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## The Politics of Pensions

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**Abstract:** For decades, America’s state and local governments have promised their workers increasingly generous pensions but failed to fully fund them, producing a fiscal problem of staggering proportions. In this paper, we examine the politics of public pensions. While it might seem obvious that the pension problem is due to Democrats and unions pushing for generous pensions over Republican resistance, we develop a theory—rooted in voters, interest groups, and myopic politicians—to argue that, during normal times, we should expect *both* parties to support generous (and underfunded) pensions, and thus to be responsible for the larger problem. It is only after the onset of the Great Recession, which disrupted normalcy by expanding the scope of conflict, that we should expect partisan conflict. Using a new dataset of state legislators’ votes on hundreds of pension bills passed between 1999 and 2011, we carry out an empirical analysis that supports these expectations.

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The economic downturn of 2008 plunged America's state and local governments into crisis, leading to widespread layoffs of public workers and cutbacks in public services. Since then the economy has slowly improved, moving toward a recovery that, to judge from history, should allow governments to get back to normal.

But history is not a very good guide in this case. The nation's state and local governments may well be facing a new normal—due to an enormous, unresolved problem that threatens their financial well-being, and with it their capacity to provide a full range of public services to their citizens. The problem is the unfunded cost of public sector pensions.

Before the Great Recession, this problem went unrecognized. But with the steep drop in the stock market, the assets of public pension funds plummeted and left many of them seriously underfunded. Governments were pressed to take drastic—and politically painful—corrective action by making massive new contributions and somehow scaling back their pension systems.

As financial economists weighed in, moreover, they revealed that the pension problem was more severe than the governments' own data suggested, and that it was *not* simply due to the recession-caused decline in asset value. Public pension funds had long been operating on the basis of optimistic actuarial assumptions, producing official calculations that understated long-term liabilities (Novy-Marx and Rauh, 2009; Brown and Wilcox, 2009; Lucas and Zeldes, 2009). Post-recession, even the traditional assumptions pointed to a stunningly large funding deficit, in the neighborhood of \$700 billion. But Novy-Marx and Rauh (2012), who have done the lead revisionist research, argued that a more valid measure as of late 2011 exceeded \$4 trillion—roughly equal to a third of the entire gross domestic product of the United States (Rauh, 2011).

How did a problem of this magnitude come about? The social science literature on public sector pensions is almost entirely a finance literature that focuses on funding levels,

liabilities, contributions, and other financial aspects of the pension funds themselves. Political variables are sometimes included in statistical models to help explain the financial quantities of interest (see, e.g., Munnell, 2012; Clark, Craig, and Sabelhaus, 2011; and Mitchell and Smith, 1994), but this is not a literature that attempts to understand why public officials make the political decisions they do on pension issues.

Yet public pension systems are political creations. Virtually everything about them is ultimately subject to the authority of state legislatures and governors, and thus shaped by the political processes that generate their decisions. The pension problem is fundamentally a political problem, and its politics need to be understood (Kiewiet, 2010).

In this paper, we bring the politics of public pensions to center stage. As a baseline, we find it useful to begin with the polarization that has gripped the nation's politics for the last few decades, because public sector pensions would seem to be a set-up for polarized political conflict between the parties.<sup>1</sup> Democrats are the party of labor, public sector unions are their core supporters, and it is reasonable to believe that Democrats and unions have sought more generous public pensions over the years and have had to overcome Republican resistance to make advances.<sup>2</sup> That the Republicans would resist seems to make good sense. They have traditionally been unsympathetic to unions and collective bargaining, and in recent years have launched attacks on union bargaining rights (e.g., Nichols, 2012).

Pension politics may also reflect the polarized politics of budgets and deficits, with Democrats the defenders of government programs, taxes, and spending, and Republicans holding

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<sup>1</sup> On polarization generally, see, e.g., Fiorina, Abrams, and Pope (2005); Abramowitz (2010); and Quirk (2011).

<sup>2</sup> On public sector unions, their alliance with Democrats, their active role in modern American politics—and how little these topics have been studied, see, e.g., Moe (2006, 2011), Kearney (2009), and Riccucci (2011).

the line and pushing for draconian cuts. The recent partisan standoffs over the fiscal cliff and the debt ceiling only highlight how utterly divided the two parties can be on fiscal issues—and how divided they may well be over pensions. A simple story of partisan politics, therefore, would seem to yield a simple bottom line in explaining the modern pension problem: the Democrats and their union allies did it.

But is there validity to this story? We set out a theoretical perspective that, while retaining aspects of this story of partisan politics, argues that it is off-target in key respects. We think the nation has a pension problem for reasons that are more nuanced—and more politically interesting—than this now-familiar account would have it.

We put these theoretical ideas to the test by carrying out an analysis of more than 300 pension bills considered by state legislatures from 1999 through 2011. Our findings show that the political dynamics of public sector pensions are not what the standard story of partisan politics predicts, and that the more nuanced theory we outline here is a better fit with the facts—and a better explanation of the politics that have led to such a massive fiscal problem.<sup>3</sup>

### **The Politics of Pensions**

Until the Great Recession, there is no evidence that public sector pensions were on voters' minds at all. Pensions were not in the headlines, opinion polls ignored the topic, and governments never signaled anything was wrong. Had voters tried to find out for themselves, moreover, they would have discovered that almost everything about pensions—the actuarial theory, the assumptions and calculations, even the language—is unfathomably complicated.

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<sup>3</sup> Our focus here is on politics at the state level. During the last century, hundreds of local pension plans were consolidated at the state level, where greater scale allowed for greater financial security. There are still many local plans in existence, some of them very large, but by far the greater share of state-local pension money is controlled by the states (Clark, Craig, and Sabelhaus, 2011).

During normal times, then, the typical voter did not care about pension issues or know much about them—a classic case of an inattentive public (e.g., Arnold, 1990). One group of voters, however, stood out as an exception: public sector workers—who did care about public pensions, were likely to be fairly well informed on the issue, and had incentives to reward supportive politicians. Democratic politicians clearly had reason to be responsive in expanding public sector pensions. But Republicans had incentives to go along—for they were under no voter pressure to be opposed, and there was potential gain from being supportive.

The interest group system was similarly unbalanced. Public sector workers in many places were represented by public sector unions, which had strong incentives to use their influence in elections and lobbying to promote favorable action on pensions—yet there were no interest groups on the other side, a standard outcome of policies with concentrated benefits and distributed costs and a formula for political capture (Wilson, 1989, 1995; Stigler, 1971). As union allies, Democrats clearly had incentives to take the lead in pushing for generous pensions. But Republicans had reason to go along, as there were no interest groups to reward them for being opposed.<sup>4</sup>

The incentives for bipartisanship were reinforced, moreover, by the peculiar nature of pensions themselves and the myopic political calculations they induce. In the public sector, workers have traditionally been provided with defined benefit pension plans. These plans are financed by ongoing contributions by employers and employees into pension funds, where the

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<sup>4</sup> We want to note that, with voters so uninformed and apathetic, both parties had incentives to craft pension policies that fit within what Bawn et al. (2012) have called the “electoral blind spot” of voters. These are policies that please powerful interest groups, but that many voters might oppose if they were well informed. The twist here—an interesting one—is that the two parties, rather than crafting different policies to cobble together distinctive interest group coalitions, were coalescing on the same “blind spot” policy in order to please (or avoid offending) the same interest group.

money is invested to yield assets that are sufficient—supposedly—to pay retirees a specified percentage of their final salaries for the rest of their lives. For employees, there is very little risk: the future pension payouts are legally guaranteed. The risk is borne by governments, and thus taxpayers. So it is up to governments to ensure that contributions are sufficient to fully fund the payouts retirees have been legally promised.

Yet politicians don't have incentives to do that. They are in the enviable position of being able to promise public workers and their unions much-valued benefits without having to pay the true costs. In principle, of course, any such promises should be funded by increases in current contributions. But if contributions are insufficient, the bills won't come due for many years when other politicians and generations of taxpayers will be responsible for paying for them. Thus, current politicians have incentives to behave myopically: by increasing benefits, keeping contributions lower than they should be—and relying on others, in the future, to pay the full costs.<sup>5</sup>

This is an alluring political calculus that knows no party lines. It gives Republicans even more reason to see pensions as having a political upside. And it allows Democrats and unions to push for even greater benefits and lower contributions than would otherwise be feasible. A skeptic might argue that, because the latter want to ensure that pension promises are ultimately kept, they would insist on the more costly contribution levels necessary for full funding. But this is questionable. With state-controlled pensions, the future benefits promised to public workers are legally guaranteed (Monahan, 2010). They *will* be paid.<sup>6</sup> It will just be someone else's

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<sup>5</sup> See, e.g., Kiewiet (2010). See also Arnold's (1990) analysis of inattentive publics, and his recognition that politicians have incentives to push costs into the future to avoid rousing inattentive publics into action.

<sup>6</sup> The logic we are outlining here is for state-controlled pension funds, whose politics we are considering in this paper. This logic may not apply with the same force for local pension

problem, in the future, to find the money to pay them. In the meantime, Democrats and union leaders have incentives to lock in high benefit levels, keep contributions low, and free up resources for spending on other programs. Republicans have incentives to go the same route, especially if it frees up money for the policy changes *they* prefer, such as cutting taxes.<sup>7</sup>

Keeping contributions low, we should emphasize, is much easier to accomplish if politicians also embrace the kinds of risk-acceptant actuarial assumptions that financial economists have roundly criticized. By systematically understating future liabilities, these assumptions call for much lower contributions than financial economists say are required for full funding—thus giving politicians a technical justification for keeping everyone’s current costs down. The traditional assumptions work well for politicians, and they have incentives to adopt and keep them.

With the onset of the Great Recession, however, the chickens came home to roost. Public sector pensions were suddenly so critically underfunded that they required huge, immediate contributions and threatened to wreak financial havoc on many governments. Pensions became a salient, much-publicized issue. This was a new political environment—and with the change in environment we should expect a change in incentives.

Among voters and interest groups, politics was transformed by an expansion in the scope of conflict (Schattschneider, 1960). Voters were flooded with crisis-induced information that

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funds—because local governments can declare bankruptcy, as Detroit’s recently did, putting pensions at risk. We should note, however, that even at the local level, bankruptcies are so rare and so recent that it is questionable whether unions worried much about these risks over past decades.

<sup>7</sup> We should point out that, overall, the bipartisan behavior we expect in normal pension politics does not mean that no Republicans would ever oppose pension increases. Republicans tend to have more conservative constituencies and to be less amenable to spending, taxing, and government programs than Democrats, and some level of opposition would seem likely. The point we are making is simply that, under the normal politics of pensions, fundamental triggers of Republican opposition were not operating.



portrayed public sector pensions as costly to taxpayers and a threat to government. Meantime, conservative interest groups—led by the newly formed Tea Party—leaped into action on the pension issue, as did a range of good-government groups concerned about protecting the fiscal integrity of governments. The interest group system was no longer one-sided.

