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Public Sector Collective Bargaining's Effect on
Government Spending, Wages, and Employment 1957-2011

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by

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<u>Abstract</u>

This paper examines whether state-specific public sector collective bargaining institutions affect the per-capita level of government spending, employment, and payrolls. In order to empirically determine whether a more "pro"-union institutional environment leads to increases in these variables this study uses a panel data set of the 50 states over a 55 year period and utilizes the NBER Collective Bargaining ranking scale. This study is the first to explicitly look at the effect of compulsory vs. non-compulsory public sector collective bargaining laws and is also the first to use synthetic control methods to estimate the relationship.

Results show that the more favorable the legal environment for public unions government expenditures increase from $104.1-125.1 to $546.0-653.5 per-capita. The results show a statistically significant, yet low positive effect on employment and wages. It is suggested that the increased expenditures may be due to other factors such as increased pensions or other benefits.

<u>Dedication</u>

Throughout my life I have been fortunate enough to be surrounded by the most loving and supportive family and friends. I am certain that I would not be where I am today without the guidance and encouragement of every member of my family and every long-term friend I have had. Every success that I have is because of the lessons I've been taught and the opportunities I have been given to learn from each and every one of you. My deepest gratitude goes out to you.

I especially dedicate this thesis to the memory of two people who were some of my biggest fans who will have an eternal influence on me and my approach to life—my great-grandmother Ann Pahor and my grandfather Jerry M. Belt, Sr. Because of them I will always remember to remember to do everything that I do out of love and to "learn something new every day."

<u>Acknowledgements</u>

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Introduction

State and local governments have been expanding and taking on a growing number of responsibilities in recent years. Understanding the nature of this growth is imperative to understanding whether the government is growing for reasons that allow for increased social benefit. It is well founded that special interest groups, such as unions, can have substantial influence on government policies and activities. Generally special interest groups are formed outside of the government, however public sector employees are substantially different. These special interest groups are created from within the government and represent the interests of the government's own employees—their livelihood is determined by the size and scope of the government. Because of this state and local government decision makers can be influenced towards the interests of those within the government at the possible detriment to the public.

Worker's unions grew out of a need for individual workers to associate with one another and work toward a common workplace goal. Unions were initially seen as positive organizations due to their alleged ability to have increased the day-to-day conditions of workers in the early 20th Century. These early associations of workers were a natural outgrowth of individuals choosing to associate themselves with others to obtain a voluntarily agreed upon goal, usually improvements in the quality of their work environments or each worker's "work-life balance." Since 2009 there have been more public-sector union members in America than their private sector counterparts giving rise to the necessity of detailed analyses of these union's effects on state economies.[1]

Public and private sector unions are vastly different. Private sector workers choose to work between competing firms and actively threaten to use the mobility of their labor and the existing competitive market to achieve changes within the structure or environment of their current employment. A firm cannot be productive if it is unable to maintain a workforce. Public sector workers, on the other hand, are able to keep the same job, more or less maintaining the same work environment, and contrary to private sector counterparts, are able to democratically choose/influence who their "superiors" are/will be to attain the changes, or in some cases stop changes, they see necessary. By doing this they can directly affect the demand for their labor.

Unions in the public sector have significantly different structural environment compared to private sector unions. The lack of market competition for products and services as well as a lack of fiscal discipline due to the political process and reliance on taxation make the benefits of having a larger union much more prevalent for public employees relative to private sector employees.[2]

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[1] Hirsch, Barry T. and David A. Macpherson, "Union Membership and Coverage Database from the CPS," 2013, http://www.unionstats.com.

[2] Farber, Henry S. "Union membership in the United States: The divergence between the public and private sectors." (2005).

Historical data supports the notion that public sector workers are more incentivized and ultimately face less barriers to unionization as compared to private sector workers. Since 1973 public sector workers have had a higher union membership rate compared to the private sector. This higher rate for public sector workers has grown over time and remained steady between 35-40% since 1973 whereas private sector worker union membership rates have declined over the same time period and steadied out around approximately 7%.[3]

Intuitively, the more prevalent the presence of a union, the more of an effect it will potentially have on political outcomes or the more success it will have in pressuring those already elected to office to support their agendas and thereby increase government expenditures and activities. This study seeks to determine whether we can empirically conclude that a more "pro"-union institutional environment leads to an expansion in public spending, employment, and payrolls using panel data of the 50 states for over 55 years.

In my analysis I capitalize on the variation in state-specific public sector collective bargaining laws across different classes of workers (teachers, police, firefighters, state employees, and other local) within a state and over time to identify the effects these laws have on public sector labor market outcomes as well as state and local government expenditures.

<u>Overview and History of Public Sector Collective Bargaining Regulations</u>

Collective bargaining by state and local government employees is determined by legislation passed at the state level and generally varies widely between states and within states between different classifications of government workers. In general the legislation that governs public sector employee unions contains provisions on whether an employee class has the right to collectively bargain, the types of issues able to be bargained on (workplace conditions, compensation, etc.), and dispute resolution mechanisms. Once legislation is in place that allows public sector employees to organize it is fairly easy for them to begin to create unions because the nature of political bureaucracies does not particularly incentivize employers to resist organization.[4]

The history of public sector unions begins with the development of private sector unionism. While the two are very different, if it wasn't for the growth of private-sector unions, the public sector within America may never have unionized at all.

In the late 19th Century the labor policy throughout the country can best be described as being based on equal legal rights afforded to both employees and workers. Every individual (and by legal definition corporation) was treated equally and interactions between two parties were freely voluntary and contractual.

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[3] Hirsch and Macpherson op cit. note 1
[4] Farber op cit note 2

This labor system began to be challenged by the turn of the 20th Century when businesses started to grow larger and command more wealth. By passing the National Labor Relations, "Wagner," Act in 1935 the federal government decided to take action based on the premise that an unequal bargaining power existed between employees and employers. The Wagner Act established legal provisions that gave organized unions artificial privileges by outlawing "unfair labor practices" by their employers while also forcing them to collectively bargain in good faith with any organization that a majority of its employees had chosen to represent their interests.

The Wagner Act applied only to private sector unions.[5] Up to this point, public unions had already endured legislative scrutiny from varying branches of the federal government. Presidents Theodore Roosevelt and William Howard Taft felt that organized lobbying by public employees to Congress could lead to negative outcomes. Both Presidents issued Executive Orders that prohibited federal employees from being members of these organizations.

Opposition to public-sector unions continued into the years after the passage of the Wagner Act. The most popular and widely understood criticism was expressed by President Franklin Delano Roosevelt in 1937. In FDR's opinion collective bargaining for public employees was severely limited because "… [t]he very nature and purposes of government make it impossible…to bind the employer in mutual discussions…[because] the employer is the whole people."[6] Public sector unionism forces an unelected body into the policy decision making process that necessarily undermines the sovereignty of the government.[7] Through compulsory collective bargaining "government employee unions effectively [transfer] the power to tax from voters to the unions."[8]

The Wagner Act went unaltered until the passage of the Taft-Hartley Act of 1947 which allowed individual States to pass right-to-work laws that removed the compulsory membership requirement on employees within the State.[9] This change to the legal structure, the evolution of the national economy from manufacturing to service during the post-World War II period, as well as increased openness to foreign competition, all eventually contributed to a decline in private union membership throughout the country.[10] But, as soon as private-sector unions reached their highest point and began to decline, public sector unions were finally beginning to gain traction.

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[5] See section 2 of National Labor Relations Act of 1935 (49 Stat. 449) 29 U.S.C. § 151–169

[6] F.D.R. to Luther Steward, 16 Aug. 1937, in The Public Papers and Addresses of Franklin D. Roosevelt, comp. Samuel I Rosenman as quoted in Paul Moreno The History of Public Sector Unionism. Pg. 4

[7] Norcross, Eileen. *Public sector unionism: A review*. No. 11-26. Mercatus Center Working Paper, 2011. pg. 1

[8] DiLorenzo, Thomas. "The Political Economy of Government Employee Unions" in Organized Crime: The Unvarnished Truth About Government by Thomas DiLorenzo

[9] The Act also outlawed the closed shop principle which permitted employers to agree to hire only union workers

[10] Norcross op cit note 7

The American Federation of State, County, and Municipal Employees (AFSCME), which originated in Wisconsin, spearheaded the effort to legitimize public unions and increase awareness towards the lack of, and need for, bargaining rights for public employees. By 1956 it represented over 200,000 public employees.[11] While there was no legal framework for public sector collective bargaining at this time, the AFSCME claimed to have "brokered" 445 different agreements for local unions.

The AFSCME joined with the AFL-CIO, the largest federation of unions in the U.S., and worked to enact pro-public union legislation at the local governmental level. Their first "wins" came from aiding in the successful passage of collective bargaining laws for public employees in both Philadelphia in 1955 and later, New York City in 1958. Just after New York City passed its laws, Wisconsin became the first state government to pass public sector collective bargaining measures at the state-level.[12] The Federal Government followed suit in 1962 when President Kennedy signed Executive Order 10988 which permitted federal employees to form unions and collectively bargain on issues other than wages. Other cities and states followed in Wisconsin's footsteps and began passing collective bargaining provisions of their own.

With a legal framework in place the membership of public labor unions grew dramatically, from 1955-1978 public union membership rates increased 5-fold.[13] Once a government bureaucracy becomes unionized, it tends to stay unionized and there isn't generally a threat of turnover for the employers of public unions (the government) like there is for private-sector unions. Government jobs also tend to be more secure (private sector job loss is 2.5x that of the public sector), which lends support to the growth of these unions.[14]

This growth also stemmed from the fact that these unions, in a sense get to choose who their employers are without changing jobs. The head of the New York City chapter of AFSCME famously stated, "We have the power, in a sense, to elect our own boss."[15] The growth of the unions caused them to hold more clout with their employers and enabled them to collectively bargain through not only the direct, legally established channels but also indirectly, through campaign contributions, political activism, and voting.

By roughly 1984 only a few states did not have any laws concerning public sector bargaining of some type. As of 2011 Mississippi was the only state to not have any explicit provision on public sector collective bargaining for any of the 5 potential public sector job categories. In many cases these laws only change once from 1957-2011 within each state. Out of 2750 observations state collective bargaining laws changed 75 times for state employees, 76 times for police, 85 times for firefighters, 75 times for teachers, and 63 times

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[11] Norcross op cit note 7
[12] It should be noted that shortly after this Congress passed the Landrum-Griffith Act of 1959 that sought to fight against corrupt union practices by mandating secret elections, disclosure of union finances, and specific measures to protect individual workers against union abuses.
[13] Norcross op cit note 7 pg 10
[14] Farber op cite note 2
[15] "Captive Politicians." New York Times. 9 July 1975

for other local employees. This equates to each state changing their legal environment 1.26-1.7 times over the 55 year time period.

Theoretical Discussion

Economic theory sees unions as monopoly providers of public goods. Public sector unions can organize workers into politically active groups that work toward common and unified goals. Marlow and Ozrechowski suggest three reasons public employees may be interested in uniting together within unions: their ability to provide services to the public requires job security, their pay and benefit packages will increase, and they will be able to steer public policy in the direction they see fit from their perspective.[16]

These unions can be seen as providers of public goods because, generally speaking, they create non-rivalrous benefits for public employees—the marginal cost for lobbying on behalf of an additional worker and providing benefits is generally close to zero. Union leaders are able to aggregate the contributions of each worker and provide equal benefits while dispersing the costs.

Public Choice economists suggest that these monopoly-like public sector unions can influence public policy due to their special interest group nature and that it is within their self-interest to see the government expand.[17] The bigger the government is the more stable their job and possibly the higher their wages: Win, Win. So long as public employees operate out of their own self-interest any benefit to the community that results from their choices will tend to be simply an accident. If we relax the assumption of self-interest and assume the opposite, that public employees are altruistic, we can arrive at the same conclusion that public employees will want the government to expand. In this case public employees genuinely *believe* that their work is contributing to societal well-being and that an expansion of the government and their job responsibilities will leave society better off in the end. Even if the real world is somewhere within the middle of these two extremes (most likely case) we can see that public sector employees have a clear incentive to be politically active and to attempt to increase the size and scope of the government, therefore increasing the demand for their own goods and services.

Public sector employees are generally more politically active than the majority of the voting public.[18] Pressuring politicians to remain "union-friendly" could potentially lead to drastic changes in wages, benefits, department expenditures, and total employment of these

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[16] Marlow, Michael L., and William Orzechowski. "Public sector unions and public spending." Public Choice 89, no. 1-2 (1996): 1-16.

[17] Buchanan, James M., and Gordon Tullock. "The expanding public sector: Wagner squared." Public Choice 31, no. 1 (1977): 147-150

[18] See: Bennett, James T., and William P. Orzechowski. "The voting behavior of bureaucrats: Some empirical evidence." Public Choice 41, no. 2 (1983): 271-283. ; Bush, Winston C., and Arthur T. Denzau. "The voting behavior of bureaucrats and public sector growth." In Budgets and bureaucrats: The sources of government growth (1977): 90-99 ; and Gramlich, Edward M. and Daniel L. Rubinfeld. "Voting on public spending: Differences between public employees, transfer recipients, and private workers." Journal of Policy Analysis and Management 1, no. 4 (1982): 516-533

public employees. This should cause either a shift of resources from department to department or an increase in total government expenditures necessitating a potentially larger burden on taxpayers.

Any increase in government expenditures can have potentially detrimental effects on the rest of society.[19] Every dollar that used to support the work of public unions is a dollar that cannot be used elsewhere. If it is true that these unions are able to affect the demand of their jobs through political activity or the supply through collective bargaining processes then the level of spending as well as the supply of government jobs does not necessarily reflect a true market equilibrium point which could be characteristic of a misallocation of scarce resources. There is no truly competitive market for the jobs held by public workers. Within each geographical area, competition is not allowed, in most cases, between different public agencies and especially private firms to provide the services government departments provide. There is typically one fire department, one police department, one department of zoning, and one business license department (among many others).

Given this non-competitive market, the economic viability of government departments and bureaucracies is not necessarily threatened by, for instance, wage gains that exceed gains in worker marginal revenue product, which, in contrast, would inevitably cause private businesses to fail. The natural market test of profit and loss is not able to be carried out in publicly funded bureaucracies.[20] The different institutional choices that can be made that govern how public employee unions are to be organized (i.e. collective bargaining) can ultimately have an effect on the government as a whole which are unchecked by typical market regulating processes.

There is no way for either taxpayers or the managers of these government bureaucracies to know if the services each agency renders are the best quality and offered at the cheapest price possible.[21] Private sector unions have to take this into consideration, at least to some extent. If the demands they raise cause a firm to become uncompetitive in comparison to any other firm within the market, then there is a chance that their employer can go out of business, leaving the workers worse off than before. Consumers cannot be coerced to give a company their business, but taxpayers can. Any decrease in financial viability of government bureaucracies can ultimately result in "tax push" towards the taxpayers.

Given this, public sector collective bargaining has a clear advantage over their private sector counterparts. They cannot create an inelastic demand for their work, but they can shift it outwards, as long as the "right" candidate is in office, and thereby shift taxpayer resources from being used to serve the interests of market participants towards instead serving their own self-interest.

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[19] See Rothbard, Murray Newton. Man, economy, and state. Princeton: van Nostrand, 1962.

[20] See Von Mises, Ludwig. Profit and loss. Ludwig von Mises Institute, 1951.

[21] See Hayek, Friedrich August. "The use of knowledge in society." The American economic review (1945): 519-530.

