THE EFFECT OF ECONOMIC DOWNTURNS ON STATE BUDGETS: A COUNTERFACTUAL ANALYSIS OF THE GREAT RECESSION

Christian Buerger
Paul H. O'Neill School of Public and Environmental Affairs
Indiana University-Purdue University Indianapolis
801 West Michigan Street
Indianapolis, Indiana 46202
cbuerge@iupui.edu

I propose a novel method to estimate the effect of recessions on government finances. Using the Great Recession and state budgets as an empirical example, I find large and prolonged budget cuts, but also increases in transfers to populations in need. The proposed method can be easily transferred to other recessions, different spending categories, and local governments receiving state transfers, such as school districts.

Keywords: state budgets; public spending; recessions; event study; counterfactual analysis

JEL Codes: H11; H72; E32

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1. Econometric Model

Researchers have assessed the impact of recessions on state finances using pre and post comparisons (e.g., Rosewicz, 2018), calculating differences between actual and projected budgets (e.g., Rueben, Randall, and Boddupalli, 2018), measuring deviations from linear trends (e.g., Hou, 2013), applying Markov switching models (Wagner and Elder, 2007), and using statistical filters (e.g., Zhao, 2016). In this study, I propose a novel method calculating the counterfactual—what would have happened to state budgets in the absence of an economic decline—to estimate the effects of recessions on government expenditures. As an illustrative example, I compute the impact of the Great Recession on state spending.

More formally, my econometric model can be stated as follows (Angrist and Pischke, 2008; Autor, 2003; Granger, 1969):

$$Y_{st} = \alpha_s + \beta_t + \sum_{\tau=0}^{m} \gamma_{-\tau} Rec_{s,t-\tau} + \sum_{\tau=1}^{q} \gamma_{+\tau} Rec_{s,t+\tau} + \varepsilon_{st} \quad (1)$$

where Y_{st} measures per capita finances for state s during year t. The terms α_s and β_t represent state and year fixed effects, respectively. $Rec_{s,t}$ is an indicator of whether state s was exposed to an economic decline in year t. For states in the control group, this indicator is always zero. I explain how I define recessions in the next section.

The coefficients $\gamma_{-\tau}$ and $\gamma_{+\tau}$ quantify the change in Y_{st} for states in the treatment group m years before or q years after the Great Recession. Both coefficients are measured relative to the control group and the last year prior to the recession, $\tau = 0$, which is excluded from the analysis. More intuitively, $\gamma_{-\tau}$ and $\gamma_{+\tau}$ can be interpreted as lead and lag measures of the recession, respectively (Angrist and Pischke, 2008). I censor m = -4 and q = 8 to exclude the effects of prior

recessions and avoid fluctuations in the number of observations for each time period. The equation is estimated using OLS with robust standard errors clustered by state (Angrist and Pischke, 2008).

The key identifying assumption in Equation (1) is that trends between the treatment and control group, for a given measure of Y_{st}, moved in parallel fashion prior to the recession. To test this assumption, I can evaluate the results on the coefficients $\gamma_{-\tau}$. If these estimates are close to zero or of opposite sign, relative to $\gamma_{+\tau}$, it is reasonable to interpret $\gamma_{+\tau}$ as the causal impact of the recession on state budgets.

Because states with and without recession could differ in characteristics that only manifest during an economic shock—even if the parallel trends assumption holds—I calculate propensity scores to create weights for Equation (1) and drop states outside common support. Appendix A describes this procedure in more detail.

To test for potential mechanisms influencing recession effects, I interact the recession dummies in Equation (1) with indicators of state characteristics that could either mitigate or exacerbate the impact of the economic decline on state spending. These indicators include the absence of income or sales taxes, and if states had savings above the median for U.S. states in 2006.[1]

Several features of Equation (1) are noteworthy. First, I use the Great Recession as an exogenous shock to state finances. Second, I do not control for time-varying state characteristics as they could have been affected by the recession (Angrist and Pischke, 2008). Finally, I can apply year fixed effects as the severity and timing of the Great Recession differed between states (Hamilton and Owyang, 2012; Owyang, Piger, and Wall, 2005).