For Republican politicians, the post-recession environment thus yielded a newly emergent constituency opposed to “excessive” public sector pensions and supportive of retrenchments—giving them incentives to “act like Republicans” by cutting back on government. Democrats and unions still had incentives to be pro-pension. But being pro-pension would now mean defending past gains: by limiting benefit decreases, moderating increases in contributions, and keeping retrenchment from going “too far.” Conditions were accordingly ripe for a more polarized brand of politics—and a sharp break from the political past.

Yet even in the new era, a simple polarization story doesn’t quite get it right. One reason is that even Republicans continued to have public sector workers in their districts, and this alone should give them reason to moderate their approach to retrenchment. But perhaps the more profound force for moderation is that the myopic logic of pensions remained just as relevant as ever. Yes, governments were faced with fiscal crises that demanded huge new pension contributions and basic reforms. But this did not mean that politicians were somehow compelled to resolve the long-term problem. To do that would be phenomenally costly and highly threatening to their popularity and reelection. Their incentives were to be responsive to their constituents, but to get beyond the immediate crises with as little political pain as possible—which meant continuing to push costs into the future for other politicians and taxpayers to deal with.

So here, in sum, is our theoretical take on the politics of pensions. During normal times, which prevailed for decades, voters were unconcerned and uninformed about public pensions, and the interest group pressures were one-sided. This context was conducive to a bipartisan brand of politics in which Republicans had incentives to go along with Democrats and unions in supporting generous pension plans for public workers, and to underfund them. The Great Recession made the pension problem a salient issue and brought about a new political environment. Voters were no longer unconcerned and uninformed, and the interest group system was no longer one-sided. Even in this new environment, both parties still had incentives to avoid the enormous political costs of implementing a long-term solution. But with the expanded scope of conflict, Republicans and Democrats also had incentives to fight over public pension policy—and to make this issue, for the first time in the modern era, a matter of partisan conflict.

### **Data on Public Pension Legislation**

Because the vast majority of public employees are members of pension systems controlled by state governments, our empirical analysis focuses on state legislatures, which are the nation's key decision makers when it comes to public pension policies. In studying their decisions, we take advantage of a database compiled by the National Conference of State Legislatures (NCSL).<sup>8</sup> For each year starting in 1999, the NCSL tracked and summarized pension bills enacted by each of the 50 state governments (excluding minor bills deemed to be of little interest), yielding a rich source of information on these governments' pension decisions.

For the years 1999-2011, we coded each bill according to whether it expanded or reduced pension benefits for government employees. The most basic *expansions* involved changes in the

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<sup>8</sup> See the National Conference of State Legislatures, "Past Years' Annual Enacted Legislation Summaries," available at <http://www.ncsl.org/issues-research/labor/pension-and-retirement-legislative-summaries-and-r.aspx>.

benefit formulas, but there were various other means by which these bills expanded benefits as well—e.g., by shortening the vesting period, allowing spouses to collect benefits, or allowing employees to purchase service credit for years they did not work.<sup>9</sup> We coded as a *reduction* any bill that decreased employees’ benefits, restricted their benefit options (such as the purchase of service credit), or increased their payroll contributions.<sup>10</sup>

We should emphasize that our coding captures the changes in state pension policies, as well as the direction of those changes. As a practical matter, it does not attempt to measure the financial magnitudes or expected impacts associated with each legislative decision—figures that are unavailable in the NCSL data (or any data set), and about which, even on high-profile bills that receive a lot of attention, experts can wildly disagree. From a reading of the bills, however, it is clear that some—for example, those applying only to elected officials or judges—are exceedingly limited in scope, and we have eliminated them from the data set.

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<sup>9</sup> In principle, bills that decreased employees’ contributions should also be considered expansions, but the NCSL database includes very few such bills (only eleven)—most likely because decisions to decrease employee contributions are usually made at the local level through collective bargaining, not by state legislatures. This is the one area of pension politics where our focus on legislation probably misses most of the relevant decisions. For this reason, we exclude the eleven bills that decreased employee contributions from our analysis.

<sup>10</sup> The NCSL dataset also includes information on whether legislatures acted to increase or decrease the required contributions of employers (governments). Our theory argues that both parties have incentives to push costs into the future, and thus to keep current contributions below the level required for full funding, but otherwise it has no specific implications for whether Democrats might favor higher contribution levels than Republicans or vice versa. Moreover, the legislative bills that deal with contributions are often ambiguous in meaning. When the legislature “lowers” government pension contributions, for example, it is allowing governments to contribute *less than they otherwise would have paid* according to the previous formula—but in many cases the new amounts, under a new formula, may actually be greater in absolute dollars than the original amounts. It is a matter of interpretation, then, whether the legislature is lowering contributions or increasing them. To add to the ambiguity, the new contribution levels may apply just for a certain period of years, after which they automatically adjust to another higher or lower level. For these reasons, we focus our analysis in this paper on legislative decisions about benefits—which can be coded without ambiguity, and about which we have clear theoretical expectations that can be tested.

## Trends in Pension Legislation, 1999-2011

Our coding produced a dataset of 366 pension bills adopted by state legislatures between 1999 and 2011.<sup>11</sup> In Figure 1, we plot the number of expansion and reduction bills for each year—and the pattern is striking. It is immediately apparent that this thirteen-year period can be roughly divided into two phases: an expansionary phase that lasted until the onset of the Great Recession, and a retrenchment phase that took hold thereafter.

The first three years covered by our data were truly remarkable: states across the country enacted 97 new laws that expanded pensions for public employees. And those expansionary bills were not limited to just a few states: a total of 34 states took action to make their pension systems more generous during this time. Even more striking is that *only a single state reduced pensions* (South Dakota). This was an active expansionary period for public pensions, and governments from California to Wyoming were taking part.

The economy temporarily turned sour in 2000-2001, and the period from 2002 to 2008 saw the passage of some bills that reduced pensions. But as the figure shows, benefit increases remained the norm. State governments passed a total of 135 pension increases during these years, and less than a third as many decreases. Even in 2009, after the housing bubble had burst and the Great Recession had taken hold, some state legislatures were *still* passing bills that increased benefits—indeed, there were more increases that year than decreases. But then the pendulum swung abruptly in the other direction. Of the 63 pension bills in 2010 and 2011, 59 were retrenchments.

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<sup>11</sup> We eliminate 17 bills that included both expansions and reductions. We also drop bills that did not enact the types of changes we described above. In addition, we exclude Nebraska because it has a nonpartisan legislature.

Even these numbers, which document a consistent march toward pension expansion from 1999 to 2008, understate the seriousness of the problem state governments were creating for themselves. For the most part, the benefit increases applied to *all* employees, and sometimes retroactively to government workers who had already retired; and these pension increases were permanent and could not be reduced due to the various legal protections that prevent states from taking back what they have promised (Monahan, 2010). Because of those legal protections, most of the subsequent pension decreases could only apply to *new employees*—and could not, without large increases in contributions, actually make up for the underfunding problem the earlier promises had helped to create.

The sheer numbers, then, cannot reveal everything that was going on during this period. But even so, Figure 1 is a vivid display of key developments. During the early and mid-2000s, state legislatures were actively engaged in passing bills that made pensions more generous for public employees—but all that changed with the Great Recession, as state governments everywhere rushed to retrench. It was a new era for pension policy. And in the section to follow, we will test whether it was, as we argue, a new era for pension politics as well.

### **Inside the Legislature: Pensions and Partisanship**

Having established what pension changes the states enacted and when, we now turn to an investigation of *how* those changes were made: who supported them, who opposed them, and how partisan the pension issue was throughout this time period. Were the Democrats (and their union supporters) responsible for the states' pension problems? Did the Republicans go along? Did the politics of pensions undergo a dramatic change with the Great Recession?

To carry out the relevant tests, we collected data on final roll call votes for as many of the 366 bills as possible. Some legislatures made the information available on their websites, but for

many others we had to request it from legislative staff and other sources. In the end, we obtained data on 268 bills, including the legislators' names, districts, parties, and votes. The resulting dataset is comprised of 34,301 "yes" or "no" votes in 43 states and 84 legislative chambers.<sup>12</sup>

As a first step, consider Figure 2. For each bill and each legislative chamber, we calculate the percentages of Democrats and Republicans who voted "yes" and present the over-time trends in two measures of partisanship in voting: the absolute value of the difference between the parties' "yes" vote percentages (the dashed line), and the percentage of bills passed by "party unity votes"—that is, votes in which a majority of Democrats and a majority of Republicans were on opposite sides.

As the figure shows, legislative votes were strongly consensual for much of the thirteen-year period. Prior to 2009, the average difference between the pension bill approval rates of Democrats and Republicans was relatively small, averaging 10 percentage points from 1999 to 2008, with a low of 5 points and a high of 16 points. Our second measure, party unity votes, shows the same trend: from 1999 to 2008, the states' pension bills involved few party unity votes, ranging from a low of 2% in 2001 to highs of 11% in 2005 and 2007.

But something changed starting in 2009—and the change was dramatic. Suddenly, the difference in the two parties' votes shot up to 35 percentage points, and it remained near that level through 2011. Likewise, in 2009 and 2010, a full 33% of pension votes were party unity votes, and in 2011, the rate rose to 42%. Unlike the earlier years, then, the post-recession period was characterized by intense partisanship on questions of public pension benefits.

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<sup>12</sup> We exclude legislators who were absent, excused, who abstained, or who voted "present." We also drop independents. We classify members of the Green, Progressive, and Working Families parties as Democrats.

To test whether the year-to-year differences in partisanship are statistically significant, we regress the party difference measure on binary indicator variables for each year (taking 1999 as the base year), clustering the standard errors by state. See column 1 of Table 1. The findings show that differences between the parties were consistently small prior to 2009, and that none were statistically significant—but that in 2009, 2010, and 2011, the party differences were larger and statistically significant. This confirms that with the onset of the Great Recession, pensions became a much more partisan issue.