Literature Review

Within the literature there is a consensus that the presence of collective bargaining laws leads to increased union membership, political activity by public unions, artificial increases in labor demand, higher department budgets, and potentially increased wages as well as decreased employment in non-unionized departments.

There have been many studies that have empirically looked at the effect that public employee collective bargaining membership/coverage and/or the favorableness towards public unions of state specific laws has on wage, employment, and governmental budgets. Freeman and Valletta initially created the quantitative ranking of collective bargaining laws and found that increased favorableness to public unions lead to higher wages, higher collective bargain coverage, and potentially stagnant employment levels.[22] Henry Farber found that public employee unions increased in membership in states where there were more favorable laws and that the relative increase of public employee unions compared with the decrease in private sector unions can be attributed to the non-competitive nature of the products and services provided by the public sector.[23]

Kevin O'Brien focused more on political activities of unions rather than simply relying on the possibility of having an increased ability to pressure politicians by the existence of favorable laws.[24] He utilized proprietary data to examine different influential political techniques (these include candidate endorsement, financial contributions, and mismanagement disclosure threats, among others) used by fire and police unions in 1988. He found that collective bargaining laws are a necessary precondition for any of these to be effective and that the stronger the presence of public unions, the more they are able to shift the demand curve for their labor outward.

Jeffrey Zax and Casey Ichniowski also found that departmental employment and expenditures were increased by lobbying efforts of public unions, but this increase overall was offset by decreases in employment of non-unionized departments.[25] They also found that lobbying for minimum staffing rules was a practical way that unions are able to artificially increase the demand for their labor. Similar studies have looked exclusively at police, teachers, and firefighters and also concluded that each specific sector gains benefits from the unionization of its employees.[26]

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[22] Freeman, Richard B., and Robert Valletta. "The effects of public sector labor laws on labor market institutions and outcomes." In When public sector workers unionize, pp. 81-106. University of Chicago Press, 1988.

[23] Farber op cite note 2

[24] O'Brien, Kevin M. "The impact of union political activities on public-sector pay, employment, and budgets." Industrial Relations: A Journal of Economy and Society 33, no. 3 (1994): 322-345

[25] Zax, Jeffrey, and Casey Ichniowski. "The effects of public sector unionism on pay, employment, department budgets, and municipal expenditures." In When public sector workers unionize, pp. 323-364. University of Chicago Press, 1988.

[26] Ashenfelter, Orley. "The effect of unionization on wages in the public sector: The case of fire fighters." Industrial and Labor Relations Review (1971): 191-202.

Marlow and Orzechowski, using cross-sectional data for the US from 1983-1985, determined that every 1% increase in union coverage rates led to a rise in per capita spending by state and local governments between $6.97 and $10.01, depending on the year.[27] They also found that for every 1% increase in membership rates, average annual earnings for public employees increased by $70. Marlow did not find a statistically significant relationship between union membership rates and the number of FTE employees throughout the government.

Marlow updated and slightly modified his past results using data from 2003-2010. He found that every 1% increase in union coverage rates the effect on state and local government spending increased to $38.39 per capita.[28] He further found that the effect for wages was now $160.35 for every 1% increase in union membership and that there is a possibly sight increase in the number of FTE workers.

While the literature has established that different collective bargaining institutional choices and increased union membership/coverage rates have an effect across state expenditures, payrolls, and employment, none have looked at a time period as long as this analysis. This paper can be seen as a modification and extension of Marlow's most recent studies. Increasing the time period can allow us to have a better understanding of the effects within and across states and if the effects have continued since the time these past studies were conducted. This study is also the first to explicitly look at the effect of compulsory vs. non-compulsory institutions as well as the effect of having all five possible functional job classes be compulsory at the same time as opposed to studying union membership or coverage rates.

Description of Data

<u>Independent Variable of Interest</u>

My independent variable of interest is the state and job specific collective bargaining scale value. The collective bargaining law scale is a ranking that quantitatively describes the qualitative favorableness of each type of state and job specific legislative environment towards public unions. The variable is ranked 1-8 in increasing favorableness to unions:

1. Collective bargaining prohibited.
2. No provision
3. Collective bargaining permitted, but not required
4. Public employers are required to "meet and confer" with union leaders
5. Public employers have a compulsory duty to bargain collectively, express or implied
6. Collective bargaining is compulsory and third party mediation or fact finding is required
7. Collective bargaining is compulsory and strikes are protected
8. Collective bargaining is compulsory and arbitration is required

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[27] Marlow and Orzechowski op cite note 16
[28] Marlow, Michael L. "Public sector unions and government size." Applied Economics Letters 20, no. 5 (2013): 466-470

This was chosen as an independent variable in order to examine the effect increased favorableness has on increasing government expenditures. The ranking follows in the tradition of Freeman and Valetta's NBER ranking system, however it has been updated to include the new time series.[29]

I further break this ranking into two groups: compulsory and not compulsory (1 if compulsory and 0 if not) in an attempt to determine if the optional choice to make these laws compulsory has a greater effect. This is also used to address any potential criticisms that my model assumes a strictly linear relationship between the dependent variables and the collective bargaining law scale which may be unlikely.

While previous studies have chosen to focus on union coverage rates as a possible determinant of government spending, it is more appropriate to use the strength of collective-bargaining laws as the main independent variable of interest. By looking only at union density, previous studies have implied that a union's size alone determines how much influence it has in influencing policy and spending decisions. This would be true if we assume that policy choices are solely influenced by voting behavior. However, public-sector unions are able to exert their influence on policymakers because they can be granted powers not given to the public. These compulsory regulations enable them to compel government authorities to meet and confer with them through a collective bargaining process. Because of this, the state-specific legal framework is a more suitable indicator of union power.

Further, concrete policy recommendations from the results of studies that focus on membership rates are difficult to make. One possible policy recommendation that can be made from a study that looks solely at membership rates is possibly a cap to membership rates that is most likely to lead to an optimal outcome. However this optimal rate may be dynamic within and across states which would cause an objective policy recommendation to be highly unlikely. The more interesting and potentially causal focused question to ask is, what enables the higher membership rates which influence the increased expenditures? As can be seen in the table below, union coverage/membership rates and the collective bargaining scale are highly correlated with one another.

By looking specifically at the institutions researchers have the opportunity to establish objective treatment periods which can lead to a clearer treatment effect and stronger case for identification. Due to this high correlation it is inappropriate to include both variables in the analysis and because of the objective treatment advantage, the more appropriate variable of interest is the collective bargaining institutions.

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[29] Freeman and Valletta op cite note 22

Table 1 Collective Bargaining and Union Coverage Rates[30]

CB Law	Union Coverage of All Gov Employees
1) Prohibited	17%
2) No Provision	24%
3) Permitted	27%
4) Right to Meet and Confer	28%
5) Duty to Bargain	63%
6) Comp W/ FF or Med	51%
7) Duty to Bargain w/ Strike	56%
8) Duty to Bargain w/Arbitration	74%

Along with the 1-8 scale of collective bargaining legislation I also include an ordinal scale of the state-specific strike laws for each class of government worker. The strike variable ranks from 1-3 and is also ranked on increasing favorableness to unions:

1. Strikes expressly prohibited
2. No legal provision
3. Strikes legally protected

Control Variables

To determine the effect of stronger collective bargaining laws on various functional classes of government spending I utilize panel data from 1957-2011 broken up by state. In order to evaluate the impact of the legal environment of collective bargaining on government activities, the model must appropriately account for changes within the level of expenditures, payroll, and employment for other exogenous reasons. While the level of government expenditures can be influenced by a vast number of variables the potentially relevant available control variables is severely limited because annual, state-level data that extends back to 1957 is difficult to obtain. Table 2 provides a description of the data and their sources.

Table 2: Control Variables

Variable	Source
Collective Bargaining Law	NBER updated to 2011
Right to Work*	Nevada Policy Research Institute
Right to Strike	Nevada Policy Research Institute
Democrat in Gov Office†	Self Collected
Per Capita Personal Income (2009$)	BEA
State Population	US Census Bureau
Welfare FTE Employees	US Census Bureau

*=1 if RTW, =0 otherwise   †=1 if Gov Democrat, =0 if otherwise

[30] Table adapted from Farber op cite note 2 Table 4 pg. 21

In all, the control variables that are included are: a 2 period lag of the log of state population, the log of personal disposable income, whether the state has right-to-work laws, the public sector union strike laws, the political party in power in the governor's office, the number of welfare FTE workers throughout the state, a time trend, and time squared.

Some useful relevant controls variables are unavailable due to data limitations of the relevant time frame are: unemployment rates, poverty rates, and racial and linguistic demographics. Each of these variables could potentially influence government spending by increasing the demand for government services. However, due to the unavailability of data, I include the number of welfare full time equivalent (FTE) employees as a proxy for variations in the demand for government services which assumes that if a state has increased unemployment the number of welfare employees increases as well due to the increased demand on the welfare system, which should increase the demand for and supply of expanded government services. This proxy is imperfect, greater employment in welfare divisions may not be correlated with true poverty metrics, but it is the best estimation available within the time period specified.

In order to control for the unobservable political nature of each state I include dummy variables that indicate whether a state is a right-to-work state as well as whether there is a Democrat in the governor's office of each state. Right-to-work states tend to have smaller governments while states with Democrats in the Governor's office tend to exhibit expansions in the role of governments[31]. These two variables should allow for more appropriate estimates of the collective bargaining laws' effects on expenditures, employment, and wages because both can have an effect on the overall structure of government within a state at different times.

The log of per-capita disposable personal income is included to help account for individual state recessionary periods. The model assumes that during times of recessions, personal income should experience decreased growth rates. The model assumes that during times of recessions, the level of personal income should decrease. Since the model examines changes in levels of state government expenditures, number of FTE employees, and payrolls it is more appropriate to control for state-specific periods of recession rather than controlling for national recessionary periods. Further, the demand for government services may also be positively influenced by rising personal income. High-income states, for instance, must offer higher wages for government employment due to the competitiveness of the labor market and relatively higher living costs. Residents of high-income states may also demand a broader scope of government services. Therefore, the level of in per-capita personal income is a necessary control variable.

The two-period lagged log of state population helps to control for a growing demand for infrastructure spending and other public services and also accounts for a growing tax base. This is lagged because government budgets and expenditures are relatively

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[31] This measure is, admittedly not perfect. The ideological leanings in Democrats and Republicans have changed over the course of this lengthy study period. This is especially evident in Southern Democrats who were much more conservative in the early years of the study. Different measures of political ideologies could be used in future studies.

non-dynamic and do not vary immediately with changes in population. Generally, it takes time for the increased demands of population growth on infrastructure and other spending to become visible on state and local government budgets; therefore any population change in the current year is unlikely to influence the current year's budget. Also, current population levels are accounted for in the dependent variables by normalizing to per-capita levels. The choice to use a 2 year lag rather than other possible lag periods is due to the practical fact that some states do not set budgets on an annual basis, and statistical tests showed longer lags are insignificant at accounting for variations in the dependent variables.

The previous literature suggests that there may be other control variables that should be considered relevant, however they have been omitted for varying reasons. For example, previous studies have controlled for: regional factors (such as whether the state is in the South), population density, and the overall state and local tax burden.

Concerning the regional factors, these largely remain constant through time and are therefore appropriately accounted for by the fixed effects estimator. Previous studies separated Southern states from the rest of the analysis due to a perceived "anti-union" cultural attitude. This may be useful if union density is selected as the independent variable. However, the data-set shows that the legal environment for public-sector collective bargaining varies greatly throughout the country, including across southern states.

Previous studies have analyzed whether population density affects the size of government. However, while this variable might be appropriate when comparing municipal expenditures, we believe it only confuses the results when applied at the state level. As a group, the Western states are less densely populated that the Eastern states, for example, but several Western states still display relatively high government spending compared to Eastern States. The choice to exclude this variable is validated by counter-intuitive results found by previous studies that have included population density as a control variable.[32] It is also unnecessary to adjust for differences in the cost of living across states because this difference is accounted for within the fixed-effects estimator and is also implicit, to some extent, within the personal income per capita variable which partially accounts for the demand side of living costs.

Finally, it is improper to use the tax burden as a control variable when spending is the dependent variable: forty-nine states have a balanced budget requirement (Vermont is the exception) that restricts state-level spending to the amount of available revenue. Because of this, including a measurement of the tax burden does not indicate anything of interest due to the nature of the relationship between expenditures and the tax burden being almost necessarily equal to one another.

Dependent Variables

For the analysis within this paper I used different functional job classifications of real government spending, FTE employees, and payroll all normalized by state population (the

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[32] Marlow op cite note 28

average earnings are defined as the average monthly earnings for employees within the selected category). In all, my variables range from: Total, State, Local, and Specific Department (police, fire, teachers, and other) spending, payrolls, and employment. These data are obtained from the Census Bureau's Annual Survey of State and Local Government Finance.[33] This annual survey began in 1977, and is merged with the Census of Governments survey starting in 1957. For non-survey years during the 1957-1977 period, the Census Bureau provides estimates of annual values. For the missing observations that still remain, context based averages have been inserted. This dataset provides a time series that covers the before and after period of all state-level collective bargaining laws. Tables 3-5display the summary statistics of my dependent variables.

Table 3 Spending Summary Stats

VARIABLES	N	mean	sd	min	max
K-12 Spending	2,750	1,080	492.4	0†	3,379
Police Spending	2,750	144.3	84.55	0†	480.4
Fire Spending	2,750	62.77	40.72	0†	423.3
Total Spending	2,750	5,150	2,794	1,017	20,830
State Spending	2,750	3,316	2,068	0†	16,099
Local Spending	2,750	2,687	1,368	0†	9,230
Other Spending	2,750	1,399	860.6	-819.5†	5,807
Number of groups	50	50	50	50	50

†The 0 and negative values are for Alaska and Hawaii before they became states

Table 4 FTE Employment Summary Stats[34]

VARIABLES	N	mean	sd	min	max
State Total FTE	2,746	0.0157	0.00625	0.00500	0.0459
State Edu FTE	2,746	0.00589	0.00346	0.000461	0.0289
State Police FTE	2,746	0.000345	0.000177	0†	0.00150
Local FTE	2,750	0.0325	0.00779	0.00629	0.0683
Local K-12 FTE	2,750	0.0190	0.00533	0†	0.0381
Local Police FTE	2,750	0.00203	0.000650	0.000380	0.00440
Local Fire FTE	2,750	0.000924	0.000365	1.26e-05	0.00273
Tot. Gov FTE	2,750	0.0482	0.0105	0.0184	0.0927
Tot. K-12 FTE	2,750	0.0249	0.00626	0.00901	0.0454
Tot. Gov Police FTE	2,750	0.00237	0.000684	0.000887	0.00523
Tot. Gov Fire FTE	2,750	0.000924	0.000364	1.26e-05	0.00273
Total Other FTE	2,750	0.00122	0.000502	0.000454	0.00476

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[33] U.S. Department of Commerce, U.S. Census Bureau, "Annual Survey of State & Local Government Finance," https://www.census.gov/govs/local/.