[1] I estimate fully saturated models. The indicators are not estimated separately as they do not vary over time.

2. Recession Definition

Prior recession definitions have been criticized for their lack of transparency, ad hoc criteria, and nationwide focus (Berge and Jordà, 2013; Charles, Darné, Diebolt, and Ferrara, 2015; Owyang, Piger, and Wall, 2005). To circumvent these shortcomings, my recession definition builds on techniques that have been successfully used in the past, combining the State Coincident Indexes maintained by the Federal Reserve Bank of Philadelphia, an algorithm by Bry and Boschan (1971), and statistical methods to identify structural breaks.

The State Coincident Indexes is a monthly measure of economic activity for each state. The index has been identified as a reliable source to measure states' economic activity and shows great variation in business cycles between states (Crone, 2006; Owyang, Piger, and Wall, 2005; Wagner and Elder, 2007). I connect this information with an algorithm developed by Bry and Boschan (1971). This algorithm is transparent in its calculations and has been shown to closely match the National Bureau of Economic Research's (NBER) definitions of recessions (Berge and Jordà, 2013; Harding and Pagan, 2003; King and Plosser, 1994; Owyang, Piger, and Wall, 2005; Stock and Watson, 2010). Because the algorithm has been criticized for its ad hoc criteria, I use a data-driven approach, while using the three decision criteria in the algorithm (Hamilton, 1989; Owyang, Piger, and Wall, 2005; Proietti, 2009; Wagner and Elder, 2007).

More specifically, I allow the three decision criteria in the algorithm to vary instead of being a fixed number of months. The first criterion, determining the months before and after a focal month, is permitted to range between 1 and 12 months (originally 5 months). The second criterion, which defines the length of up and downturns in the economy, is allowed to differ between 1 and 12 months (originally 5 months). The last criterion, defining the length of a business cycle, is allowed to last between 6 and 24 months (originally 15 months).

Applying this modification to the algorithm, I obtain 2,736 recession definitions using the State Coincidence Index from 2003 to 2016. I exclude definitions that include fewer than 3 months in the first two criteria (Crone, 2006) in order to fulfill the requirement that increases and decreases in economic activity should last at least a "few months" (NBER, 2019, p. 1).

In the next step, I turn to the literature on structural breaks to find the recession definition that fits best my data. I estimate Equation (1) without state and year fixed effects, total the $t-$values for $\gamma_{-\tau}$ and $\gamma_{+\tau}$, and select the definition with the greatest $t-$values (or the smallest mean squared error). This procedure has been shown to be highly consistent in finding the location of structural breaks and permitting inferences about the impact of structural breaks on a dependent variable. Moreover, it allows me to determine the recession definition that most closely matches my data, while disregarding the impact of the recession on state finances at the same time (Bai, 1997; Banerjee and Urga, 2005; Lafortune, Rothstein, Schanzenbach, 2018).

The recession definition with the largest sum of $t-$values has 5 months for the first, 9 months for the second, and 15 months for the last criterion. States fulfilling this recession definition are put into the treatment group and states that do not fulfill this definition are put into the control group. Table 1 presents which categories states fall into.

3. Tradeoffs in the Empirical Strategy

I face four major tradeoffs in my empirical strategy. First, I lose finer-grained information on the economic activity in each state by using difference-in-differences frameworks. For example, the State Coincidence Index dropped by over 10 points in Montana compared to 3 points in New York from January to December 2008. I keep my strategy, however, as it enables me to estimate a counterfactual, test for parallel trends, and measure changes in recession impacts over time.

Second, my control group potentially includes states that may have been exposed to some recession effects. I am still confident that I capture most of the recession effects on state budgets, given that my control group never shows a decline or stagnation in revenues or expenditures during the Great Recession (Table 2). Nevertheless, the coefficients attached to my recession variable should be interpreted as conservative.