It is reasonable to wonder whether the sharp uptick in partisan voting in 2009-2011 is due to the fact that the content of the bills changed, with the latter period heavily freighted with retrenchment bills. To test for this, in column 2, we add an indicator for whether the bill was a pension reduction. The findings are the same: pension votes were mostly bipartisan from 1999 to 2008 but became dramatically more partisan in 2009. In addition, we consider whether the pre-recession bipartisanship persists when we limit the analysis to bills that solely affected the pensions of public school teachers—a group that has long divided the political parties on many other policy issues. Tellingly, we find that it does: even for the pension bills that *only* affected teachers, the pre-recession party difference in voting was a mere 10.9%, which is statistically indistinguishable from the 9.6% rate for bills affecting other types of employees ( $p=0.65$ ).<sup>13</sup>

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<sup>13</sup> Another potential concern is that the post-recession spike in partisanship might not be specific to pensions—that instead, votes on pensions might reflect a sudden, general increase in partisanship on all issues. To investigate this, we use Shor and McCarty's (2011, 2013) estimates of state legislator ideology—which are based on roll call votes—to plot the distance between the median legislators of each party in each state legislative chamber and year. As we show in the online appendix, we find no evidence that polarization suddenly spiked in 2009. Some chambers show a gradual increase in polarization over time, while other chambers exhibit little trend. No chamber follows a trend similar to the one shown in Figure 2. This suggests that the over-time patterns we have found for public pensions are specific to pensions—not reflective of a general trend in state legislatures.

Consistent with our argument, then, the evidence suggests that public pensions were *not* a polarizing issue until very recently. *The normal politics of public pensions is bipartisan.* Only with the Great Recession, when pensions became a serious governmental problem and a salient political issue, did the parties begin to diverge.

#### *Explaining the Increase in Partisanship: Empirical Design*

We next move to the individual level and explore the voting behavior of legislators. We analyze expansion bills and reduction bills separately, and for each we use logistic regression to model our dependent variable, the individual legislator's vote ("yes"=1, "no"=0). As predictors we include the legislator's party (Republican=1, Democrat=0), an indicator for expanded scope of conflict (1 for 2009 and after, 0 otherwise), and the interaction between the two. Because many individual legislators voted on multiple bills, we cluster the standard errors by legislator.

For expansion bills, our expectations are straightforward. Before the recession, both Democrats and Republicans should support these bills, and the partisan difference should be small. After the recession, Republicans should become much more likely to vote "no," and the party differences should markedly increase.

For reduction bills, our expectations are similarly straightforward for the period of normal politics prior to the Great Recession. With pensions a nonissue for voters and interest groups (other than unions), neither party wanted to reduce pensions and risk alienating public workers. We therefore predict that relatively few new laws that reduce pensions should be enacted prior to 2009 (which is what Figure 1 shows). The reductions that did get enacted were likely the result of states' actuaries telling elected officials that they had to do something to put pensions on sounder financial footing—but we would only expect legislators to agree to such



proposals if they were approved by the unions, and so we wouldn't expect to see much division between the parties. So here too, we would expect bipartisan voting during normal times.

But what about the abnormal times after the Great Recession? This is where things get complicated—not for theoretical reasons, but because of the data. The theory is simple enough. Most of the post-recession bills involve retrenchments, because the states were under intense pressure to do something about the underfunding problem—and we would expect the now-very-partisan Republicans to favor deep retrenchments, and the Democrats to try to keep retrenchments to a minimum.

Yet what does this imply for our data analysis? Consider the case of California. In 2012, Governor Jerry Brown (a Democrat) and the state legislature (controlled by Democrats) passed a pension reform bill, AB 340, that capped benefits and raised the retirement age for new hires, and in a few other ways made modest changes to reduce the state's pension burden. In the final Assembly vote, however, most Democrats voted for this reduction bill, and *most Republicans voted against it*. Why? Because this was a Democratic bill forwarded by a Democratic government, and most Republicans thought the retrenchment *didn't go far enough* in cutting benefits and increasing employee contributions. As Republican Senator Mark Wyland said, “Each of us know in our hearts that this is a small, small, small step” (Harmon, 2012).

Our data, of course, cannot capture whether a bill's reductions “go far enough.” As a result, if we simply carry out an analysis of legislative voting, Democrats will come across in these situations as much more favorable to pension reductions than Republicans are—when, in fact, the opposite is true. And California is just an illustration. The same sort of “reverse voting” has occurred in many other states, and for the same reason. Our challenge is to get around this

data problem in such a way that we can capture what the votes of legislators really mean—and in so doing, ensure that our statistical analysis provides a good test of our theory.

A reasonable solution is to break the pension reduction bills into two groups, depending on party control of government. In states where Democrats control both legislative chambers and the governorship, they are in a position to enact the kinds of modest pension reductions that they favor—and that Republicans are likely to oppose for not going far enough. In our voting data, this is what partisan pension politics should look like in governments controlled by Democrats.

In governments with non-Democratic governments—where Republicans have unified control (which is often the case) or at least have a veto (because they control one or more legislative chamber and/or the governorship)—partisan pension politics should look different. Successful retrenchment bills must meet Republican approval at some point along the way, and the reductions are likely to satisfy them and get their votes. In these states (after the recession), it is the Republicans who are likely to vote “yes” and the Democrats who are likely to vote “no”—because they think the bills go too far.

With this adjustment in how we approach and analyze the data on retrenchment bills, we have a simple set of theoretical expectations that can readily be tested.

### *Empirical Results*

Our most basic findings are set out in Table 2. In column 1 we focus on pension expansion bills, explaining each legislator’s vote with reference to party affiliation, the scope of conflict variable, and the interaction of the two. The size and significance of the estimated coefficients—including combinations of coefficients (see the bottom of the table)—provide the tests of our theoretical expectations; we discuss these in the online appendix. But the findings

are much easier to discuss and interpret if we convert the estimates into predicted probabilities—which we do in Table 3 (using Clarify 2.0—see Tomz, Wittenberg, and King, 2003).

The predicted probabilities in column 1 of Table 3 show that, on bills that expand public sector pensions, the voting patterns look exactly as we would expect. Prior to 2009, Democrats voted almost universally in support of benefit increases—*but so did Republicans*. Specifically, Democrats supported benefit increases at a rate of 97%, and Republicans went along, supporting increases at a rate of 92%. With the onset of the Great Recession, Democratic support remained about the same (98%)—but Republican “yes” votes plummeted to 68%. The politics of pension expansion had clearly become much more partisan.

What of pension reductions? In column 2 of Table 2, we include the same basic variables as in column 1, except that we allow all of the estimated coefficients to vary depending on whether the bills were enacted by Democratic unified governments or not. For both types of governments, we expect voting on reduction bills to be highly consensual during normal times, but to be much more partisan once the scope of conflict expanded. In states without Democratic unified government, partisan voting should take the form of Democrats being especially inclined to defect and vote “no” (because the reductions go too far). In states with Democratic unified government, partisan voting should take the form of Republicans peeling off and voting “no” (because the reductions don’t go far enough).

The estimated coefficients are set out in Table 2, but here again the findings are more easily interpreted and discussed if we turn to the predicted probabilities in Table 3. There, in column 1, we find that the differences between Republicans and Democrats were small prior to 2009 on pension reduction bills—and they were small regardless of who controlled the state government. During normal times, Republicans and Democrats tended to vote together on

reduction bills and at levels of support exceeding 90%. The harmony came to an end, however, with the economic downturn. Voting became much more partisan.

In governments without unified Democratic control, Republicans continued to support reduction bills at a high rate of 91% (compared to 92% before the recession), but Democratic support fell off to just 69% (compared to 95% before). In governments controlled by Democrats, voting was just as partisan but the roles were reversed: the Democrats continued to support pension reductions at a very high rate of 93%, and Republican support dropped off considerably to 54% (as compared to 92% before).

All of these findings are consistent with our theoretical argument that the normal politics of pensions is consensual and bipartisan—and that the Great Recession, by expanding the scope of conflict, led to a sea change in pension politics and to partisan voting on legislative bills. The evidence also shows, as we would expect, that the *form* that this partisan voting takes depends on whether the bill calls for expansions or reductions, and on who controls the state government.

The models we've estimated thus far have included just the key factors of relevance to our theory. We now include other state-level factors that also may explain variation in legislators' votes on pension bills.<sup>14</sup> First, we control for the average funding ratio for public pensions in the state,<sup>15</sup> because legislators' votes on expansions or retrenchments might depend

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<sup>14</sup> We could also control for characteristics of the individual legislators' districts, but doing so would detract from our goal in this analysis. We are not trying to disentangle the partial effects of party affiliations and district characteristics on votes. Rather, our goal is to test the theory's predictions of how Republicans (as a group) and Democrats (as a group) voted on pension bills—and how the parties' voting patterns changed from before to after the recession. Thus, there is no reason to control for the district demographic characteristics that are likely correlated with legislators' party affiliations; doing so would actually be counterproductive.

<sup>15</sup> The funding ratio is simply a pension fund's assets divided by its projected liabilities. The data on state pension funding ratios come from the Wisconsin Legislative Council's biannual Comparative Study of Major Public Employee Retirement Systems. For each state and year, we created averages of the funding ratios for major pension funds in the state, weighted by the

on the perceived solvency of their state's pension funds.<sup>16</sup> Second, in our model of expansion votes, we include an indicator of whether the state government expanded public pensions in the previous year, since legislators may be less willing to support expansions if they did so recently. Likewise, in the model of retrenchment bills, we include an indicator of whether the state reduced pensions in the prior year. Finally, we include state fixed effects, which partial out the effects of any time-constant characteristics of the states. If there is between-state variation in the level of partisanship caused by features of the different legislatures, dissimilarities in the states' party organizations, variation in the structure of states' public retirement plans, or different rates of public sector unionization across the states, the fixed effects would account for those differences as long as they do not vary over time.<sup>17</sup>

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number of members. We interpolated funding ratio values for the missing years. In our analysis, the funded ratio is centered about its mean, 0.86.

<sup>16</sup> At first glance, this might seem an obvious factor to control for, but its role is actually unclear. First, the funding ratio may well explain whether or not a state successfully adopted an expansion or a retrenchment bill. But we are just looking at the subset of bills that actually passed (as is true of most of the vast literature on congressional roll call voting). And within that select set of bills, how individual legislators vote may have little to do with the funding ratio. In addition, it may be that political considerations (such as voters and interest groups) are simply more important to legislators' votes than technical considerations like funding ratios. Ultimately, testing these ideas is not a focus of our analysis—we merely include the funding ratio as a control—but examining the effect of funding ratios on pension policy is a potentially promising topic for future research.

<sup>17</sup> With the state fixed effects included, our estimation of the over-time changes in partisans' voting patterns relies on the few states that had successful votes on pension expansion (or reduction) both before and after the recession. There are only 13 such states (out of 40) in the expansion bills models and only 15 such states (out of 34) for the retrenchment models. Moreover, only two states passed reductions under Democratic unified government both before and after the recession. As we will argue later, while state fixed effects might otherwise be desirable, their inclusion places such limits on the estimation that we think it better to focus on models without state fixed effects.

