Public-Sector Unions and Government Policy

Reexamining the Effects of Political Contributions and Collective Bargaining Rights

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Abstract

Recent events, including the failed recall of Wisconsin Governor Scott Walker and the Chicago teachers strike, have shed light on the relationship between state fiscal policy and public-sector union power. While a literature has developed focusing on various aspects of the link between public-sector unions and government policy, scholars have yet to reach consensus. In most cases, public-sector unions have multiple tools they can use to influence policy. To the extent that different tools function as substitutes, their relative importance may be weakened due to diminishing returns. If, instead, they serve as complements, they may only be effective when used in concert. Furthermore, their effectiveness may be affected by the government's support of union interests. We find that union political contributions and collective bargaining are associated with higher incomes for state and local employees and with higher public employment, both across state and local government overall as well as within the education sector. We also find little to no evidence that union activity influences total spending.

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I. Introduction

According to conventional indicators, such as government spending as a share of gross domestic product, the public sector in America at the federal and state levels has grown over the past century, and there is no sign of government growth slowing down (Higgs 1987; Garrett and Rhine 2006). In recent years, a number of public-sector disputes have become heated and have attracted a great deal of media attention. In Scranton, Pennsylvania, for example, municipal bankruptcy and a concomitant pension crisis led lawmakers to propose significant pay and benefit cuts to public employees. During the spring 2011 showdown in Wisconsin between public employees and Governor Scott Walker, who sought to weaken collective bargaining rights for public-sector unions, opponents of Walker's policies protested in the state capitol building and forced a recall vote, which Walker survived.[1] Since the Walker recall attempt, the September 2012 teachers strike in Chicago has sparked a broader narrative about Chicago's dire fiscal situation and the role union power plays in compromising the city's overall finances.

The recent attention to public-sector unions could, of course, be much ado about nothing; government growth has many causes, and public-sector unionization may play a secondary role at most. On the other hand, the activities of public-sector unions may play a role in explaining the source of government growth, which has not been emphasized much in the recent literature on government growth. We look at the influence public-sector unions exert and the effects unions have on the size of state government. While firsthand accounts indicate an important role

[1] In September 2012, a Wisconsin county judge struck down most of the controversial law supported by Walker, a ruling that was overturned by the state's Supreme Court in June 2013.

for unions in influencing political outcomes, the interaction between unions and politics is a somewhat untapped area of research in political economy. We examine how unions' political activity affects a number of variables, including state and local expenditures, public-sector employee income, and employment in state and local government, both for the public sector overall as well as for the education sector.

Olson (1965) provides a common economic explanation for the strength and persistence of unions. Union members receive a set of benefits due to their membership in a club, and collective bargaining is one of the primary benefits. While a person negotiating on his or her own for higher wages might struggle, collective bargaining allows a large group of workers to leverage their efforts and drive up wages. Since the benefits of higher wages could spill over to nonmembers, however, different mechanisms—ranging from coercion to closed-shop policies to collective bargaining provisions—may be put in place to discourage free riding and encourage the union's provision of benefits, which can be thought of as public goods for union members. Each individual worker has an incentive not to join, but the unions overcome the free-rider problem by raising the benefits of membership on the one hand and the costs of nonmembership on the other.

Public-sector union leaders, like their private-sector counterparts, are under pressure to deliver benefits to union members. Their political lobbying must, therefore, pay off in terms of enhanced union employment, wages, or future considerations from the politicians they have supported. Yet the existing literature on the effect of public-sector unions' collective bargaining rights on state fiscal policy is mixed and inconclusive when it comes to the effect political contributions from unions have on union benefits. For academic economists, studying the role public-sector unions play in politics advances our knowledge about government growth. For

policymakers, politicians, and voters, a better understanding of how public-sector unions interact with government can help inform the debate surrounding the role played by public employees in shaping policy.

We gather state-level data on public-sector union participation, collective bargaining rights, and public-sector union political contributions. We examine the effects union variables have on fiscal measures, such as public-sector employment, income, and overall government spending. In particular, we add to the existing literature by seeking to better understand the relative importance of public-sector union political activity and collective bargaining rights, as well as in what ways (if any) they interact with one another. For example, are union political contributions as important in states with strong collective bargaining rights? We also include measures of public-sector union support for the state's governor; doing so allows us to examine whether elected officials belonging to political parties not supported by public-sector unions seek to curtail union power once elected (as in Wisconsin).

The following section reviews the relevant literature on public-sector unions and state fiscal health. Section 3 presents our empirical model and discusses the data. We present and discuss our results in section 4, while the final section offers conclusions.

II. Public-Sector Unions, Employment, and Government Growth

During the past century, the fraction of the United States labor force belonging to a union has been in decline, but the pattern shows tremendous variation. Union membership reached historic highs—above 30 percent of all nonagricultural employment—in the mid-1940s and has experienced a steady decline over the past 60 years (Norcross 2011). Today, just 12 percent of nonagricultural employees belong to unions, and for the first time in US history, public-sector

workers now constitute a larger share of union members than do private employees (Norcross 2011). According to Reder (1988), the decline in private-sector unionization and relative rise of public-sector unionization is puzzling and cannot be explained by a single mechanism, though he thinks good economic times are favorable for public-sector union growth while economic downturns are less conducive.

A number of studies have found a strong positive correlation between union strength and employment in local public-sector unions. Zax and Ichniowski (1988) find a positive and significant relationship between municipal unionism and city expenditures. According to Freeman and Valletta (1988) and Valletta (1989), cities where public employees were covered under collective bargaining rules had 20 percent higher employment. According to Rose and Sonstelie (2010), teachers union power rises as district size increases. Teachers' salaries rise and the number of students per teacher falls as district size (and union power) increases.

Others have explored national and state-level differences in pay between public- and private-sector employees. Marlow (2013) examines the effects of state and local government-employee unions on government size. Lewis (1986) provides one of the best surveys of the literature and finds that public-sector unions raise wages (but by less than the private sector), and that public-sector unions contribute to increased public-sector employment. Edwards (2010) finds the probability of job loss in the private sector to be three times higher than in the public sector. Ohanian (2010), meanwhile, finds a higher pay rate for unions with collective bargaining rights. According to O'Brien (1992), increased union membership leads to higher compensation and employment for members. Shapiro (1978) examines union wage effects for the public and private sector and finds the earnings of public-sector union employees to be "on par or below the hourly earnings of" private-sector union workers. Belman, Heywood, and

Lund (1997) estimate the effect of public-sector union membership on public-sector earnings for state and local government workers, and they find higher earnings to be correlated with strong bargaining rights.

A related literature has explored the correlation between union membership and political influence. Marlow and Orzechowski (1996), for example, find a link between public-sector employment and public-sector expansion. According to Babcock, Engberg, and Glazer (1997), unions use political influence to shift voter opinion toward more government spending. If unions succeed in influencing policy, the result will be higher levels of public-sector employment and higher wages for union members.