Third, there could be spillover effects from one state economy to another. This problem seems to apply less to my analysis since researchers have found distinct business cycles for each state that differ in their timing and intensity. Moreover, I study state budgets, which are based on income and sales taxes that are unlikely to incur major spillover effects from business cycles in other states (Hamilton and Owyang, 2012; Owyang, Piger, and Wall, 2005).

Lastly, my control group includes only a few states. My statistical models are, therefore, likely to have confidence intervals that are too large, keeping the null hypothesis even though it is false and should be rejected (false negative). Note, however, that if the impacts of the Great Recession on state budgets are considerable and occur in many states, my estimates will be statistically significant at the commonly used thresholds (Cameron and Trivedi, 2005).

4. Data and Sample

My data come from several sources. The financial measures are taken from the Annual Survey of State and Local Government Finances maintained by the U.S. Census. Information on state savings are based on the calculations from the Pew Charitable Trusts and include budget stabilization funds in addition to unassigned and unreserved balances. The State Coincident Index is downloaded from the Federal Bank in Philadelphia. The index is based on four time series: nonfarm payroll employment; average hours worked in manufacturing; unemployment; and salary disbursements deflated by the consumer price index, which are combined using a dynamic single-

factor model (see Crone, 2003; Crone and Clayton-Matthews, 2005; Stock and Watson, 1989). Summary statistics for all variables are presented in Table 2 and Appendix B defines all financial variables.

Research has shown that spending for welfare, insurance trust, and interest payments, which are important components of state budgets, increased during the Great Recession (Haveman et al., 2014). Using a measure of total expenditures that includes all spending categories in states' budgets would thus blend categories together that either increased or decreased during the economic decline. To overcome this issue, I exclude welfare, insurance trust, and interest payments from my measure of total expenditures.

Utilizing the financial variables described above, I create a panel data set beginning in 2003 and ending in 2016. I start in 2003 since several states showed signs of recovery from the previous recession in earlier years. As in other studies, I exclude Alaska and Hawaii from the analysis because of their unique economies (e.g. Wagner and Elder, 2007).

5. Results

I present the findings in Figure 1 and Table 3. Figure 1 shows parallel trends prior to the recession for a specification using total expenditures (excluding welfare, insurance trust, and interest payments) as the dependent variable. The graph drops one year after the recession and then declines continuously over time. Column 1 in Table 3 presents the corresponding estimates for the linear combinations. The greatest cut in spending occurs in post periods seven and eight and totals -$881 per capita (19 percent). The following columns in Table 3 show large nominal cuts for education with -$312 and health and hospital with -$245 per capita. The greatest relative spending cuts take place for health and hospital outlays (37 percent) and highway expenses (33 percent). More generally, governments do not cut expenditures across the board, but focus on specific areas,

where they make deep cuts relative to the amount they would have spent in absence of the recession. In contrast to the described decreases in spending, payments for insurance trust and interest payments increase after the recession.

6. Mechanisms

Table 4 summarizes the results for specifications including interaction effects. The first four columns in the table present recession and the last four columns report interaction effects. The dependent variable in all models is total expenditures (excluding welfare, insurance trust, and interest payments). Panel A shows small and imprecisely estimated interaction effects, suggesting that states without income taxes were not differentially impacted by the recession. Conversely, the next panel indicates that states without sales taxes were less impacted by the economic decline. All coefficients on the interactions are large in magnitude and statistically significant.

Panel C implies that large savings prior to the recession did not help to mitigate spending cuts. The result for state savings differs from Rueben et al. (2018) and Wei and Denison (2019), who suggest that fiscal reserves helped states to mitigate spending cuts. My findings are similar to Zahradnik and Lav (2000) and Zahradnik and Ribeiro (2003), who suggest that states only insufficiently drain their savings during economic downturns and that the institutional rules surrounding fiscal reserves hinder state governments to use them.