The logistic regression results are set out in columns 3 and 4 of Table 2, and the associated predicted probabilities are displayed in the second column of Table 3.<sup>18</sup> In both models, the coefficient on the funding ratio is statistically insignificant. However, we do find that legislators in states that expanded (or reduced) pensions the previous year are less likely to support expansions (or reductions) in the current year. Most importantly, though, these do not change our core findings: the patterns of consensual and partisan voting are the same as what we found in the basic analysis we have already discussed.<sup>19</sup>

### *The Scope of Conflict*

The normal politics of pensions gave way to a much more partisan brand of pension politics with the onset of the Great Recession—which, by laying bare the states’ severe pension problems, made the issue politically salient for the first time, increased voter and group awareness, and attracted conservative opposition. It expanded the scope of conflict. So far our models have estimated the impact of this expanded scope of conflict via a dummy variable and interaction terms. Now we would like to take additional steps in trying to explore the mechanism—the change in political pressure—that our theory suggests is at work.

Ideally, we would like to have measures of voter attentiveness to pension policy as well as measures of the relative strength of pro- and anti-pension interest groups in each state legislative district for each year in our analysis. But detailed, specific information on these counts is not available. We do, however, have three rough measures that can prove helpful: a

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<sup>18</sup> To calculate the predicted probabilities, we use Minnesota as the base state, fix the funded ratio at its mean (0.86), and set the indicators for previous expansion or retrenchment at zero.

<sup>19</sup> In the online appendix, we carry out the same analysis using ordinary least squares rather than logistic regression, and our estimated marginal effects are nearly identical. We also estimate the models including legislator fixed effects, and we find the same general patterns. Thus, the results are not solely driven by over-time changes in the composition of the legislatures that were voting on pension issues; legislators who were in office both before and after the recession *changed* their votes on pension expansions and reductions. See the online appendix for details.

measure of national media coverage of public pensions by year, a measure of the strength of public sector unions by legislative district and year, and an ideology measure that can proxy for the strength of conservative reform groups, also by district and year.

To start, as a way of approximating voter attentiveness to public pension policy over time, we counted the number of stories about U.S. state and local public pensions published by the *New York Times* in each year of our analysis. The solid line in Figure 3 plots the results. Immediately apparent is that there was virtually *no coverage* of state and local pension issues in the early years of our analysis. In the mid-2000s, coverage picked up somewhat, with roughly 23 pension articles published per year from 2005 to 2008. But then suddenly, in 2009, the number of news stories about public pensions more than doubled to 54. By 2011, there was a further increase to 87 stories. The timing of this spike in news coverage aligns with the timing of the increase in partisanship on pension issues, as shown by the dotted line in Figure 3, which is reproduced from Figure 2. While this evidence is by no means dispositive, it is at least suggestive that increased voter attentiveness to public pension issues contributed to the sudden increase in partisanship—and that lack of voter attentiveness prior to the recession was part of the reason why Republicans felt comfortable voting with Democrats on pension bills.

Next, we turn to the role of interest groups and incorporate a rough measure of public sector union strength in our models of legislators' votes. Our indicator for union strength is whether a given legislator received any money from public sector unions in her previous election.<sup>20</sup> Our general expectation is that, whether legislators are influenced by these campaign contributions or the unions are simply giving money to candidates sympathetic to their cause, our

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<sup>20</sup> These data come from the National Institute on Money in State Politics (NIMSP). We thank Adam Bonica for sharing his compilation of these data with us. Since NIMSP started collecting state legislative election data in 2000, we are missing campaign finance records for 5,951 of the votes in our dataset.

measure is an indicator of whether the unions and their (pension) interests carry greater weight with some legislators than with others. This is what we mean, in the following, when we talk about union influence and the difference it makes for voting.

On pension increases, we actually have little reason to expect union support to make much difference for Democrats, whether before or after the recession. Democrats tend to have liberal constituencies, to favor unions, and to favor generous pensions—and when legislatures manage to pass bills that expand pension benefits, we should expect virtually all Democrats to be on board. If public sector unions are going to make a difference, ironically enough, it should be with Republicans—who, for reasons we’ve discussed, have strong incentives to vote for pension increases during normal times and incentives to defect after the recession. We would expect, however, that those who get contributions from the unions should be *less* likely to defect, and more likely to support pension increases, than other Republicans.

The relevant tests are carried out in column 1 of Table 4 (and at the bottom of the table). But again, the findings are easier to interpret as predicted probabilities, which we present in Table 5.<sup>21</sup> As the results there show, Democrats almost universally (98%) supported pension increases throughout this time period, regardless of whether they had union financial support. But among Republicans, as we would expect, the unions did appear to have an impact, and

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<sup>21</sup> Since states’ activities on pension policy in the prior year proved important in the earlier analysis, we include indicators for whether states expanded or reduced pensions the year before. We do not include the funding ratio because it did not predict legislators’ votes in the earlier models, and also because we do not have clear theoretical predictions for its effects. (However, when we include the funding ratio in this analysis, it does not substantively change the results we describe below.) Lastly, we exclude state fixed effects from this analysis for two reasons: First, we are interested in *both* cross-state and within-state variation in the effects of union strength and ideology—not just within-state variation. Second, as we discussed above, models with state fixed effects limit the estimation of the over-time effects to the states that have expansion (or retrenchment) votes in both time periods. There are only 13 such states in the expansion models and only 15 such states in the retrenchment models. For retrenchments by Democratic unified governments, there are only two states that satisfy this criterion.



especially so after the recession. Union-supported Republicans were a mere 1.4 percentage points more likely than non-union-supported Republicans to vote for pension increases before the recession—but they were 14.8 percentage points more likely to do so after the recession. This is consistent with the notion that, although the recession unleashed new conservative pressures for Republicans to vote “no” on pension increases, those Republicans whose pressures were counter-balanced by the unions were less likely to defect.

Now let’s turn our attention to retrenchment bills, looking first at legislation passed in states without Democratic unified government. We would expect that, during normal times, the only pension reduction bills that could pass were those that met the approval of unions, and so both parties supported such legislation at very high levels. So we should not expect unions to have an impact here. After the recession, with the expansion in the scope of conflict, there is more room for union influence—but in this context, it may not find much expression.

Republicans either control these governments or can veto any proposals that are made, so virtually all of them can be expected to go along with whatever legislation actually gets passed. Democrats, for their part, will know that some form of retrenchment is necessary on actuarial grounds, but some will think (as we discussed) that Republican bills go too far, and thus will be inclined to vote “no.” We would expect this to be especially true, however, for those who receive union support. If union influence shows up at all, then, this is where it should show up.

The tests for these retrenchment bills in non-Democratic contexts are carried in column 2 of Table 4, and the predicted probabilities are presented in Table 5. The findings are consistent with the expectations we just laid out. Prior to the recession, support for reduction bills was quite high for both parties, and there is no indication that the unions caused members of either party to vote “no.” After the recession, Republicans supported the retrenchment bills proposed

by their own governments at very high levels, with no evidence that union contributions made any difference whatever. But for Democrats, there is evidence that they did: Democrats were less likely than Republicans to vote “yes” on these retrenchment bills, and those with union support were even less likely to vote “yes” (at 71%) than those without it (81%).

Finally, we look at retrenchment bills passed by Democratic unified governments. Here, our expectations are straightforward. Before the recession, union support should have little effect on the votes of either party—Republicans and Democrats should both vote “yes” on the few pension reductions that passed during this period. After the recession, Democratic unified governments can be expected to enact bills that most Democrats will vote for. Among Democrats, then, there is little scope for unions to have much impact on the vote. Not so for Republicans. Post-recession, many Republicans may be inclined to vote “no” on Democratic pension retrenchments—which do not go far enough, in their eyes—but those with union support can be expected to vote “no” less often. The conservative political pressure that these Republicans are under will be countered by the strength of unions in their districts.

In Tables 4 and 5, we see that these expectations are borne out in the data. The predicted probabilities show that the pre-recession differences between union-supported and non-union supported legislators were small, and that, after the recession, Democrats tended to vote together in support of “their” retrenchment bills, regardless of whether they received campaign funding from public sector unions. The differences show up among Republicans. Post-recession, Republicans supported by public sector unions voted for the Democrats’ pension reform bills 63% of the time, while Republicans who did *not* receive financial backing from the unions voted “yes” just 46% of the time.

The evidence on union influence, then, is consistent with what we would expect given the changing political environment after the Great Recession. The recession opened the gates for an influx of conservative groups competing (for the first time) with public sector unions on pension issues, and many Republicans started responding to these new groups by defecting from the normal politics of partisan consensus—but among those Republicans receiving support from public sector unions, the response to the newly emerging pension reform groups was weaker. To some extent, the unions were able to counter these groups' influence.

Another way to test the proposed mechanism is to try to capture the political strength of the newly emerging conservative groups themselves. Because specific measures by district and year are unavailable, a reasonable alternative is to use legislator ideology as a proxy. If we assume that, after the recession, these conservative groups were strongest in the districts with the most conservative legislators—a very reasonable assumption, we think, as these legislators are likely to have the most conservative constituencies to begin with—then ideology should serve as a good proxy.

As our measure of state legislator ideology, we employ a continuous scale created by Bonica (forthcoming), which ranges in our dataset from -3.5 (most liberal) to 3.8 (most conservative).<sup>22</sup> What impact should we expect ideology to have on legislative votes? Prior to the recession, pensions were not salient and conservative groups were not actively competing

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<sup>22</sup> Bonica creates a measure of state legislator ideology using correspondence analysis of millions of campaign finance records. He relies on the fact that most contributors to state campaigns also contribute to federal campaigns, which allows him to measure legislator ideology across states on a common scale. For an in-depth description of his method, see Bonica (forthcoming). The measure we use in this analysis is constant for individual legislators over time. We are missing the ideology variable for most legislators who came into office via elections prior to 2000, as well as for most legislators who lacked a campaign finance record for a given year. For legislators who were missing ideology data for one year but not for other years, we filled in the missing information using the values from the other years.

with the unions on this issue, so voting should be highly bipartisan—and ideology should make little difference. After the recession, however, if legislator conservatism is a reasonable gauge of anti-pension group strength, we should see legislators’ votes—primarily, Republicans’ votes—varying by ideology.

More specifically, here is what we should expect post-recession. On pension increases, conservative Republicans—now under greater pressure—should be more likely than moderate Republicans to defect from the previous consensus and vote “no.” For Democrats, things are less clear. They may vote “yes” regardless of ideology, because the new conservative groups are simply not part of their constituency. Or perhaps moderate Democrats will be somewhat responsive to them, and be more inclined as a result to peel off and vote “no” as a result. Our theory does not give us definite guidance here.

The same ambiguity prevails for retrenchment bills as well—so our theoretical focus here will be on the Republicans, for whom we *do* have clear expectations. For retrenchment bills in non-Democratic governments, Republicans should be expected to support these bills—“their” bills—at very high levels, with little scope for ideology to have much impact. For retrenchment bills in Democratic unified governments, on the other hand, we expect ideology to make a big difference. By comparison to their moderate Republican colleagues, conservative Republicans should be pushing hard for major retrenchments, they should be more likely to see these Democratic bills as not going far enough—and they should be more likely to vote “no.”

