky should take into account the unique economic and demographic characteristics of the state. What works in another state may have different results in Kentucky. Budget environments are ever-changing, depending on economic cycles, demographic trends, demands for services, and political variables. Over the course of one fiscal year, states may be faced with multiple unexpected circumstances, leaving them with revenue shortfalls and unpaid expenditures, and budget policies and processes may influence how states are able to adapt to poor economic conditions. Additional research can be completed with more recent U.S. Census Bureau data when the 2009 state revenues and expenditures are compiled, and future analyses may benefit from expanding the sample to include all 50 states.

APPENDIX A

Budget Cuts (\$ in millions)	
State	FY 2009
South Dakota	\$0.4
Nevada	\$136.0
Kentucky	\$163.2
Rhode Island	\$214.0
Idaho	\$241.0
New Mexico	\$282.1
Michigan	\$438.0
Pennsylvania	\$470.4
Arizona	\$554.0
Utah	\$571.3
Illinois	\$600.0
Wisconsin	\$635.0
Oregon	\$764.0
Florida	\$887.4
New Jersey	\$2,000.0
California	\$10,654.5
West Virginia	N/A
Nebraska	N/A
Wyoming	N/A
North Dakota	N/A
Texas	N/A
Montana	N/A

Budget Cuts (\$ in millions)	
State	FY 2010
Idaho	\$99.7
Arizona	\$111.0
Nevada	\$182.4
West Virginia	\$184.0
Kentucky	\$273.8
Utah	\$318.6
Rhode Island	\$415.6
Illinois	\$500.0
New Mexico	\$539.1
Oregon	\$988.0
Pennsylvania	\$1,172.8
Michigan	\$1,832.0
Wisconsin	\$1,917.7
New Jersey	\$3,284.0
California	\$20,363.5
South Dakota	N/A
Florida	N/A
Nebraska	N/A
Wyoming	N/A
North Dakota	N/A
Texas	N/A
Montana	N/A

Source: NASBO. Fall 2009. *The Fiscal Survey of the States.*

APPENDIX B

State	Fiscal Peril	Year-End Budget Balance as a Percentage of Expenditures	Average Personal Income Per Capita	Average Debt Per Capita	Average Tax Revenue Per Capita	Average Federal Aid Per Capita	Average Expenditures Per Capita
California	30	4.78%	\$ 45,384.18	\$ 3,225.87	\$ 6,076.40	\$ 1,529.61	\$ 6,961.12
Arizona	28	7.77%	\$ 36,330.87	\$ 1,382.37	\$ 4,714.32	\$ 1,525.10	\$ 4,632.79
Rhode Island	28	4.24%	\$ 42,653.96	\$ 7,680.72	\$ 6,291.97	\$ 2,145.21	\$ 7,173.74
Michigan	27	3.41%	\$ 38,327.14	\$ 2,909.97	\$ 5,154.82	\$ 1,408.09	\$ 6,146.36
Nevada	26	11.95%	\$ 42,963.65	\$ 1,953.95	\$ 5,614.83	\$ 1,048.70	\$ 4,480.12
Oregon	26	4.28%	\$ 38,612.66	\$ 3,095.27	\$ 5,213.64	\$ 1,573.84	\$ 6,293.09
Florida	25	13.50%	\$ 41,115.17	\$ 1,850.43	\$ 5,370.78	\$ 1,208.12	\$ 4,346.82
New Jersey	23	4.67%	\$ 52,680.87	\$ 5,528.46	\$ 7,276.28	\$ 1,469.01	\$ 6,689.00
Illinois	22	3.03%	\$ 44,166.82	\$ 4,370.15	\$ 6,067.27	\$ 1,354.23	\$ 5,050.07
Wisconsin	22	0.35%	\$ 39,965.74	\$ 3,763.75	\$ 5,466.32	\$ 1,400.52	\$ 6,192.95
Kentucky	21	4.99%	\$ 33,657.68	\$ 2,547.67	\$ 4,525.78	\$ 1,713.91	\$ 5,904.07
South Dakota	12	12.96%	\$ 38,544.23	\$ 4,173.12	\$ 5,339.86	\$ 2,089.94	\$ 4,815.00
West Virginia	12	17.14%	\$ 31,956.16	\$ 3,277.55	\$ 4,404.34	\$ 2,190.61	\$ 6,379.45
New Mexico	12	11.27%	\$ 33,721.76	\$ 3,532.55	\$ 4,656.87	\$ 2,523.26	\$ 7,517.79
Utah	11	5.29%	\$ 33,555.77	\$ 2,486.99	\$ 4,505.52	\$ 1,225.63	\$ 5,378.98
Pennsylvania	11	3.12%	\$ 41,468.16	\$ 2,687.41	\$ 5,519.56	\$ 1,659.68	\$ 5,871.65
Texas	9	16.07%	\$ 38,746.00	\$ 1,122.97	\$ 4,983.75	\$ 1,328.10	\$ 4,200.54
Montana	9	17.95%	\$ 35,104.00	\$ 4,574.07	\$ 4,959.87	\$ 2,263.89	\$ 6,188.68
North Dakota	9	24.38%	\$ 37,868.38	\$ 3,196.18	\$ 5,133.20	\$ 2,379.43	\$ 6,332.98
Nebraska	7	20.39%	\$ 40,407.43	\$ 1,422.14	\$ 5,228.90	\$ 1,487.66	\$ 4,887.49
Iowa	7	7.94%	\$ 38,064.01	\$ 2,002.80	\$ 5,008.53	\$ 1,409.29	\$ 5,629.18
Wyoming	6	23.71%	\$ 46,034.52	\$ 2,680.82	\$ 6,089.52	\$ 3,965.80	\$ 8,651.65