7. Conclusion

In this study, I successfully implemented a counterfactual analysis to estimate the impact of the Great Recession on state budgets. Because I estimate the counterfactual—what would have happened to states finances in the absence of the Great Recession—and distinguish between different spending categories, my results are greater in magnitude relative to other studies. For instance, Rueben et al. (2018) estimate an unexpected total deficit of $116 per capita for state

budgets in 2010 and Rosewicz (2018) calculates an average increase in state spending of 4.3 percent for all states between 2008 and 2018, even though 17 states still spend less than prior to the Great Recession.

Overall, my approach allows researchers to estimate a counterfactual when measuring the impact of recessions on government finances over time. Therefore, it can inform the literature on state revenues, expenditures, debt, and fiscal reserves for past and future economic declines.

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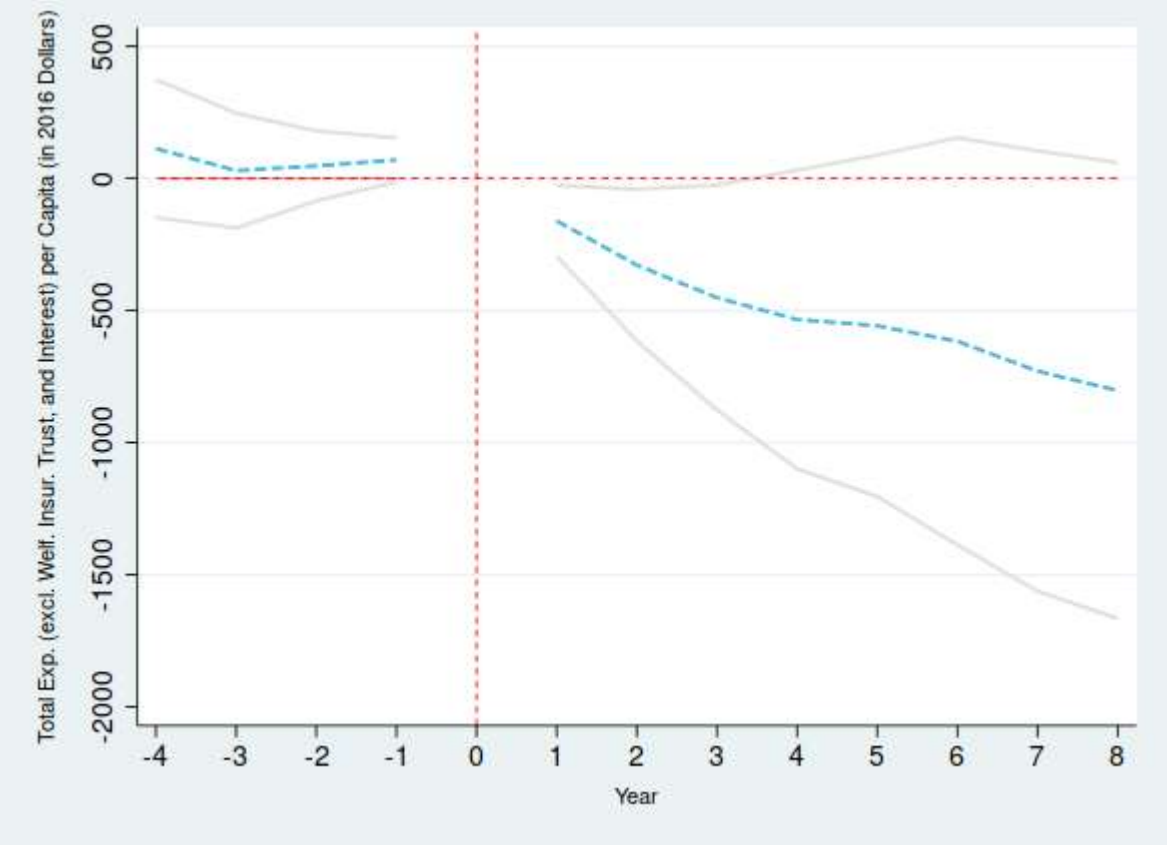
Figures

Figure 1: Event study coefficients for per capita total expenditure excl. welfare, insurance trust, and interest payments



Notes: Figure displays coefficients from event study regressions based on Equation 1. States are grouped as in Table1. Blue lines indicate coefficients and grey lines 95% confidence intervals. Standard errors are clustered at the state level. Numerical results are displayed in Table 2 Column (1).