[34] These are presented in per capita for ease of comparing to other results

Table 5 Payrolls Summary Stats[35]

VARIABLES	N	mean	sd	min	max
State Payrolls Per Cap	2,746	51.24	27.54	8.800	216.6
State Edu Payrolls Per Cap	2,746	20.70	13.33	1.074	114.4
State Police Payrolls Per Cap	2,746	1.301	0.933	0†	7.088
State AvgEarnings All	2,448	3,365	765.2	1,418	5,924
Local Tot. Payrolls Per Cap	2,750	98.95	39.18	9.012	266.3
Local K12 Payrolls Per Cap	2,750	58.27	22.61	0†	146.3
Local Police Payrolls Per Cap	2,750	7.082	4.006	1.017	30.47
Local Fire Payrolls Per Cap	2,750	3.476	1.995	0.0375	13.30
Local Avg Earnings All	2,452	3,150	762.4	1,251	5,770
Tot. Gov Payrolls Per Cap	2,750	150.1	57.88	34.21	420.3
Tot. K-12 Payrolls Per Cap	2,750	78.97	28.83	18.49	184.5
Tot. Gov Police Payrolls Per Cap	2,750	8.378	4.444	1.411	32.48
Tot. Gov. Fire Payrolls Per Cap	2,750	3.474	1.991	0.0375	13.30
Tot. Gov. Other Payrolls Per Cap	2,750	3.606	1.877	0.866	25.08

Model

I estimate the relationship between the level of government spending and the level of public sector collective bargaining through the following OLS model:

$$Y_{ikt} = \alpha_i + \gamma_{ikt} CB\ Law + \beta X + \varepsilon_{ikt} \qquad (1)$$

Where Y is the level of per-capita real government spending (2009$), FTE employees, and payrolls in state i at time t and sector k (Total, State, Local, etc.). γ is the effect of the collective bargaining institution in place of state i at time t for sector k. X is a vector of the control variables and ε is the error term. α_i is a dummy denoting state fixed effects estimates.

By including a fixed effects estimator, the model controls for unmeasured but time invariant differences across states, such as differing cultural or ideological viewpoints. The fixed-effect coefficients help reduce the possibility of omitted variable bias within the regression and allow for more correctly identified estimates of the effect these different collective bargaining legislative arrangements may have on the dependent variables of interest.

Using a fixed effects model, however, introduces other potential complications. Introducing a fixed-effects estimator may bias the model's ability to measure differences across states and restrict its usefulness to measuring differences within states over time

[35] These data are also presented per capita. Initially it was considered to use a per fte employment basis, however this is not appropriate because the denominator is also hypothesized to be effected by the independent variables.

because variation within the dependent variables becomes too heavily attributed to state fixed effects. It is possible that the fixed effect estimator could account for too much variation within the dependent variables and bias the estimates. To address these concerns, I provide results without fixed effects and with the Driscoll-Kraay robust standard errors, which should provide support that the model is correctly identified.

In order to determine the robustness of my results the model was run in 4 ways: Panel OLS with and without state fixed effects and Panel Pooled OLS/WLS that incorporates Driscoll and Kraay robust standard errors with and without state fixed effects.

Driscoll and Kraay standard errors are intended to be used with Panel Data that has both a large number of panels as well as a long time series which exhibits cross-sectional dependence where the error terms are correlated. Chudik and Pesaran note that "[c]ross correlations of errors could be due to omitted common effects, spatial effects, or could arise as a result of interactions within socioeconomic networks. Conventional panel estimators such as fixed or random effects can result in misleading inference and even inconsistent estimators, depending on the extent of cross-sectional dependence and on whether the source generating the cross-sectional dependence (such as an unobserved common shock) is correlated with regressors."[36] The regressions are estimated both with and without state fixed effects to provide more generalizable results to demonstrate the causal effect across panels rather than strictly within. This was also done in order to demonstrate that the variation in the dependent variables was not fully accounted for by the fixed effects estimators, therefore improving the case for an identified relationship between the dependent variables and the main independent variable: the collective bargaining legislation within each state.

Selected Results

A discussion of the results for the regressions that examine collective bargaining laws for state employees is presented below. The results for the other four functional classifications of state and local government employees are presented in Appendix A. Overall, the results are very similar and an effort has been made to point out any irregularities between the results.

Government Spending

Collective Bargaining laws seem to have a pronounced effect on government spending both at the state and total government level. The table below provides the results for state and total government expenditures regressed on the NBER collective bargaining 1-8 scale variable. In both cases we see positive and statistically significant results at the 1% level ($p < 0.01$) for both models with and without fixed effects. For every increase in the collective bargaining scale per-capita state expenditures increase by $88.79-100.1 and per-capita total government expenditures increase by $104.1-125.1. As an example, if state decided to move from a prohibition on collective bargaining (1) to compulsory bargaining

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[36] Chudik, Alexander, and M. Pesaran. "Large panel data models with cross-sectional dependence: a survey." CAFE Research Paper 13.15 (2013)

with arbitration required for state employees (8) then the per capita costs of state government should be expected to rise by $621.53-713.30.

However, concerns have been raised as to the validity of using a 1-8 linear scale because it is highly unlikely that the effects on government spending increase linearly, and instead different movements along the scale should presumably produce non-linear effects. Results from the compulsory vs non-compulsory dummy variable are presented below. As can be seen in the table, we see a similar, yet much stronger result. For every state that has compulsory collective bargaining laws (CB $\geq$ 5) per-capita state government expenditures increase by $441.5-491.1 and per-capita total government expenditures increase by $546.0-653.5 (both results are significant at the 1% level).[37]

It is clear that the compulsory laws have the most pronounced effect on government expenditures, which is what is expected. By forcing employers—publicly elected or appointed bureaucrats—to meet and confer and in some cases accept the findings of outside arbiters they are incentivized to more easily be swayed by public sector employees' demands at increased funding rather than allow disputes to go through a monetarily costly formal system that also reduces the time spent providing public sector services.

It is interesting to note a slight divergence from traditional theory that is found in these results. Traditionally it has been expected that government employee unions that are unionized will increase their department's expenditures by influencing decision makers to reallocate resources from other departments. However, we see that both state and total expenditures are increased unequally. If the public sector unions were only capable of causing a shift in government resources then we should expect to see a positive effect on the department but then no effect on total government expenditures. Another case would be that they are only interested in increasing their department's budget. In this case the unions would not look for a reallocation of resources necessarily, but an overall expansion of government expenditures towards their department. In this case we would expect to see a positive effect on both the state department budget as well as a positive and potentially equal but not greater effect on total expenditures. This would be due to the state employees lobbying for an expansion in their sector either wholly funded by a government expansion (in this case we should see an increase in total government expenditures equal to the increase in the state department) or partially funded by an increase in spending as well as a reallocation of resources from other departments (in this case we would expect the effect to on total expenditures to be positive but not as great as the increase in the department). However, since we see a greater effect on total expenditures it seems that in general these laws cause an overall expansion in government expenditures across the board rather than specific to that one sector.

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[37] These results are generally representative for the other 4 functional classes of government employees, with a few exceptions. Collective bargaining for firefighters and police do not have as strong of an effect at the departmental level and K-12 teachers do not have any effect on departmental or local spending (see Appendix A). The teachers can be easily explained given that spending on education has increased dramatically across every state over the study period because of federal grants. This general increase occurs regardless of the local institutions and therefore the data is unable to find an effect from the institutional law variables.

Table 6 Total and State Spending Results

VARIABLES	Total Spending	FE† Total Spending	State Spending	FE† State Spending	Total Spending	FE† Total Spending	State Spending	FE† State Spending
CB State	125.1***	104.4***	88.79***	100.1***	—	—	—	—
	(14.10)	(19.09)	(14.35)	(16.03)	—	—	—	—
State Compulsory	—	—	—	—	653.5***	546.0***	441.5***	491.1***
	—	—	—	—	(77.23)	(109.9)	(72.06)	(84.72)
State Strike	504.5***	150.4***	431.0***	118.4***	516.7***	156.2***	439.3***	124.9***
	(41.36)	(29.18)	(33.59)	(31.84)	(39.72)	(27.59)	(32.71)	(32.19)
Right to Work	124.5**	-242.4	-250.3***	-219.5*	130.6**	-207.3	-254.0***	-197.5
	(53.07)	(152.3)	(67.16)	(117.3)	(55.45)	(162.7)	(70.45)	(122.5)
Dem in Gov. Office	76.34	42.73	61.78	25.97	59.43	36.39	49.33	21.09
	(74.31)	(42.42)	(61.27)	(31.77)	(73.55)	(42.11)	(61.07)	(31.58)
Time	-68.83***	57.20**	-24.23	42.39*	-68.32***	54.75**	-23.51	41.92*
	(19.40)	(24.81)	(15.89)	(21.23)	(18.58)	(24.55)	(15.51)	(21.13)
Time^2	1.994***	1.460***	1.313***	1.105***	2.001***	1.485***	1.310***	1.112***
	(0.166)	(0.175)	(0.138)	(0.161)	(0.162)	(0.174)	(0.135)	(0.161)
Ln(Per Cap Income)	4,236***	127.7	2,274***	-164.6	4,193***	180.2	2,259***	-135.1
	(581.3)	(676.7)	(452.2)	(547.6)	(564.3)	(672.8)	(445.6)	(547.4)
Lag ln(State Pop)	-1.26e-05*	-5.65e-06	-5.04e-05***	-7.44e-05***	-1.74e-05***	-1.82e-05**	-5.39e-05***	-8.61e-05***
	(6.40e-06)	(8.40e-06)	(3.99e-06)	(8.15e-06)	(5.46e-06)	(8.73e-06)	(3.48e-06)	(8.12e-06)
Total Welfare FTE	0.00385***	0.00657*	-0.00209**	0.00622	0.00242***	0.00607*	-0.00313***	0.00565
	(0.000678)	(0.00344)	(0.000867)	(0.00415)	(0.000607)	(0.00334)	(0.000868)	(0.00415)
Constant	-38,850***	165.7	-20,901***	2,441	-38,180***	-71.87	-20,562***	2,401
	(5,429)	(6,288)	(4,192)	(5,058)	(5,301)	(6,262)	(4,162)	(5,065)
Observations	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.795	0.919	0.720	0.884	0.796	0.920	0.720	0.885
Number of groups	50	50	50	50	50	50	50	50

Standard errors in parentheses ***p<0.01, ** p<0.05, * p<0.1   †FE indicates the results of a Fixed Effects regression

Admittedly, this could also be attributed to the fact that in many cases the collective bargaining laws for one sector are highly correlated with the laws from other sectors. Simply looking at a change within one sector's laws at one time ignores the other job classification's bargaining powers changing as well which is not always likely due to each sector being highly correlated with increases in the other sectors (corr. ~0.70+). This possibility is further discussed and addressed below.

State FTE employment and State Payrolls

While the results for spending seem to clearly indicate an increase in collective bargaining powers to state employee unions is related with an expansion in government expenditures the case for full-time equivalent employees (FTE) is not as clear. The table below shows that for every increase along the NBER collective bargaining scale the total number of FTE employed by state governments increase by 1.15-2.83 employees per 10,000 population ($p < 0.01$). This small increase in the number of public sector employees does not seem to fully account for the increase in government expenditures. Similar but slightly larger results are found using the compulsory dummy variable specification. In this case state total FTE employment increases by 4.78-7.62 per 10,000 people, but this increase does not seem to keep pace with the increase in government expenditures. If the increase in expenditures was going towards increasing employment, and potentially increasing the availability of government services for taxpayers each new employee that was hired would need to be paid $644,488.19 ([491.1*10000]/7.62) which is a highly unlikely amount.

A similar result to FTE employment is found for payrolls as well. As seen in the table below real state payrolls increase by $1.187-1.288 per-capita ($p < 0.01$), $11,870-12,880 per 10,000 people, for each level increase on the NBER scale. The alternate dummy variable model provides an effect of $5.09-5.13 per-capita for those state's with compulsory collective bargaining laws for state employees. Again, the increase in payrolls does not seem to tell the whole story. It is important to note that payrolls do not reflect benefits such as health-care or retirement pension plans. Because of this, focusing on payrolls can provide us with a downward bias on the amount government employees are actually benefiting as a result of these collective bargaining laws, however due to data restrictions this is the best approximation that can be made.

These results indicate that government spending is undoubtedly increasing, but it cannot wholly be attributed to increases in government FTE employment or total payrolls. A likely explanation of this is that the expenditures are going towards facilities or other departmental perks, such as new equipment, or possibly the money could be spent on a growing number of deferred benefits and unfunded liabilities such as increased health-care or pension plans. If government spending is being used on employee pension plans and other unfunded liabilities as a result of these collective bargaining laws then serious consideration must be made as to the efficacy of these laws being used to cause governments to engage in what can be seen as "riskier" spending practices.[38]

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[38] See Appendix A for similar results found from the other government employee functional classes.

Table 7 Employment and Payroll Results

VARIABLES	State Total FTE	FE State Total FTE	State Payrolls	FE State Payrolls	State Total FTE	FE State Total FTE	State Payrolls	FE State Payrolls
CB State	0.000283***	0.000151***	1.288***	1.187***	—	—	—	—
	(2.82e-05)	(3.58e-05)	(0.188)	(0.245)	—	—	—	—
State Compulsory	—	—	—	—	0.000762***	0.000478***	5.132***	5.090***
	—	—	—	—	(0.000150)	(0.000150)	(0.986)	(1.000)
State Strike	0.00134***	-0.000117	6.514***	-0.330	0.00136***	-9.95e-05	6.613***	-0.232
	(9.50e-05)	(7.92e-05)	(0.537)	(0.522)	(9.25e-05)	(8.50e-05)	(0.533)	(0.554)
Right to Work	-0.000128	-0.000106	-1.489*	-2.144**	-0.000369**	-0.000166	-1.993**	-2.143**
	(0.000148)	(0.000326)	(0.760)	(0.814)	(0.000157)	(0.000324)	(0.867)	(0.829)
Dem in Gov Office	0.000346	-0.000129	1.250	-0.272	0.000294	-0.000126	1.045	-0.303
	(0.000364)	(0.000115)	(1.527)	(0.538)	(0.000354)	(0.000115)	(1.508)	(0.534)
Time	0.000406***	0.000479***	0.278	1.047***	0.000419***	0.000494***	0.309	1.084***
	(4.63e-05)	(5.25e-05)	(0.241)	(0.298)	(4.64e-05)	(5.48e-05)	(0.238)	(0.311)
Time^2	-5.93e-06***	-6.20e-06***	-0.0069***	-0.0095***	-6.15e-06***	-6.33e-06***	-0.0074***	-0.0098***
	(4.95e-07)	(5.36e-07)	(0.00235)	(0.00247)	(5.00e-07)	(5.48e-07)	(0.00233)	(0.00255)
Ln(Per Cap Income)	0.00513***	0.00193	50.78***	22.04***	0.00550***	0.00181	51.38***	21.92***
	(0.00129)	(0.00117)	(6.513)	(7.629)	(0.00127)	(0.00121)	(6.547)	(7.828)
Lag ln(State Pop)	-5.73e-10***	-3.79e-10***	-1.8e-06***	-1.5e-06***	-5.86e-10***	-3.94e-10***	-1.9e-06***	-1.7e-06***
	(0)	(0)	(8.29e-08)	(1.01e-07)	(0)	(5.06e-11)	(7.24e-08)	(1.12e-07)
All Gov Welfare FTE	-3.55e-08***	-5.79e-11	-0.0001***	-0.0001***	-3.94e-08***	-1.66e-09	-0.0001***	-0.0001***
	(1.95e-09)	(7.43e-09)	(8.42e-06)	(2.74e-05)	(1.68e-09)	(7.39e-09)	(8.70e-06)	(2.74e-05)
Constant	-0.0415***	-0.00927	-465.2***	-184.8**	-0.0443***	-0.00783	-468.0***	-181.1**
	(0.0120)	(0.0109)	(60.44)	(70.39)	(0.0119)	(0.0113)	(61.15)	(72.53)
Observations	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.482	0.729	0.563	0.798	0.476	0.728	0.560	0.798
Number of groups	50	50	50	50	50	50	50	50

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

Robustness Checks

A number of robustness checks were used to confirm the validity of the results and confirm identification. One criticism that was previously mentioned was that simply testing one of the laws at a time ignored the fact that many of these laws can be in effect at the same time and that the combination of these laws could be biasing the effects found in the above results tables. To initially test the effect of different combinations of the possible compulsory bargaining laws, I created an "All Compulsory" variable, which equaled 1 if a state had every possible compulsory collective bargaining law in effect and a "Total Compulsory" variable that measured the total number of compulsory laws in effect within a state at a given time (this value could range from 1 to 5). I included these variables as an attempt to establish a simple, potentially uniform treatment effect across the states. These variables allow for a better understanding of the effect of a "shock" wherein every possible policy intervention is exercised.

