

State Tax Measures and Revenue Growth through and Post-Crisis¹

Carolyn Bourdeaux
Andrew Young School of Policy Studies, Georgia State University
Email: cbourdeaux@gsu.edu

Rahul Pathak
Andrew Young School of Policy Studies, Georgia State University
Email: rpathak3@gsu.edu

Sally Wallace
Andrew Young School of Policy Studies, Georgia State University
African Tax Institute, University of Pretoria, South Africa
Email: swallace@gsu.edu

Prepared for
National Tax Association (NTA), 109th Annual Conference
Baltimore, MD, November 2016

¹ We thank Steve Bailey from the Pew Charitable Trusts and Bob Buschman from the Fiscal Research Center, Georgia State University for generously sharing their datasets on state tax actions.

State Tax Measures and Revenue Growth through and Post-Crisis

Abstract

State governments' response to fiscal stress during and after the Great Recession has varied significantly; whereas some states have made moderate tax changes, others have deliberated on comprehensive tax reform proposals. We classify states by their relative levels of fiscal stress and tax actions during the recession to assess the effect of policy response on revenue recovery during 2007-2013. We use the National Conference of State Legislature's Tax Actions Database along with revenue, expenditure, and debt estimates from the Census Bureau to conduct difference-in-difference regression analysis of the impact of fiscal stress and state tax reforms on revenue recovery. The results suggest that tax measures that responded to a high level of fiscal stress were significantly associated with revenue recovery. Also, the combination of the depth of fiscal stress and type of reforms instituted varied considerably across states.

Keywords: State Tax Reform, Revenue Recovery, Fiscal Stress, State Finances

JEL Codes: H71, H72

I. Introduction

The Great Recession and its aftermath had myriad impacts on individuals, corporations, and governments. The precipitous decline in federal, state, and local revenue during the recession was unmatched in recent history. In fiscal year 2009, forty-five states had budget gaps of at least five percent of their original submitted budgets (Bourdeaux and Hildreth 2012). The recession was coupled with a changing landscape of public finances characterized by reduced property values, increased service consumption, and increased competition for investment (Ebel, Peterson, & Vu, 2012; Wallace, 2012). During and after the recession, state policymakers relied on several short- and long-term approaches to fiscal recovery. Short-term tools included utilization of accumulated reserves, cuts in discretionary spending, use of federal assistance, sale of assets, etc. Some states also used the economic downturn as an opportunity to consider comprehensive tax reforms or passed tax measures with a long-term view to boost revenues and promote fiscal sustainability. Figure I plots the projected revenue effect of state tax actions during the last twenty years, and it is evident that the response of state tax policy to the Great Recession was unusual.

Previous studies have documented the proposals of state tax reform commissions, special committees, or task forces that have been convened to review states' tax codes and recommend changes in light of changing economics, demographics, and politics in the aftermath of the recession (Bourdeaux 2011; Pathak et al. 2016; Auxier 2016). However, limited research has focused on the impact of tax measures that were adopted after the recession on actual revenue recovery, Alm and Sjoquist (2014) is one example.

[Figure I about here]

However, there is merit in doing more this type of analysis to better understand what has driven reforms and whether they have been useful. For example, focusing on Figure 1, the solid black line shows the aggregate effect of tax actions (net effect of tax increase and tax cuts) that seems to follow the business cycles but received a major boost during 2009-2010. Tax actions related to personal income tax (blue line with triangles) and sales tax (green line with circles) broadly follow the same pattern. However, whether these tax measures were 'successful' and assisted in revenue recovery is still unclear. In this paper, we focus on whether the tax actions enacted by the states during the recession assisted in revenue recovery, and if the state fiscal conditions going into the recession were an important factor that mediated the process.

The rest of the paper is organized as follows: The next section provides a brief overview of state tax policy during the Great Recession and previous research on state response to economic downturns. Section three outlines the analytical framework of this study and lays out the key hypotheses. Section four provides the details of the data sources and variables. Section five discusses the details of estimation and results. The last section summarizes the main findings, highlights the key limitations of the analysis, and concludes.