Our findings are set out, once again, in Tables 4 and 5. For the normal times that prevailed prior to the recession, the predicted probabilities with regard to both types of legislation—pension increases, pension reductions—are largely consistent with our expectations: showing that ideology played little role and members of both parties voted together at very high

levels of support. The predicted probabilities also show that, after the recession and its expansion of the scope of conflict, conservative ideology—a proxy for newly emerging conservative interest groups—did indeed begin to affect the votes of Republicans, and in the ways we would expect. On pension increases, conservative Republicans were less likely to vote “yes” (at 65%) than moderate Republicans were (74%). On pension retrenchments, virtually all Republicans tended to support “their” retrenchment bills in states with non-Democratic governments (as expected)—but in states controlled by Democrats, conservative Republicans were much less likely to go along with these reforms pushed through by Democrats, giving them just 29% support compared to the 70% support level of Republican moderates.

If conservative ideology is a reasonable means, as we think it is, for capturing the rise of conservative interest groups after the Great Recession, then these results suggest that this mechanism of action was in fact operating to affect legislative votes—and to bring about a very new and more contentious “normal” for the politics of pensions.

### **Discussion**

For America’s state and local governments, the fiscal burden of underfunded pensions is staggering. As reforms proceed, and in part because of them, the ongoing costs of operating public pension funds will unavoidably be much greater than in the past, consume larger proportions of tax revenue, and crowd out funding for many public programs and services of great value to citizens—education, police and fire protection, public parks, and more.

The pension problem was greatly exacerbated by the economic downturn of 2008 and the corresponding drop in the stock market. Yet it would be a mistake to see it as solely an economic problem, and thus to think that, once the economy improves, all will be well. All will

not be well. The pension problem is fundamentally a *political* problem—and long after the economy improves, the political problem will still be there.

This paper is an effort to shed new light on the politics of pensions. We argue that, while the pension issue might seem to be a setup for polarized politics, it actually isn't. During the normal times that prevailed for decades, voters were uninterested and uninformed; the relevant interest groups were stacked on the “support” side of the issue; and politicians of both parties had incentives to offer valuable pension benefits without paying their full cost. Under these conditions, Democrats could be expected to pursue generous pensions for public sector workers—but Republicans could be expected to go along. The normal politics of pensions, then, was a setup for bipartisanship and cooperation, not polarization.

The conditions underlying normal politics came to an end due to the Great Recession. With the economy in disarray and markets dropping sharply, public sector pensions became a salient political issue for voters, conservative interest groups rose up in opposition, and the scope of conflict suddenly expanded to disrupt politics-as-usual. Republicans now had incentives to oppose Democrats, and we should expect a corresponding shift away from bipartisanship and toward greater partisan conflict.

Our empirical analysis is strongly consistent with these expectations. We find that, during normal times, state legislatures tended to increase the generosity of public pensions, and voting patterns were heavily bipartisan. Democrats and Republicans were essentially on the same team. After the Great Recession, their voting patterns underwent a dramatic shift—with Republicans pushing for pension cutbacks and Democrats trying to moderate the retrenchments. Politics became distinctly partisan. We also find, in exploring the mechanism of change, that union financial support and legislator conservatism became stronger predictors of pension votes

*after* the recession, supporting our argument that it was an expansion in the scope of conflict that generated the abrupt increase in partisanship.

We view this paper as an opening wedge in what we hope will be a much larger effort by political scientists to study the politics of pensions. An analysis of legislative voting is indispensable, we think, if truly basic aspects of the politics on this issue—like partisanship—are to be explored and understood. But much more ground remains to be covered. Among other things, political research must ultimately seek to connect the actions of legislatures (and parties) to their financial consequences for the integrity of their pension systems. Some bills are much more consequential than others in imposing (or reducing) financial burdens, and these magnitudes must somehow be measured and taken into account if we are to link politics more directly to the underfunding problem. Future research should also target state pension funds and their governing boards—which are political creations of state legislatures, are delegated some (but limited and varying) authority to make pension decisions, often have their decisions and recommendations overridden by their legislatures, and commonly incorporate representatives of public sector unions and other interest groups. The political dynamics linking them to state legislatures—and underfunding—have never been systematically explored. Yet they are surely essential to a political understanding of this issue.

Research on the politics of pensions also stands to have productive spillovers for other fields of study. Most generally, the perverse incentives that plague pension policy are likely quite common throughout government: in some policy realms, politicians can reap political rewards by providing benefits whose costs can be pushed off into the future, either through underfunding or through borrowing—leading to problems of overspending, overprovision, and excessive debt. These same perverse incentives, we should note, may also lead politicians to

resist policies—those that address climate change, for instance—that may have substantial payoffs in the future but impose significant costs in the short run. The potential problems associated with myopic politicians have never been central to the study of American public policy, but they should be—and the study of pension politics can help to motivate and inform research along these lines.

The prospects going forward are exciting. Our hope is that others can build upon the early work we have presented here, and that the pressing relevance of public sector pensions—one of the great challenges facing America’s state and local governments—will soon be matched by a growing research literature and a much better understanding of its politics.

For now, this paper makes it clear that the polarization that characterizes so much of American politics and might seem to provide an obvious explanation for the modern pension problem—that the Democrats and the unions created it, over the resistance of Republicans—is simply wrong. In fact, the underfunding problem plaguing the nation today was brought about by *both* political parties, acting together and in harmony.



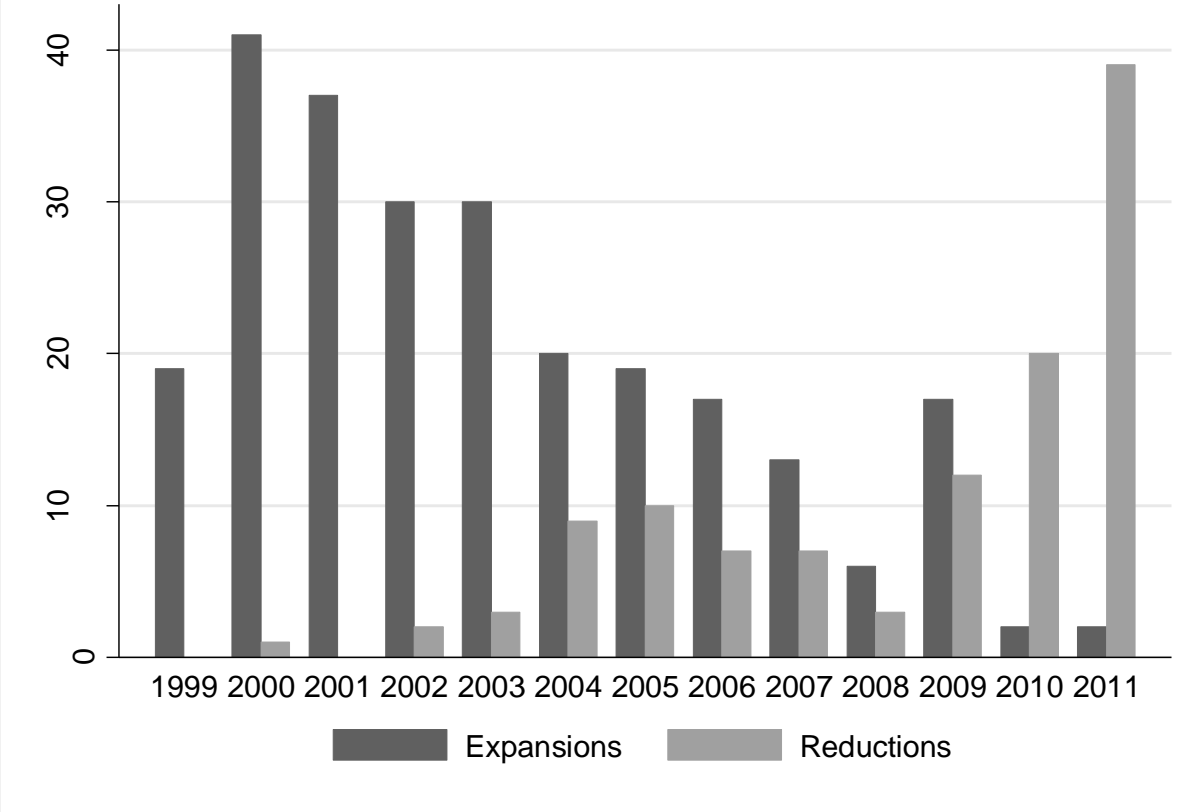
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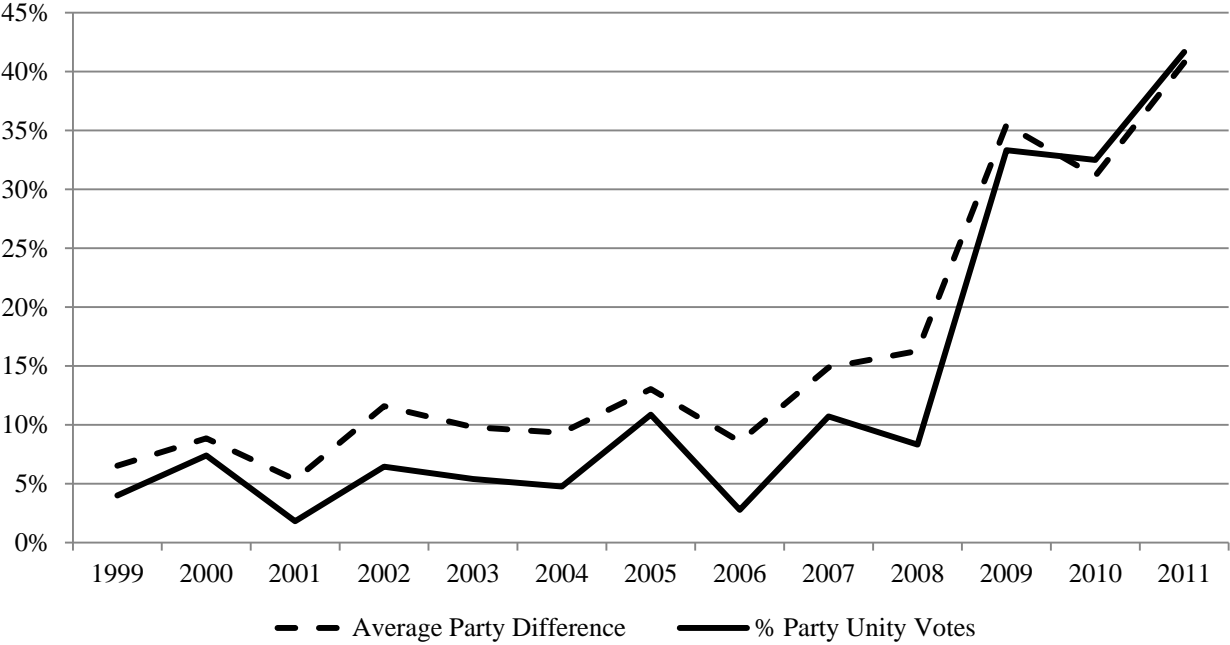
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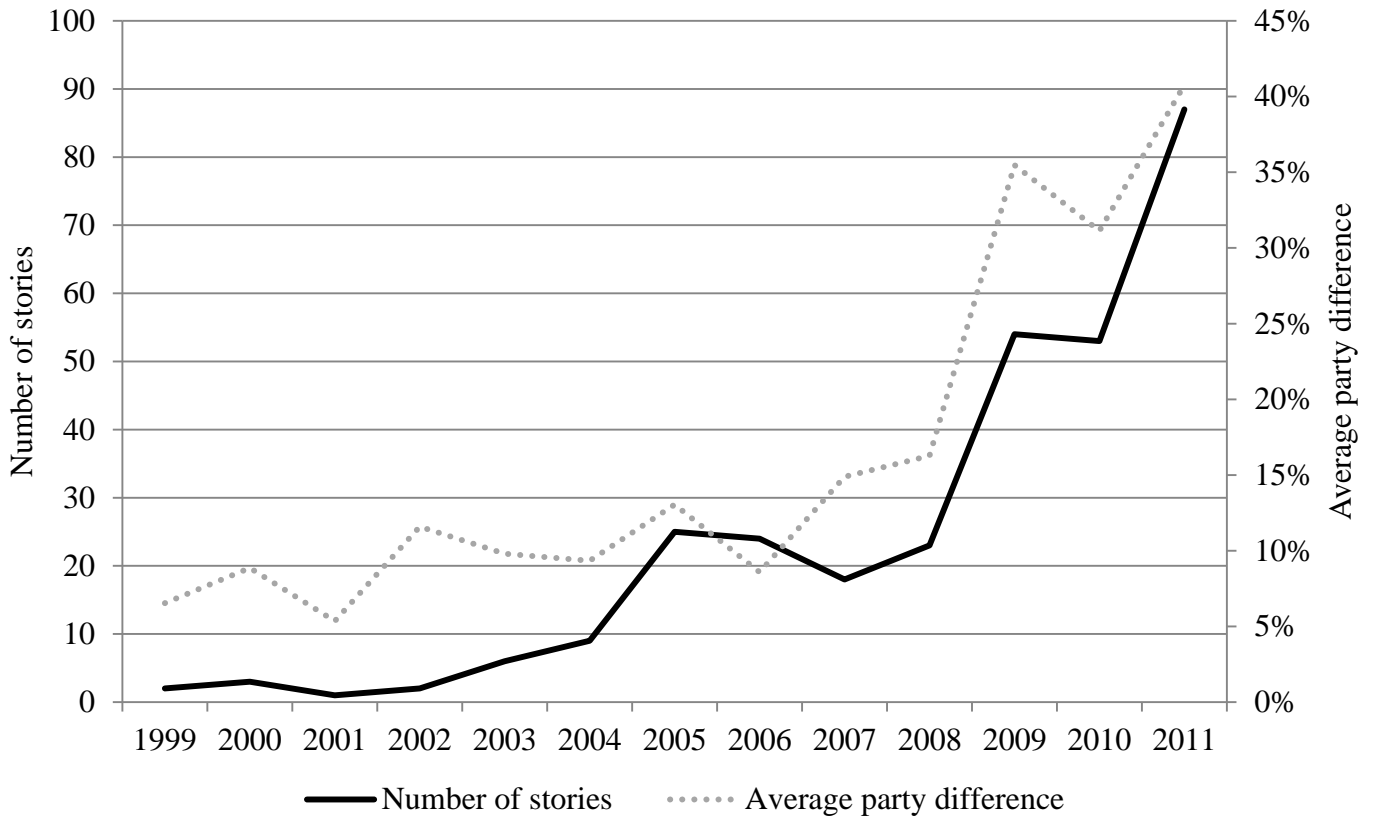
Figure 1: State pension legislation, 1999-2011