Courant, Gramlich, and Rubinfeld (1979) use a theoretical model to explain how public-sector unionism interacts with government spending, but their contribution lacks any empirical tests of their theory. Marlow and Orzechowski (1996) find a positive relationship between public-sector unionism and public spending. Holcombe and Gwartney (2010) contrast private-sector and public-sector unions: private-sector union influence has been "minor" overall because "market forces have shifted private sector employment from unionized toward nonunionized industries"; public-sector unions, by contrast, present a significant threat in the future because "the burden of generous retirement benefits" to public employees will "crowd out other government expenditures." Hirsch, Macpherson, and Winters (2012) find a positive relationship between collective bargaining and teachers' salaries, and Freeman and Han (2013) find a positive link between union density and earnings, employment, and retirement benefits for teachers, even in states that prohibit collective bargaining.

For public-choice economists, the positive relationships between public-sector union size, public-employee compensation, and government expenditures are not surprising because public-

sector employees tend to favor a larger public sector (Tullock 1974). Public-sector unions are powerful special interest groups. They lobby and vote for bigger government programs; they enjoy monopoly powers over labor supply when it comes to the provision of public services; and they may block changes to the status quo when the changes harm members (Sauter 1988). By supporting public-sector expansion through their voting and lobbying efforts, public-sector employees believe they can encourage a shift in public-sector demand, which they will then benefit from (Zax 1989). Self-interested policymakers will respond to the demand for a more expansive public sector by giving the special-interest group what it wants (Brennan and Buchanan 1980). When they lobby for bigger government, public-sector employees may be motivated by narrow self-interest or by a true belief in the public sector as a guarantor of the public good (Friedman 1962).

The possibility of political market response exists, of course. If we assume Tiebout competition at the local and state levels, public-sector union power may be diminished by exit or by the threat of exit by citizens. Brueckner and Neumark (2012) explore the possibility of exit but find that taxpayer mobility is "insufficient to prevent rent-seeking behavior of public-sector workers from leading to higher public-sector pay."

While the causal story of stronger public-sector union membership driving higher demand for government resonates with public choice economists sympathetic to the concentrated benefits and dispersed costs account of government growth (Olson 1965), the causal arrows could be pointing in the other direction: public-sector employment could, in fact, be driving union strength and union wages higher. As demand for government services grows, the need for laborers to provide government services also grows. As the number of laborers in an industry grows, the need to organize and bargain as a collective entity could grow, too. Perhaps bigger

government leads to more unionization. If government growth causes union growth, some other factor, besides public-sector unions, may explain why the government has grown. In all likelihood, unions try to bring about bigger government, and bigger government leads to an expansion in public-sector unionization. Careful empirical analysis seeking to show a causal link between public-sector unionization and government growth must sort out the many complicated causal links.

The studies mentioned above highlight research on the role public-sector unions play in a market economy. A number of studies indicate public-sector union influence on voting behavior. Others show some growth in municipal expenditures when public-sector unions are present and enjoy collective bargaining rights. But, to our knowledge, no studies have focused on the interaction of public-sector political activity and collective bargaining and the way in which politicians interact with public-sector unions in response to the unions' level of support. In most cases, public-sector unions have at their disposal multiple tools for influencing policy, and they therefore use a combination of collective bargaining rights and direct political contributions to achieve policy goals. If the different tools function as substitutes for one another, their relative importance may be weakened when both are present because of diminishing returns. If, instead, they serve as complements, direct contributions and collective bargaining may only be effective when used in concert. Furthermore, effectiveness may be determined, to some extent, by the "friendliness" of the government the union is attempting to influence; in other words, a governor who has received support from public-sector unions may be more responsive than one who has not. The present study, with its focus on interactions between different tools, seeks to better understand public-sector unions' effectiveness at influencing policy. The following section details our approach to analyzing the various interactions.

III. Model and Empirical Methodology

Following Marlow and Orzechowski (1996) and others, we model the importance of public-sector unions in influencing state policy. In particular, we focus on two sets of state fiscal outcomes: the size of state and local government and public-sector employee compensation. As noted above, several previous studies have examined the importance of public-sector union political power, analyzing variables such as political contributions, union size, and collective bargaining. We expand on the existing literature by focusing on the heretofore underdeveloped interaction of various tools used by unions for influencing state policy—in other words, the degree to which public-sector union political activity (such as campaign contributions) and collective bargaining rights serve as substitutes or complements for one another. Furthermore, we seek to shed light on the interplay between the effectiveness of public-sector union political activity and whether the state's governor belongs to the political party supported by the unions.

In general, public employees have several tools for influencing government policy. First, their unions are a powerful special-interest group comprising a sizable number of potential voters. Their market power often gives them an effective monopoly on the provision of various public services, such as education and police and fire protection, meaning that they lobby on behalf of all service providers and may be able to make credible strike threats, depending on state laws. Furthermore, public employees exhibit a higher degree of voter participation than other groups, making public-sector unions attractive to politicians.[2] Second, the unions, through the collection of dues from members, are able to provide sizable political contributions to support the election of specific candidates. Finally, many states have collective bargaining rights

[2] See, for example, Greene and Nikolaev (1999).

in place through which union members are able to negotiate with government officials to secure benefits and favorable employment regulations.

Thus, our model of public-sector unions' effects on state and local policy includes measures of each area of influence. In most cases, more than one tool is available to public employees. In particular, political contributions and collective bargaining may be used in concert to influence policy; therefore, models focused on just one area of influence fail to capture the full picture. It is possible that contributions from unions are less meaningful in states with collective bargaining rights, but perhaps collective bargaining matters little in cases where unions are major contributors to political campaigns. For example, collective bargaining rights may be effective only when coupled with direct political contributions from the union to the people with whom the union leaders must negotiate. Or, collective bargaining or political contributions could each be sufficient to affect policy on their own, making them substitutes, in which case the use of both would be less effective at the margin. To capture the complexities of the problem, a model must allow for the interaction of the multiple variables.

Furthermore, as no political activity occurs in a vacuum, it is important to consider the role played by a state's current administration. Political contributions to Democrats (the party to which the majority of public-sector union contributions are made) may be influential in states where the sitting governor is of the same party. The exact opposite may be true if a Republican holds the office; such contributions may even have a detrimental effect on union-preferred outcomes. Collective bargaining between public-sector employees and a rival governor's administration will take a different form than it would between a union and a union-supported candidate. An empirical model must take into account the possible differences in effectiveness of union political activity with regard to the governor's party affiliation.

We model the effects of public-sector unions on a series of dependent variables, including total state and local expenditure, income of public employees, and employment in the public sector, as well as state and local education expenditure, full-time equivalent teacher salaries, and the number of full-time equivalent teachers. Our data span 43 states over the time period 2004–2011.[3] Since most political contributions are made during years in which candidates are running for major state offices (and elections tend to occur every two years), our contribution data come from the years 2004, 2006, 2008, and 2011. Since elections are often held at the end of the year, and policies pertaining to government spending are slow-changing, we incorporate a lag structure where all explanatory variables are lagged by one year and define the dependent variable as a growth rate. Our methodology also helps to combat possible simultaneity problems.[4] Thus, we estimate our model on 172 observations from 43 states over four two-year time periods.[5] Our benchmark model (not including the aforementioned interactions) of the relationship between public-sector union political activity and the growth in dependent variables, $Y_{i,t}$, is

$$(1) \qquad Y_{i,t} = \beta_0 + \beta_1 C_{i,t-1} + \beta_2 B_{i,t-1} + \beta_3 S_{i,t-1} + \alpha \boldsymbol{X}_{i,t-1} + \gamma + \delta + \varepsilon,$$

where our variables of interest include $C_{i,t-1}$, per capita contributions to political candidates made by public-sector unions; $B_{i,t-1}$, the percentage of public employees covered by collective bargaining; $S_{i,t-1}$, a variable indicating the level of public-sector union support for the governor

[3] As is standard practice in the literature on state politics, we drop Nebraska from the analysis due to its unique nonpartisan unicameral legislature, as well as Alaska and Hawaii due to their unique fiscal characteristics. We also exclude a small minority of states (Louisiana, Mississippi, New Jersey, and Virginia) that are on an odd-year election cycle.