APPENDIX B

State	Fiscal Peril	Year-End Budget Balance as a Percentage of Expenditures	Average Unemployment Rate	Average Population Size	Population Density (population per square mile)	Average Poverty Rate
California	30	4.78%	5.99%	35,687,688	217.2	11.63%
Arizona	28	7.77%	5.00%	5,885,238	45.2	12.62%
Rhode Island	28	4.24%	5.41%	1,061,719	1,003.2	9.94%
Michigan	27	3.41%	6.83%	10,053,520	175.0	10.81%
Nevada	26	11.95%	5.12%	2,357,072	18.2	9.65%
Oregon	26	4.28%	6.56%	3,618,169	35.6	11.20%
Florida	25	13.50%	4.72%	17,436,750	296.4	11.24%
New Jersey	23	4.67%	4.96%	8,607,418	1,134.4	7.49%
Illinois	22	3.03%	5.85%	12,692,962	223.4	10.19%
Wisconsin	22	0.35%	4.92%	5,521,252	98.8	8.60%
Kentucky	21	4.99%	5.86%	4,158,830	101.7	14.09%
South Dakota	12	12.96%	3.29%	778,371	9.9	11.05%
West Virginia	12	17.14%	4.48%	1,804,827	75.1	14.78%
New Mexico	12	11.27%	4.91%	1,904,256	15.0	15.66%
Utah	11	5.29%	4.27%	2,492,201	27.2	8.86%
Pennsylvania	11	3.12%	5.08%	12,355,593	274.0	9.69%
Texas	9	16.07%	5.46%	22,735,425	79.6	14.29%
Montana	9	17.95%	4.03%	932,852	6.2	12.36%
North Dakota	9	24.38%	3.29%	636,210	9.3	9.71%
Nebraska	7	20.39%	3.49%	1,747,502	22.3	9.09%
Iowa	7	7.94%	4.05%	2,954,974	52.4	8.80%
Wyoming	6	23.71%	3.66%	508,283	5.1	8.98%