Tables

Table 1: Treatment and control group

Control Group (Low Impact)	Treatment Group (Severe Impact)
Arkansas, Nebraska, New Hampshire, New Mexico, North Dakota, Utah, Vermont,	*Alabama*, Arizona, California, Colorado, *Connecticut*, *Delaware*, Florida, Georgia, Hawaii, Idaho, *Illinois*, Indiana, Iowa, Kansas, Kentucky, *Louisiana*, Maine, Maryland, *Massachusetts*, Michigan, Minnesota, Mississippi, Missouri, *Montana*, Nevada, New Jersey, New Mexico, *New York*, North Carolina, *Oklahoma*, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, *Tennessee*, Texas, Virginia, Washington, *West Virginia*, Wyoming

Notes: States in *italics* were dropped, as they are outside common support (see Appendix A).

Table 2: Summary statistics for per capita revenue and expenditure measures

	Control States					Treated States				
	Pre 1- 2 years	**Post 1-2 years**	**Post 3-4 years**	**Post 5-6 years**	**Post 7-8 years**	**Pre 1- 2 years**	**Post 1-2 years**	**Post 3-4 years**	**Post 5-6 years**	**Post 7-8 years**
Total exp. excl. welf. insur. trust, & interest	4,356	4,842	4,939	4,927	5,115	3,718	3,905	3,780	3,676	3,785
	(202.6)	(258.6)	(252.9)	(264.8)	(303.8)	(104.4)	(133.2)	(130.3)	(136.4)	(156.5)
Education total	2,307	2,542	2,534	2,498	2,593	1,824	1,955	1,899	1,853	1,956
	(90.33)	(103.8)	(100.4)	(106.5)	(126.8)	(46.54)	(53.48)	(51.74)	(54.89)	(65.33)
Higher education	960.9	1,056	1,054	1,038	1,115	668.0	722.0	726.1	716.3	750.4
	(36.95)	(44.80)	(45.17)	(45.45)	(50.72)	(19.04)	(23.08)	(23.27)	(23.42)	(26.13)
Welfare	1,460	1,618	1,619	1,640	1,973	1,383	1,482	1,513	1,529	1,780
	(95.14)	(105.4)	(105.5)	(107.8)	(136.4)	(49.02)	(54.31)	(54.33)	(55.53)	(70.27)
Highway	494.7	552.9	620.4	634	646	454.4	430.9	431.8	421.2	434.9
	(38.26)	(45.56)	(60.81)	(66.83)	(67.55)	(19.71)	(23.47)	(31.33)	(34.43)	(34.80)
Health and hospitals	343.6	393.7	396.3	423.7	467.0	351.8	399.7	400.3	404.0	416.8
	(35.29)	(41.68)	(42.63)	(45.37)	(51.39)	(18.18)	(21.47)	(21.96)	(23.38)	(26.48)
Correction	139.7	144.3	147.4	143.7	155.1	164.7	166.4	154.7	147.9	150.8
	(13.64)	(12.32)	(11.88)	(11.41)	(12.29)	(7.026)	(6.347)	(6.121)	(5.881)	(6.333)
Insurance trust	451.9	700.3	709.7	686.8	711.2	688.4	1,003	1,034	898.2	895.6
	(60.19)	(88.19)	(87.80)	(77.91)	(75.97)	(31.01)	(45.44)	(45.23)	(40.14)	(39.14)
Interest	164.9	173.8	149.9	123.1	115.0	131.4	148.9	147.5	135.2	128.8
	(17.45)	(22.11)	(21.69)	(21.08)	(21.29)	(8.991)	(11.39)	(11.18)	(10.86)	(10.97)