[4] The Appendix shows results for our overall state and local specifications using a longer-term, three-year growth rate (and associated three-year lags) in place of the one-year structure. Overall, the results are much weaker than our preferred specifications, and the effects of public-sector union political activity appear to be felt more in the short run following an election cycle.

[5] The most recent data available for teacher employment and salaries are from 2010, and these data allowed for the inclusion of 129 observations (43 states over three two-year periods).

(equivalent to the percentage of political contributions that went to candidates in his/her political party); and $\boldsymbol{X}_{i,t-1}$, a vector of control variables designed to control for state characteristics and voter preferences for fiscal policy. Finally, γ represents year-fixed effects, δ represents state-fixed effects (controlling for unobserved differences across states, including state preferences for the size of government and sentiment or hostility toward unions), α represents the intercept, and ε an error term.

Per capita contributions made by public-sector unions are included in our model as a measure of political activity. The collective bargaining variable represents another avenue by which public-sector employees are able to influence policy, because unions themselves may be expected to be more powerful in states where agreements are reached with a larger percentage of public employees through collective bargaining. Finally, our measure of public-sector union support for the governor shows any differences in policy related to the supported candidate winning an election. As an alternative measure of union support for the incumbent state government, we replace our measure of support for the governor's political party with measures of support for the political party in the majority of each house in the state legislature. This alternative specification (see table 6, below) serves to test for possible differences in the effectiveness of union political activity that may happen when support for the legislature is measured rather than support for the governor.

Our specific dependent variables comprise policy variables important to union members, including the percentage change in real personal income per state and local government employees; the amount of state and local government employment in the state; and the overall size of the state and local government (real per capita total expenditure). We also explore the effects of public-sector union political activity on education spending, because education is

perhaps the sector where this activity's effects are most often observed and are the source of major criticism. While different factors influence each of the policy choices, union activity plays a major role in each, and our models include proxies for voter preferences and state characteristics as well. The personal income and employment variables come from the Bureau of Economic Analysis, the state expenditure variables are from the US Census Bureau State and Local Government Finances data, and the teacher employment and salary data come from the National Center for Education Statistics. All variables are converted to real 2010 dollars using the Bureau of Labor Statistics' Consumer Price Index.

Our explanatory variables come from several sources. Our public-sector union contributions variable is the amount of all contributions to state political candidates made by public-sector unions and comes from Followthemoney.org. To control for differences in state size (and thus the size of contributions), we adjust this variable to per capita terms. Data on the percentage of public employees covered by collective bargaining comes from union-membership data compiled by Barry Hirsch and David Macpherson at Unionstats.com. Political support for the governor is the percentage of contributions going to the governor's political party and comes from the Council of State Governments' *Book of the States* and from Followthemoney.org. Our alternative measure of political support for the state's government is similarly calculated using data on the percentage of contributions going to the political party controlling the state senate and house, taken from the same sources.

Our $\boldsymbol{X}$ vector includes several state demographic variables designed to control for other factors. While the factors influencing the choice of fiscal policy are numerous, controls have been employed in the literature as proxies for voter preferences and state characteristics. The variables include the state's population (from the Bureau of Economic Analysis) and the percentages of the

population under the age of 18 and black or African American (from the US Census Bureau's Statistical Abstract). The percentage of the population over 18 belonging to public-sector unions is created using union-membership data compiled by Hirsch and Macpherson at Unionstats.com and population data from the Bureau of Economic Analysis. While this variable is likely correlated with our other independent variables, its inclusion is important to control for the overall size of the public-sector interest group (and such multicollinearity does not bias estimates). Dropping this variable from our specifications does not meaningfully affect our results. Data on real per capita personal income come from the Bureau of Economic Analysis, while data on real per capita federal grants come from the US Census Bureau's *Federal Aid to States* report. Finally, we include an indicator variable that takes a value of 1 for states with Democratic governors. Table 1 (page 25) presents summary statistics for all variables.

Our initial model, shown above as equation 1, provides an incomplete picture of the influence of public-sector unions on state and local government policy. While other researchers have explored the separate effects of union political activity and collective bargaining, an examination of how variables interact and shape policy has not received as much scrutiny. Thus, we expand our baseline model to include interactions between our variables of interest:

$$(2)\ Y_{i,t} = \beta_0 + \beta_1 C_{i,t-1} + \beta_2 B_{i,t-1} + \beta_3 S_{i,t-1} + \beta_4 (C_{i,t-1} \times B_{i,t-1}) + \beta_5 (C_{i,t-1} \times S_{i,t-1}) + \beta_6 (B_{i,t-1} \times S_{i,t-1}) + \beta_7 (C_{i,t-1} \times B_{i,t-1} \times S_{i,t-1}) + \alpha \boldsymbol{X}_{i,t-1} + \gamma + \delta + \varepsilon,$$

where all variables are defined as above. The inclusion of interaction terms between contributions, collective bargaining, and level of support for the current governor changes the interpretation of the marginal effects. For instance, the marginal effect of a change in public-sector union contributions is now interpreted as

$$(3)\qquad \frac{\partial Y}{\partial C} = \beta_1 + \beta_4 B_{i,t-1} + \beta_5 S_{i,t-1} + \beta_7 (B_{i,t-1} \times S_{i,t-1}),$$

now dependent in part on the level of collective bargaining and support for the governor's party, as well as β_7, which specifies the portion of the contributions' effect resulting from interaction with both collective bargaining and support for the governor's party. In a hypothetical state with no collective bargaining and zero public-sector support for the governor's political party, the effect of public-sector contributions would be represented by β_1. However, if political contributions are more (or less) important when combined with collective bargaining rights, we may expect a statistically significant coefficient β_4. Likewise, if the degree to which public-sector unions support the governor's party affects union political contributions' effectiveness, coefficient β_5 should be statistically significant. The coefficient β_7 represents any changes in contributions' effectiveness related to the presence of collective bargaining and the level of governor support together. The complete marginal effect, then, can be computed at the mean to yield a more complete understanding of the role played by public-sector union contributions. The full marginal effect for the collective bargaining variable is also similarly interpreted.