**Figure 2: Partisanship on public pension votes**



**Figure 3: Number of *New York Times* stories about state and local public pensions**



**Table 1: Party difference in voting on public pension bills**

	<i>Model 1</i>		<i>Model 2</i>	
2000	0.023	(0.030)	0.023	(0.031)
2001	-0.012	(0.022)	-0.012	(0.022)
2002	0.051	(0.059)	0.05	(0.060)
2003	0.033	(0.055)	0.032	(0.057)
2004	0.028	(0.042)	0.026	(0.047)
2005	0.065	(0.056)	0.064	(0.062)
2006	0.021	(0.035)	0.019	(0.037)
2007	0.083	(0.065)	0.082	(0.065)
2008	0.097	(0.108)	0.097	(0.109)
2009	0.289***	(0.081)	0.288***	(0.087)
2010	0.246***	(0.077)	0.242***	(0.087)
2011	0.342***	(0.085)	0.338***	(0.093)
Reduction			0.004	(0.038)
Constant	0.065***	(0.021)	0.065***	(0.021)
R-squared	0.18		0.18	
Observations	508		508	

*Notes:* Standard errors clustered by state in parentheses. Dependent variable is the absolute value of the difference between the percentage of Democrats voting yes and the percentage of Republicans voting yes. The omitted year variable is 1999.

\* p<0.1; \*\* p<0.05; \*\*\* p<0.01

**Table 2: Public pensions, political parties, and the scope of conflict**

	<i>Expansions</i>	<i>Reductions</i>	<i>Expansions</i>	<i>Reductions</i>
	(1)	(2)	(3)	(4)
Scope	0.531** (0.207)	-2.162*** (0.139)	1.579*** (0.254)	-2.023*** (0.198)
Republican	-1.162*** (0.078)	-0.548*** (0.170)	-1.215*** (0.086)	-0.69*** (0.191)
Scope * Republican	-2.204*** (0.221)	2.007*** (0.184)	-2.887*** (0.258)	2.694*** (0.213)
Democratic Unified		-0.277 (0.207)		-0.205 (0.283)
Republican * Democratic Unified		0.369 (0.306)		0.605* (0.324)
Scope * Democratic Unified		2.14*** (0.252)		2.273* (0.366)
Scope * Republican * Dem. Unified		-4.33*** (0.354)		-5.27*** (0.393)
Funding Ratio			-0.091 (0.553)	-1.626 (1.008)
Previous Expansion			-0.281*** (0.074)	
Previous Reduction				-0.78*** (0.113)
Constant	3.578*** (0.064)	2.958*** (0.131)		
State Fixed Effects?	No	No	Yes	Yes
Observations	22,879	10,688	18,741	10,269
Pseudo R-squared	0.103	0.120	0.249	0.251
Additional hypothesis tests:				
Scope + Scope*Rep.	-1.674*** (0.075)	-0.154 (0.121)	-1.308*** (0.105)	0.671*** (0.192)
Scope + Scope*Rep. + Scope*Dem. Unif. + Scope*Rep.*Dem. Unif.		-2.343*** (0.218)		-2.326*** (0.291)
Scope + Scope*Dem. Unif.		-0.021 (0.209)		0.25 (0.284)

*Notes:* Standard errors clustered by legislator in parentheses. In columns 1 and 3, *Scope + Scope\*Rep.* tests whether Republicans' rates of voting "yes" were the same before and after the recession. In columns 2 and 4, *Scope + Scope\*Rep.* tests whether Republicans' votes were the same before and after the recession in non-Democratic unified governments, and *Scope + Scope\*Rep. + Scope\*Dem. Unif. + Scope\*Rep.\*Dem. Unif.* is the corresponding test for Democratic unified governments. *Scope + Scope\*Dem. Unified* tests whether Democratic voting was the same before and after the recession in Democratic unified governments. All hypothesis tests are two-tailed. \* p<0.1; \*\* p<0.05; \*\*\* p<0.01



**Table 3: Predicted probabilities of voting "yes" on pension bills**

		<i>Without controls</i>	<i>With controls</i>
		(1)	(2)
Increases	Democrats before	0.973	0.931
	Republicans before	0.918	0.799
	Democrats after	0.984	0.984
	Republicans after	0.678	0.520
Reductions, Non-Democratic Unified Governments	Democrats before	0.950	0.936
	Republicans before	0.917	0.879
	Democrats after	0.690	0.660
	Republicans after	0.905	0.934
Reductions, Democratic Unified Governments	Democrats before	0.935	0.921
	Republicans before	0.923	0.913
	Democrats after	0.933	0.938
	Republicans after	0.539	0.520

**Table 4: Expansion of the scope of conflict**

	<i>Expansions</i>			<i>Reductions</i>			
	(1)	<i>Non-Dem.</i> (2)	<i>Dem.</i> (3)	(4)	<i>Non-Dem.</i> (5)	<i>Dem.</i> (6)	
Scope	0.341 (0.543)	-0.874*** (0.262)	-0.543 (0.662)	Scope	0.234 (0.306)	-1.976*** (0.161)	-2.233*** (0.387)
Republican	-1.364*** (0.203)	-0.125 (0.266)	-0.748 (0.469)	Republican	-1.159*** (0.137)	-0.871*** (0.251)	-1.436*** (0.438)
Scope*Rep.	-2.262*** (0.553)	1.116*** (0.305)	-2.086*** (0.716)	Scope*Rep.	-1.696*** (0.354)	2.052*** (0.302)	1.082** (0.536)
Union	-0.04 (0.210)	1.055*** (0.291)	-0.947** (0.428)	Ideology	-0.054 (0.140)	-0.226 (0.181)	2.541*** (0.401)
Scope*Union	0.094 (0.593)	-1.604*** (0.324)	0.917 (0.698)	Scope*Ideology	-0.243 (0.355)	0.25 (0.194)	-4.059*** (0.492)
Rep.*Union	0.236 (0.229)	-0.448 (0.364)	0.697 (0.584)	Rep.*Ideology	0.026 (0.185)	0.698** (0.296)	-2.023*** (0.666)
Scope*Rep.*Union	0.408 (0.614)	0.916** (0.411)	0.034 (0.826)	Scope*Rep.*Id.	-0.181 (0.420)	-0.43 (0.356)	1.68** (0.796)
Previous Exp.	-0.378*** (0.070)			Previous Exp.	-0.41*** (0.068)		
Previous Red.		-0.701*** (0.079)	0.453 (0.287)	Previous Red.		-0.72*** (0.080)	-0.198 (0.327)
Constant	3.748*** (0.190)	2.328*** (0.232)	3.218*** (0.401)	Constant	3.732*** (0.098)	3.003*** (0.151)	3.772*** (0.322)
Observations	16,067	7,575	2,340	Observations	19,474	7,877	2,363
Pseudo R-squared	0.1242	0.1175	0.2037	Pseudo R-squared	0.1157	0.1138	0.2659