Other	1,070	1,209	1,241	1,227	1,253	922.9	953.3	893.8	850.0	826.5
	(110.1)	(133.3)	(124.7)	(128.0)	(148.4)	(56.74)	(68.65)	(64.24)	(65.94)	(76.44)
SCI	95.35	100.1	107.4	115.8	123.6	95.74	94.73	100.8	109.4	118.8
	(0.643)	(1.190)	(1.393)	(1.632)	(1.786)	(0.331)	(0.613)	(0.717)	(0.841)	(0.920)
N	14	14	14	14	14	60	60	60	60	60

Notes: See Table 1 for state groups. All variables are measured in 2016 dollar per capita.

Table 3: Average effects of the Great Recession on per capita revenue and expenditure measures

	Total exp.[1]	**Education total**	**Higher education**	**Welfare**	**Highway**	**Health and hospitals**	**Correction**	**Insurance trust**	**Interest**	**Other**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Recession 1-2 years	-251***	-71	-10	-60	-119***	-6	-5	43	26***	-48
	(62)	(44)	(44)	(51)	(29)	(12)	(7)	(31)	(7)	(36)
	[6.04%]	[-3.50%]	[-1.37%]	[-3.89%]	[-21.64%]	[-1.48%]	[-2.92%]	[4.29%]	[17.46%]	[-5.30%]
Recession 3-4 years	-494***	-108*	-21	-109	-212***	-34**	-15	110***	67***	-123**
	(81)	(60)	(55)	(67)	(35)	(19)	(11)	(29)	(23)	(47)
	[-11.56%]	[-5.38%]	[-2.81%]	[-6.72%]	[-32.93%]	[-7.83%]	[-8.84%]	[10.64%]	[45.42%]	[-11.43%]
Recession 5-6 years	-569***	-139***	-38	-185	-171**	-117***	-24*	70**	99***	-116***
	(142)	(46)	(57)	(113)	(72)	(33)	(13)	(30)	(34)	(41)
	[-13.40%]	[-6.98%]	[-5.04%]	[-10.79%]	[-28.88%]	[-22.46%]	[-13.96%]	[7.79%]	[73.22%]	[-11.49%]
Recession 7-8 years	-881***	-312***	-23	-61	-146*	-245***	-25*	25	107***	-151***
	(200)	(55)	(57)	(153)	(83)	(46)	(15)	(24)	(32)	(54)
	[-18.88%]	[-13.76%]	[-2.97%]	[-3.31%]	[-25.13%]	[-37.02%]	[-14.22%]	[2.79%]	[83.07%]	[-15.08%]
N	518	518	518	518	518	518	518	518	518	518
R2	0.62	0.54	0.51	0.72	0.35	0.29	0.47	0.85	0.58	0.44

Notes: Table reports average treatment effects calculated using linear combinations of event study coefficients. For brevity, combinations focus on the two years prior the recession and intervals of two years after the recession. For instance, Recession 1-2 is calculated: $((\delta_{-2} + \delta_{-1})/2 - (\delta_3 + \delta_4)/2) \times -1$. Confidence intervals around these combinations are determined using the delta method. Brackets indicate the financial loss or gain as a percentage counterfactual. For negative estimates, I calculate the quotient between the absolute value of the *Recession* coefficients displayed in the Table 3 and the sum of the absolute value of the *Recession* estimate displayed in Table 3 and the corresponding mean measures presented in Table 2. The resulting value is multiplied by -100 to receive a percentage value with the correct sign. For *Recession 1-2 years* in Model 1, I calculate (|-641| / (|-641| + 6,213) * 100) * -1 = -9.35%. For spending categories with positive coefficients, I divide the estimate in Table 3 by the mean measure in Table 2 and multiply the result by 100.
Standard errors are clustered at the state level. Statistically significant at: * p<0.1, ** p<0.05, *** p<0.01
[1] excludes welfare, interest, and trust