Some further explanation of the interpretation of the marginal effects should prove useful. Equation 3 estimates the expanded marginal effect of a change in the level of political contributions made by public-sector unions. The first coefficient, β_1, shows the effect of contributions alone. If a state lacks employees covered by collective bargaining and has a governor not supported by public-sector unions (in other words, variables $B_{i,t-1}$ and $S_{i,t-1}$ take values of 0), the coefficient represents the complete effect of a change in union contributions. The coefficients β_4 and β_5 show how much of a public-sector union contribution's effect is dependent on the level of collective bargaining and the level of support for the governor, respectively. If the coefficients are statistically significant, then the marginal effect of political contributions changes in accordance with the level of these variables. The final coefficient, β_7, plays a similar role and

will further modify the effect of union contributions in states where both a degree of collective bargaining and union support for the governor are present. The full marginal effect (in essence, the sum of each coefficient) can be estimated for any variable of interest by evaluating equation 3 at specific values for each other variable of interest, such as the mean.

IV. Results

Table 2 (page 26) presents results from our baseline model, equation 1 above, in column 1 for each dependent variable. We observe a positive and statistically significant relationship between per capita total contributions made by public-sector unions and growth in income per state and local employee, and a positive and statistically significant relationship between the level of collective bargaining and the growth of state and local employment. None of our variables of interest is statistically significant in our total expenditure specification.

Overall, our public-sector union political activity measures demonstrate some explanatory power as the independent variables in our baseline specification, providing evidence of a potential positive relationship between union activity and changes in public-employee income and public-sector employment. As discussed above, however, the baseline specification ignores the possible interactions between different types of political activity. In particular, political contributions and collective bargaining might work together to influence policy. Or, the two methods vary in effectiveness and depend on the political party in control of the governor's office.

For each dependent variable, column 2 displays the results for the specification, including the interaction terms. For the public-employee income model, both the level of contributions and the percentage of employees covered by collective bargaining now take negative, statistically significant signs. The interaction between the two, however, is positive and statistically

significant. Thus, contributions and collective bargaining are related to higher growth in incomes when used together, and they are less effective (and perhaps counterproductive) when used alone. In our state and local employment specification, the level of collective bargaining remains positive and statistically significant alone, while once again none of our variables of interest is statistically significant in our expenditure specification.

The third column for each dependent variable includes the initial (one-year lag) level of the dependent variable, and it allows us to control for differences in the rate of change due to the baseline size of the state's government or public sector. While the initial level is, no doubt, related to the growth rate, inclusion of the initial level introduces a large degree of multicollinearity with the other independent variables. But our results are similar in both sign and statistical significance for all variables of interest, with the sole exception being the collective bargaining variable in the income specification where it is no longer statistically significant.

The coefficient estimates provide a partial view of the effects of public-sector political activity. Table 3 (page 27) presents the marginal effects for our specifications, including the interaction terms, evaluated at the sample mean. Per capita public-sector union contributions and the level of support for the governor's political party both have positive and statistically significant effects on changes in state and local employee income, while the percentage of public employees covered by collective bargaining has a positive and significant effect on state and local employment. As before, no statistically significant effect is observed in the expenditure specification. Taken together, public-sector union activity is effective at securing higher incomes and additional job opportunities, but it has no effect on the overall level of spending.

While the previous specifications test the relationship between public-sector political activity and variables related to state and local government as a whole, some specific areas of

government are, in all likelihood, more affected by union activity than others. One such sector identified by anecdotal evidence and the empirical literature is education. Teachers unions in particular are often considered to be among the most powerful labor unions (as well as one of the most powerful interest groups of any kind) at the national, state, and local levels. If union activity were to affect policy outcomes, we would expect to find evidence in the public-education sector.

Tables 4 and 5 (pages 28 and 29) present results from specifications using dependent variables describing the public-education sector: the growth of total per capita state and local education expenditure, average salary for full-time equivalent teachers, and the number of full-time equivalent teachers. Table 4 shows estimates using the measures of overall public-sector union activity in specifications with and without the initial level of the dependent variable. The results for the expenditure specifications are similar to the results found in the overall models: public-sector union political activity has no statistically significant effect on total state and local education expenditure. As before, the full-time-equivalent teacher salary specifications indicate that contributions alone lead to smaller increases in salaries, but when combined with higher rates of collective bargaining or a greater level of support for the governor's political party, the effect is positive and statistically significant. Likewise, the interaction of collective bargaining and support for the governor is positive and statistically significant; however, the three-way interaction is negative and significant, implying some degree of diminishing returns at high levels of all three variables.

Finally, the growth of full-time equivalent teachers is positively related to per capita political contributions and to the level of support for the governor's party, though the interaction effect is negative and statistically significant, as are the interactions of each with the level of

collective bargaining, implying a degree of substitutability. For the average state, the extent of collective bargaining is positively related to growth in teacher salaries and negatively related to teacher employment growth; public-sector political contributions are positive and statistically significant in the employment specification, including the initial number of teachers in the state.

Teachers unions are pervasive even in states with low levels of overall public-sector unionism. Therefore, the models presented in table 4 (which include the overall level of collective bargaining for each state) may fail to capture the true role of teachers unions' political activity in influencing state and local policy. Since data on the percentage of teachers covered by collective bargaining in each state are not available on an annual basis, we use the rate of teacher collective bargaining coverage from the 1999–2000 National Center for Education Statistics data and estimate changes based on changes in the overall level of collective bargaining coverage in each state. We then use the estimated collective bargaining variable alongside contribution and level of support variables specific to teachers unions (from Followthemoney.org).

Teachers unions' political contributions have a positive, statistically significant correlation with growth in education expenditures, though the effect is lessened when combined with collective bargaining in the state. The same effect is observed in the employment specifications, where the interaction of collective bargaining and the level of support is negative and statistically significant, while the three-way interaction is positive and statistically significant. The contributions variable is negative and significant in the salary specifications, though its interaction with collective bargaining and the level of support for the governor is positive, which means that contributions are only effective at increasing salaries when coupled with collective bargaining or support for the governor. The effect is again diminished when all three are present, as evidenced by the negative and significant three-way interaction term.

Finally, the marginal effects estimates show that teachers unions' contributions are positively related to the growth of teachers' salaries for the average state in our sample.

Our final specifications expand on the baseline model. Table 6 (page 30) presents results for our overall public-sector union activity specifications with the support for the governor's political party variable replaced with a variable measuring the level of support for the party in control of the state's senate and house. This test serves as a check on whether the level of public unions' support for the legislature (rather than the governor) has effects similar to those discussed above. While we observe less statistical significance across our variables of interest in the coefficient estimates, the marginal effects for the income and employment models are similar to the ones found in table 3: for the average state in our sample, public-sector political contributions are positively related to changes in public-employee income, and the extent of public-sector collective bargaining is positively related to growth in state and local employment. The difference in the expenditure specification where the level of support for the legislature is now statistically significant (and positive) is noteworthy and suggests that a greater degree of support for the majority party in either house is associated with greater increases in total spending.

V. Conclusion

Public-sector unions, and in particular their relationship to state fiscal health, have in recent years been a source of increasing scrutiny in the media and among the public at large. Recent events in Wisconsin, Chicago, and elsewhere indicate a serious tension between the unionization of public employees and certain state government policies. While a number of studies have attempted to address the relationship between unions and government growth, our paper attempts to illustrate

the relationships between union strength, political activity, collective bargaining rights, and state fiscal outcomes. Furthermore, our model includes a measure of union political support for the governor, allowing for differences in union effectiveness.