"Total Compulsory" attempts to measure the effect different amounts of these laws may have within and across states. Table 7 and 8 provide the results from using the Total Compulsory variable as the primary variable of interest. FTE employment and Payrolls are generally unaffected which is consistent from the previous findings. The effect on Total Spending is also consistent with the previous findings, although it admittedly is much less than the State Compulsory results. In this case we see an increase in total expenditures by $123.6-137.0 per capita for *each* compulsory collective bargaining law within a state.

Previous estimates that use State Compulsory assumed that the only compulsory law in effect was for State workers, however this is likely not to be the case given how highly correlated each of the laws are with one another. By using Total Compulsory we can look explicitly at what the effect of having one compulsory law is, however we have no control over which laws are being accounted for. This scale then assumes that each law has an equal effect on expenditures which is also unlikely and not supported by the findings presented in Appendix A. Because of the limitations of this scale, "All Compulsory" may provide us with a better overall measurement.

Table 8 Total Number of Compulsory Laws on Employment and Payroll

VARIABLES	FE Tot. Gov FTE	Tot. Gov FTE	Tot. Gov Payrolls	FE Tot. Gov Payrolls
Total Comp. Laws	-0.000189**	7.90e-05	1.513***	2.389***
	(7.22e-05)	(0.000124)	(0.480)	(0.546)
Right to Work	0.00266***	0.00131*	1.592	-3.379
	(0.000209)	(0.000750)	(1.035)	(2.926)
Dem in Gov Office	0.000147	-6.59e-05	1.042	0.00182
	(0.000423)	(0.000230)	(1.602)	(1.033)
Time	0.000889***	0.000729***	-0.365	1.358*
	(9.63e-05)	(0.000141)	(0.587)	(0.788)
Time^2	-1.12e-05***	-9.91e-06***	-4.32e-05	-0.00635
	(1.30e-06)	(1.52e-06)	(0.00554)	(0.00663)
Ln(Per Cap Income)	0.0110***	0.0138***	135.3***	75.85***
	(0.00215)	(0.00276)	(14.43)	(18.10)
Lag ln(State Pop)	-3.75e-10***	-5.98e-10***	-3.93e-07***	-8.35e-07***
	(0)	(0)	(1.29e-07)	(2.07e-07)
All Gov Welfare FTE	1.39e-08	1.05e-07***	-0.000101***	-6.84e-05
	(1.13e-08)	(3.39e-08)	(2.23e-05)	(8.78e-05)
Constant	-0.0743***	-0.0988***	-1,199***	-641.9***
	(0.0200)	(0.0254)	(132.3)	(165.9)
Observations	2,650	2,650	2,650	2,650
R-squared	0.650	0.853	0.765	0.900
Number of groups	50	50	50	50

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

Table 9 Total Number of Compulsory Laws on Spending

VARIABLES	Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending
No. of Comp. Laws	137.0***	123.6***	93.14***	108.6***	55.92***	44.96***
	(19.13)	(23.44)	(17.04)	(20.74)	(6.979)	(9.696)
Right to Work	-43.27	-210.7	-396.3***	-206.1	357.0***	9.009
	(56.87)	(166.8)	(79.57)	(130.1)	(35.64)	(98.87)
Dem in Gov Office	80.01	38.25	66.95	22.82	39.97	48.21**
	(75.12)	(42.50)	(61.90)	(32.04)	(43.57)	(23.60)
Time	-77.31***	48.87*	-30.97**	37.34*	-39.55***	14.36
	(17.21)	(25.09)	(14.59)	(21.63)	(10.02)	(15.23)
Time^2	2.169***	1.584***	1.446***	1.190***	0.810***	0.531***
	(0.143)	(0.177)	(0.117)	(0.160)	(0.0813)	(0.103)
Ln(Per Cap Income)	4,070***	117.6	2,165***	-186.6	2,332***	739.8*
	(560.7)	(665.7)	(455.7)	(550.6)	(284.3)	(412.4)
Lag ln(State Pop)	-2.4e-05***	-1.79e-05*	-5.99e-05***	-8.53e-05***	5.24e-05***	7.61e-05***
	(7.03e-06)	(9.57e-06)	(4.24e-06)	(8.03e-06)	(5.87e-06)	(7.12e-06)
All Gov Welfare FTE	0.00164**	0.00524	-0.003***	0.00476	0.0075***	0.00401*
	(0.000629)	(0.00329)	(0.00116)	(0.00401)	(0.000370)	(0.00206)
Constant	-36,011***	807.8	-18,818***	3,116	-21,034***	-6,201
	(5,222)	(6,176)	(4,220)	(5,092)	(2,663)	(3,821)
Observations	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.780	0.919	0.699	0.883	0.759	0.893
Number of groups	50	50	50	50	50	50

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

All Compulsory" provides us with estimates of the differences between the most "pro"-union states (those with compulsory bargaining powers granted to all five employee classes) and the rest of the country. By using this measurement we can create a more transparent and definitive treatment effect. As can be seen in Table 9 if a state has all five possible compulsory laws in effect total government expenditures increase by $457-595.1 per capita. This finding is very similar to the previous results that looked at state workers' laws individually. We also see an increase at the state and local levels as well. Also similar to previous results is the effect, or general lack thereof, on both FTE employment and Payrolls as seen in Table 10.

Table 10 All Compulsory on Spending

VARIABLES	FE Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending
All Comp.	595.1***	457.0***	449.2***	441.4***	160.3***	94.68*
	(126.0)	(134.8)	(108.9)	(112.8)	(39.02)	(48.72)
1 if All Strikes >2	3,522***	1,395*	3,165***	1,098*	1,145***	898.1***
	(985.1)	(731.1)	(859.6)	(652.0)	(363.5)	(294.2)
Right to Work	-0.227	-201.4	-340.6***	-185.8	343.5***	-7.254
	(45.66)	(166.7)	(64.85)	(130.7)	(37.37)	(98.20)
Dem in Gov Office	98.45	40.32	84.53	23.14	44.19	51.47**
	(69.48)	(41.06)	(54.32)	(32.11)	(41.99)	(21.04)
Time	-74.74***	65.40***	-30.13**	49.46**	-37.30***	25.03*
	(17.02)	(23.38)	(13.77)	(20.09)	(10.56)	(13.98)
Time^2	2.231***	1.486***	1.536***	1.118***	0.799***	0.476***
	(0.165)	(0.177)	(0.146)	(0.163)	(0.0895)	(0.0981)
Ln(Per Cap Income)	3,839***	-270.8	1,900***	-477.2	2,318***	477.3
	(425.8)	(606.8)	(292.6)	(493.5)	(263.6)	(374.0)
Lag ln(State Pop)	-2.26e-05***	-2.05e-05**	-5.79e-05***	-8.79e-05***	5.27e-05***	7.54e-05***
	(5.35e-06)	(8.13e-06)	(3.86e-06)	(8.43e-06)	(5.16e-06)	(5.96e-06)
All Gov Welfare FTE	0.00134*	0.00677**	-0.00394***	0.00603	0.00745***	0.00477**
	(0.000694)	(0.00304)	(0.00130)	(0.00381)	(0.000341)	(0.00194)
Constant	-33,814***	4,432	-16,316***	5,832	-20,903***	-3,755
	(3,940)	(5,594)	(2,670)	(4,529)	(2,463)	(3,448)
Observations	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.808	0.923	0.741	0.889	0.769	0.899
Number of groups	50	50	50	50	50	50

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

Table 11 All Compulsory on Employment and Wages

VARIABLES	FE Tot. Gov FTE	Tot. Gov FTE	Tot. Gov Payrolls	FE Tot. Gov Payrolls
All Comp.	-0.000904***	-8.09e-05	5.588**	6.295**
	(0.000263)	(0.000321)	(2.588)	(2.428)
1 if All Strikes >2	0.0106***	0.00450**	74.88***	38.79***
	(0.00224)	(0.00179)	(17.73)	(10.66)
Right to Work	0.00282***	0.00124	2.325***	-3.922
	(0.000200)	(0.000780)	(0.777)	(2.739)
Dem in Gov Office	0.000202	-5.34e-05	1.417	0.133
	(0.000443)	(0.000233)	(1.516)	(0.997)
Time	0.000880***	0.000768***	-0.339	1.838**
	(8.78e-05)	(0.000139)	(0.583)	(0.754)
Time^2	-1.06e-05***	-1.00e-05***	0.00202	-0.00898
	(1.34e-06)	(1.52e-06)	(0.00611)	(0.00673)
Ln(Per Cap Income)	0.00976***	0.0126***	129.6***	64.42***
	(0.00171)	(0.00284)	(11.37)	(16.54)
Lag ln(State Pop)	-3.66e-10***	-5.99e-10***	-3.48e-07***	-8.74e-07***
	(0)	(0)	(8.99e-08)	(1.55e-07)
All Gov Welfare FTE	1.32e-08	1.08e-07***	-0.000107***	-3.25e-05
	(1.08e-08)	(3.42e-08)	(2.26e-05)	(8.38e-05)
Constant	-0.0629***	-0.0879***	-1,146***	-535.5***
	(0.0159)	(0.0261)	(103.1)	(150.5)
Observations	2,650	2,650	2,650	2,650
R-squared	0.667	0.856	0.793	0.906
Number of groups	50	50	50	50

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

While neither Total Compulsory nor All Compulsory provide not perfect estimates of the treatment effect, the estimates from the All Compulsory regressions should indicate the most unbiased treatment effect that can be obtained in this situation given the data constraints and lack of a well-behaved natural experiment with a uniform treatment period across all entities

The ideal study would have had a set of control states and a set of treated states who mimic one another in precisely the same way in the pre-treatment period and it would have a treatment given in the same manner and at the same time to each of the treatment states. This research design would have provided a truly unbiased treatment effect when the results of the two groups were compared and contrasted with one another after the treatment period. However, the real world has not provided this kind natural experiment to analyze. So I attempted to show that our results hold up when such a natural experiment is created using the synthetic control method.

The synthetic control method is primarily used for comparative case studies and is useful when there are a small number of relevant treatment groups. Since collective bargaining laws can be passed independently of one another and at different times both within and across states it is difficult to define a relevant treatment and control group as well

as an objective treatment period. However, the synthetic control method uses a data-driven procedure to create a best-matched counterfactual from among a group of control states that accurately mimics the treated state in the time period prior to treatment. The method compares the observed, actual dependent variable data (spending, employment, or wages) in the post treatment period with the created, unobserved synthetic control observations from the best-matched group of control states, in an attempt to provide a relevant counterfactual to understand what effect the treatment (policy change) had overall on the treated state.[39]

For the purposes of this analysis, the best possible case where we can have a clearly established control and treatment group is the instance where a state passes requirements for compulsory collective bargaining for all five employee classes simultaneously. These instances allow us to compare the experience of the treated state to a control group made up of states that have either never been treated by any compulsory laws or have never had more than 2 compulsory collective bargaining laws at a time. I attempted to use a control group made up of only states never exposed to compulsory collective bargaining laws, but I was unable to make relevant synthetic control matches for any of the 10 treatment states using this limited sample. Because of this I expanded my control states to include those states who have less than a majority of their laws as compulsory (≤ 2). The complete list of control states and the number of compulsory collective bargaining laws each has can be found below.

Table 12 List of Control States and Compulsory Laws

Alabama 0	Georgia 1
Arizona 0	Indiana 1
Arkansas 0	Kansas 1
Louisiana 0	Missouri 1
Mississippi 0	North Dakota 1
North Carolina 0	Tennessee 1
South Carolina 0	Utah 1
Virginia 0	Wyoming 1
West Virginia 0	Idaho 2
Texas 0	Kentucky 2
Colorado 1	Maryland 2

[39] See Abadie, Alberto, Alexis Diamond, and Jens Hainmueller. "Synthetic control methods for comparative case studies: Estimating the effect of California's tobacco control program." Journal of the American Statistical Association 105, no. 490 (2010) for a mathematical and theoretical explanation of the processes underlying the synthetic control approach. Also see: Coffman, Makena, and Ilan Noy. "Hurricane Iniki: measuring the long-term economic impact of a natural disaster using synthetic control." Environment and Development Economics 17, no. 02 (2012): 187-205.; Eren, Ozkan, and I. Serkan Ozbeklik. "Right-to-Work Laws and State-Level Economic Outcomes: Evidence from the Case Studies of Idaho and Oklahoma Using Synthetic Control Method." *unpublished manuscript*: 2012.

In total, there are 10 states that passed compulsory laws for all five employee groups at the same time: New York (1968), Washington (1968), New Jersey (1969), Oregon (1970), Hawaii (1971), South Dakota (1971), Minnesota (1973), Montana (1974), Florida (1976), and Ohio (1985). Among these ten states, I was able to create four successful synthetic control matches that accurately reflect the traits of the treated units in the pre-treatment period (the synthetic control method depends on an accurate representation in the pre-treatment period in order for the results to be relevant). While the choice of states may be questioned, ultimately the data-driven procedure of the synthetic control method statistically determined whether a state was a good candidate for matching and analysis.

The other six states were not able to create a statistically representative match with the available pool of control states. When tested, the six states produced root squared mean prediction errors (RSMPEs) ranging from 2 to 7 times higher than the best fitting model, New Jersey. The goal of the synthetic control method is to reduce the RSMPE as much as possible in order to provide the best match with the data possible. Unfortunately, our available control group is not an adequate match for all of our treated states.   Each statistically significant case provides evidence that compulsory collective bargaining laws have resulted in higher government spending.

South Dakota provided an interesting case. Initial synthetic control estimates showed results that countered the study's main findings — the synthetic, non-treated South Dakota's total spending levels were higher than the actual treated South Dakota. However, after conducting placebo tests to check the accuracy of the results, it was found that the initial result is not statistically significant because many of the placebo tests reported a treatment effect larger than what was found.

Results for these four case studies (Ohio, New York, South Dakota, and New Jersey) are provided below. While evidence from the case-study approach is not comprehensive, the results from the four available case studies do confirm the overall finding that compulsory powers for public-sector unions leads to higher government spending.

Provided below are the weight assignments for each synthetic control match, a table providing an explanation as to how well the synthetic control unit approximates the treated unit's performance in the pre-treated period, a graphical representation of the treated observed data compared to the unobserved synthetic control result, and a graph providing a placebo test.

Table 12 provides the weights attributed to the different control states. We can see that in many of the cases we do not find a relevant enough comparison and therefore assign a weight of 0 to the states that do not represent a viable control option. This data-driven technique allows for an unbiased assignment of control states. It is important to note that only one of the states that was matched has 0 compulsory laws (Texas). The other best matching states have between 1-2 compulsory public sector collective bargaining laws.

