Pensions in the Trenches:  
How Pension Costs are Affecting U.S. Local Government

Sarah F. Anzia  
Associate Professor  
Goldman School of Public Policy  
Department of Political Science  
University of California, Berkeley  
sanzia@berkeley.edu  

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Abstract: Many experts argue that U.S. local governments are experiencing dramatic increases in their pension costs and that pension spending is crowding out government services. Others maintain that serious pension problems are limited to a few governments. This issue is important to both political scientists and policy practitioners, but no existing studies—or the datasets they rely on—allow evaluation of the extent to which local pension costs are rising or whether pensions are affecting services. This paper analyzes a new dataset of the annual pension expenditures of over 400 municipalities and counties from 2005 to 2016. I find that pension expenditures have risen almost everywhere, but there is significant variation in that growth. On average, local governments are not responding to rising pension costs by increasing revenue. They are instead shrinking their workforces, and that pattern is more pronounced in places with public-sector collective bargaining and tax and expenditure limits.

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Over the last few decades, state and local policymakers have enacted changes to make government employees’ pension benefits more generous, and they have also consistently underfunded those pensions—setting aside far too little money to pay for them. As a result, public employee pensions in the United States are underfunded by somewhere between $1.28 trillion and $4.2 trillion, depending on the estimates used (Board of Governors of the Federal Reserve System 2018; Pew Charitable Trusts 2019). Because public pension benefits are legally guaranteed, someone has to make up for these shortfalls, and many experts claim that state and local governments are feeling the consequences in the form of rapidly rising pension expenditures. As the New York Times has put it, “many Americans may be forced to rethink what government means at the state and local level” because of rising pension costs (Walsh 2011).

Based on a few state and local governments that have received substantial media attention, it is clear that pension costs have risen dramatically in some places—and that those places have struggled to cope with the fiscal pressure. In cities like San Jose, San Diego, Chicago, Detroit, and Stockton, skyrocketing pension costs have forced government officials to make painful decisions about future pension benefit levels, government service provision, and taxes. Some say that the events unfolding in these cities are part of a larger and permanent trend—one affecting state and local governments almost everywhere (DiSalvo 2015; Kiewiet and McCubbins 2014). Others argue that claims of widespread pension-induced fiscal crisis are exaggerated and that serious pension problems are limited to a few cities (Munnell et al. 2013).

Given the state of the research literature on this topic, it is impossible to know which of these conclusions is closer to the mark. There is existing research on public-sector retirement policies (e.g., Anzia and Moe 2017; DiSalvo and Kucik 2017; Kiewiet 2010; Munnell 2012), but none of those studies—or the datasets they rely on—allow evaluation of how much local
governments’ pension expenditures have risen or how local governments are responding to any pension cost increases. There is also a research literature on local political economy in the United States that examines the political contributors to local public spending and service provision (e.g., Alesina et al. 1999; Hopkins 2009; Rugh and Trounstine 2011; Trounstine 2016), but it hasn’t engaged with questions about the causes and consequences of legacy costs like public pensions and retiree healthcare—even though those costs are likely an important component of spending in every local government.

Answering basic questions about pension cost growth and local governments’ responses is important for a wide range of constituencies, including policymakers, policy practitioners, government employees, and citizens more broadly. Up to this point, debates about public pensions have focused on quantities like unfunded liabilities and actuarial assumptions. While these are central components of the overall problem, they are also technical, debatable, and hard to understand—making it difficult for most to engage meaningfully on the issue. In contrast, the questions I pose here are simple. Rather than engaging in the debate about what the discount rate should be, or how big unfunded liabilities are, my focus is on what is happening in local governments and how that is affecting the citizens they serve—advancing the national conversation about pensions in a way that is easier to understand.