Table 4: Recession and interaction effects

Recession				Interaction			
Post 1-2	Post 3-4	Post 5-6	Post 7-8	Post 1-2	Post 3-4	Post 5-6	Post 7-8
Panel A: Interaction with indicator not having a state income tax							
-252***	-492***	-572***	-875***	20	12	25	-1
(64)	(82)	(145)	(203)	(124)	(120)	(124)	(166)
Panel B: Interaction with indicator not having a state sales tax							
-256***	-499***	-575***	-898***	168***	150**	204***	341***
(63)	(83)	(145)	(204)	(51)	(55)	(59)	(67)
Panel C: Interaction with indicator having savings above the median in 2006							
-178**	-385***	-513***	-794***	-120	-197**	-99	-161
(67)	(85)	(147)	(208)	(82)	(90)	(103)	(121)

Notes: Dependent variable in all models is total spending excluding welfare, insurance trust, and interest payments. Coefficients are calculated using linear combinations as in Table 3.
Standard errors are clustered at the state level. Statistically significant at: * p<0.1, ** p<0.05, *** p<0.01

Appendix A: Propensity Score Matching

I use the following procedure to determine weights and ensure common support for my estimations. In the first step, I assemble data on state characteristics predicting government spending and use this information to estimate logit models and calculate propensity scores. In the next step, I drop states with propensity scores that do not overlap with the interval of the scores from the respective other group. For instance, if the propensity score of a treated state is not within the interval of the scores for the control states, I drop this state. Using this process, I exclude eleven states from the treatment group.[1] In the final step, I compute weights using the propensity scores. For the treatment group, I compute weights by taking the inverse of the propensity score. For control states, I subtract the propensity scores from 1 and then take the inverse. The logic behind these formulas is that treated states receive greater weight if they resemble control states more closely and control states receive more weight if they were more likely to receive treatment (Imbens 2000).

Table A.1 compares the unweighted and weighted descriptive statistics for the variables used in the logit model to calculate the propensity scores. In Column (1) and (2) none of the differences between control and treatment group are statistically significant in. This result is likely a function of the small number of states in each group. Both groups become more similar, however, if they are weighted by the propensity scores and when the states outside common support are dropped.

Table A.1: Descriptive statistics for variables used to calculate propensity scores.

	Without Prop. Scores		Weighted by Prop. Scores	
	Control	Treat	Control	Treat
	(1)	(2)	(3)	(4)
Budget				
Revenues per capita	7,325	6,839	7,426	7,133
	(572.9)	(295.2)	(578.9)	(239.2)
Debt	3,603	3,048	3,670	3,641
	(599.4)	(308.8)	(815.0)	(336.8)
Savings	272.0	300.8	281.9	271.2
	(83.64)	(34.56)	(76.70)	(39.51)
Economy				
Share jobs in manufacturing	8.327	8.733	8.352	8.517
	(1.206)	(0.622)	(1.128)	(0.466)
Poverty rate	11.24	11.94	11.44	11.80
	(1.180)	(0.488)	(1.194)	(0.615)
Politics				
Index citizen ideology	54.01	52.96	52.80	50.57
	(6.175)	(2.552)	(5.653)	(2.912)
Index state ideology	44.27	47.22	43.94	43.69
	(5.104)	(2.109)	(5.372)	(2.768)

Notes: All measures are taken in 2006. Revenues and debt per capita are taken from the Annual Survey of State and Local Government Finances maintained by the U.S. Census Bureau. Information on savings were downloaded from the Pew Research Center. The share of jobs in manufacturing industries was compiled with the help of data from the U.S. Bureau of Labor Statistics. The poverty rate was taken from the Center for Poverty Research at the University of Kentucky. The indices for citizen and state ideology were downloaded from Richard C. Fording's personal webpage.