2. State Tax Policy and the Great Recession

Sub-national responses to financial shocks and fiscal stress have received significant attention in the public finance and budgeting literature. States facing fiscal distress make fiscal adjustments subject to a range of economic, institutional, and political factors (Campbell and Sances 2013; Conant et al. 2013). Conant et al. (2013) review state budgeting in six states (Connecticut, Georgia, Illinois, Massachusetts, New York, and Virginia) in the aftermath of the

Great Recession (FY2010-FY2012) and find a wide variety of short-term and long-term approaches that were used by state policymakers.²

Typically, the initial response of policymakers has been to utilize accumulated reserves and postpone the long-term tax increases into the future. According to Jonas (2012), the total year-end balances that exceeded \$65 billion in 2006-07 were reduced to about half of that by 2009. Though the legislators attempted to delay tax increases as long as possible, the tax increases eventually happened in a variety of states, as has been the case in previous recessions (National Conference of State Legislatures 2011).³ During the 2008 recession, it was apparent that other instruments would not be sufficient to address high levels of fiscal stress and it necessitated that tax revenues should be boosted by increasing tax rates, modifying tax exemptions, and broadening the tax base. State legislatures enacted modest tax increases in 2007 and 2008, but as the impact of the recession was aggravated and other response mechanisms proved inadequate during 2009 and 2010, state policymakers enacted the largest increase in taxes in last twenty years as noted previously in Figure 1.

Several studies in past have focused on determinants of state tax response to recessions and fiscal stress (Poterba 1994; Perotti and Roberto 2000; Alt and Lowry 1994). Poterba (1994) examined state response during state fiscal stress of the late eighties and suggested that fiscal institutions and political factors play a significant role in the short-run fiscal adjustment

² See Spring 2010 issue of *Public Budgeting and Finance* for detailed case-studies of these states that form the basis for this *Municipal Finance Journal* article.

³ Several studies have documented such behavior in the previous recessions (Finegold, Schardin, and Steinbach 2003; Kalambokidis and Reschovsky 2005; Maag and Merriman 2003). For example, Finegold et.al. (2003) found that during the 2001 recession, states did little to increase revenues and relied primarily on reserves and programs cuts. In six out of the seven states they studied, elected officials made little effort to raise taxes and in some states legislative factors like two-thirds supermajority requirement or voter approval left little political bandwidth to make any significant changes.

decisions. Recent studies have also noted that budget gaps, political factors, and institutional constraints are amongst the key factors that may influence state responses to economic downturns (Buschman and Sjoquist 2013; Campbell and Sances 2013). However, a limited number of studies have explored the relationship between policy responses and actual recovery. To our knowledge, Alm and Sjoquist (2014) is the only peer-reviewed study that examines patterns of state revenue recovery in the aftermath of the Great Recession. They find that recovery trajectories vary significantly across the states and a complex array of factors influence revenue recovery. Their analysis indicates that discretionary tax changes are not a strong predictor of recovery and most of the recovery is driven by factors such as economic growth and structure of the economy. We broadly build on the work on Alm and Sjoquist (2014) but pay more attention to the differential effect of tax policies on the states that are experiencing different levels of stress and the timing of antecedents and outcomes in our empirical estimations.

3. The Analytical Framework

While assessing the effectiveness of tax measures, one of the key factors to consider is the multiple modes of interaction between states fiscal conditions, policy responses, and revenue recovery. The states experiencing relatively higher fiscal stress are perhaps more likely to adopt optimal tax measures aiming to alleviate revenue shortfalls, which may affect the success of revenue recovery. Thus, there may be a differential impact of the tax measures on revenue recovery in the states with a higher level of stress vis-à-vis the states with lower fiscal stress. Furthermore, it is important to choose 'right' time periods for analysis that can account for the time lag in witnessing the effect of one set of factors on the other. Table I outlines the analytical framework of this paper where the states respond to different levels of stress (high

and low) through four kinds of tax actions (major increase, minor increase, minor decrease, major decrease).

[Table 1 about here]

We choose the average of FY2007 and FY2008 deficits as a share of general revenues as a measure of fiscal stress coming into the recession and net tax action during FY2009-FY2011 as the measure of tax policy response and examine the impact of these factors on state revenue recovery. We follow the approach of Alm and Sjoquist (2014) to measure revenue recovery as the ratio of real per-capita own source revenues in 2013 to pre-recession level in 2007.⁴ We expect that the fiscal conditions of states going into recession (FY2007-FY2008) affected whether the policymakers made optimal decisions related to tax policy during the recovery period (FY2009-FY2011) which influenced the overall revenue recovery as measured in 2013 (FY2013/FY2007). We argue that the tax measures were more helpful in recovery in the states that were experiencing relatively higher levels of stress since their fiscal conditions nudged them towards more optimal policy decisions and better implementation.