**Additional hypothesis tests:**

Union effect for Dems, after	0.054 (0.553)	-0.549*** (0.149)	-0.030 (0.549)	Liberal effect for Dems, after	0.461 (0.506)	-0.037 (0.119)	2.356*** (0.472)
Union effect for Reps, before	0.196** (0.096)	0.607*** (0.219)	-0.250 (0.392)	Conservative effect for Reps, before	-0.116 (0.313)	-0.588 (0.407)	5.603*** (0.896)
Union effect for Reps, after	0.697*** (0.131)	-0.080 (0.139)	0.701*** (0.188)	Conservative effect for Reps, after	-0.429** (0.186)	-0.277 (0.203)	-1.763*** (0.318)

*Notes:* Standard errors clustered by legislator in parentheses. For hypothesis tests in columns 4-6, liberal, moderate, and conservative legislators are defined as described in the text. All hypothesis tests are two-tailed. \* p<0.1; \*\* p<0.05; \*\*\* p<0.01

**Table 5: Predicted probabilities of voting "yes" on pension bills**

Increases	Democrats	Before, No Union Support	0.976	Before, Moderate	0.976
		Before, With Union Support	0.976	Before, Liberal	0.978
		After, No Union Support	0.982	After, Moderate	0.978
		After, With Union Support	0.984	After, Liberal	0.986
	Republicans	Before, No Union Support	0.916	Before, Conservative	0.927
		Before, With Union Support	0.930	Before, Moderate	0.929
		After, No Union Support	0.614	After, Conservative	0.646
		After, With Union Support	0.762	After, Moderate	0.736
Reductions, Non-Democratic Unified Governments	Democrats	Before, No Union Support	0.910	Before, Moderate	0.948
		Before, With Union Support	0.967	Before, Liberal	0.963
		After, No Union Support	0.811	After, Moderate	0.738
		After, With Union Support	0.711	After, Liberal	0.730
	Republicans	Before, No Union Support	0.900	Before, Conservative	0.934
		Before, With Union Support	0.942	Before, Moderate	0.901
		After, No Union Support	0.920	After, Conservative	0.926
		After, With Union Support	0.914	After, Moderate	0.905
Reductions, Democratic Unified Governments	Democrats	Before, No Union Support	0.959	Before, Moderate	0.990
		Before, With Union Support	0.905	Before, Liberal	0.690
		After, No Union Support	0.930	After, Moderate	0.717
		After, With Union Support	0.933	After, Liberal	0.964
	Republicans	Before, No Union Support	0.920	Before, Conservative	0.942
		Before, With Union Support	0.898	Before, Moderate	0.916
		After, No Union Support	0.460	After, Conservative	0.293
		After, With Union Support	0.631	After, Moderate	0.700

## Appendix

This appendix provides additional discussion of the results shown in the paper and also provides supplemental empirical analysis.

First, as we explain in footnote 13 of the paper, one might be concerned that the post-recession spike in partisanship on pension bills is not specific to public pensions—that instead, votes on pensions might reflect a sudden, across-the-board increase in partisanship in the state legislatures. To investigate this possibility, we downloaded Shor and McCarty’s (2011, 2013) estimates of state legislator ideology, which are constructed using data from state legislative roll call votes and the National Political Awareness Test. For the majority of state legislative chambers, the Shor and McCarty estimates are only available through 2008 and so do not allow us to compare pre- and post-recession trends. However, for 34 chambers, their dataset does contain estimates for years after 2008. For each of those 34 chambers, we calculated the distance between the ideology of the median Republican legislator and the median Democratic legislator in each year. Figure A1 plots the results; a vertical line in each graph denotes 2008.

Examining Figure A1, we see no evidence that polarization was low until 2008 and then suddenly spiked in 2009. Some chambers, such as the Texas House, show a gradual increase in polarization over time. The lines for other chambers (such as the South Dakota House) are relatively flat, while still other chambers (such as the Ohio Senate) show declines in polarization. Most importantly, no chamber has a trend similar to the one shown in Figure 2 of the paper: a sudden spike in 2009. This evidence is bolstered by Table A1, where we regress the difference in party medians for the 34 chambers on indicators for each year. Unlike in Table 1 of the paper, we do not find that overall polarization in 2009-2011 diverged dramatically from the earlier period. In an F-test of whether the coefficient on the year 2009 is equal to that of 2008, we fail

to reject the null hypothesis. The same is true of a test of whether the coefficient on 2010 is equal to 2008. This suggests that the patterns we have found for public pensions are specific to pensions and not representative of a general trend in state legislatures.

Next, we move to our initial analysis of individual legislators' votes, the results of which are presented in Tables 2 and 3 of the paper. Our discussion of that analysis focuses on Table 3—the predicted probabilities generated from the logit models. Here, we discuss the hypothesis tests most relevant to our theory, which are presented in Table 2 of the paper.

In the simple model of pension expansion bills presented in column 1 of Table 2, the negative and significant coefficient on *Republican* tells us that prior to the recession, Republicans were less likely than Democrats to vote “yes” on pension expansion. However, that pre-recession inter-party difference was small in comparison to the gap between the two parties after the recession. As we can see from the positive coefficient on *Scope*, Democrats became *more* likely to vote “yes” on pension increases after the recession. Republicans, in contrast, became even less likely to vote “yes” than they had been before the recession, as shown by the significant negative effect of  $Scope + Scope*Republican$  at the bottom of column 1.

In column 2 of Table 2, we estimate the same model as in column 1 but allow our estimates to vary by whether the bills were enacted by Democratic unified governments or not. For both types of governments, we expect that the parties polarized once the scope of conflict expanded. However, in states without Democratic unified government, that polarization should be driven by Democrats starting to vote “no,” whereas in states with Democratic unified government, it should be driven by Republicans voting “no.”

We first consider the voting patterns in states without Democratic unified governments. As expected, the coefficient on *Scope* is negative and significant, which shows that Democrats

became less likely to approve pension reductions after the recession. In contrast, as we show at the bottom of column 2, the sum of the coefficients on *Scope* and *Scope\*Republican* is statistically indistinguishable from zero, which means that Republican support for retrenchment did *not* decline after the recession.

For retrenchment bills in Democratic unified governments, the patterns in voting are different. First, we ask whether Republican voting on reform bills changed from before to after the recession. To make this comparison, we test whether the combination of four coefficients—*Scope*, *Scope\*Republican*, *Scope\*Democratic Unified Government*, and *Scope\*Republican\*Democratic Unified Government*—is equal to zero. At the bottom of column 2, we find that this estimate is negative and statistically significant, indicating that after the recession, Republicans became more likely to vote “no” on reform bills pushed through by Democrats. Democratic voting, however, did *not* change significantly: the combination of *Scope* and its interaction with *Democratic Unified Government* is statistically insignificant.

In columns 3 and 4 of Table 2, we add the funding ratio, indicators for prior pension changes, and state fixed effects, and nearly all of our hypothesis tests yield the same results. The only difference is that in states without Democratic unified government, Republicans actually became slightly more likely to support retrenchment after the recession. (See the significant positive effect of *Scope + Scope\*Republican* at the bottom of column 4.) Most importantly, though, even with these controls, we find that the gap between the two parties widened significantly after the recession, in the direction we expect.

In footnote 19 of the paper, we explain that the findings we present in Tables 2 and 3 are substantively the same when we model legislators’ votes using ordinary least squares (OLS) rather than logistic regression. Table A2 presents these OLS results.

In column 1, we find that on expansion bills, the votes of Republicans and Democrats differed little before the recession: Republicans were only 5.5 percentage points less likely to vote “yes.” After the recession, Republican support for pension expansions plummeted by 24 percentage points (see the test of  $Scope + Scope*Rep. = 0$  at the bottom of column 1), while Democratic support for expansions actually increased slightly.

Our findings for reductions in column 2 also mirror those of Table 2. In non-Democratic unified governments, the parties voted together before the recession. After the recession, Democratic support dropped by 26 percentage points, while Republican support stayed the same. In Democratic unified governments, it was the Republicans whose support dropped after the recession (by 38.5 percentage points), while Democrats continued to vote “yes.” Thus, our conclusions from the OLS models are the same as those from the logit models.

In columns 3 and 4 of Table A2, we add the controls for previous pension activity, the funded ratio, and state fixed effects. Again, our core findings are the same as those we present and describe in the paper.

As we discuss in footnote 19 of the paper, one might wonder whether the sudden post-recession divergence in Democratic and Republican votes is caused by changes in the composition of the legislatures or changes in the votes of legislators who were in office both before and after the recession. Our theory does not imply that one type of change should be more important than the other,<sup>1</sup> but it is interesting to ask whether individual legislators did, in fact, change their votes after the recession. We investigate this by replacing the state fixed effects with legislator fixed effects.

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<sup>1</sup> On pension expansion bills, for example, a change in voter awareness and interest group structure could have led to the election of more anti-pension Republicans, *or* it could have caused sitting Republicans to *become* more anti-pension. It is possible that both effects are at work.

The legislator fixed effects partial out the effects of any unobserved characteristics of individual legislators that make them more or less likely to vote “yes” on a given type of bill, as long as those characteristics do not vary over time. However, including dummy variables for the thousands of individual legislators in our dataset places heavy demands on the estimation. It also has two important implications for how we interpret the estimated coefficients. First, the coefficients on the party variables (those not interacted with *Scope*) are based solely on legislators who switched parties. Because there are so few of these legislators, those coefficients do not merit discussion. More importantly, though, the estimates of our main effects of interest—the changes in Republicans’ and Democrats’ votes over time (i.e., *Scope* and the party variables interacted with *Scope*)—are based only on the votes of legislators who were in office before and after the recession *and* voted on pension expansions (or reductions) in both time periods. Thus, the estimates from the legislator fixed effects models give only a limited picture of changes in partisan voting patterns over time.

We present the results of the legislator fixed effects models in columns 5 and 6. The coefficients and hypothesis tests show that many legislators *did* change their votes after the recession—and that the effects shown in the paper are not driven solely by changes in the composition of the groups of legislators voting on pension issues. In column 5, we find that Democrats became slightly more likely (3 percentage points) to vote “yes” on expansions after the recession. Again, the big change was among Republicans, who became 16 percentage points *less* likely to vote “yes” on pension expansions after the recession. In column 6, we find that in non-Democratic unified governments, Democrats became less likely to vote “yes” on pension reductions after the recession, by about 7 percentage points. Republican support for retrenchment in these legislatures did not change after the recession. In Democratic unified



governments, the pattern is reversed. Democratic voting on reductions did not change after the recession, but Republican voting did—by nearly 29 percentage points. Thus, even in these models with legislator fixed effects, we find the same patterns that we do in the paper.