These questions are also of fundamental importance to scholars of American government because they are questions about what local government is, what it does, and how that may be changing as a result of legacy costs. The nation’s nearly 90,000 local governments play a critical role in public service provision: they spend roughly a quarter of all public money in the United States, provide essential services such as public education and public safety, and are responsible for local infrastructure like sewers and roads. The local political economy literature rightfully
conceives of these as important outcomes to be explained, and in doing so, it emphasizes the role of local-level factors like political institutions, partisanship, ideology, and race (e.g., Alesina et al. 1999; de Benedictis-Kessner and Warshaw 2016; Gerber and Hopkins 2011; Tausanovitch and Warshaw 2014; Trounstine 2018). Yet this setup is a poor match for the study of the local political economy of pensions. Local government officials have only limited control over pension expenditures while they are in office; their pension costs are instead shaped by local and state political decisions—many of which are not felt by local governments immediately but rather take time to impact local government budgets. Studying pensions in local government therefore calls for a change to the standard setup—and a focus on how local officials wrestle with and respond to structural changes in costs.

This paper begins to answer these questions through an analysis of a new dataset of the annual pension expenditures of over 400 municipal and county governments from 2005 to 2016, which I hand-collected from the cities’ and counties’ annual financial statements. This dataset is unlike any that existed before because it tracks actual local government pension expenditures over time, not just in the largest cities or in the cities with the biggest problems, but instead in a large, diverse set of cities and counties across the country.¹ With these new data, we can see for the first time how cities’ and counties’ pension expenditures have changed over this period. In addition, by connecting these local pension expenditure data with U.S. Census data on local government employment and finances, I evaluate whether growing pension expenditures are associated with increased revenue, employment reductions, or cuts to non-pension spending.

¹ As de Benedictis-Kessner and Warshaw (forthcoming) argue, more work on local politics should include data on county governments as well as municipal governments.
I find that between 2005 and 2016, city and county pension costs rose in real terms almost everywhere—in total, per employee, and as a share of general revenue—but also that there was substantial variation in the extent of that growth. In an analysis of within-local government change over time, I find that larger increases in pension contributions are not associated with larger increases in revenue. Instead, they are associated with greater reductions in local government employment. I also find that this employment effect varies with some local political conditions. While there is no clear evidence that local citizen ideology or partisanship influences how local officials respond to rising pension costs, the negative association between pension costs and local government employment is more pronounced for local governments with public-sector collective bargaining and more severe tax and expenditure limits. Thus, the picture that emerges is one of rising local pension costs and the crowding out of government services—but with significant variation in those changes depending on the local political context.

**Background and Literature**

Approximately 14 million people work full-time for U.S. state and local government, and almost all of them are eligible for a defined benefit retirement plan (a traditional pension). This means that state and local government employees receive a defined benefit in retirement for as long as they live, equal to some fraction of their final average salary times the number of years they worked for the government. Most state and local employees are enrolled in large, state-operated pension plans such as CalPERS in California and OPERS in Ohio, but many local governments operate their own plans. In principle, the model for funding pensions is straightforward: they are supposed to be prefunded, with government employers and employees setting aside funds to pay for the retirement benefits earned each year.
Today, however, most state and local pension funds do not have sufficient assets to cover the retirement benefits that have been promised. Collectively, the nation’s public-employee pensions are underfunded by somewhere between $1.28 and $4.2 trillion—estimates that depend on the assumptions used to value liabilities and assets (Board of Governors of the Federal Reserve System 2018; Pew Charitable Trusts 2019).

A number of government decisions at both the state and local levels have contributed to this shortfall. First, over the years state and local officials have enacted changes to make pension benefits more generous and thus more expensive (Anzia and Moe 2017; DiSalvo 2015), such as increasing the benefit formula’s multiplier, reducing the retirement age, allowing employees to purchase service credit for years not actually worked, and building in automatic cost-of-living adjustments. These changes have had long-lasting effects, because in many states, pension benefits can only be reduced for future government hires—not for current employees, even for years those employees have not yet worked.