H1: *Other things equal, revenue recovery in response to tax actions will be stronger in the states with higher fiscal stress than in the states with lower stress.*

H2: *Other things equal, the states that pass a major tax increase in response to high level of fiscal stress will have a better recovery than the other groups of states.*

⁴ Alm and Sjoquist (2014) define recovery ratio as the ratio of 2012 to 2007 revenues. According to an estimate by the Pew Charitable Trusts, the national state tax revenues recovered from the Great Recession in mid-2013 (Barb and Newman 2016), therefore ratio of 2013 to 2007 appears to be a more appropriate measure of recovery.

Figure 2 provides a visual summary of the classification of states into various categories in terms of tax actions. Eighteen states in the country enacted major tax increases (defined as more than \$100 million in net tax increase during 2009-2011 and shown in dark green color) in response to high level of fiscal stress (defined as states that have above median deficit to general revenue ratio during 2007-2007 and shown with hatched lines) and five states enacted minor tax increases. Similarly, ten states enacted major tax increases (more than 100 million in tax action) during the recession period despite relatively low levels of stress during 2007-08, while nine states enacted minor or no tax increases.⁵

[Figure 2 about here]

4. Data and Methods

The information on state tax actions is available from two sources. First, the National Conference of State Legislatures (NCSL) publishes annual state tax actions reports that show tax and revenue measures that are enacted during each fiscal year. A similar source is the Fiscal Survey of States that is published semi-annually by the National Association of State Budget Officers (NASBO). For our analysis, we obtained NCSL's state tax action estimates from the Pew Charitable Trusts.⁶ We retrieved the information on state revenues and debt from the Urban-Brookings Tax Policy Center's State and Local Finance Data Query System which compiles information from the Census Bureau. As previous studies have noted the importance of political and institutional factors, we include two political variables in our regressions. First,

⁵ Wyoming and Montana did not make any changes but they have been included in the minor tax increases to reduce the number of categories. There was no high-stress state that did not pass a tax measure.

⁶ Pew estimates are highly comparable to estimates that are compiled by Buschman and Sjoquist (2013). NCSL and NASBO estimates have small differences but they are highly correlated.

an index of citizen ideology as constructed by Berry and Ringquist (1998) and Berry et al. (2010), and second, the party affiliation of the Governor as reported by the National Conference of State Legislatures.⁷ Other control variables such as unemployment rate and per capita income are obtained from the Bureau of Labor Statistics and Bureau of Economic Analysis respectively.

The primary empirical specification assumes the form of a difference-in-difference estimation as shown in the equation (1) where y_i is the dependent variable i.e. the recovery ratio calculated as the ratio of per-capita own source revenues in 2013 and 2007 (*RECOVERY*).⁸

$$y_i = \alpha_1 D_1 + \alpha_2 D_2 + \gamma D_1 * D_2 + x_{it} \beta + \varepsilon \quad (1)$$

D_1 is a measure of tax response (*TAXACTION* and *MAJORTAX*), and D_2 is a dummy variable for relatively higher levels of stress (*HIGHSTRESS*). The main parameter of interest γ measures the effect of interaction term i.e. the differential effect of tax action on revenue recovery in states with higher levels of stress vis-à-vis the states with lower stress. All other covariates are included in the vector x_{it} and β is the vector of coefficients associated with the covariates and ε_{it} is the error term. We control for the population of states (*POP*) and three key economic characteristics. First is the growth in per capita gross domestic product between 2007 and 2012 (*ΔGDP*) since it is one of the key factors that explains revenue recovery. We control for the unemployment rate (*UNEMP*) and per capita income (*PCINCOME*) of the states in 2007 to

⁷ Nebraska has a bipartisan legislature but the party affiliation of the Governor is known to be Republican during the study period. Thus, Nebraska is assigned a value 0 for the variable *DEMGOV*.

⁸ One of the key challenges in study of state and local finances using regression based approaches is the limited sample size in the cross-sectional designs. The nature of the dependent variable i.e. long-term recovery of revenue does not permit us to use fixed effects estimations. Fixed effects approaches also do not address limitations related to endogeneity and omitted variable bias completely as the vast literature on the subject suggests. In the last section of this article, we discuss the methodological limitations of our analysis in greater detail.

account for the economic condition of the state going into the recession. Furthermore, we control for an average of total debt outstanding in fiscal years 2007 and 2008 to account for debt liabilities of the state. Lastly, two political variables (*IDEOLOGY* and *DEMGOV*) account for underlying political preferences. Table 2 provides the descriptive statistics of all the variables used in the analysis.⁹

[Table 2 about here]