Because of this we are still unable to establish a completely transparent treatment effect from the analysis because no natural experiment exists that provides relevant results.

Table 13 State Weights for Synthetic NJ

State	Weight	State	Weight
Alabama	0	Mississippi	0
Arizona	0	Missouri	0
Arkansas	0	North Carolina	0
Colorado	0.124	North Dakota	0
Georgia	0	South Carolina	0
Idaho	0	Tennessee	0
Indiana	0.446	Texas	0.174
Kansas	0	Utah	0
Kentucky	0	Virginia	0
Louisiana	0	West Virginia	0
Maryland	0.255	Wyoming	0

As can be seen from Table 13 with the matched variables for New Jersey, the synthetically created control made from the weights above matches the observed mean characteristics for the following predictive variables sufficiently well in the pre-treatment period. We can be confident that the process has created a relevant control capable of accurately identifying a treatment effect.

Table 14 New Jersey Synthetic Control Results

Matched Variable For New Jersey	Treated	Synthetic
Ln(State pop)	15.68333	15.28677
Ln(Per capita personal income)	9.72366	9.545695
Ln(State private GDP per capita)	9.862049	9.687075
Total Spending Per capita in 1958	1647.216	1627.666
Total Spending Per capita in 1968	2407.514	2437.938
Average of CB Laws	2	1.824
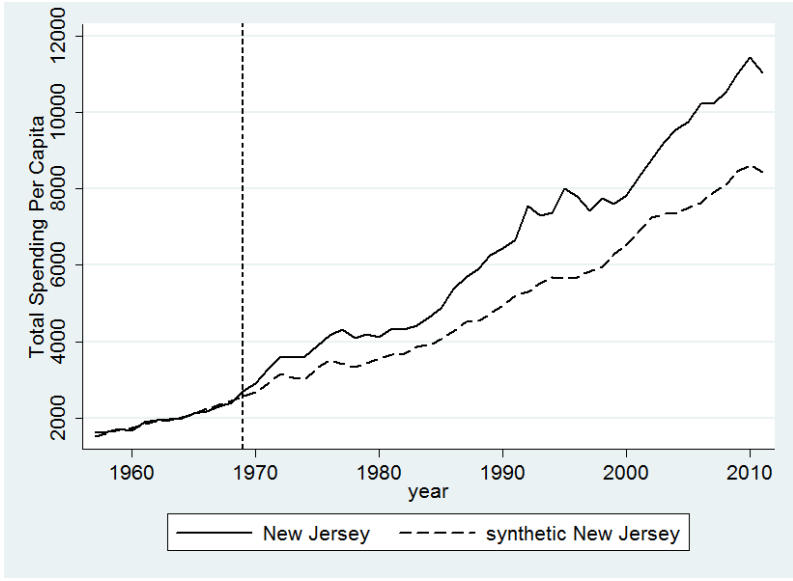
Figure 1 NJ Synthetic Control Graph

A further placebo test helps validate the treatment effect that was found for New Jersey. In order to determine the statistical significance of the results it is necessary to test whether the same treatment effect can be found when comparing control states with the other states within the control group. If there are any states that create a treatment effect as large, or larger, than what is found by studying New Jersey, then the reliability of the results becomes questionable. Figure 2 presents a graphical representation of a placebo test.
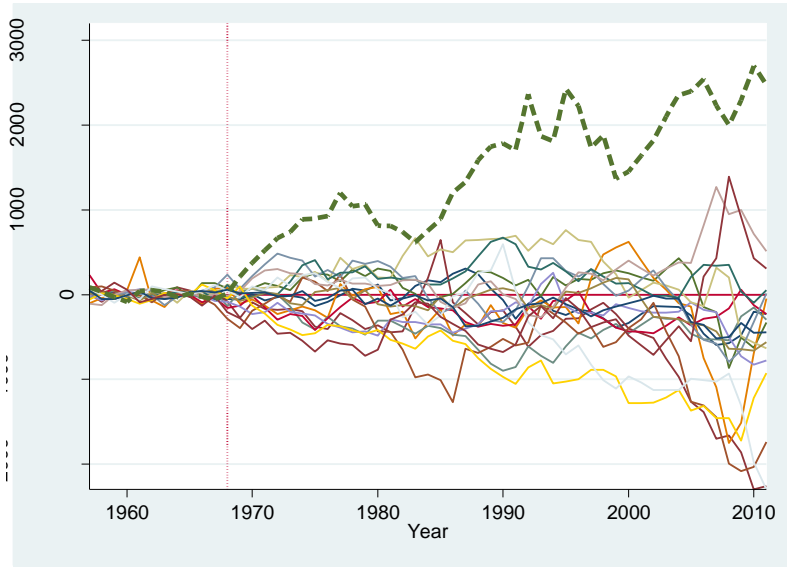
Figure 2 Placebo Test for Synthetic NJ

The dashed line in Figure 2 represents the difference between the synthetic New Jersey and the actual New Jersey. The red dotted line represents the year of treatment. We can see that the largest treatment effect is found with the treated New Jersey and not one of the placebo states. This effect is unusually large compared to distribution of placebo tests

and therefore we can be confident that it is statistically significant at the 5% level. Also it is important to note that over time the distance between the synthetic New Jersey and the actual New Jersey is widening implying that the treatment effect is growing over time.

The synthetic control for New York does not perform as well as New Jersey. However, we can see that for the most part the treatment effect found by the synthetic control method is higher than the majority of the placebo tests except between 1980-1990. The weights and matched performance for New York, as well as the following states, can be found in Appendix A.
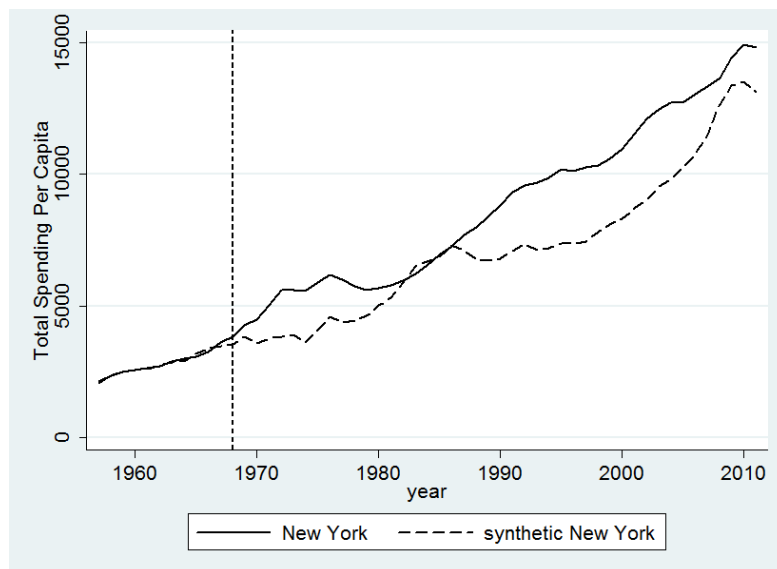
Figure 3 NY Synthetic Control Graph
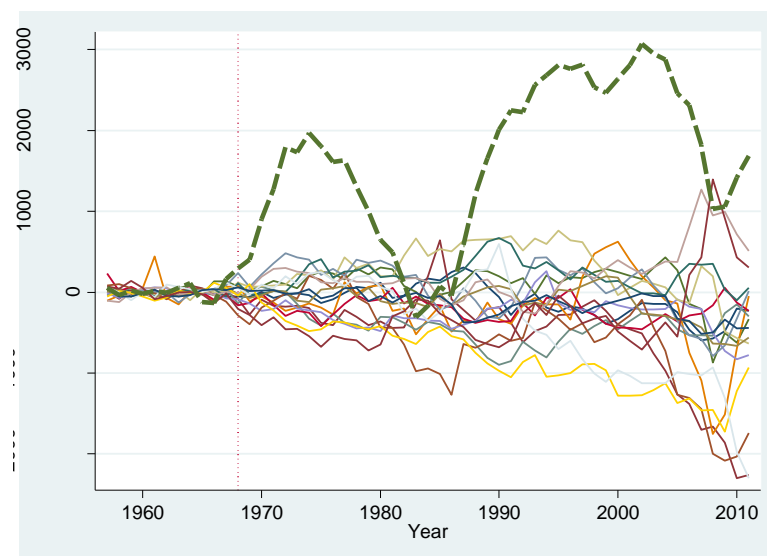
Figure 4 Placebo Test for Synthetic NY

Like New York, Ohio also does not perform as well as New Jersey. However we can see that after the treatment period (the dotted line) the difference between the synthetic and actual Ohio begins to grow larger. By the end of the time sample there is only one observation that records a treatment effect higher than the difference between the synthetic Ohio and the actual Ohio meaning that these results are significant at the 10% level.
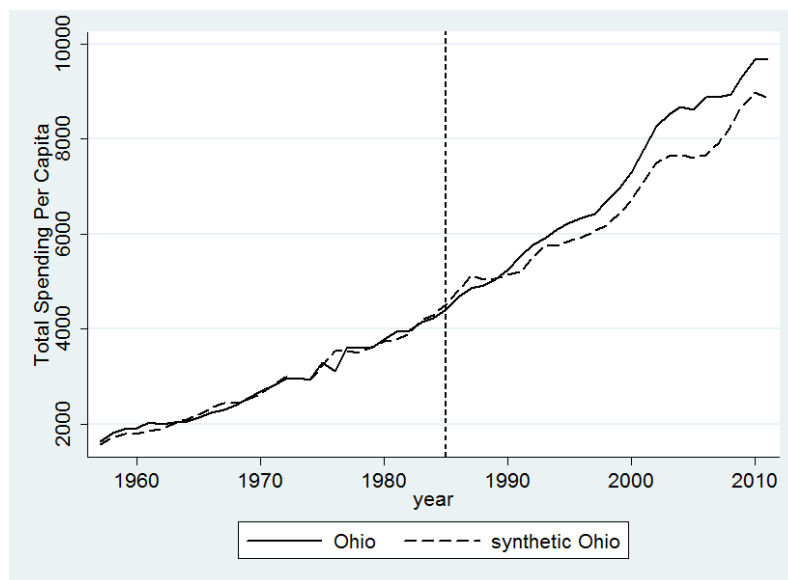
Figure 5 OH Synthetic Control Graph
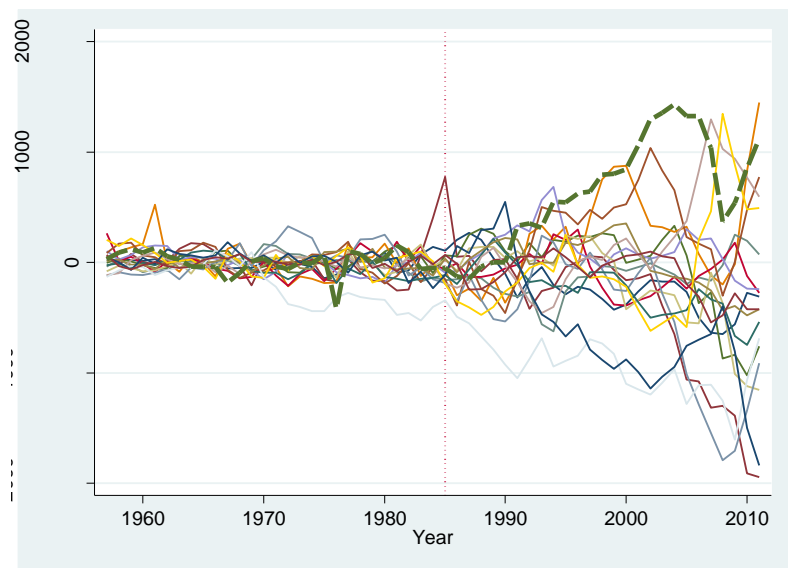
Figure 6 Placebo Test for Synthetic OH

As stated earlier, at first glance South Dakota appears to provide a counter example to our broader finding that higher government expenditures result from more bargaining rights being awarded to public-sector unions. In Figure 7 we see that the synthetic

control group made up of states with minimal exposure to compulsory collective bargaining laws experiences higher expenditure levels than the actual South Dakota. However, further placebo tests shown in Figure 8 show that this is not a statistically valid result and therefore this case-study does not diminish the overall findings of the study.
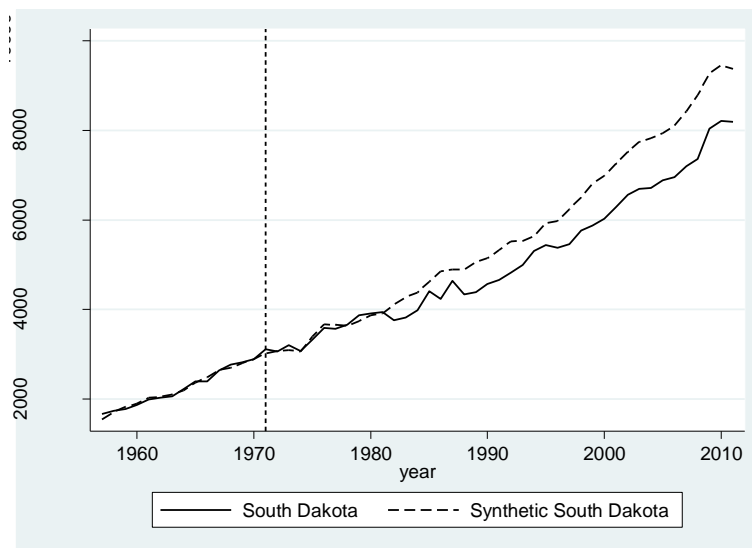
Figure 7 SD Synthetic Control Graph

In the figure below, South Dakota is represented by the bold, dashed red line. There are at least 5 placebo synthetic controls that record higher levels of a treatment effect which causes this model's results to be statistically insignificant at the 10% level.
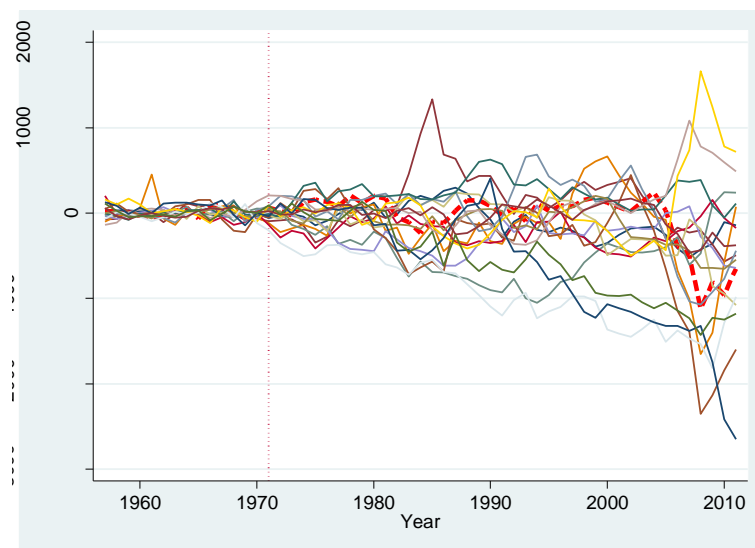
Figure 8 Placebo Test for Synthetic SD

<u>Conclusion</u>

This paper presents the most comprehensive study of competing collective bargaining institutional arrangements' effects on government expenditures to date. After examining all 50 states from 1957-2011 it is found that when state governments choose to grant greater collective bargaining powers to public sector unions, government expenditures increase throughout all levels of local and state government. This increase in total state-wide government expenditures can be anywhere from $104.1-125.1 to $546.0-653.5 per capita depending on the collective bargaining laws that are chosen for state employees. Similar effects are seen across four additional government sectors (police, firefighters, teachers, and other local employees—see Appendix A). These results are robust to different qualitative ranking scales, as well as a data-driven synthetic control case study approach.