State and local governments have also consistently underfunded their pensions, setting aside far too little money to pay for the benefits they have promised. Many different kinds of decisions and events have contributed to the underfunding, including strategically-chosen actuarial assumptions that make pension liabilities look smaller than they actually are (Novy-Marx and Rauh 2009, 2011), failure to pay the annual amounts supposedly required for full funding (Anzia and Moe 2019), politically-motivated investment decisions (Andonov et al. 2018), and the decline in asset values brought by the Great Recession. Regardless of how poorly-funded pensions are, however, the benefits are legally guaranteed, and someone has to make up for the shortfalls.
There is strong reason to expect that these trends are affecting local government budgets, but the existing research literature has done little to study what local governments are experiencing or how they have responded. The literature on public pensions has instead focused on outcomes related to the largest state and local pension plans, such as CalPERS and OPERS (e.g., Mitchell and Smith 1994; Thom 2013). One line of work attempts to explain variation in plans’ funding ratios and investment performance (e.g., Andonov et al. 2018). Another focuses on estimating what public pension liabilities are actually worth given different actuarial assumptions (Novy-Marx and Rauh 2009, 2011). Plan-level outcomes presumably do have effects on the local governments that participate in those plans, but so far the research literature has not directly studied those effects at the local government level.

The likely reason experts have not studied the local government impacts is that there aren’t any readily available data on pension costs at the level of the local government. Nearly all of the aforementioned empirical work relies on the Public Plans Database developed by Boston College’s Center for Retirement Research, which documents each state and large local plan’s funded ratio, actuarial assumptions, required contributions, and more. Yet these plan-level data do not tell us about the pension expenditures of particular governments, most of which contribute to multiple pension plans—typically at least one state-operated plan and often one or more locally-administered plans. The problem is therefore a mismatch between the unit of analysis in available datasets—the pension plan—and the unit of analysis needed to study what local governments are experiencing—which is the local government.

Because of this, we do not actually know how rapid or pervasive local pension cost increases have been so as to be able to assess how governments are responding. Some scholars argue that increases in pension costs are widespread and that local governments throughout the
country are facing difficult budgetary choices as a result, but they rely on state- or plan-level data or examples from a few cities to draw that conclusion (DiSalvo 2015; Erie, Kogan, and Mackenzie 2011; Kiewiet and McCubbins 2014). Others argue that the experiences of cities like New York and San Diego are not typical of other local governments and that most places are not experiencing such fiscal stress (e.g., Munnell et al. 2013). Without data on what local governments contribute toward their pensions, we cannot know which is closer to the mark.

The U.S. local political economy literature would also seem to be a natural place to look for insights about how local governments have responded to pension cost changes, yet it has paid little attention to public pensions, in spite of their potential significance as a component of local spending and a driver of local fiscal decisions. The data challenges discussed above are likely one reason for this. But another is an (often implicit) assumption in this literature that local officials have control over local fiscal matters. Most studies in this literature examine the effects of local political institutions, officials’ party affiliations, citizens’ ideology, and demographics on local public spending and service provision (e.g., Alesina et al. 1999; Anzia 2014; de Benedictis-Kessner and Warshaw 2016; Tausanovitch and Warshaw 2014; Trounstine 2018). For local spending to be affected by those local factors, local policymakers must have some control over it (Gerber and Hopkins 2011). That assumption is entirely appropriate for many studies of local politics. But it is not appropriate if the focus is on local public pension costs.

When it comes to their pension expenditures, local officials do not have full or direct control. Instead, they are heavily constrained by both the decisions of state policymakers and choices made in the past by policymakers at the state and local levels. The salient question when it comes to local pension costs, then, is how local governments wrestle with and respond to changes in those costs—and how those responses are conditioned by the political environment.
This question is structurally similar to those that ask how city fiscal policies are shaped by state institutions (e.g., Sapotichne et al. 2015; Shi et al. 2018) or how governments respond to fiscal shocks (e.g., Poterba 1995). But none of the work in the political economy or public administration literatures that addresses those questions investigates local public pensions.