5. Estimation and Results

Several factors related to the states' economic structure and fiscal architecture influence revenue recovery patterns. In this article, we focus on a combination of depth of fiscal stress and type of reforms instituted by states and control for other explanatory factors. In the first set of specifications, we use two measures of tax actions: first a continuous variable that estimates the net tax action by the states during 2009-2011, and second, a dummy variable that is coded one for states that passed a net tax action of more than \$100 million in the aforementioned period. Table 3 shows the results from two specifications; Column 1 uses the former measure and Column 2 uses the latter measure. Both the specifications use the same dummy variable for the pre-recession stress levels and controls for the same set of factors that may influence revenue recovery. In Column 1, the key variable of interest is the interaction between tax action and high stress suggesting that an additional million dollar increase in legislated tax action in high-stress states is expected to improve revenue recovery by 0.01 percentage points more than in states with low fiscal stress. Similarly, in Column 2 the

⁹ We do not include Washington DC in our regressions. We also ran regressions without states such as Alaska and North Dakota, but the results were not significantly different. Therefore, the final analysis includes fifty states.

interaction term suggests that revenue recovery in high-stress states that passed a major tax action is 12 percentage points better than the high-stress states that did not pass a major tax action.¹⁰ Other control variables that have a significant effect also have the expected signs for revenue recovery. For example, the states with a larger population and higher per capita income had a better recovery. As one would expect, the growth in GDP is positively associated with the recovery ratio and states that had higher levels of debt going into the Great Recession had a weaker recovery.

[Table 3 about here]

In Table 4, we extend the analytical framework outlined in Table 2 to the empirical setting to examine whether different combinations of the depth of fiscal stress and type of reforms influence revenue recovery differently. We use broadly the same empirical specification as outlined in equation 1 with a change in the main independent variables to a set of eight dummies D1-D8. The base group is D7, i.e. the states that undertook a major tax increase in response to high level of fiscal stress which seems like a more appropriate policy action. Column 1 and Column 2 report the results with and without the controls for political factors, but both the specifications yield broadly similar results. Though most of the coefficients have negative signs, some of these are driven by the trends in a small number of states. For example, the coefficient on D1 is driven by Louisiana, which suggests towards the weaker recovery in the state compared to its counterparts who passed major increases in response to higher levels of stress. The positive coefficient on D4 is driven by North Dakota and North Carolina which is

¹⁰ The negative coefficient on tax action in both the specifications suggests that the tax actions in low stress states may not contribute positively to revenue recovery which is counter-intuitive but lends support to our assertion that the actual effect of tax measures on revenues may be substantially different in high stress vs. low stress states.

not surprising given the distinct revenue recovery in North Dakota because of higher natural resource revenues. The coefficient on D6 suggests that states with low stress and minor tax increases have a weaker recovery than the states with high levels of stress and major tax increases. The coefficient on D8 corresponds to the results discussed previously in Table 3, i.e. the states that passed a major tax increase in response to higher levels of stress were more successful in revenue recovery than the states that passed a major tax increase in response to lower levels of pre-recession stress. The coefficients on control variables in Table 4 are consistent with those in Table 3 with positive association of economic growth and higher personal incomes with revenue recovery and a weaker recovery in states with higher debt and smaller populations.

[Table 4 about here]

6. Summary and Conclusion

This article examined the state patterns of revenue recovery in the aftermath of recession as a function of the type of tax reforms and the level of fiscal stress. We classify tax measures that the states passed during the Great Recession and their pre-recession fiscal stress to create a typology of state responses. We find that the effect of tax measures differs widely among the states that respond to different levels of fiscal stress. The expected revenue recovery in response to tax actions was stronger in the states with higher levels of fiscal stress than the states with lower stress. This suggests what might be an obvious use of tax increases for stressed states. However, just because a state institutes revenue increases does not necessarily yield recovery results. This is the first paper we know of that suggests states do a reasonable

job of alleviating stress. We also find significant variation in the patterns of revenue recovery across our policy response typology.

However, there are several limitations of this analysis that we need to highlight. First, the cross-sectional studies of state finances often suffer from the criticism related to omitted-variable bias and potential endogeneity. In our analysis, we have included a set of variables covering economics, politics, and fiscal characteristics, but some concerns may remain regarding potential endogeneity regarding which states start stressed. Second, we have chosen the timing of fiscal conditions and policy response carefully to align with the realities of the policymaking process; however, the timing of policy response is a far more complex issue than can be captured by annual financial estimates. We have tested several versions of the basic model in terms of altering timing, included variables, and interaction terms and in general the results remain. Third, the annual tax action estimates from NCSL do not allow us to distinguish between 'tax increases' and 'tax cuts' so we could only use the net state tax actions which influences the results.