Our results vary somewhat across specifications, but we observe some unambiguous results. First, public-sector union contributions are often positively related to the percentage changes in the level of income for public-sector employees, while collective bargaining is positively related to changes in employment in the public sector overall and negatively related to changes in teacher employment. Second, public-sector political activity has no significant effect on overall government expenditure, which means that public-sector union activity, while effective at generating benefits for members, may have no impact on the overall provision of government services. Taken further, these results could imply a negative effect of union activity on overall service provision, as increases in income and employment without associated increases in total spending may indicate cuts to service provision in order to provide additional compensation to employees. As this falls outside the scope of the present study, further work explicitly testing the interaction between public-sector unions and service provision is warranted.

The most important result of our work is a deeper understanding of the interplay of union political activity, collective bargaining rights, and the level of support for the current administration. The interaction of the three is a key determinant of state fiscal policy. While our research provides a much-needed first step toward understanding the interplay of various types of union power and their relationship with state fiscal health, research related to public-sector unions and government growth, and, in particular, the interaction of the different tools available to unions, remains an area ripe for future work.

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Table 1. Summary Statistics

	Mean	Standard deviation
Explanatory variables of interest		
Real per capita public union contributions	0.221	0.205
Percentage of public employees covered by collective bargaining	0.376	0.169
Public union support for party in governor's office	0.531	0.388
Real per capita teachers union contributions	0.096	0.107
Estimated percentage of teachers covered by collective bargaining	0.696	0.349
Teachers union support for party in governor's office	0.518	0.406
Public union support for majority party controlling senate	0.541	0.387
Public union support for majority party controlling house	0.593	0.378
Dependent variables		
Real per capita state and local expenditure growth (1 year)	0.019	0.039
Income per state and local employee growth (1 year)	0.013	0.023
State and local employment growth (1 year)	0.004	0.015
Real per capita state and local education expenditure growth (1 year)	0.012	0.037
Real salary per full-time teacher growth (1 year)	0.018	0.047
Full-time teacher growth (1 year)	0.009	0.042
Control variables		
Percentage of over 18 population in public unions	0.030	0.015
Population (millions)	6.347	6.984
Real per capita federal grants (thousands)	1.774	0.604
Percentage of population under 18	0.241	0.019
Percentage of population black/African-American	0.095	0.084
Real per capita personal income (thousands)	38.748	5.512
Democratic governor	0.523	0.501

Table 2. The Overall Effects of Public-Sector Union Political Activity

	Real per capita state and local expenditure growth (1 year)			Income per state and local employee growth (1 year)			State and local employment growth (1 year)		
	1	2	3	1	2	3	1	2	3
Real per capita public union contributions (t−1)	−0.0039	−0.0245	−0.0535	0.0214**	−0.0888*	−0.0676*	−0.0008	0.0098	0.0081
	(0.0116)	(0.0641)	(0.0626)	(0.0103)	(0.0500)	(0.0355)	(0.0063)	(0.0296)	(0.0253)
Percentage of public employees covered by collective bargaining (t−1)	0.0178	0.0033	−0.0546	−0.0834	−0.1505**	−0.0732	0.0866**	0.0864*	0.0840*
	(0.1074)	(0.1198)	(0.1049)	(0.0700)	(0.0661)	(0.0562)	(0.0413)	(0.0474)	(0.0462)
Public union support for party in governor's office (t−1)	0.0064	0.0296	0.0288	0.0247*	0.0286	0.0228	0.0091	0.0138	0.0148
	(0.0177)	(0.0260)	(0.0335)	(0.0129)	(0.0199)	(0.0156)	(0.0113)	(0.0160)	(0.0147)
Contributions × collective bargaining (t−1)		0.0777	0.1546		0.2959*	0.2440**		−0.0134	−0.0101
		(0.1804)	(0.1768)		(0.1525)	(0.1036)		(0.0942)	(0.0826)
Contributions × support for governor (t−1)		−0.0963	−0.0404		−0.0335	−0.0192		−0.0207	−0.0221
		(0.0787)	(0.0746)		(0.0566)	(0.0435)		(0.0339)	(0.0313)
Collective bargaining × support for governor (t−1)		−0.0461	−0.0381		−0.0076	−0.0077		−0.0025	−0.0050
		(0.0546)	(0.0651)		(0.0555)	(0.0324)		(0.0243)	(0.0225)
Contributions × collective bargaining × support for governor (t−1)		0.2057	0.0885		0.0866	0.0187		0.0216	0.0204
		(0.2258)	(0.2017)		(0.1940)	(0.1218)		(0.0976)	(0.0864)
Initial level of dependent variable (thousands) at (t−1)			−0.0529***			−0.0097***			−0.0002**
			(0.0087)			(0.0013)			(0.0001)
Percentage of over 18 population in public unions (t−1)	−0.2239	0.0469	0.7241	0.1261	0.4783	0.7439	−0.9181*	−0.8928	−0.7447
	(0.9906)	(1.0184)	(0.8079)	(1.0905)	(1.0379)	(0.6357)	(0.4693)	(0.5439)	(0.5486)
Population (millions) (t−1)	−0.0152	−0.0140	−0.0130	−0.0014	−0.0000	0.0037	−0.0073**	−0.0072**	0.0038
	(0.0123)	(0.0124)	(0.0095)	(0.0039)	(0.0035)	(0.0033)	(0.0031)	(0.0031)	(0.0066)
Real per capita federal grants (thousands) (t−1)	−0.0106	−0.0099	0.0057	0.0068	0.0073	0.0039	−0.0003	0.0001	0.0009
	(0.0122)	(0.0121)	(0.0083)	(0.0054)	(0.0054)	(0.0033)	(0.0064)	(0.0065)	(0.0066)
Percentage of population under 18 (t−1)	−0.2869	−0.3438	0.4232	−0.6000	−0.6696	−0.3644	0.1001	0.1063	0.1880
	(0.7600)	(0.7891)	(0.4643)	(0.4596)	(0.4737)	(0.3162)	(0.3284)	(0.3392)	(0.327)
Percentage of population black/African-American (t−1)	−0.1741	−0.1493	−1.2554	−0.1265	−0.0966	−0.6521	−0.1183	−0.1614	−0.1313
	(1.0615)	(1.0722)	(1.0951)	(0.5560)	(0.6046)	(0.4138)	(0.4142)	(0.4281)	(0.4292)
Real per capita personal income (thousands) (t−1)	0.0029*	0.0034**	0.0092***	0.0011	0.0018*	0.0048***	0.0037***	0.0037***	0.0042***
	(0.0017)	(0.0016)	(0.0017)	(0.0012)	(0.0011)	(0.0012)	(0.0009)	(0.0008)	(0.0009)
Democratic governor (t−1)	−0.0008	−0.0041	−0.0050	−0.0206*	−0.0227**	−0.0146*	−0.0074	−0.0085	−0.0074
	(0.0149)	(0.0141)	(0.0150)	(0.0121)	(0.0103)	(0.0085)	(0.0096)	(0.0097)	(0.0086)
Constant	0.0946	0.0752	0.1897	0.1457	0.1366	0.4520***	−0.1016	−0.1035	−0.1251
	(0.1955)	(0.2049)	(0.1744)	(0.1688)	(0.1566)	(0.1298)	(0.0847)	(0.0838)	(0.0904)
R-squared	0.71	0.71	0.81	0.53	0.57	0.78	0.55	0.55	0.57
F-statistic (p-value)	42.01	32.88	50.42	56.42	40.58	84.21	44.27	38.21	32.44
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Number of observations	172	172	172	172	172	172	172	172	172

*** indicates statistical significance at the 99% level, ** at the 95% level, and * at the 90% level.

Notes: All models include state and year fixed effects. Robust standard errors, clustered at the state level, are in parentheses.