Data

To evaluate how local governments’ pension costs have changed over time and how those governments have responded to any changes, I assembled a new dataset. My goal for assembling the dataset was to collect several recent years of the pension contributions of a diverse set of local governments across the United States—and a set of local governments for which I have data on local fiscal and employment outcomes. There is no central repository for such information, so I set out to collect a large number of local governments’ comprehensive annual financial reports (CAFRs), which detail what the governments contributed to each of their employee retirement plans in each year.

While CAFRs are the only reliable source of information on local governments’ pension contributions, it can be difficult to locate them and sometimes costly to acquire them—especially for years in the more distant past. Once the CAFRs are in hand, moreover, it takes time to locate the relevant information and interpret it, first because most CAFRs are hundreds of pages long, and second because local governments are not always clear and consistent in the way they report their pension costs. Collecting and reading the CAFRs of thousands of local governments for several decades would therefore have been prohibitively costly.

With these tradeoffs in mind, I selected a sample of 236 municipal governments and 239 county governments from among those that appear in the U.S. Census Bureau’s Survey of Governments Finance and Employment files for most years between 2005 and 2016. I first
defined eight strata based on local government population, with the first stratum being local
governments with fewer than 10,000 residents and the last being those with more than 1 million
residents. I then used random sampling with replacement to draw local governments from each
stratum, weighting by population within strata.²

I then attempted to collect the CAFRs of each of those 475 local governments for that
same twelve-year period—a period that spans years before, during, and after the Great
Recession. Most local governments had at least some CAFRs on their websites, typically for
recent years. For city- and county-years for which the CAFRs were not available online, I
requested the documents from the local governments, filing public information requests where
necessary. I was able to obtain at least some years’ CAFRs for 460 local governments, including
232 municipalities and 228 counties.

CAFR formats vary, but nearly all of them provide information about the retirement plans
to which the government contributed on behalf of its employees, each plan’s Annual Pension
Cost or Actuarially Required Contribution, and the amount of the employer contribution. The
most important piece of information I drew from the CAFRs was the amount the city or county
contributed to each of its employee retirement plans in that year.³ I included contributions to
defined contribution (DC) plans as well as defined benefit (DB) plans, although DC plans in
these local governments are rare and typically make up a small share of total retirement
contributions. A small number of governments also fund their OPEB from their pension fund
contributions. I subtracted out funds going to OPEB whenever possible, but I was not able to do

² See the online appendix for details.

³ I provide a detailed account of the data collection and coding in the online appendix.
this for a small number of plans, and in those cases, the pension contribution amounts include some OPEB expenditures.

Three other features of the data collection are worth highlighting. First, while my goal was to collect cities’ and counties’ total pension contributions, including any amount of the employees’ contributions paid by the local government (Employer-Paid Member Contributions, or EPMC), most CAFRs did not clearly and consistently report whether the local government was paying EPMC or, if it was, how much. Therefore, the retirement contributions discussed below do not include EPMC. They also do not include contributions the local governments made using revenue from pension obligation bonds (POBs) or any interest paid on those bonds, even though both can be substantial. For some cities and counties, then, the contribution amounts discussed below are smaller than they would be if POB interest payments and EPMC could have been included. Third, the dataset tracks what governments actually paid toward retirement benefits—not what they should be paying. Most work on public pensions focuses on underfunding and what governments should be contributing, but my focus is on whether pension expenditures have risen over time and how that is affecting local government. The more appropriate measure for this study is therefore what local governments are actually spending on pensions, because those are the numbers affecting their budgets.

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4 When local governments issue POBs, they typically use the revenue to make a large, non-recurring pension contribution. I subtracted those POB funds from the contribution amounts.
For the analysis to follow, I summed the retirement expenditures for all plans in each city- and county-year. In total, the dataset has 5,085 annual pension expenditure observations from 442 unique governments, spanning all 50 states plus Washington, DC. For 375 local governments, the dataset includes pension expenditure information for all twelve years from 2005 to 2016, and for the remaining 67, it includes pension expenditures for some.