The vast literature on tax response to the fiscal crisis has focused on the factors that influence the state response to the financial challenges, but limited research has focused on whether the state policy response during the crises impacts actual revenue recovery. This article sheds some light on the dynamics of how the combination of state fiscal conditions and type of tax reform influences revenue growth in the recovery period. This question is particularly relevant in the context of the Great Recession since it had a major impact on state finances and triggered the largest set of tax actions in recent history. Future research may attempt to explore the finer dynamics of policy process that intermediates the policy responses and the success of recovery.

References:

- Alm, James, and David Sjoquist. 2014. "State Government Revenue Recovery from the Great Recession." *State and Local Government Review* 46 (3): 164–72.
- Alt, James E, and Robert C Lowry. 1994. "Divided Government, Fiscal Institutions, and Budget Deficits: Evidence from the States." *The American Political Science Review* 88: 811–28. doi:10.2307/2082709.
- Auxier, Richard. 2016. "State Tax Commissions." Urban Institute, Washington DC. <http://www.urban.org/sites/default/files/publication/85021/2000969-state-tax-commissions-2000-2016.pdf>.
- Barb, Rosewicz, and Barb Newman. 2016. "Amid Slow Growth, Tax Revenue Has Recovered in 29 States." *The Pew Charitable Trusts*. Amid Slow Growth, Tax Revenue Has Recovered in 29 States.
- Berry, W. D., R. C. Fording, E. J. Ringquist, R. L. Hanson, and C. E. Klarner. 2010. "Measuring Citizen and Government Ideology in the U.S. States: A Re-Appraisal." *State Politics & Policy Quarterly* 10: 117–35.
- Berry, WD, and EJ Ringquist. 1998. "Measuring Citizen and Government Ideology in the American States, 1960-93." *American Journal of Political Science* 42: 327–48.
- Bourdeaux, Carolyn. 2011. "A Review of State Tax Reform Efforts." *State Tax Notes*, 859–80.
- Bourdeaux, Carolyn, and W. Bartley Hildreth. 2012. "State Budgeting under Fiscal Stress." In *The Oxford Handbook of State and Local Government Finance*, edited by Robert Ebel and John Peterson. Oxford University Press.
- Buschman, Robert, and David Sjoquist. 2013. "An Exploration of Differential State Responses to Changes in Fiscal Conditions."
- Campbell, a. L., and M. W. Sances. 2013. "State Fiscal Policy during the Great Recession: Budgetary Impacts and Policy Responses." *The ANNALS of the American Academy of Political and Social Science* 650: 252–73. doi:10.1177/0002716213500459.
- Conant, James, Beverly Bunch, William Duncombe, Thomas P. Lauth, Mark Robbins, William Simonsen, Douglas Snow, and Bruce Wallin. 2013. "State Budgeting in the Aftermath of the Great Recession: A Comparative Perspective." *Municipal Finance Journal* 33: 1–33.
- Ebel, Robert, John Peterson, and Ha Vu. 2012. "Introduction." In *The Oxford Handbook of State and Local Government Finance*, edited by Robert Ebel and John Peterson.
- Finegold, Kenneth, Stephanie Schardin, and Rebecca Steinbach. 2003. "How Are States Responding to Fiscal Stress." http://www.urban.org/UploadedPDF/310658_A-58.pdf.
- Jonas, Jiri. 2012. "Great Recession and Fiscal Squeeze at U.S. Subnational Government Level."
- Kalambokidis, Laura, and Andrew Reschovsky. 2005. "States' Responses to the Budget

Shortfalls of 2001-2004.” *Challenge* 48 (1): 76–93.

Maag, Elaine, and David Merriman. 2003. “Tax Policy Responses to Revenue Shortfalls.” Washington DC. <http://www.urban.org/sites/default/files/alfresco/publication-pdfs/410798-Tax-Policy-Responses-to-Revenue-Shortfalls.PDF>.

National Conference of State Legislatures. 2011. “NCSL Fiscal Brief: How State Tax Policy Responds to Economic Recession.” <http://www.ncsl.org/documents/fiscal/TaxPolicyandRecessions.pdf>.