[1] These states include: Alabama, Connecticut, Delaware, Illinois, Louisiana, Massachusetts, Montana, New York, Oklahoma, Tennessee, and West Virginia.

Appendix B: Definition

Variable	***Definition***
Total expenditure excl. welfare, trust, and interest	Total expenditure excluding spending for welfare, interest and insurance trust.
Education total	Schools, colleges, and other educational institutions (e.g., for blind, deaf, and other people with disabilities), and educational programs for adults, veterans, and other special classes. State institutions of higher education includes activities of institutions operated by the state, except that agricultural extension services and experiment stations are classified under natural resources and hospitals serving the public are classified under Hospitals. Expenditure for dormitories, cafeterias, athletic events, bookstores, and other auxiliary enterprises financed mainly through charges for services are reported on a gross basis.
Higher education	Includes only the higher education part of "Education total".
Welfare	Support of and assistance to needy persons contingent upon their need. Excludes pensions to former employees and other benefits not contingent on need. Expenditures under this heading include: Cash assistance paid directly to needy persons under the categorical programs Old Age Assistance, Temporary Assistance for Needy Families (TANF) and under any other welfare programs; Vendor payments made directly to private purveyors for medical care, burials, and other commodities and services provided under welfare programs; and provision and operation by the government of welfare institutions. Other public welfare includes payments to other governments for welfare purposes, amounts for administration, support of private welfare agencies, and other public welfare services. Health and hospital services provided directly by the government through its own hospitals and health agencies, and any payments to other governments for such purposes are classed under those functional headings rather than here.
Highway	Construction, maintenance, and operation of highways, streets, and related structures, including toll highways, bridges, tunnels, ferries, street lighting and snow and ice removal. However, highway policing and traffic control are classed under police protection, which is part of Other expenditure.
Health and hospitals	This category includes outpatient health services, other than hospital care, including: public health administration; research and education; categorical health programs; treatment and immunization clinics; nursing; environmental health activities such as air and water pollution control; ambulance service if provided separately from fire protection services, and other general public health activities such as mosquito abatement. School health services provided by health agencies (rather than school agencies) are included here. Sewage treatment operations are classified under Sewerage, which is part of Other Expenditure. Also included are financing, construction acquisition, maintenance or operation of hospital facilities, provision of hospital care, and support of public or private hospitals. Own hospitals are facilities administered directly by the government concerned; Other hospitals refers to support for hospital services in private hospitals or other governments. However, see Public welfare concerning vendor payments under welfare programs. Nursing homes are included under Public welfare unless they are directly associated with a government hospital.
Correction	Residential institutions or facilities for the confinement, correction, and rehabilitation of convicted adults or juvenile's adjudicated delinquent or in need of supervision, and for the detention of adults and juveniles charged with a crime and awaiting trial.
Insurance trust	A government-administered plan for compulsory or voluntary social insurance (insurance protection of persons or their survivors against economic hazards arising from retirement, disability, death, accident, illness, unemployment, etc.) through accumulation of assets from contributions, assessments, premiums, and the like collected from employers and employees for use in making cash benefit payments to eligible persons covered by the system. Comprises Employee retirement, unemployment compensation, workers' compensation, and Miscellaneous (accident, sickness, and other disability benefit) systems. Intragovernmental transactions are excluded from the insurance trust components of revenue and expenditure.
Interest on debt per capita	Amounts paid for the use of borrowed money except for utilities, which are included in the category "Other expenditure".
Other expenditure	Includes all categories that are less than two percent of annual state spending in 2016. These categories are: police protection, natural resources, parks and recreation, utilities, and liquor store spending.
Total Savings	Measure is the sum of ending balances (UUBs) and BSFs. UUBs are unassigned balances in state budgets at the end of the fiscal year, including parts that are reserved for expenditure in subsequent years. BSFs are saving accounts also called rainy day funds that states may use for liquidity, to respond to unforeseen circumstance, or to help resolve revenue shortcuts.