However, it is unclear where the increased expenditures is being spent. FTE employment and payrolls do not seem to be proportionally affected by the collective bargaining institutions. Overall these results are similar to those found by previous studies with the exception of unions' effects on departmental spending which was previously found to be statistically insignificant.[40]

These findings present a strong case for a policy recommendation that decreased compulsory rights to public sector employees can lead to decreased tax burdens for taxpayers. Most states have a balanced budget provision which intimately ties the level of expenditures to the level of taxes. Because of this the increased expenditures caused by the compulsory rights given to the generally politically active public sector unions must lead to increased taxes no matter if the public sector employees are self-interested or enthusiastic do-gooders. This increase in expenditures/taxes may be seen as beneficial if the quality of the government services were increased as a result, however this is unlikely because previous research has shed doubt on the idea that increased government spending generates better performing governmental departments.[41] Further research may be needed in order to further validate this concern.

This paper has also found that traditional theories that ignore insights from public choice economics do not correctly explain how collective bargaining laws effect state governments. Theories which expect a re-distributional effect where a unionized sector takes government funds from a competing, but non-unionized sector do not correctly explain the observed overall increase in government spending. Traditional theories also do not correctly anticipate where the increased expenditures are being spent. The increase in expenditures does not seem to proportionally increase the number of public employees nor does it increase public employee wages. Instead, it is suggested that the increased expenditures are going to direct or deferred benefits for the public employees. This would include increased healthcare, insurance, better equipment/facilities, or possibly other unfunded liabilities such as increased pensions.

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[40] See Marlow op cit note 28 and Marlow and Orzechowski op cit note 27

[41] See Moe, Terry M. "Collective bargaining and the performance of the public schools." American Journal of Political Science 53, no. 1 (2009): 156-174.

The overall conclusions drawn by this paper would benefit from further research that analyzes individual state's pension liabilities. This could shed light on whether the increases in expenditures are primarily contributing to increases in deferred unfunded liabilities which are a leading factor in state solvency issues. Previous research has concluded that over 70% of state and local government budgets is comprised of wages and benefits for public employees[42]. If this is still the case, and if wages are not being significantly increased as this study concludes, a policy recommendation may be made that less favorable attitudes and less collective bargaining powers towards public sector unions may help state's remain financially solvent.

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[42] Baird, Charles. "On strikers and their replacement." Government Union Review 12 (1991): 1-29

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Appendix A—Additional Results

<u>Fire</u>

VARIABLES	Tot. Gov Fire FTE	FE Tot. Gov Fire FTE	Tot. Gov. Fire Payrolls	FE Tot. Gov. Fire Payrolls
CB Fire	-2.88e-06	-7.08e-06	0.0538***	0.0380**
	(3.55e-06)	(6.38e-06)	(0.0122)	(0.0174)
Fire Strike	-3.13e-05**	-2.50e-05*	-0.00649	-0.0169
	(1.53e-05)	(1.38e-05)	(0.0465)	(0.0644)
Right to Work	-4.68e-05***	-3.00e-05	-0.147***	-0.485***
	(1.11e-05)	(2.10e-05)	(0.0405)	(0.0703)
Dem in Gov Office	1.50e-05	-3.63e-06	0.0483	-0.0401
	(2.15e-05)	(6.50e-06)	(0.0918)	(0.0353)
Time	-1.22e-05***	-2.40e-07	-0.103***	0.0346
	(2.58e-06)	(3.90e-06)	(0.0184)	(0.0206)
Time^2	1.52e-08	-4.28e-08	0.000850***	0.000156
	(3.28e-08)	(4.74e-08)	(0.000161)	(0.000175)
Ln(Per Cap Income)	0.000748***	0.000379***	5.117***	0.967*
	(5.35e-05)	(6.14e-05)	(0.542)	(0.484)
Lag ln(State Pop)	0***	0	5.64e-08***	1.14e-07***
	(0)	(0)	(4.24e-09)	(1.25e-08)
All Gov Welfare FTE	-4.45e-09***	-2.13e-09***	-2.99e-05***	-4.31e-05***
	(4.74e-10)	(6.43e-10)	(3.85e-06)	(3.72e-06)
Constant	-0.00618***	-0.00274***	-46.14***	-7.515
	(0.000505)	(0.000570)	(5.020)	(4.493)
Observations	2,650	2,650	2,650	2,650
R-squared	0.219	0.311	0.561	0.742
Number of groups	50	50	50	50

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

VARIABLES	Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending	Fire Spending	FE Fire Spending
CB Fire	195.1***	98.21***	139.3***	73.00***	98.01***	56.15***	1.239***	0.749
	(12.25)	(18.37)	(10.20)	(16.40)	(6.567)	(9.096)	(0.318)	(0.494)
Fire Strike	652.9***	131.7	542.9***	120.9	344.2***	138.9**	3.737***	1.537
	(167.3)	(140.5)	(146.3)	(126.1)	(58.49)	(55.74)	(1.288)	(2.418)
Right to Work	-24.34	-451.3***	-380.4***	-425.4***	384.6***	-143.7*	-3.560***	-3.623
	(61.63)	(147.1)	(81.71)	(109.6)	(41.74)	(85.00)	(1.143)	(2.869)
Dem in Gov Office	71.92	40.12	60.08	27.20	36.79	44.36*	0.691	0.153
	(69.34)	(42.80)	(59.62)	(32.77)	(39.81)	(22.67)	(1.525)	(0.845)
Time	-78.65***	57.01**	-30.65*	49.78**	-40.98***	14.43	-2.085***	0.764*
	(19.35)	(25.77)	(15.27)	(22.33)	(11.40)	(14.47)	(0.283)	(0.427)
Time^2	2.155***	1.493***	1.419***	1.064***	0.822***	0.522***	0.0348***	0.0207***
	(0.178)	(0.186)	(0.140)	(0.165)	(0.0992)	(0.103)	(0.00321)	(0.00342)
Ln(Per Cap Income)	4,093***	62.08	2,185***	-298.6	2,300***	766.7*	79.90***	-8.107
	(568.1)	(671.9)	(452.5)	(562.0)	(283.4)	(388.5)	(9.574)	(11.20)
Lag ln(State Pop)	-5.88e-06	-1.18e-05	-4.56e-05***	-8.12e-05***	6.22e-05***	7.74e-05***	7.3e-07***	2.4e-06***
	(4.69e-06)	(9.88e-06)	(3.07e-06)	(8.46e-06)	(4.83e-06)	(6.84e-06)	(8.43e-08)	(2.55e-07)
All Gov Welfare FTE	0.00400***	0.00379	-0.00210*	0.00365	0.00869***	0.00247	-0.0005***	-0.0007***
	(0.000692)	(0.00401)	(0.00111)	(0.00467)	(0.000309)	(0.00230)	(8.08e-05)	(0.000106)
Constant	-37,832***	922.9	-20,295***	3,816	-21,577***	-6,759*	-727.3***	91.06
	(5,475)	(6,262)	(4,387)	(5,218)	(2,698)	(3,621)	(90.32)	(106.6)
Observations	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.797	0.918	0.719	0.881	0.781	0.895	0.647	0.771
Number of groups	50	50	50	50	50	50	50	50

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

VARIABLES	Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending	Fire Spending	FE Fire Spending
Fire Comp.	805.7***	456.4***	576.0***	357.5***	402.1***	243.4***	6.789***	6.125***
	(60.59)	(105.9)	(50.41)	(96.67)	(26.77)	(46.33)	(1.248)	(2.036)
Fire Strike	585.4***	127.4	494.9***	120.6	309.6***	133.7**	3.700***	1.930
	(172.5)	(140.7)	(150.9)	(127.0)	(60.03)	(56.10)	(1.201)	(2.298)
Right to Work	-90.91	-451.0***	-427.8***	-426.4***	350.6***	-142.2	-3.612***	-3.806
	(74.25)	(149.5)	(92.75)	(111.6)	(35.06)	(86.79)	(1.018)	(2.813)
Dem in Gov Office	60.38	39.50	51.84	25.89	30.99	44.82*	0.621	0.0250
	(67.62)	(43.89)	(59.22)	(33.82)	(38.12)	(23.24)	(1.517)	(0.821)
Time	-71.88***	64.37**	-25.83*	54.23**	-37.53***	19.62	-2.073***	0.673*
	(18.82)	(25.33)	(14.97)	(21.98)	(11.02)	(14.30)	(0.282)	(0.367)
Time^2	2.065***	1.446***	1.354***	1.038***	0.776***	0.485***	0.0348***	0.0217***
	(0.172)	(0.180)	(0.136)	(0.162)	(0.0943)	(0.101)	(0.00336)	(0.00323)
Ln(Per Cap Income)	4,220***	-53.92	2,275***	-373.2	2,365***	689.1*	79.75***	-7.300
	(566.3)	(664.4)	(445.7)	(554.5)	(288.0)	(386.1)	(9.477)	(10.10)
Lag ln(State Pop)	-1.44e-05***	-2.06e-05*	-5.16e-05***	-8.79e-05***	5.79e-05***	7.26e-05***	7.0e-07***	2.3e-06***
	(4.53e-06)	(1.12e-05)	(3.15e-06)	(9.42e-06)	(4.70e-06)	(7.20e-06)	(8.91e-08)	(2.57e-07)
All Gov Welfare FTE	0.00167***	0.00410	-0.00376***	0.00381	0.00752***	0.00272	-0.0005***	-0.0007***
	(0.000616)	(0.00413)	(0.00120)	(0.00496)	(0.000345)	(0.00213)	(7.69e-05)	(0.000103)
Constant	-38,472***	2,225	-20,748***	4,674	-21,912***	-5,909	-723.1***	85.12
	(5,453)	(6,196)	(4,332)	(5,152)	(2,732)	(3,602)	(89.67)	(95.49)
Observations	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.792	0.918	0.714	0.881	0.775	0.895	0.648	0.772
Number of groups	50	50	50	50	50	50	50	50

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

VARIABLES	DK1 Tot. Gov Fire FTE	DKFE1 Tot. Gov Fire FTE	DK1 Tot. Gov. Fire Payrolls	DKFE1 Tot. Gov. Fire Payrolls
Fire Comp.	-3.46e-06	1.28e-05	0.278***	0.338***
	(1.88e-05)	(4.00e-05)	(0.0608)	(0.0931)
Fire Strike	-2.83e-05*	-1.74e-05	-0.0119	0.00740
	(1.52e-05)	(1.28e-05)	(0.0433)	(0.0605)
Right to Work	-4.39e-05***	-3.33e-05	-0.153***	-0.496***
	(1.18e-05)	(2.07e-05)	(0.0409)	(0.0722)
Dem in Gov Office	1.52e-05	-5.71e-06	0.0452	-0.0479
	(2.14e-05)	(6.42e-06)	(0.0916)	(0.0342)
Time	-1.24e-05***	-3.33e-06	-0.102***	0.0284
	(2.66e-06)	(3.80e-06)	(0.0184)	(0.0192)
Time^2	1.96e-08	-1.49e-08	0.000846***	0.000224
	(3.44e-08)	(4.77e-08)	(0.000162)	(0.000167)
Ln(Per Cap Income)	0.000742***	0.000417***	5.119***	1.025**
	(5.27e-05)	(6.02e-05)	(0.535)	(0.447)
Lag ln(State Pop)	0***	0	5.46e-08***	1.09e-07***
	(0)	(0)	(4.18e-09)	(1.27e-08)
All Gov Welfare FTE	-4.41e-09***	-2.33e-09***	-3.05e-05***	-4.36e-05***
	(4.45e-10)	(6.57e-10)	(3.76e-06)	(3.62e-06)
Constant	-0.00613***	-0.00311***	-46.04***	-7.980*
	(0.000500)	(0.000559)	(4.988)	(4.136)
Observations	2,650	2,650	2,650	2,650
R-squared	0.219	0.309	0.562	0.745
Number of groups	50	50	50	50

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

Police

VARIABLES	DK1 Tot. Gov Police FTE	DKFE1 Tot. Gov Police FTE	DK1 Tot. Gov Police Payrolls	DKFE1 Tot. Gov Police Payrolls
CB Police	-3.57e-06	-2.75e-06	0.225***	0.211***
	(3.20e-06)	(6.32e-06)	(0.0335)	(0.0268)
Police Strike	7.21e-05***	-9.81e-06	0.452***	0.137
	(1.05e-05)	(1.49e-05)	(0.120)	(0.176)
Right to Work	0.000121***	7.88e-05*	0.323***	-0.160
	(1.99e-05)	(3.93e-05)	(0.0691)	(0.161)
Dem in Gov Office	4.41e-05	2.43e-06	0.215**	0.0102
	(3.14e-05)	(1.31e-05)	(0.0952)	(0.0804)
Time	1.61e-05***	3.17e-05***	-0.169***	0.0736
	(5.70e-06)	(6.62e-06)	(0.0489)	(0.0449)
Time^2	-4.00e-07***	-4.30e-07***	0.00146***	0.000365
	(8.00e-08)	(7.52e-08)	(0.000314)	(0.000257)
Ln(Per Cap Income)	0.00161***	0.000965***	11.74***	4.046***
	(8.40e-05)	(0.000147)	(1.527)	(1.454)
Lag ln(State Pop)	0***	-0***	1.74e-07***	1.93e-07***
	(0)	(0)	(1.14e-08)	(1.64e-08)
All Gov Welfare FTE	-7.53e-09***	1.75e-09	-4.06e-05***	-5.65e-05***
	(2.94e-10)	(1.58e-09)	(2.82e-06)	(6.91e-06)
Constant	-0.0140***	-0.00775***	-108.7***	-36.24**
	(0.000771)	(0.00136)	(14.21)	(13.67)
Observations	2,650	2,650	2,650	2,650
R-squared	0.665	0.831	0.800	0.855
Number of groups	50	50	50	50

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

VARIABLES	Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending	Police Spending	FE Police Spending
CB Police	184.1***	98.21***	132.9***	86.78***	82.36***	43.41***	4.014***	3.252***
	(10.91)	(16.82)	(9.272)	(17.00)	(5.104)	(7.176)	(0.497)	(0.479)
Police Strike	629.4***	118.7	470.5***	85.50	369.7***	158.1**	14.32***	3.237
	(180.0)	(148.0)	(150.0)	(126.1)	(68.00)	(66.35)	(3.185)	(3.590)
Right to Work	149.2*	-189.9	-248.1***	-188.1	455.4***	37.17	11.54***	13.05***
	(79.91)	(165.7)	(85.59)	(135.2)	(52.95)	(90.47)	(1.772)	(3.863)
Dem in Gov Office	75.02	43.35	63.50	26.89	36.15	50.49**	3.370*	1.010
	(70.78)	(41.08)	(58.78)	(31.57)	(41.09)	(22.24)	(1.705)	(1.285)
Time	-78.25***	56.73**	-31.92**	43.21**	-39.22***	19.66	-2.916***	1.706*
	(19.60)	(24.99)	(15.63)	(21.50)	(11.66)	(14.76)	(0.662)	(0.875)
Time^2	2.137***	1.489***	1.430***	1.116***	0.784***	0.474***	0.0597***	0.0393***
	(0.171)	(0.178)	(0.137)	(0.159)	(0.0970)	(0.103)	(0.00520)	(0.00573)
Ln(Per Cap Income)	4,216***	86.02	2,256***	-202.3	2,413***	704.8*	161.5***	5.381
	(587.6)	(662.1)	(461.5)	(548.9)	(303.3)	(394.2)	(20.89)	(24.07)
Lag ln(State Pop)	-1.29e-05***	-9.70e-06	-5.13e-05***	-7.82e-05***	5.85e-05***	7.99e-05***	2.41e-06***	4.67e-06***
	(4.71e-06)	(9.83e-06)	(3.12e-06)	(8.42e-06)	(4.87e-06)	(7.07e-06)	(2.07e-07)	(3.11e-07)
All Gov Welfare FTE	0.00440***	0.00433	-0.00166	0.00404	0.00886***	0.00306	-0.000572***	-0.000435***
	(0.000817)	(0.00378)	(0.000997)	(0.00425)	(0.000324)	(0.00231)	(4.79e-05)	(0.000114)
Constant	-38,970***	624.7	-20,849***	2,879	-22,682***	-6,283*	-1,509***	-41.60
	(5,688)	(6,194)	(4,486)	(5,104)	(2,909)	(3,686)	(198.0)	(226.0)
Observations	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.791	0.918	0.711	0.882	0.774	0.895	0.828	0.915
Number of groups	50	50	50	50	50	50	50	50