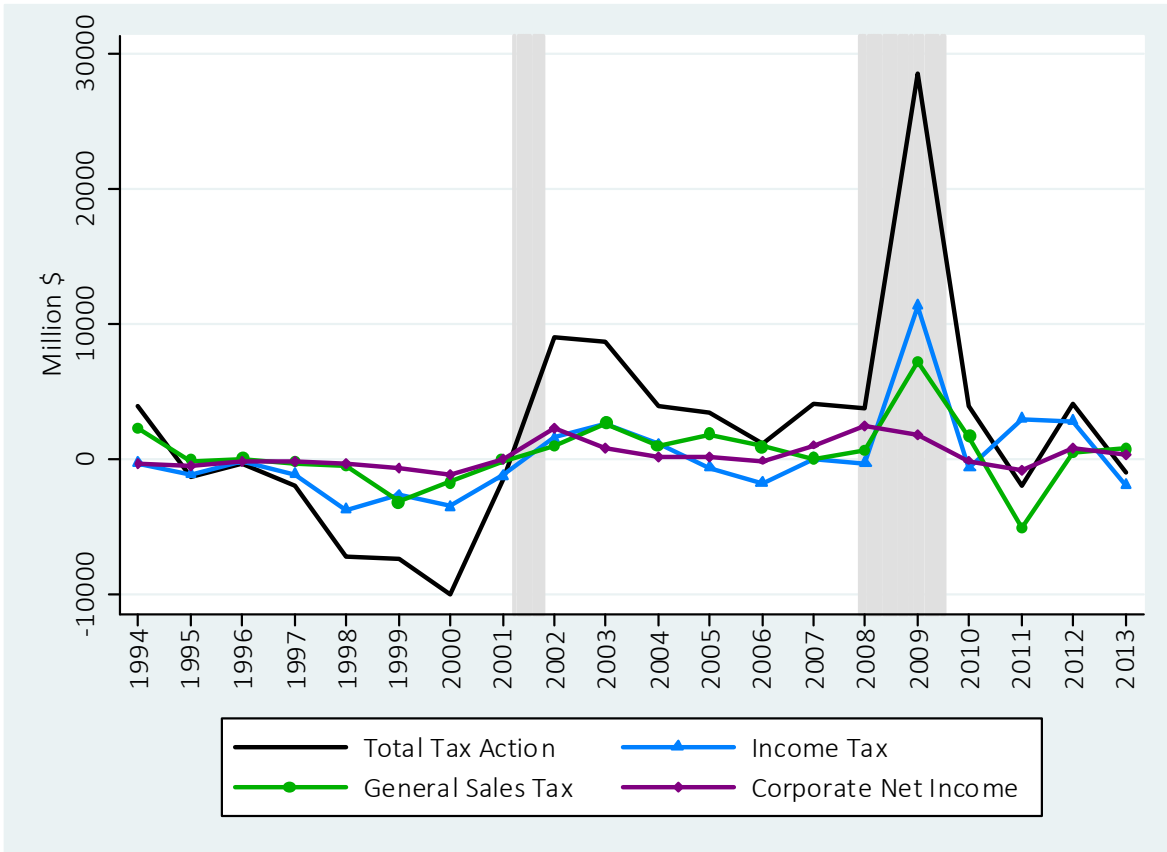
Pathak, Rahul, Carolyn Bourdeaux, Sally Wallace, and Sarah Larson. 2016. “State Tax Reform Efforts-2010-2015.” *State Tax Notes* 79 (12): 91–105.

Perotti, Alberto, and Alesina Roberto. 2000. “THE POLITICAL ECONOMY OF BUDGET DEFICITS.” *NBER WORKING PAPER SERIES* 84: 77–128. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=217836.

Poterba, James M. 1994. “State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics.” *Journal of Political Economy* 102: 799.

Wallace, Sally. 2012. “The Evolving Financial Architecture of State and Local Governments.” In *The Oxford Handbook of State and Local Government Finance*, edited by Robert Ebel and John Peterson.