The cities and counties included this dataset should not be viewed as a representative sample of cities and counties in the United States, but the goal of the analysis is to evaluate whether changes in local pension costs within cities and counties are associated with changes in local fiscal and employment outcomes. Because this dataset tracks pension contributions within 442 local governments over time and links those annual pension data to Census finance and employment data, it is uniquely suited to the task. For the first time, then, these data allow us to see how local governments are responding to changes in their retirement costs.

**Change in Local Pension Expenditures, 2005-2016**

I begin with a descriptive analysis of how pension contributions have changed over time in the 442 cities and counties in the dataset. I adjust each year’s total pension expenditures for inflation (to 2016 dollars), and I calculate two additional variables for each local government and

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5 I excluded several plans that were inconsistently reported in the CAFRs from year to year. Nearly all of them were very small relative to the governments’ other, more consistently reported plans. See the online appendix for details.

6 The CAFRs for 13 counties and 5 municipalities did not have the requisite information on retirement plans to be included. See the online appendix for details.

7 In the online appendix, I analyze variation in pension contributions across cities and counties.
year: total pension expenditures as a share of general revenue, and total pension expenditures per
full-time equivalent employee.\footnote{Annual data on local government general revenue come from the U.S. Census’s Surveys of
Finance, and annual figures on full-time equivalent employees come from the U.S. Census’s
Surveys of Employment. See the online appendix.} Both variables are of interest (as is total pension expenditures),
but the second is a clearer measure of pension-related fiscal pressure. To see why, consider that a
local government’s pension costs are partially a function of how many employees it has: if a city
hires more employees, for example, its total pension contributions should automatically increase
because it is contributing on behalf of more people. Thus, pension expenditures as a share of
general revenue could be higher in some cities and counties just because they have more
employees, and that ratio could be increasing within a city or county just because the government
is expanding its workforce—which probably is not a sign of fiscal stress. Pension costs per
employee, by contrast, takes into account the size of the workforce. It captures the amount the
local government is setting aside for pensions per active employee—and should generally be
higher in governments and years where pension benefits are more generous or where
governments are making up for larger funding shortfalls.

As a first step, I calculate percent growth in total inflation-adjusted pension contributions
from 2005 to 2016 for the 359 cities and counties for which I have comparable data for both
years.\footnote{This number excludes a small number of cities and counties for which I have pension
expenditure data for both 2005 and 2016 but that, due to changes in reporting or missing
information on one or more plans, the 2005 and 2016 figures are not comparable.} The distribution of that variable is shown in the top left panel of Figure 1. Strikingly, the
number is positive for almost all cities and counties: 88% experienced increases in their pension expenditures from 2005 to 2016. The median within-government change over twelve years is 56%—quite large—but particularly notable is the long right tail of the distribution. In 26% of the cities and counties, pension costs more than doubled in twelve years. In the top 10%, they grew by more than 189%.\textsuperscript{10}

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure1.png}
\caption{Within-city and county change in pension expenditures}
\end{figure}

\textsuperscript{10} This plot excludes Monmouth County, New Jersey, which only contributed $900,000 toward pensions in 2005 but contributed $26,245,000 in 2016.
This first figure only tells us so much, because rising pension costs could simply be a sign of a growing city budget or public-sector workforce. In the top-right panel, therefore, I present the distribution of the change in pension costs as a proportion of general revenue from 2005 to 2016.\textsuperscript{11} It shows that pensions have grown as a share of revenue in 75\% of the cities and counties, with a median change of 0.008 (or 0.8 percentage points). More notable, again, is the right tail: the top 25\% of the cities and counties saw pension expenditures consume an additional 2.1\% of general revenue or more, and the top 10\% had pensions absorb an additional 3.7\%.