APPENDIX B

State	Fiscal Peril	Year-End Budget Balance as a Percentage of Expenditures	Has a debt service limit	Annual Budget Cycle	Has a consensus forecast process	Allows carry over deficit	Proportion of years during 2001-2008 a state...				
							Had higher actual tax revenues than estimated	Increased usage fees	Made across-the-board-percent cuts	Used rainy day fund	Used layoffs
California	30	4.78%	No	Yes	No	Yes	0.625	0.125	0.125	0.25	0
Arizona	28	7.77%	Yes	No	No	No	0.5	0	0.25	0.25	0.25
Rhode Island	28	4.24%	Yes	Yes	Yes	No	0.125	0.375	0.25	0.125	0.125
Michigan	27	3.41%	No	Yes	Yes	Yes	0	0.375	0.5	0.375	0.125
Nevada	26	11.95%	No	No	No	No	0.375	0	0.25	0.25	0.125
Oregon	26	4.28%	No	No	No	No	0.5	0	0.25	0.25	0.125
Florida	25	13.50%	Yes	Yes	Yes	No	0.5	0	0.125	0	0
New Jersey	23	4.67%	No	Yes	No	No	0.375	0.25	0.125	0	0.125
Illinois	22	3.03%	Yes	Yes	No	No	0.5	0.125	0.25	0.125	0.125
Wisconsin	22	0.35%	Yes	No	No	Yes	0.25	0	0.5	0.125	0.125
Kentucky	21	4.99%	Yes	No	Yes	No	0.375	0	0.375	0.125	0
South Dakota	12	12.96%	No	Yes	No	No	0.625	0	0	0.875	0
West Virginia	12	17.14%	No	Yes	No	No	0.75	0	0.25	0	0
New Mexico	12	11.27%	Yes	Yes	Yes	No	0.5	0	0.125	0	0
Utah	11	5.29%	No	Yes	Yes	No	0.5	0.25	0.25	0.125	0.25
Pennsylvania	11	3.12%	Yes	Yes	No	No	0.625	0	0	0.25	0
Texas	9	16.07%	Yes	No	No	No	0.875	0	0	0.125	0
Montana	9	17.95%	No	No	No	No	0.75	0	0.125	0	0
North Dakota	9	24.38%	Yes	No	Yes	No	0.75	0	0.125	0.125	0
Nebraska	7	20.39%	Yes	No	Yes	No	0.625	0	0.375	0.25	0.375
Iowa	7	7.94%	Yes	Yes	Yes	No	0.75	0	0.25	0.25	0.125
Wyoming	6	23.71%	Yes	No	Yes	No	0.75	0	0	0	0

References

- Besley, Timothy and Anne Case. March 2003. "Political Institutions and Policy Choices: Evidence from the United States." *Journal of Economic Literature* 41 (1): 7-73.
- Bohn, Henning and Robert P. Inman. 1996. "Balanced-Budget Rules and Public Deficits: Evidence from the U.S. States." *Carnegie-Rochester Conference Series on Public Policy* 45:13-76.
- Cummins, Jeff. 2008. *Term Limits, Electoral Competition and the Impact of State Fiscal Conditions*. San Diego, CA: California State University, Fresno.
- Gold, Steven D. 1995. *The Fiscal Crisis of the States*. Washington, D.C.: Georgetown University Press.
- Government Finance Officers Association. 2002. *Appropriate Level of Unreserved Fund Balance in the General Fund*. Retrieved from < <http://www.gfoa.org/downloads/budget-appropriate.pdf>>.
- Governor Communications Office, Commonwealth of Kentucky. 2010. "Governor Signs Budget Reduction Order, Gives Excess Education Dollars to Districts." *Press Releases*. Retrieved from < <http://governor.ky.gov/media/pressreleases/>>.
- Kearns, Paula S. 1994. "State Budget Periodicity: An Analysis of the Determinants and the Effect on State Spending." *Journal of Policy Analysis and Management* 13 (2):331-362.
- Kentucky Youth Advocates (KYA). 2009. "The Importance of the Consensus Forecasting Group in the State Budget Process." *Factsheet*. Retrieved from < http://www.kyyouth.org/Issue_Areas/budget/documents/ImportanceofCFGintheStateBudgetProcess.pdf>.
- Kiewiet, D. Roderick and Kristin Szakaly. 1996. "The Efficacy of Constitutional Restrictions on Borrowing, Taxing, and Spending: An Analysis of State Bonded Indebtedness, 1961-90." *Journal of Law, Economics, and Organization* 12 (1): 62-97.
- Krol, Robert. "The Role of Fiscal and Political Institutions in Limiting the Size of State Government." *Cato Journal* 27 (3): 431-445.
- McNichol, Elizabeth and Nicholas Johnson, Center on Budget and Policy Priorities. November 19, 2009. *Recession Continues to Batter State Budgets; State Responses Could Slow Recovery*. Retrieved from < <http://www.cbpp.org/cms/?fa=view&id=711>>.
- Mikesell, John L. 2007. *Fiscal Administration: Analysis and Applications for the Public Sector*. 7th ed. Belmont, CA: Thomson Wadsworth.