Figure I: Projected Revenue Effect of State Tax Actions



Data Source: National Conference of State Legislatures and the Pew Charitable Trusts

Figure 2: Pre-Recession Fiscal Stress (FY07-08) and Subsequent State Tax Response (FY09-FY11)

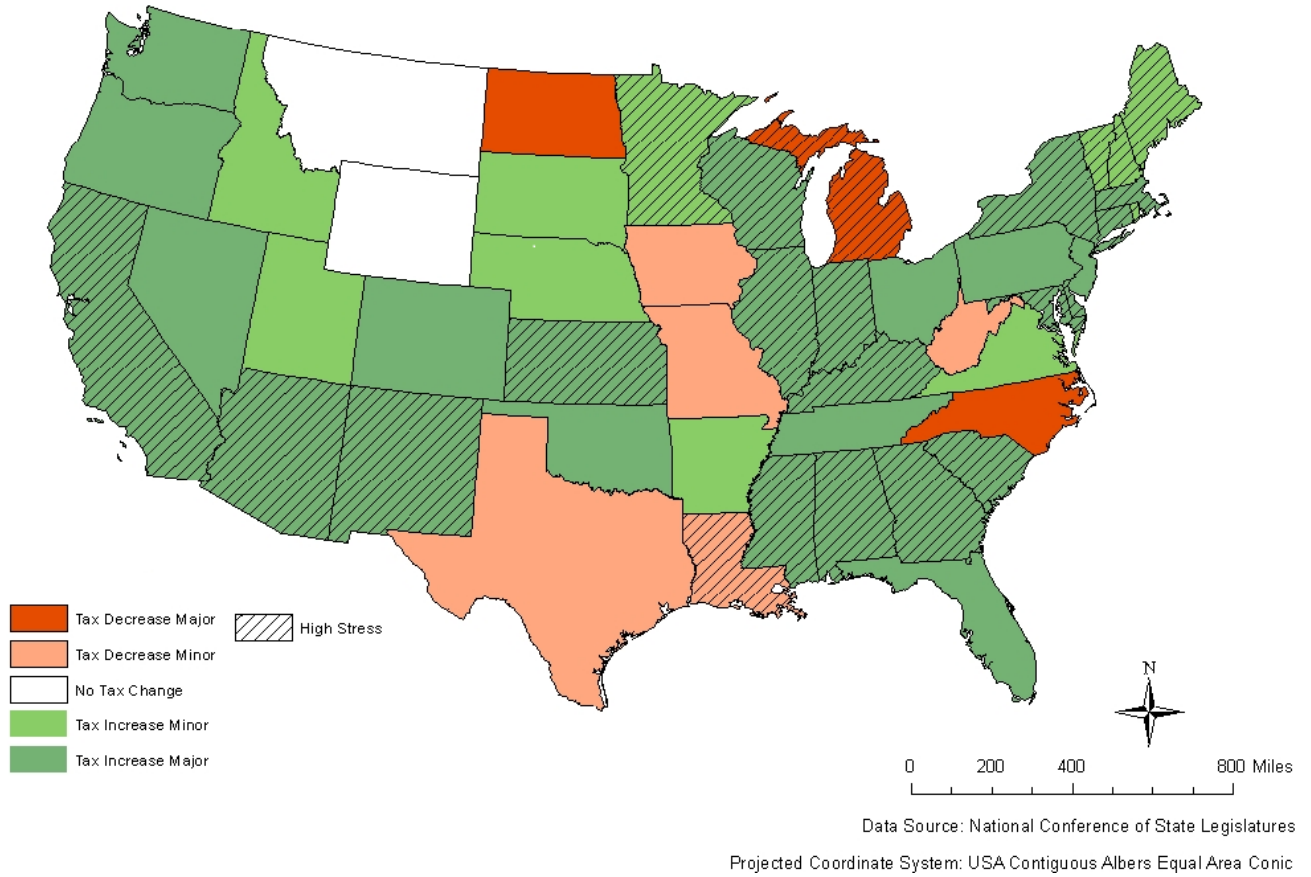


Table I: Pre-Recession Fiscal Stress (FY07-08) and Subsequent State Tax Response (FY09-FY11)

Relative Level of Fiscal Stress			
	HIGH STRESS	LOW STRESS	
Reform Type	D1	D2	
	TAX DECREASE - MINOR	LA	IA, MO, TX, WV
	D3	D4	
	TAX DECREASE - MAJOR	MI	ND, NC
	D5	D6	
TAX INCREASE – MINOR (Includes No Change)	MN, VT, ME, RI, NH	MT, SD, WY, NE, AR, AK, ID, VA, UT	
	D7	D8	
TAX INCREASE - MAJOR	NY, HI, NM, CA, KY, DE, AZ, SC, IN, GA, MA, WI, MD, KS, CT, IL, AL, MS	OK, FL, CO, WA, NJ, PA, TN, OH, OR, NV	