Table 3. The Overall Effects of Public-Sector Union Political Activity, Marginal Effects

	Marginal Effects (evaluated at sample mean)					
	Real per capita state and local expenditure growth (1 year)		Income per state and local employee growth (1 year)		State and local employment growth (1 year)	
	2	3	2	3	2	3
Real per capita public union contributions	−0.0053	0.0009	0.0220**	0.0178***	−0.0020	−0.0035
	(0.0129)	(0.0090)	(0.0089)	(0.0068)	(0.0060)	(0.0059)
Percentage of public employees covered by collective bargaining	0.0200	−0.0304	−0.0792	−0.0213	0.0847**	0.0814*
	(0.1062)	(0.0738)	(0.0642)	(0.0481)	(0.0431)	(0.0435)
Public union support for party in governor's office	0.0081	0.0129	0.0255**	0.0172*	0.0101	0.0097
	(0.0166)	(0.0174)	(0.0110)	(0.0095)	(0.0112)	(0.0101)

Table 4. The Effects of Public-Sector Union Political Activity on Education

	Real per capita state and local education expenditure growth (1 year)		Real salary per full time teacher growth (1 year)		Full time teacher growth (1 year)	
	1	2	1	2	1	2
Real per capita public union contributions (t−1)	0.0528	0.0291	−0.6000**	−0.5143***	0.5637**	0.5730***
	(0.0515)	(0.0467)	(0.2922)	(0.1672)	(0.2241)	(0.2134)
Percentage of public employees covered by collective bargaining (t−1)	0.0729	−0.0705	0.0850	−0.2579	−0.2305	−0.1128
	(0.1323)	(0.1162)	(0.2411)	(0.1608)	(0.1770)	(0.1446)
Public union support for party in governor's office (t−1)	0.0252	0.0377	−0.1468*	−0.2068**	0.1669***	0.1900***
	(0.0558)	(0.0491)	(0.0859)	(0.0923)	(0.0613)	(0.0634)
Contributions × collective bargaining (t−1)	−0.0569	0.0008	1.8007**	1.462***	−1.5552**	−1.5544**
	(0.1189)	(0.1162)	(0.8521)	(0.5083)	(0.6865)	(0.6546)
Contributions × support for governor (t−1)	−0.0821	−0.0935	0.6470**	0.5844**	−0.6061***	−0.6121***
	(0.1039)	(0.0904)	(0.3056)	(0.2210)	(0.2195)	(0.2149)
Collective bargaining × support for governor (t−1)	0.0692	0.0078	0.4660***	0.4836***	−0.4075**	−0.4354**
	(0.0775)	(0.0646)	(0.1736)	(0.1748)	(0.1619)	(0.1633)
Contributions × collective bargaining × support for governor (t−1)	0.1295	0.1598	−2.0802**	−1.7903***	1.9285***	1.9121***
	(0.2327)	(0.2098)	(0.8888)	(0.6040)	(0.7020)	(0.6885)
Initial level of dependent variable (thousands) at (t−1)		−0.1544***		−0.0093***		−0.0031***
		(0.0296)		(0.0019)		(0.0009)
Percentage of over 18 population in public unions (t−1)	−0.6852	0.7171	−5.2300	−1.1650	5.0297	4.2775
	(1.3736)	(1.0694)	(3.1837)	(2.7849)	(3.2002)	(2.955)
Population (millions) (t−1)	−0.0136	−0.0110	0.0145	0.0007	−0.0295	0.0282
	(0.0081)	(0.0082)	(0.0161)	(0.0141)	(0.0219)	(0.0262)
Real per capita federal grants (thousands) (t−1)	0.0094	0.0243***	0.0416	0.0797	−0.0148	−0.0274
	(0.0107)	(0.0079)	(0.0481)	(0.0558)	(0.0349)	(0.0352)
Percentage of population under 18 (t−1)	−0.7884	0.1866	0.3154	0.9758	−1.5298	−1.5084
	(1.0110)	(0.8501)	(1.9796)	(1.6903)	(1.1667)	(0.9940)
Percentage of population black/African-American (t−1)	0.9276	0.2275	0.3500	−2.0009	−1.7312	0.1372
	(1.1984)	(0.9505)	(2.9478)	(2.9309)	(2.5105)	(2.4128)
Real per capita personal income (thousands) (t−1)	0.0062***	0.0131***	−0.0008	0.0050	0.0067	0.0075*
	(0.0022)	(0.0037)	(0.0046)	(0.0044)	(0.0044)	(0.0043)
Democratic governor (t−1)	−0.0386	−0.0246	−0.0016	0.0443	−0.0322	−0.0464
	(0.0262)	(0.0264)	(0.0419)	(0.0390)	(0.0319)	(0.0318)
Constant	−0.0626	−0.1323	−0.1293	0.0321	0.4407	0.0688
	(0.2254)	(0.2175)	(0.4606)	(0.0426)	(0.3487)	(0.3132)
R-squared	0.53	0.65	0.36	0.54	0.37	0.44
F-statistic (p-value)	15.23	15.99	5.16	6.13	4.85	10.12
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Number of observations	172	172	129	129	129	129
Marginal Effects (evaluated at sample mean)						
Real per capita public union contributions	0.0136	0.0117	0.0072	−0.0103	0.0404	0.0438*
	(0.0142)	(0.0117)	(0.0333)	(0.0296)	(0.0261)	(0.0256)
Percentage of public employees covered by collective bargaining	0.1123	−0.0475	0.4753*	0.1025	−0.5561**	−0.4545**
	(0.1289)	(0.0931)	(0.2801)	(0.1735)	(0.2302)	(0.1968)
Public union support for party in governor's office	0.0439	0.0332	0.0006	−0.0433	0.0382	0.0483
	(0.0317)	(0.0308)	(0.0488)	(0.0507)	(0.0420)	(0.0407)

*** indicates statistical significance at the 99% level, ** at the 95% level, and * at the 90% level.

Notes: All models include state and year fixed effects. Robust standard errors, clustered at the state level, are in parentheses.