In the final part of the empirical analysis, we incorporate our measures of public sector union strength and legislator ideology. As before, our discussion in the paper centers on the predicted probabilities in Table 5, but we also display the results of the important hypothesis tests in Table 4.

First, let us consider the relevant tests in column 1 of Table 4, where we incorporate our measure of union influence into the model of pension expansion bills. Our first finding of note is that the coefficient on *Union* is insignificant, which means that financial support from public sector unions made no difference to Democrats' support for pension increases before the recession. We also find that it made no difference to Democratic voting *after* the recession, as we show in the hypothesis test at the bottom of column 1. For Republicans, we find that union support did matter, and that it mattered more after 2008 than before. The hypothesis tests at the bottom of column 1 show that Republicans receiving campaign funding from unions were more likely to vote “yes” on pension increases than Republicans not receiving funding from unions. More importantly, the gap between union-supported and non-union-supported Republicans widened after the recession.

In column 2 of Table 4, we run the same model as in column 1 but for retrenchment bills passed in states without Democratic unified government. We see there that legislators of both parties who received union support were actually slightly more likely to vote “yes” on pension reform prior to the recession. (However, as we show in Table 5, the pre-recession differences between union-supported and non-union supported legislators were small.) After the recession,

Republicans tended to vote together in support of pension reform bills, regardless of whether they received campaign funding from public sector unions. For Democrats, though, union support made a difference: Democrats who received campaign contributions from public sector unions were more likely to vote “no” on pension reductions than Democrats who did not.

For reform bills passed in states controlled by Democrats, the overall pattern looks similar to that of pension expansion bills. Democrats voted “yes” at high rates after the recession, regardless of union financial support in the last election. Republicans after the recession became much more likely to vote “no,” but Republicans supported by public sector unions were significantly more likely to vote “yes” than Republicans who were not.

In columns 4 through 6 of Table 4, we incorporate our measure of legislator ideology. The first finding of note is that on pension increases, legislator ideology makes no difference to Democrats’ voting, either before or after the recession. Moreover, before the recession, conservative Republicans’ votes were statistically indistinguishable from the votes of moderate Republicans. This makes sense in light of our theory, since the conservative districts did not have any more groups opposing public sector unions than more moderate districts at the time. After the recession, however, conservative Republicans were significantly less likely to support pension increases than moderate Republicans. The reason for this difference, we argue, is that pro-reform groups were stronger in the districts with more conservative Republicans.

For pension reduction bills in state governments where Republicans had a veto, Republicans voted in favor of reform at high rates both before and after the recession, regardless of ideology, as we would expect. Likewise, ideology made no difference to Democrats’ votes either before or after the recession. Post-2008, rates of support for retrenchment dropped among Democrats, regardless of whether they were liberal or moderate.

We see dramatic effects of ideology for the retrenchment bills in Democratic unified governments. Prior to the recession, moderate Democrats were significantly more likely to support these bills than liberal Democrats (see the coefficient on *Ideology*), and ideology also made a difference to Republicans. After the recession, we see exactly the effect of ideology we expect. In these states, Democrats crafted the reform bills, presumably to satisfy public sector unions, and liberal Democrats approved the bills at a slightly higher rate than moderate Democrats. But it is among Republicans where we see the most striking post-recession effects of ideology, as expected. Compared to moderate Republicans, conservative Republicans were significantly less likely to support pension reduction bills in Democratically-controlled states.

Finally, in Table A3 below, we replicate the analysis of Table 4 using OLS rather than logistic regression. The marginal effects we estimate are very similar to those presented in the table of predicted probabilities in the paper (Table 5), and the results of the hypothesis tests are nearly identical as well.

**Table A1: General Polarization**

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2000	0.007 (0.010)
2001	0.026 (0.029)
2002	0.048 (0.043)
2003	0.07 (0.042)
2004	0.088 (0.046)*
2005	0.108 (0.053)*
2006	0.113 (0.054)*
2007	0.154 (0.058)**
2008	0.164 (0.059)**
2009	0.188 (0.059)***
2010	0.172 (0.074)**
2011	-0.164 (0.208)
Constant	1.178 (0.098)***
R-squared	0.02
N	408

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*Notes:* Standard errors clustered by state in parentheses. Dependent variable is ideological distance between the party medians in a state legislative chamber.  
\* p<0.1; \*\* p<0.05; \*\*\* p<0.01

**Table A2: OLS Models and Legislator Fixed Effects**

	<i>Expansions</i>	<i>Reductions</i>	<i>Expansions</i>	<i>Reductions</i>	<i>Expansions</i>	<i>Reductions</i>
	(1)	(2)	(3)	(4)	(5)	(6)
Scope	0.011*** (0.004)	-0.261*** (0.012)	0.068*** (0.006)	-0.216*** (0.015)	0.027*** (0.009)	-0.065** (0.026)
Republican	-0.055*** (0.004)	-0.033*** (0.010)	-0.054*** (0.004)	-0.036*** (0.011)	0.034 (0.078)	0.021 (0.122)
Scope * Republican	-0.251*** (0.014)	0.249*** (0.015)	-0.268*** (0.013)	0.28*** (0.015)	-0.157*** (0.028)	0.024 (0.031)
Democratic Unified		-0.015 (0.011)		0.017 (0.018)		0.071* (0.039)
Republican * Democratic Unified		0.021 (0.020)		0.032 (0.020)		-0.182*** (0.056)
Scope * Democratic Unified		0.26*** (0.018)		0.209*** (0.025)		0.09* (0.053)
Scope * Republican * Dem. Unified		-0.632*** (0.033)		-0.661*** (0.032)		0.336*** (0.085)
Funded Ratio			-0.0004 (0.026)	-0.15 (0.106)	-0.064 (0.042)	0.092 (0.194)
Previous Expansion			-0.017*** (0.005)		-0.014** (0.007)	
Previous Reduction				-0.08*** (0.013)		-0.061*** (0.021)
Constant	0.973*** (0.002)	0.951*** (0.006)				
Observations	22,879	10,688	21,245	10,688	21,245	10,688
R-squared	0.0712	0.1139	0.1608	0.2221	0.5376	0.7235
Fixed effects	None	None	State	State	Legislator	Legislator
Number of fixed effects	--	--	40	34	7,940	5,614
Additional hypothesis tests:						
Scope + Scope*Rep.	-0.24*** (0.014)	-0.012 (0.010)	-0.20*** (0.014)	0.065*** (0.016)	-0.129*** (0.027)	-0.042 (0.031)
Scope + Scope*Rep. + Scope*Dem. Unif. + Scope*Rep.*Dem. Unif.		-0.385*** (0.026)		-0.388*** (0.030)		-0.287*** (0.067)
Scope + Scope*Dem. Unif		-0.001 (0.012)		-0.007 (0.022)		0.025 (0.049)

*Notes:* Standard errors clustered by legislator in parentheses. In columns 1, 3, and 5, *Scope + Scope\*Rep.* tests whether Republicans' rates of voting "yes" were the same before and after the recession. In columns 2, 4, and 6, *Scope + Scope\*Rep.* tests whether Republicans' votes were the same before and after the recession in non-Democratic unified governments, and *Scope + Scope\*Rep. + Scope\*Dem. Unif. + Scope\*Rep.\*Dem. Unif.* is the corresponding test for Democratic unified governments. *Scope + Scope\*Dem. Unified* tests whether Democratic voting was the same before and after the recession in Democratic unified governments. All hypothesis tests are two-tailed. \* p<0.1; \*\* p<0.05; \*\*\* p<0.01

**Table A3: Expansion of the Scope of Conflict, OLS Models**

	<i>Expansions</i>			<i>Reductions</i>			
	(1)	<i>Non-Dem.</i> (2)	<i>Dem.</i> (3)	(4)	<i>Non-Dem.</i> (5)	<i>Dem.</i> (6)	
Scope	0.009 (0.010)	-0.114*** (0.030)	-0.021 (0.035)	Scope	0.003 (0.006)	-0.239*** (0.015)	-0.14*** (0.036)
Republican	-0.066*** (0.008)	-0.01 (0.023)	-0.035* (0.021)	Republican	-0.055*** (0.008)	-0.058** (0.023)	-0.043 (0.028)
Scope*Rep.	-0.32*** (0.023)	0.139*** (0.034)	-0.441*** (0.049)	Scope*Rep.	-0.192*** (0.032)	0.244*** (0.031)	-0.051 (0.055)
Union	0.001 (0.005)	0.066*** (0.021)	-0.049*** (0.019)	Ideology	-0.004 (0.004)	-0.02** (0.009)	0.13*** (0.022)
Scope*Union	-0.003 (0.011)	-0.171*** (0.034)	0.047 (0.038)	Scope*Ideology	-0.003 (0.007)	0.024 (0.018)	-0.27*** (0.043)
Rep.*Union	0.013 (0.009)	-0.019 (0.026)	0.032 (0.034)	Rep.*Ideology	0.003 (0.010)	0.055** (0.024)	-0.093** (0.045)
Scope*Rep.*Union	0.143*** (0.030)	0.118*** (0.039)	0.142** (0.066)	Scope*Rep.*Id.	-0.079* (0.042)	-0.03 (0.034)	-0.11 (0.072)
Previous Exp.	-0.022*** (0.004)			Previous Exp.	-0.023*** (0.004)		
Previous Red.		-0.098*** (0.012)	0.027* (0.016)	Previous Red.		-0.102*** (0.012)	-0.012 (0.018)
Constant	0.979*** (0.005)	0.913*** (0.020)	0.957*** (0.014)	Constant	0.98*** (0.003)	0.958*** (0.008)	0.954*** (0.009)
Observations	16,067	7,575	2,340	Observations	19,474	7,877	2,363
R-squared	0.0903	0.1070	0.2106	R-squared	0.0808	0.1030	0.2581
<b>Additional hypothesis tests:</b>							
Union effect for Dems, after	-0.001 (0.010)	-0.105*** (0.027)	-0.002 (0.033)	Liberal effect for Dems, after	0.01 (0.009)	-0.006 (0.025)	0.218*** (0.058)
Union effect for Reps, before	0.014* (0.008)	0.046*** (0.016)	-0.017 (0.028)	Conservative effect for Reps, before	-0.008 (0.009)	-0.051** (0.021)	0.285*** (0.050)
Union effect for Reps, after	0.154*** (0.027)	-0.007 (0.013)	0.172*** (0.045)	Conservative effect for Reps, after	-0.078** (0.039)	-0.027 (0.020)	-0.326*** (0.041)

*Notes:* Standard errors clustered by legislator in parentheses. For hypothesis tests in columns 4-6, liberal, moderate, and conservative legislators are defined as described in the text of the paper. All hypothesis tests are two-tailed. \* p<0.1; \*\* p<0.05; \*\*\* p<0.01

Figure A1: Polarization Over Time



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