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

VARIABLES	Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending	Police Spending	FE Police Spending
Police Comp.	812.3***	533.3***	592.0***	470.9***	349.6***	226.9***	18.83***	18.61***
	(71.89)	(105.4)	(62.66)	(100.7)	(30.08)	(44.82)	(2.216)	(2.368)
Police Strike	559.2***	114.6	421.6***	81.82	334.0***	154.7**	13.14***	3.269
	(183.0)	(148.3)	(154.7)	(127.5)	(67.16)	(66.32)	(3.137)	(3.622)
Right to Work	67.42	-173.7	-305.0***	-173.8	413.7***	41.00	10.17***	13.95***
	(90.20)	(172.2)	(99.19)	(139.8)	(44.48)	(92.92)	(1.374)	(3.926)
Dem in Gov Office	63.62	43.54	55.30	27.07	30.99	50.86**	3.127*	0.985
	(68.94)	(40.48)	(57.96)	(31.10)	(40.40)	(22.17)	(1.817)	(1.275)
Time	-73.78***	59.88**	-28.78*	46.01**	-37.00***	21.52	-2.836***	1.761**
	(18.71)	(24.48)	(15.06)	(21.29)	(11.22)	(14.30)	(0.630)	(0.842)
Time^2	2.090***	1.488***	1.397***	1.115***	0.758***	0.470***	0.0590***	0.0398***
	(0.164)	(0.173)	(0.130)	(0.156)	(0.0929)	(0.0994)	(0.00486)	(0.00545)
Ln(Per Cap Income)	4,285***	-10.73	2,303***	-288.0	2,452***	656.7*	162.4***	2.745
	(585.8)	(651.5)	(456.1)	(543.1)	(306.4)	(386.7)	(21.01)	(23.38)
Lag ln(State Pop)	-2.05e-05***	-1.58e-05	-5.68e-05***	-8.36e-05***	5.50e-05***	7.72e-05***	2.25e-06***	4.47e-06***
	(4.83e-06)	(1.03e-05)	(3.14e-06)	(8.71e-06)	(4.92e-06)	(7.13e-06)	(1.94e-07)	(3.04e-07)
All Gov Welfare FTE	0.00221***	0.00429	-0.00325***	0.00400	0.00788***	0.00307	-0.000620***	-0.000440***
	(0.000629)	(0.00373)	(0.00106)	(0.00443)	(0.000317)	(0.00216)	(4.82e-05)	(0.000119)
Constant	-39,077***	1,748	-20,903***	3,873	-22,788***	-5,735	-1,506***	-9.941
	(5,656)	(6,088)	(4,437)	(5,046)	(2,923)	(3,612)	(198.8)	(218.9)
Observations	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.788	0.919	0.708	0.883	0.770	0.895	0.827	0.916
Number of groups	50	50	50	50	50	50	50	50

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

VARIABLES	FE Tot. Gov Police FTE	FE Tot. Gov Police FTE	Tot. Gov Police Payrolls	FE Tot. Gov Police Payrolls
Police Comp.	-2.11e-05	2.74e-05	1.000***	1.125***
	(3.30e-05)	(4.31e-05)	(0.188)	(0.162)
Police Strike	7.18e-05***	-2.19e-06	0.368***	0.125
	(8.00e-06)	(1.39e-05)	(0.120)	(0.174)
Right to Work	0.000121***	9.44e-05**	0.225***	-0.133
	(1.54e-05)	(4.11e-05)	(0.0546)	(0.155)
Dem in Gov Office	4.43e-05	1.02e-06	0.201*	0.0113
	(3.13e-05)	(1.27e-05)	(0.101)	(0.0820)
Time	1.61e-05***	2.94e-05***	-0.164***	0.0815*
	(5.64e-06)	(6.79e-06)	(0.0470)	(0.0443)
Time^2	-4.00e-07***	-4.09e-07***	0.00141***	0.000353
	(7.83e-08)	(7.56e-08)	(0.000284)	(0.000250)
Ln(Per Cap Income)	0.00161***	0.000993***	11.82***	3.826**
	(8.82e-05)	(0.000148)	(1.551)	(1.438)
Lag ln(State Pop)	0***	-0**	1.64e-07***	1.80e-07***
	(0)	(0)	(1.06e-08)	(1.61e-08)
All Gov Welfare FTE	-7.49e-09***	1.60e-09	-4.33e-05***	-5.65e-05***
	(3.11e-10)	(1.57e-09)	(2.82e-06)	(6.10e-06)
Constant	-0.0141***	-0.00803***	-108.8***	-33.71**
	(0.000808)	(0.00137)	(14.42)	(13.52)
Observations	2,650	2,650	2,650	2,650
R-squared	0.665	0.831	0.798	0.855
Number of groups	50	50	50	50

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

Teachers

VARIABLES	FE Tot. K-12 FTE	Tot. K-12 FTE	Tot. K-12 Payrolls	FE Tot. K-12 Payrolls
CB Teachers	-0.000284***	-4.63e-05	-0.399*	0.308
	(4.50e-05)	(6.54e-05)	(0.226)	(0.263)
Teachers Strike	0.000481***	-0.000194	2.797***	0.521
	(7.83e-05)	(0.000132)	(0.532)	(0.553)
Right to Work	0.000964***	0.000134	-1.637	-5.973***
	(0.000149)	(0.000560)	(1.217)	(1.957)
Dem in Gov Office	-0.000466**	-0.000155	-1.140	-0.449
	(0.000221)	(0.000131)	(0.745)	(0.649)
Time	0.000617***	0.000313***	0.410	0.489
	(6.94e-05)	(9.94e-05)	(0.384)	(0.485)
Time^2	-5.70e-06***	-3.71e-06***	-0.00329	-0.00196
	(9.77e-07)	(1.03e-06)	(0.00425)	(0.00460)
Ln(Per Cap Income)	0.00150	0.00863***	56.08***	48.26***
	(0.00134)	(0.00198)	(6.877)	(9.604)
Lag ln(State Pop)	-2.97e-10***	-3.79e-10***	-5.27e-07***	-1.01e-06***
	(0)	(0)	(6.88e-08)	(1.77e-07)
All Gov Welfare FTE	2.52e-08**	9.20e-08***	1.08e-06	3.52e-05
	(1.04e-08)	(2.25e-08)	(2.06e-05)	(5.90e-05)
Constant	5.62e-05	-0.0650***	-490.8***	-412.1***
	(0.0125)	(0.0182)	(61.64)	(86.74)
Observations	2,650	2,650	2,650	2,650
R-squared	0.690	0.847	0.773	0.880
Number of groups	50	50	50	50

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

VARIABLES	Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending	K-12 Spending	FE K-12 Spending
CB Teachers	44.70**	39.20***	25.55*	35.23**	15.68*	10.75	-5.148	4.821
	(18.35)	(13.44)	(15.13)	(14.50)	(9.015)	(8.693)	(4.615)	(3.643)
Teachers Strike	512.7***	167.6***	468.8***	145.5***	120.0***	73.20***	77.43***	43.12***
	(42.88)	(36.38)	(34.92)	(42.43)	(24.28)	(19.58)	(9.528)	(6.649)
Right to Work	59.71	-334.6**	-276.4***	-313.9***	353.2***	-41.26	-13.42	-80.53**
	(65.99)	(143.0)	(83.90)	(110.4)	(38.32)	(87.64)	(16.68)	(33.76)
Dem in Gov Office	48.57	51.87	39.11	34.73	31.08	53.29**	-12.62	2.273
	(65.81)	(43.29)	(55.97)	(33.33)	(41.49)	(23.58)	(8.057)	(8.569)
Time	-67.08***	73.68***	-22.95	58.90***	-35.58***	24.43	-13.25**	-3.531
	(20.43)	(25.90)	(17.16)	(21.85)	(11.06)	(17.22)	(4.994)	(6.711)
Time²	1.890***	1.310***	1.222***	0.953***	0.709***	0.418***	0.298***	0.275***
	(0.169)	(0.179)	(0.141)	(0.163)	(0.0886)	(0.115)	(0.0415)	(0.0536)
Ln(Per Cap Income)	4,604***	-44.11	2,596***	-327.7	2,523***	680.2	982.1***	600.3***
	(685.2)	(696.5)	(527.0)	(558.6)	(334.7)	(451.8)	(136.4)	(166.5)
Lag ln(State Pop)	-1.55e-05**	-6.42e-06	-5.25e-05***	-7.53e-05***	5.45e-05***	8.03e-05***	-4.76e-06***	-4.64e-06
	(7.21e-06)	(9.24e-06)	(4.79e-06)	(8.19e-06)	(5.97e-06)	(7.62e-06)	(1.45e-06)	(3.09e-06)
Total Welfare FTE	-0.00244***	0.00283	-0.00729***	0.00266	0.00654***	0.00303	-0.000385	-0.000795
	(0.000509)	(0.00397)	(0.000864)	(0.00502)	(0.000416)	(0.00223)	(0.000256)	(0.000929)
Constant	-42,122***	1,850	-23,835***	4,025	-23,100***	-5,831	-8,776***	-5,161***
	(6,396)	(6,460)	(4,891)	(5,140)	(3,138)	(4,213)	(1,253)	(1,537)
Observations	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.790	0.918	0.718	0.881	0.758	0.893	0.799	0.885
Number of groups	50	50	50	50	50	50	50	50

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

VARIABLES	Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending	K-12 Spending	FE K-12 Spending
K-12 Comp.	197.3**	220.7***	134.6*	223.9***	69.79	49.62	-2.606	35.50
	(93.62)	(80.87)	(70.57)	(73.96)	(50.24)	(35.06)	(21.98)	(22.13)
Teachers Strike	516.8***	168.6***	471.5***	146.2***	121.5***	73.58***	77.24***	43.17***
	(41.55)	(36.35)	(33.70)	(43.31)	(23.64)	(19.54)	(9.060)	(6.479)
Right to Work	49.53	-335.0**	-276.3***	-308.3***	349.8***	-43.86	-6.832	-78.64**
	(66.57)	(143.8)	(82.83)	(109.7)	(37.09)	(88.25)	(14.84)	(33.76)
Dem in Gov Office	45.44	48.12	37.67	30.39	30.00	52.69**	-11.94	1.491
	(66.86)	(44.22)	(56.74)	(34.09)	(41.71)	(23.79)	(8.213)	(9.015)
Time	-66.37***	71.39***	-22.93	55.15**	-35.34***	24.53	-13.69***	-4.370
	(20.51)	(25.46)	(17.25)	(21.83)	(11.00)	(16.21)	(4.957)	(6.394)
Time²	1.883***	1.335***	1.227***	0.991***	0.707***	0.418***	0.307***	0.283***
	(0.169)	(0.180)	(0.141)	(0.168)	(0.0878)	(0.108)	(0.0415)	(0.0516)
Ln(Per Cap Income)	4,613***	-10.26	2,582***	-278.8	2,526***	681.6	963.9***	610.5***
	(689.9)	(683.2)	(523.5)	(548.7)	(341.4)	(440.3)	(134.6)	(161.3)
Lag ln(State Pop)	-1.7e-05***	-1.07e-05	-5.37e-05***	-7.92e-05***	5.36e-05***	7.91e-05***	-4.3e-06***	-5.18e-06
	(6.67e-06)	(9.78e-06)	(4.18e-06)	(8.42e-06)	(5.75e-06)	(7.28e-06)	(1.37e-06)	(3.15e-06)
All Gov Welfare FTE	-0.00286***	0.00227	-0.00761***	0.00198	0.00639***	0.00295	-0.000417	-0.000919
	(0.000575)	(0.00411)	(0.000911)	(0.00510)	(0.000424)	(0.00223)	(0.000261)	(0.000972)
Constant	-42,100***	1,643	-23,647***	3,671	-23,088***	-5,817	-8,617***	-5,241***
	(6,478)	(6,345)	(4,888)	(5,057)	(3,217)	(4,099)	(1,246)	(1,492)
Observations	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.790	0.918	0.718	0.881	0.758	0.893	0.798	0.886
Number of groups	50	50	50	50	50	50	50	50

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

VARIABLES	FE Local K12 Payrolls	FE Local K12 Payrolls	FE Tot. K-12 FTE	FE Tot. K-12 FTE
K-12 Comp.	-0.245	1.463	-0.00121***	-0.000136
	(0.817)	(1.100)	(0.000184)	(0.000303)
Teachers Strike	-0.737	0.633	0.000456***	-0.000196
	(0.470)	(0.407)	(7.77e-05)	(0.000131)
Right to Work	-0.525	-3.951**	0.00104***	0.000163
	(0.815)	(1.888)	(0.000137)	(0.000551)
Dem in Gov Office	-1.512	-0.288	-0.000445*	-0.000156
	(1.158)	(0.554)	(0.000223)	(0.000130)
Time	0.0863	0.0602	0.000612***	0.000307***
	(0.283)	(0.368)	(6.91e-05)	(0.000101)
Time^2	0.000599	0.00125	-5.64e-06***	-3.66e-06***
	(0.00294)	(0.00336)	(9.69e-07)	(1.05e-06)
Ln(Per Cap Income)	37.45***	38.18***	0.00141	0.00868***
	(5.570)	(7.694)	(0.00135)	(0.00200)
Lag ln(State Pop)	3.40e-07***	-3.07e-07*	-2.82e-10***	-3.74e-10***
	(4.40e-08)	(1.67e-07)	(0)	(0)
All Gov Welfare FTE	5.28e-05**	2.81e-05	2.77e-08**	9.19e-08***
	(2.21e-05)	(5.46e-05)	(1.06e-08)	(2.23e-08)
Constant	-320.1***	-326.5***	0.000233	-0.0656***
	(50.77)	(70.20)	(0.0126)	(0.0183)
Observations	2,650	2,650	2,650	2,650
R-squared	0.609	0.828	0.689	0.847
Number of groups	50	50	50	50