Table 2: Descriptive Statistics for Key Variables

Variable	Description	Mean	S.D.	Min	Max
<i>RECOVERY</i>	Recovery Ratio of Real PC OSR, FY07-FY13	93.23	12.34	75.33	164.12
<i>TAXACTION</i>	Tax Action, million \$, Avg. FY09-FY11	611.752	1445.42	-550	7380
<i>MAJORTAX</i>	Tax Action, >\$100 million, FY09-FY11	0.56	0.50	0.00	1.00
<i>STRESS</i>	Deficit to Gen Rev Ratio, Avg. FY07-FY08	-0.08	0.09	-0.36	0.08
<i>HIGHSTRESS</i>	Greater than median <i>STRESS</i>	0.50	0.50	0	1
<i>POP</i>	Population, 000s, Avg. of 2007 & 2012	6.14	6.83	0.56	37.16
Δ <i>GDP</i>	Per capita GDP Growth, 2007-2012	8.38	9.58	-9.63	61.50
<i>PCINCOME</i>	Per capita income, 2007	38532.86	5772.23	29316.00	56723.00
<i>UNEMP</i>	Unemployment rate, 2007	4.38	0.98	2.61	7.11
<i>TOTDEBT</i>	Total Debt, Avg. FY07-FY08	3546.99	2121.87	685.00	10877.50
<i>IDEOLOGY</i>	Citizen Ideology, 2007	59.32	14.42	27.23	87.76
<i>DEMGOV</i>	Democratic Governor, 2007	0.56	0.50	0.00	1.00

Sources: Revenues and Debt: Census of State and Local Governments and Tax Policy Center, Population: Census Bureau Annual Estimates, Tax Action: NCSL and the Pew Charitable Trust, GDP and Income: Bureau of Economic Analysis, Unemployment Rate: Bureau of Labor Statistics, Citizen Ideology: Berry et al., 2010, Political Variables: NCSL

Table 3: State Tax Actions and Revenue Recovery, 2007-2013

	(1)	(2)
<i>TAXACTION*HIGHSTRESS</i>	0.011*** (0.004)	-
<i>TAXACTION</i>	-0.010** (0.004)	-
<i>MAJORTAX*HIGHSTRESS</i>	-	12.155** (5.102)
<i>MAJORTAX</i>	-	-6.558* (3.635)
<i>HIGHSTRESS</i>	0.637 (2.705)	-2.437 (3.921)
<i>POP</i>	-0.464** (0.204)	-0.483** (0.198)
<i>ΔGDP</i>	0.903*** (0.124)	0.963*** (0.126)
<i>PCINCOME</i>	0.001*** (0.000)	0.001*** (0.000)
<i>UNEMP</i>	0.622 (1.316)	1.096 (1.408)
<i>TOTDEBT</i>	-0.002*** (0.001)	-0.002** (0.001)
<i>IDEOLOGY</i>	-0.000 (0.106)	0.002 (0.109)
<i>DEMGOV</i>	-4.035* (2.206)	-3.235 (2.285)
Constant	62.701*** (12.427)	56.274*** (12.798)
Observations	50	50
R-squared	0.710	0.693

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Note: Revenue Recovery is measured as the ratio of real per-capita own source revenues in 2013 to 2007

Table 4: State Tax Actions and Revenue Recovery across Response Categories, 2007-2013

	(1)	(2)
D1, High Stress, Minor Decrease	-17.379** (7.090)	-17.903** (7.133)
D2, Low Stress, Minor Decrease	-0.272 (3.977)	0.477 (3.876)
D3, High stress, Major Decrease	-0.940 (7.738)	2.314 (7.667)
D4, Low Stress, Major Decrease	13.715** (6.242)	13.618** (6.050)
D5, High Stress, Minor Increase	-3.563 (3.594)	-3.131 (3.588)
D6, Low Stress, Minor Increase	-6.620** (3.071)	-8.444** (3.170)
D8, Low Stress, Major Increase	-10.291*** (2.832)	-9.132*** (2.826)
POP	-0.498*** (0.179)	-0.507*** (0.175)
Δ GDP	0.759*** (0.128)	0.785*** (0.125)
PCINCOME	0.001*** (0.000)	0.001*** (0.000)
UNEMP	0.222 (1.369)	0.044 (1.331)
TOTDEBT	-0.002*** (0.001)	-0.001* (0.001)
IDEOLOGY		-0.138 (0.104)
DEMGOV		-2.957 (2.053)
Constant	65.613*** (12.035)	71.541*** (12.164)
Observations	50	50
R-squared	0.770	0.796

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Notes: (1) Revenue Recovery is measured as the ratio of real per-capita own source revenues in 2013 to 2007 (2) D7, High Stress - Major Increase is the Base group