- National Association of State Budget Officers. 2004. *Budgeting Amid Fiscal Uncertainty: Ensuring Budget Stability by Focusing on the Long Term*. Washington, D.C.: NASBO... Retrieved from <<http://www.nasbo.org/LinkClick.aspx?fileticket=suny03ufULY%3D&tabid=83>>.
- National Association of State Budget Officers. 2008. *Budget Processes in the States*. Washington, D.C.: NASBO. Retrieved from <<http://www.nasbo.org/LinkClick.aspx?fileticket=AaAKTnjgucg=&tabid=80>>.
- National Association of State Budget Officers and National Governors Association. December 2009. *The Fiscal Survey of States*. Retrieved from <<http://www.nasbo.org/Publications/PDFs/fsfall2009.pdf>>.
- Office of State Budget Director & Governor's Office for Economic Analysis, Commonwealth of Kentucky. October 2009. *Quarterly Economic and Revenue Report for the Second Quarter Fiscal Year 2010*. Retrieved from <http://www.osbd.ky.gov/NR/rdonlyres/25E9BF58-A1F7-4676-A9A7-9F73C00ABF94/0/0911_2ndQtrRpt2010_.pdf>.
- Office of State Budget Director, Commonwealth of Kentucky. 2010. "Budget in Brief." *2010-2012 Executive Budget Recommendation*. Retrieved from <<http://www.osbd.ky.gov/>>.
- Poterba, James M. 1996. "Budget Institutions and Fiscal Policy in the U.S. States." *The American Economic Review* 86 (2): 395-400.
- Poterba, James M. 1994. "State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics." *The Journal of Political Economy* 102 (4): 799-821.
- Rodgers, Robert and Phillip Joyce. 1996. "The Effect of Under-forecasting on the Accuracy of Revenue Forecasts by State Governments." *Public Administration Review* 56 (1): 48-56.
- Rubin, Marilyn Marks and Katherine Willoughby. 2009. "Financial Management Grades for the States: A Prospective Use." *Public Budgeting and Finance* 29 (1): 49-67.
- The Pew Center on the States. November 2009. *Beyond California: States in Fiscal Peril*. Retrieved from <<http://downloads.pewcenteronthestates.org/BeyondCalifornia.pdf>>.
- The Pew Center on the States. 2008. "The Government Performance Project: Money Performance Grades." Retrieved from <<http://www.pewcenteronthestates.org/uploadedFiles/Money%20Performance.pdf>>.
- Toikka, Richard, Thomas Gais, Plamen V. Nikolov, and Patricia Billen. June 2004. *Spending on Social Welfare Programs in Rich and Poor States*. Retrieved from <<http://129.3.20.41/eps/pe/papers/0410/0410006.pdf>>.

- U.S. Census Bureau, Annual Population Estimates. 2008. State Population Estimates for 2000-2008 [dataset]. Retrieved from <<http://www.census.gov/popest/states/NST-ann-est2008.html>>.
- U.S. Census Bureau, Historical Poverty Estimates, 2008. Historical Poverty Estimates of People for 1980-2008 [dataset] Retrieved from <<http://www.census.gov/hhes/www/poverty/histpov/perindex.html>>.
- U.S. Census Bureau, State Government Finances. 2008. State Finance Estimates for multiple years [dataset]. Retrieved from <<http://www.census.gov/govs/state/>>.
- U.S. Department of Commerce, Bureau of Economic Analysis. 2010. Implicit Price Deflators for multiple years [dataset]. Retrieved from <<http://www.bea.gov/national/nipaweb/TableView.asp?SelectedTable=13&Freq=Qtr&FirstYear=2006&LastYear=2008>>.
- U.S. Department of Labor, Bureau of Labor Statistics. 2008. Historical State Employment and Unemployment Rates for multiple years [dataset]. Retrieved from <<http://www.bls.gov/lau/home.htm>>.
- Von Hagen, Jurgen. 1991. "A Note on the Empirical Effectiveness of Formal Fiscal Restraints." *Journal of Public Economics* 44 (2): 199-210.