Table 5. The Effects of Teachers Union Political Activity on Education

	Real per capita state and local education expenditure growth (1 year)		Real salary per full time teacher growth (1 year)		Full time teacher growth (1 year)	
	1	2	1	2	1	2
Real per capita teachers union contributions (t−1)	0.1268***	0.1099***	−0.1700**	−0.2451***	0.2328***	0.2562***
	(0.0339)	(0.0240)	(0.0844)	(0.0660)	(0.0725)	(0.0740)
Estimated percentage of teachers covered by collective bargaining (t−1)	0.0213	−0.0282	0.0786	−0.0978	−0.1210	−0.0275
	(0.0775)	(0.0568)	(0.1559)	(0.0879)	(0.1056)	(0.0933)
Teachers union support for party in governor's office (t−1)	0.0443	0.0297	−0.0402	−0.1747**	0.0325	0.0741
	(0.0401)	(0.0404)	(0.0749)	(0.0853)	(0.0537)	(0.0512)
Contributions × collective bargaining (t−1)	−0.3102*	−0.2678**	0.7074**	0.7124**	−0.6826**	−0.6807*
	(0.1715)	(0.1128)	(0.3396)	(0.2757)	(0.3245)	(0.3291)
Contributions × support for governor (t−1)	−0.2585	−0.2267	1.3771**	1.9617***	−0.7855	−0.9350**
	(0.3011)	(0.2906)	(0.5950)	(0.5805)	(0.5222)	(0.4602)
Collective bargaining × support for governor (t−1)	−0.0082	0.0024	0.1627***	0.2450***	−0.1176**	−0.1445***
	(0.0418)	(0.0323)	(0.0562)	(0.0538)	(0.0480)	(0.0481)
Contributions × collective bargaining × support for governor (t−1)	0.4682	0.3748	−1.9840**	−2.5728***	1.4077**	1.5623**
	(0.3827)	(0.3414)	(0.7763)	(0.6989)	(0.6697)	(0.6190)
Initial level of dependent variable (thousands) at (t−1)		−0.1519***		−0.0111***		−0.0035***
		(0.0000)		(0.0024)		(0.0011)
Percentage of over 18 population in public unions (t−1)	0.0349	0.4814	−5.0505*	−1.0612	4.4009	3.4483
	(1.1102)	(0.9785)	(2.8526)	(2.4008)	(2.9833)	(2.7910)
Population (millions) (t−1)	−0.0135**	−0.0108	0.0198	0.0038	−0.0327	0.0314
	(0.0066)	(0.0070)	(0.0168)	(0.0163)	(0.0254)	(0.0333)
Real per capita federal grants (thousands) (t−1)	0.0109	0.0246***	0.0579	0.1005**	−0.0218	−0.0352
	(0.0101)	(0.0078)	(0.0420)	(0.0466)	(0.0351)	(0.0360)
Percentage of population under 18 (t−1)	−0.9441	0.3032	0.4172	1.3177	−1.6808	−1.5957
	(0.9712)	(0.8108)	(1.8516)	(1.5622)	(1.3173)	(1.1733)
Percentage of population black/African-American (t−1)	1.0355	0.3721	−1.6959	−3.6460	0.7988	2.3068
	(1.1505)	(0.9977)	(3.2662)	(2.9826)	(2.9507)	(2.9523)
Real per capita personal income (thousands) (t−1)	0.0052**	0.0116***	−0.0012	0.0059	0.0057	0.0068
	(0.0021)	(0.0034)	(0.0052)	(0.0047)	(0.0050)	(0.0049)
Democratic governor (t−1)	−0.03907*	−0.0236	−0.0534	0.0143	0.0240	0.0001
	(0.0202)	(0.0227)	(0.0550)	(0.0595)	(0.0418)	(0.0404)
Constant	0.0073	−0.1138	−0.0448	0.3656	0.3413	−0.0521
	(0.2205)	(0.2123)	(0.3701)	(0.3987)	(0.3330)	(0.3147)
R-squared	0.54	0.66	0.25	0.53	0.23	0.30
F-statistic (p-value)	23.61	32.16	6.19	7.59	7.02	9.75
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Number of observations	172	172	129	129	129	129
Marginal Effects (evaluated at sample mean)						
Real per capita teachers union contributions	−0.0541	−0.0587	0.3206**	0.3358***	−0.1458	−0.1419
	(0.0726)	(0.0608)	(0.1399)	(0.1290)	(0.1156)	(0.1118)
Percentage of public employees covered by collective bargaining	0.0106	−0.0341	0.1342	−0.0274	−0.1780	−0.0907
	(0.0679)	(0.0498)	(0.1596)	(0.0872)	(0.1182)	(0.0992)
Teachers union support for party in governor's office	0.0451*	0.0346	0.0727	0.0114	−0.0317	−0.0126
	(0.0257)	(0.0262)	(0.0694)	(0.0743)	(0.0594)	(0.0573)

*** indicates statistical significance at the 99% level, ** at the 95% level, and * at the 90% level.

Notes: All models include state and year fixed effects. Robust standard errors, clustered at the state level, are in parentheses.

Table 6. The Overall Effects of Public-Sector Union Political Activity, Support for Legislature

	Real per capita state and local expenditure growth (1 year)		Income per state and local employee growth (1 year)		State and local employment growth (1 year)	
	Senate	House	Senate	House	Senate	House
Real per capita public union contributions (t−1)	−0.0356 (0.0534)	−0.0189 (0.0595)	−0.0173 (0.0406)	−0.0770** (0.0326)	−0.0223 (0.0290)	0.0036 (0.0276)
Percentage of public employees covered by collective bargaining (t−1)	−0.0680 (0.0705)	−0.0931 (0.0745)	−0.0654 (0.0412)	−0.0836 (0.0507)	0.0859* (0.0470)	0.0919* (0.0470)
Public union support for majority party in legislature (t−1)	0.0039 (0.0484)	0.0017 (0.0231)	−0.0053 (0.0181)	−0.0108 (0.0113)	−0.0026 (0.0206)	0.0053 (0.0095)
Contributions × collective bargaining (t−1)	0.1427 (0.1313)	0.0450 (0.1374)	0.0491 (0.0985)	0.2267** (0.0917)	0.0485 (0.0815)	−0.0262 (0.0732)
Contributions × support for legislature (t−1)	−0.0108 (0.0665)	−0.0381 (0.0664)	−0.0406 (0.0504)	0.0230 (0.0380)	0.0457 (0.0358)	0.0010 (0.0317)
Collective bargaining × support for legislature (t−1)	0.0597 (0.1086)	0.0273 (0.0593)	0.0177 (0.0469)	0.0348 (0.0358)	0.0248 (0.0508)	−0.111 (0.0253)
Contributions × collective bargaining × support for legislature (t−1)	−0.0392 (0.1541)	0.1064 (0.1392)	0.1676 (0.1143)	−0.0263 (0.0874)	−0.1109 (0.0845)	0.0111 (0.0689)
Initial level of dependent variable (thousands) at (t−1)	−0.0521*** (0.0082)	−0.0540*** (0.0088)	−0.0090*** (0.0010)	−0.0096*** (0.0013)	−0.0002** (0.0001)	−0.0002** (0.0001)
Percentage of over 18 population in public unions (t−1)	0.1532 (0.8295)	0.5970 (0.7598)	0.4514 (0.5959)	0.5712 (0.6348)	−0.9801* (0.5356)	−0.7982 (0.5141)
Population (millions) (t−1)	−0.0117 (0.0094)	−0.0112 (0.0091)	0.0027 (0.0025)	0.0042 (0.0033)	0.0045 (0.0067)	0.0032 (0.0064)
Real per capita federal grants (thousands) (t−1)	0.0060 (0.0080)	0.0045 (0.0084)	0.0043 (0.0059)	0.0034 (0.0056)	0.0008 (0.0066)	0.0003 (0.0066)
Percentage of population under 18 (t−1)	0.6695 (0.4065)	0.6177 (0.4483)	−0.2641 (0.3190)	−0.3498 (0.3357)	0.2021 (0.2937)	0.1881 (0.3109)
Percentage of population black/African-American (t−1)	−1.3666 (1.0144)	−1.5961 (1.0667)	−0.2945 (0.4807)	−0.7503 (0.5118)	−0.1034 (0.4225)	−0.0572 (0.4857)
Real per capita personal income (thousands) (t−1)	0.0092*** (0.0017)	0.0090*** (0.0016)	0.0045*** (0.0011)	0.0045*** (0.0012)	0.0042*** (0.0009)	0.0040*** (0.0009)
Democratic governor (t−1)	0.0046 (0.0062)	0.0056 (0.0062)	0.0006 (0.0027)	−0.0032 (0.0027)	0.0003 (0.0030)	0.0005 (0.0028)
Constant	0.1365 (0.1526)	0.1970 (0.1607)	0.3834*** (0.1183)	0.4768*** (0.1341)	−0.1289 (0.0874)	−0.1239 (0.0915)
R-squared	0.82	0.82	0.80	0.78	0.58	0.57
F-statistic (p-value)	81.44 (0.00)	42.68 (0.00)	107.72 (0.00)	86.02 (0.00)	37.62 (0.00)	32.31 (0.00)
Number of observations	172	172	172	172	172	172
Marginal Effects (evaluated at sample mean)						
Real per capita public union contributions	0.0042 (0.0078)	−0.0009 (0.0096)	0.0133** (0.0056)	0.0160** (0.0077)	−0.0019 (0.0075)	−0.0032 (0.0065)
Percentage of public employees covered by collective bargaining	−0.0089 (0.0748)	−0.0530 (0.0775)	−0.0250 (0.0481)	−0.0164 (0.0487)	0.0968** (0.0389)	0.0810* (0.0433)
Public union support for majority party in legislature	0.0208* (0.0107)	0.0124** (0.0061)	0.0063** (0.0030)	0.0052 (0.0035)	0.0076 (0.0045)	0.0023 (0.0030)