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

Other Local Government Employees

VARIABLES	Total Other FTE	FE Total Other FTE	Tot. Gov. Other Payrolls	FE Tot. Gov. Other Payrolls
CB Other	3.51e-05***	4.89e-05***	0.137***	0.200***
	(5.22e-06)	(1.38e-05)	(0.0224)	(0.0473)
Other Strike	0.000116***	-2.86e-05	0.576***	-0.0635
	(1.07e-05)	(2.72e-05)	(0.0640)	(0.0681)
Right to Work	6.15e-05***	-1.80e-05	0.277***	-0.0326
	(1.95e-05)	(2.58e-05)	(0.0741)	(0.0910)
Dem in Gov Office	-8.75e-08	2.81e-05	0.0217	0.0485
	(2.52e-05)	(2.11e-05)	(0.0641)	(0.0601)
Time	-4.77e-05***	-6.16e-05***	-0.184***	-0.170***
	(1.75e-05)	(1.89e-05)	(0.0450)	(0.0566)
Time^2	2.25e-07	3.32e-07	0.000875	0.00100
	(2.93e-07)	(2.83e-07)	(0.000767)	(0.000746)
Ln(Per Cap Income)	0.00110***	0.00134***	6.300***	5.132***
	(0.000170)	(0.000191)	(0.877)	(1.035)
Lag ln(State Pop)	-0***	-0***	-5.51e-08***	-5.03e-08***
	(0)	(0)	(4.13e-09)	(9.88e-09)
All Gov Welfare FTE	-1.69e-09**	4.80e-09**	-1.00e-05***	6.19e-06
	(7.68e-10)	(1.88e-09)	(2.10e-06)	(4.57e-06)
Constant	-0.00901***	-0.0111***	-56.74***	-44.77***
	(0.00164)	(0.00177)	(8.238)	(9.509)
Observations	2,650	2,650	2,650	2,650
R-squared	0.296	0.188	0.383	0.161
Number of groups	50	50	50	50

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

VARIABLES	Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending	Other Spending	FE Other Spending
CB Other	100.8***	85.98***	73.45***	84.47***	27.90***	18.68***	16.17***	-0.840
	(15.32)	(14.25)	(14.97)	(13.68)	(6.573)	(6.863)	(4.182)	(5.515)
Other Strike	455.9***	98.72**	411.9***	75.96	124.8***	56.91***	53.98***	30.08*
	(44.50)	(37.75)	(35.84)	(47.27)	(25.42)	(20.45)	(15.36)	(15.12)
Right to Work	118.8*	-247.0	-232.8***	-224.6*	374.6***	-23.17	368.9***	27.62
	(60.40)	(153.8)	(66.59)	(122.3)	(39.63)	(88.04)	(42.34)	(63.09)
Dem in Gov Office	64.07	48.96	50.39	31.75	33.96	52.60**	39.87	49.60**
	(67.46)	(41.68)	(56.67)	(31.57)	(40.83)	(23.71)	(34.33)	(19.63)
Time	-75.38***	59.79**	-30.40*	44.24**	-37.46***	22.10	-17.48***	26.37***
	(20.45)	(24.56)	(16.95)	(21.33)	(11.15)	(15.53)	(5.812)	(8.947)
Time²	2.032***	1.453***	1.349***	1.102***	0.738***	0.445***	0.313***	0.0762
	(0.167)	(0.168)	(0.142)	(0.159)	(0.0855)	(0.0996)	(0.0596)	(0.0597)
Ln(Per Cap Income)	4,440***	74.35	2,448***	-198.6	2,499***	691.3	1,324***	71.20
	(639.0)	(669.2)	(499.2)	(543.3)	(325.7)	(431.6)	(180.7)	(266.4)
Lag ln(State Pop)	-1.44e-05**	-7.39e-06	-5.12e-05***	-7.60e-05***	5.48e-05***	7.98e-05***	5.58e-05***	7.74e-05***
	(6.53e-06)	(9.38e-06)	(4.13e-06)	(8.13e-06)	(5.48e-06)	(7.28e-06)	(4.16e-06)	(4.80e-06)
All Gov Welfare FTE	-0.00218***	0.00449	-0.00733***	0.00431	0.00650***	0.00333	0.00810***	0.00491***
	(0.000749)	(0.00368)	(0.00106)	(0.00461)	(0.000515)	(0.00224)	(0.000303)	(0.00181)
Constant	-40,581***	783.0	-22,427***	2,855	-22,906***	-5,919	-12,368***	-615.2
	(5,979)	(6,210)	(4,637)	(5,006)	(3,059)	(4,019)	(1,725)	(2,498)
Observations	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.791	0.918	0.717	0.882	0.760	0.893	0.633	0.805
Number of groups	50	50	50	50	50	50	50	50

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

VARIABLES	Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending	Other Spending	FE Other Spending
Other Comp.	575.6***	520.2***	383.2***	455.1***	239.6***	181.7***	161.7***	67.12***
	(81.65)	(93.33)	(71.98)	(79.39)	(34.81)	(38.82)	(16.61)	(20.93)
Other Strike	455.6***	88.03**	412.4***	69.89	122.9***	49.14**	52.37***	24.47*
	(44.35)	(37.68)	(35.75)	(47.14)	(24.92)	(19.44)	(14.78)	(14.14)
Right to Work	117.6*	-200.6	-243.5***	-197.9	395.9***	10.17	387.4***	51.60
	(61.81)	(163.8)	(69.80)	(127.2)	(43.24)	(96.65)	(45.91)	(68.83)
Dem in Gov Office	57.78	44.84	44.32	28.93	35.49	50.18**	41.69	48.05**
	(69.32)	(41.99)	(58.38)	(32.14)	(41.31)	(23.27)	(34.68)	(19.26)
Time	-72.15***	55.64**	-27.72	43.45**	-37.28***	17.15	-17.59***	22.16***
	(19.85)	(23.83)	(16.94)	(21.19)	(10.73)	(14.39)	(5.473)	(8.037)
Time^2	2.030***	1.494***	1.336***	1.112***	0.763***	0.491***	0.335***	0.115**
	(0.164)	(0.165)	(0.142)	(0.160)	(0.0846)	(0.0932)	(0.0585)	(0.0547)
Ln(Per Cap Income)	4,294***	120.9	2,374***	-190.4	2,388***	747.6*	1,240***	119.2
	(615.3)	(652.7)	(489.9)	(537.8)	(308.8)	(409.7)	(166.3)	(250.1)
Lag ln(State Pop)	-1.97e-05***	-1.30e-05	-5.50e-05***	-8.13e-05***	5.33e-05***	7.84e-05***	5.50e-05***	7.73e-05***
	(6.07e-06)	(1.03e-05)	(3.58e-06)	(8.27e-06)	(5.52e-06)	(7.59e-06)	(4.26e-06)	(4.97e-06)
All Gov Welfare FTE	-0.00232***	0.00518	-0.00751***	0.00485	0.00662***	0.00366	0.00821***	0.00509***
	(0.000770)	(0.00359)	(0.00108)	(0.00450)	(0.000537)	(0.00226)	(0.000305)	(0.00181)
Constant	-38,988***	563.0	-21,565***	2,978	-21,807***	-6,383	-11,543***	-1,050
	(5,787)	(6,068)	(4,582)	(4,962)	(2,915)	(3,819)	(1,598)	(2,345)
Observations	2,650	2,650	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.793	0.919	0.718	0.883	0.763	0.894	0.637	0.806
Number of groups	50	50	50	50	50	50	50	50

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

VARIABLES	Total Other FTE	FE Total Other FTE	Tot. Gov. Other Payrolls	FE Tot. Gov. Other Payrolls
Other Comp.	0.000170***	0.000222***	0.737***	0.976***
	(2.69e-05)	(6.12e-05)	(0.118)	(0.215)
Other Strike	0.000116***	-2.88e-05	0.577***	-0.0699
	(1.03e-05)	(2.70e-05)	(0.0635)	(0.0684)
Right to Work	5.28e-05**	-1.67e-05	0.263***	-0.00392
	(1.98e-05)	(2.42e-05)	(0.0744)	(0.0833)
Dem in Gov Office	-3.53e-06	2.74e-05	0.0114	0.0440
	(2.55e-05)	(2.09e-05)	(0.0671)	(0.0589)
Time	-4.63e-05**	-5.96e-05***	-0.179***	-0.166***
	(1.75e-05)	(1.91e-05)	(0.0446)	(0.0548)
Time^2	2.15e-07	3.15e-07	0.000858	0.000969
	(2.94e-07)	(2.87e-07)	(0.000766)	(0.000746)
Ln(Per Cap Income)	0.00108***	0.00132***	6.142***	5.084***
	(0.000170)	(0.000187)	(0.863)	(0.992)
Lag ln(State Pop)	-0***	-0***	-6.22e-08***	-6.28e-08***
	(0)	(0)	(4.01e-09)	(8.33e-09)
All Gov Welfare FTE	-1.80e-09**	5.01e-09***	-1.03e-05***	7.20e-06
	(7.60e-10)	(1.86e-09)	(2.11e-06)	(4.47e-06)
Constant	-0.00871***	-0.0107***	-54.95***	-43.87***
	(0.00164)	(0.00171)	(8.129)	(9.062)
Observations	2,650	2,650	2,650	2,650
R-squared	0.296	0.187	0.387	0.164
Number of groups	50	50	50	50

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

Average of All CB

VARIABLES	Total Spending	FE Total Spending	State Spending	FE State Spending	Local Spending	FE Local Spending
Avg of CB Laws	130.2***	85.24***	87.22***	78.77***	48.00***	18.61*
	(20.88)	(26.29)	(19.19)	(22.95)	(6.478)	(10.50)
1 if All Strikes >2	3,621***	1,452*	3,249***	1,160*	1,161***	908.0***
	(976.5)	(756.0)	(850.4)	(669.9)	(361.9)	(302.1)
Right to Work	23.79	-248.7	-340.3***	-236.1*	370.9***	-15.87
	(49.27)	(161.2)	(69.34)	(127.3)	(38.84)	(94.40)
Dem in Gov Office	109.3	46.17	90.82*	29.33	49.32	52.54**
	(68.11)	(39.66)	(52.62)	(30.87)	(42.83)	(21.02)
Time	-80.58***	62.01**	-33.39**	47.37**	-40.22***	24.01*
	(16.48)	(23.47)	(13.16)	(19.79)	(10.24)	(14.29)
Time^2	2.333***	1.530***	1.591***	1.150***	0.852***	0.488***
	(0.151)	(0.169)	(0.134)	(0.151)	(0.0844)	(0.0994)
Ln(Per Cap Income)	3,750***	-259.9	1,871***	-481.8	2,251***	483.6
	(435.2)	(610.4)	(303.1)	(496.0)	(261.1)	(377.0)
Lag ln(State Pop)	-1.63e-05**	-1.07e-05	-5.e-05***	-7e-05***	5e-05***	7e-05***
	(6.30e-06)	(8.13e-06)	(4.02e-06)	(7.85e-06)	(5.44e-06)	(6.23e-06)
All Welfare FTE	0.0026***	0.0063**	-0.0030**	0.0056	0.0079***	0.0046**
	(0.000754)	(0.00301)	(0.00130)	(0.00373)	(0.00034)	(0.00194)
Constant	-33,291***	4,128	-16,244***	5,685	-20,384***	-3,857
	(4,021)	(5,646)	(2,741)	(4,567)	(2,441)	(3,480)
Observations	2,650	2,650	2,650	2,650	2,650	2,650
R-squared	0.808	0.922	0.739	0.887	0.770	0.899
Number of groups	50	50	50	50	50	50

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

		FE		FE
VARIABLES	Tot. Gov Payrolls	Tot. Gov Payrolls	Tot. Gov FTE	Tot. Gov FTE
Avg of CB Laws	1.100**	1.364**	-0.000227***	-8.28e-06
	(0.485)	(0.633)	(5.99e-05)	(0.000116)
1 if All Strikes >2	75.90***	39.21***	0.0105***	0.00448**
	(17.48)	(11.03)	(0.00217)	(0.00182)
Right to Work	2.352***	-4.336	0.00274***	0.00125
	(0.829)	(2.878)	(0.000209)	(0.000769)
Dem in Gov Office	1.498	0.185	0.000181	-5.55e-05
	(1.505)	(0.988)	(0.000444)	(0.000232)
Time	-0.381	1.728**	0.000892***	0.000766***
	(0.567)	(0.711)	(8.82e-05)	(0.000142)
Time^2	0.00274	-0.00783	-1.08e-05***	-1.00e-05***
	(0.00582)	(0.00624)	(1.33e-06)	(1.52e-06)
Ln(Per Cap Income)	129.2***	65.37***	0.00999***	0.0126***
	(11.67)	(16.07)	(0.00170)	(0.00286)
Lag ln(State Pop)	-2.96e-07***	-7.24e-07***	-3.78e-10***	-6.01e-10***
	(1.07e-07)	(1.69e-07)	(0)	(0)
All Welfare FTE	-9.57e-05***	-3.96e-05	1.09e-08	1.08e-07***
	(2.28e-05)	(8.46e-05)	(1.10e-08)	(3.38e-08)
Constant	-1,145***	-547.4***	-0.0645***	-0.0881***
	(105.3)	(145.9)	(0.0158)	(0.0263)
Observations	2,650	2,650	2,650	2,650
R-squared	0.793	0.906	0.667	0.856
Number of groups	50	50	50	50

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

NY Synthetic Control Tables

State	Weight	State	Weight
Alabama	0	Mississippi	0
Arizona	0	Missouri	0
Arkansas	0	North Carolina	0
Colorado	0	North Dakota	0
Georgia	0	South Carolina	0
Idaho	0	Tennessee	0
Indiana	0	Texas	0
Kansas	0	Utah	0
Kentucky	0	Virginia	0
Lousisiana	0	West Virginia	0
Maryland	0.305	Wyoming	0.695

Matched Variable For New York	Treated	Synthetic
Log of State pop	16.6636	13.40326
Log of Real per capita personal income	9.756578	9.580184
Log of Real state private GDP per capita	9.982729	9.807959
Total Spending Per cap in 1957	2132.825	2060.881
Total Spending Per cap in 1967	3630.594	3461.445
Average of Collective Bargaining Laws	2	2.151636

Ohio Synthetic Control Tables

Matched Variable For Ohio	Treated	Synthetic
Log of State pop	16.158	15.69558
Log of Real per capita personal income	9.777103	9.758545
Log of Real state private GDP per capita	9.940333	9.904009
Total Spending Per cap in 1965	2143.121	2142.037
Total Spending Per cap in 1975	3291.432	3293.42
Average of Collective Bargaining Laws	2.064286	1.852536

State	Weight	State	Weight
Alabama	0	Mississippi	0
Arizona	0	Missouri	0
Arkansas	0	North Carolina	0
Colorado	0.188	North Dakota	0
Georgia	0	South Carolina	0
Idaho	0	Tennessee	0
Indiana	0.047	Texas	0.588
Kansas	0	Utah	0
Kentucky	0	Virginia	0
Lousisiana	0	West Virginia	0
Maryland	0.157	Wyoming	0.021

South Dakota Synthetic Control Tables

Matched Variable For South Dakota	Treated	Synthetic
Log of State pop	13.43043	13.79124
Log of Real per capita personal income	9.384126	9.374831
Log of Real state private GDP per capita	9.377846	9.519726
Total Spending Per cap in 1959	1776.953	1824.804
Total Spending Per cap in 1969	2823.867	2821.605
Average of Collective Bargaining Laws	2.142857	2.141114

State	Weight	State	Weight
Alabama	0.099	Mississippi	0
Arizona	0	Missouri	0
Arkansas	0	North Carolina	0
Colorado	0	North Dakota	0.196
Georgia	0	South Carolina	0.301
Idaho	0.192	Tennessee	0
Indiana	0	Texas	0
Kansas	0	Utah	0
Kentucky	0	Virginia	0
Lousisiana	0	West Virginia	0
Maryland	0	Wyoming	0.211