*** indicates statistical significance at the 99% level, ** at the 95% level, and * at the 90% level.

Notes: All models include state and year fixed effects. Robust standard errors, clustered at the state level, are in parentheses.

Appendix: The Overall Effects of Public-Sector Union Political Activity, Three-Year Growth

	Real per capita state and local expenditure growth (3 year)		Income per state and local employee growth (3 year)		State and local employment growth (3 year)	
	1	2	1	2	1	2
Real per capita public union contributions (t−3)	0.0663 (0.1122)	0.0952 (0.0801)	−0.0298 (0.0901)	0.0347 (0.0383)	0.0694 (0.0591)	0.0516 (0.0604)
Percentage of public employees covered by collective bargaining (t−3)	0.0029 (0.2072)	0.1527 (0.1237)	−0.1929 (0.2174)	0.0693 (0.0831)	0.1499 (0.0992)	0.0914 (0.0886)
Public union support for party in governor's office (t−3)	0.0803 (0.0530)	0.1167*** (0.0304)	0.0255 (0.0480)	0.0128 (0.0151)	0.0156 (0.0257)	0.0204 (0.0233)
Contributions × collective bargaining (t−3)	−0.1618 (0.3183)	−0.2506 (0.2293)	0.1427 (0.2607)	−0.0774 (0.1181)	−0.2467 (0.1671)	−0.1939 (0.1641)
Contributions × support for governor (t−3)	−0.2278 (0.2155)	−0.3544*** (0.1227)	−0.3303** (0.1542)	−0.1201 (0.0768)	−0.1741 (0.1139)	−0.1852* (0.1051)
Collective bargaining × support for governor (t−3)	−0.1721 (0.1238)	−0.2531*** (0.0765)	−0.0492 (0.1281)	0.0012 (0.0504)	−0.0126 (0.0568)	−0.0258 (0.0524)
Contributions × collective bargaining × support for governor (t−3)	0.7083 (0.6007)	0.9518*** (0.3360)	1.0013** (0.4084)	0.2829 (0.2218)	0.5190* (0.2985)	0.5490** (0.2711)
Initial level of dependent variable (thousands) at (t−3)		−0.1468*** (0.0144)		−0.0208*** (0.0012)		−0.0013** (0.0005)
Percentage of over 18 population in public unions (t−3)	0.2256 (1.8941)	−0.0155 (1.3565)	−1.2714 (2.6825)	−0.1233 (0.7192)	−3.4439** (1.2893)	−2.2572* (1.2192)
Population (millions) (t−3)	−0.0627 (0.0475)	−0.0393 (0.0249)	−0.0131 (0.0175)	−0.0011 (0.0089)	−0.0305 (0.0228)	0.0538 (0.0356)
Real per capita federal grants (thousands) (t−3)	−0.1123*** (0.0361)	0.0370 (0.0293)	−0.0233 (0.0340)	0.0004 (0.0179)	−0.0206 (0.0146)	−0.0179 (0.0129)
Percentage of population under 18 (t−3)	−0.1481 (1.3866)	0.4562 (0.9322)	−1.3795 (1.3572)	−0.0176 (0.6198)	1.0437 (0.7009)	0.7739 (0.6392)
Percentage of population black/African-American (t−3)	−7.1212 (5.1346)	−1.9698 (2.4881)	−1.4174 (2.6885)	−1.0209 (0.9151)	−2.8433 (2.7464)	−3.7461 (2.9241)
Real per capita personal income (thousands) (t−3)	0.0043 (0.0050)	0.0176*** (0.0037)	−0.0036 (0.0043)	0.0048** (0.0021)	0.0053* (0.0027)	0.0067*** (0.0024)
Democratic governor (t−1)	−0.0043 −0.0226	−0.0065 (0.0137)	0.0067 (0.0140)	0.0040 (0.0055)	0.0006 (0.0104)	0.0057 (0.0096)
Constant	1.141 −0.7027	0.8101** (0.3890)	0.8414* (0.4938)	1.0032*** (0.2054)	0.1121 (0.3663)	0.2004 (0.3241)
R-squared	0.56	0.83	0.31	0.85	0.67	0.72
F-statistic (p-value)	10.88 (0.00)	47.64 (0.00)	8.17 (0.00)	55.16 (0.00)	11.07 (0.00)	11.50 (0.00)
Number of observations	129	129	129	129	129	129
Marginal Effects (evaluated at sample mean)						
Real per capita public union contributions	0.0253 (0.0275)	0.0028 (0.0246)	0.0476** (0.0242)	−0.0015 (0.0111)	−0.0125 (0.0136)	−0.0104 (0.0121)
Percentage of public employees covered by collective bargaining	−0.0440 (0.1999)	0.0717 (0.1087)	−0.0825 (0.2294)	0.0840 (0.0846)	0.1477 (0.0917)	0.0964 (0.0818)
Public union support for party in governor's office	0.0236 (0.0187)	0.0222** (0.0099)	0.0165 (0.0136)	0.0104* (0.0060)	0.0152 (0.0099)	0.0151 (0.0097)

*** indicates statistical significance at the 99% level, ** at the 95% level, and * at the 90% level.

Notes: All models include state and year fixed effects. Robust standard errors, clustered at the state level, are in parentheses.