In the bottom two panels, I show the within-government change in pension expenditures per local government employee, first for 2005 to 2016 (which only includes 269 cities and counties, mostly due to missing employment data for 2005), and then on the right for 2007 to 2016 (which includes 366 cities and counties).\textsuperscript{12} Both show that the vast majority of cities and counties have seen increases in pension expenditures per employee. Focusing on the bottom-left, the median within-government change from 2005 to 2016 was $1,419 per employee, and in 25\% of the cities and counties, per-employee pension expenditures increased by $3,542 or more. In a now-familiar pattern, the increases in per-employee pension expenditures have been very large in some places. In the top 10\% of cases, pension costs have increased by more than $7,124 per employee, and in the top 5\%, they have increased by more than $11,321 per employee.

\textsuperscript{11} This, too, excludes an outlier: Plymouth County, Massachusetts.

\textsuperscript{12} For presentation purposes, these figures exclude a few outliers: Pembroke Pines, Florida, in both, and also San Jose, California, and Joliet, Illinois, on the bottom right.
Regardless of how it is measured, then, most cities and counties have experienced growth in their pension costs, but there is considerable variation in the extent of that growth.\footnote{The online appendix presents an analysis of the characteristics of cities and counties that are associated with larger and smaller changes in pension costs over time.} Given that pension costs have increased in most local governments—in some places substantially so—an important next step is to analyze how local governments are responding to those changes.

**How Are Pension Costs Affecting Local Government?**

Local governments might respond to pension contribution increases in different ways. Some might increase revenue, some might decrease spending, and some might do both. My approach is to evaluate whether there are discernable trends in cities’ and counties’ responses—and any clear links between those trends and changes in local pension costs. In particular, I focus on whether larger pension cost increases are associated with larger increases in revenue, decreases in employment, or decreases in spending on items other than retirement benefits.\footnote{Another option some local governments have is to issue POBs. My coding of CAFRs identified 38 cities and counties that either issued or were paying off POBs (14 of which are in California). However, only 13 of the 38 issued POBs during this study period—too few to carry out analysis of whether greater pension cost increases are associated with use of POBs.}

What should our expectations be? While there are no existing studies of how local governments respond to growth in pension costs, there are some insights and findings from the political economy literature suggesting that local government responses will tilt more toward employment and spending reductions than toward revenue increases. First, and very generally, there is a long line of public opinion research showing that most Americans do not like paying...
taxes and think their own taxes are too high (e.g., MacManus 1995; Page and Shapiro 1992). That makes raising revenue politically difficult. Even if taxes are increased to fund popular government services, most voters do not make a direct connection between the services they receive and the taxes they pay (Beck, Rainey, and Traut 1990; Sears and Citrin 1982). Raising revenue might even be more difficult if the purpose is fund pensions. In many places, pension costs have gone up not to pay for more services in the present but rather to make up for funding shortfalls—and thus to pay for services provided in the past.

By comparison, decreasing public employment and expenditures might be a more appealing option for local governments feeling the pinch. Gradual and incremental reductions in spending and service provision might be less likely to be noticed by citizens and probably less likely to be attributed to the decisions of local elected officials (Arnold 1990; Wilson 1995)—potentially making them a politically safer option.\(^\text{15}\) Moreover, there are reasons to think local officials looking for cost-savings will focus in particular on employment levels and employee costs. Much more so than at the national level, local government service provision is heavily dependent on the employees providing the services, and a large share of local government spending goes toward employee compensation. Also, a local government’s pension costs are in part a function of its employment levels, and so officials confronting rising pension expenditures might find that reducing employment is an attractive option.

Just as states’ responses to fiscal shocks vary with political conditions (Poterba 1992), however, local government responses to pension cost increases might reasonably vary with the

\(^{15}\) Relatedly, states seem to respond to unexpected fiscal shocks by reducing outlays in that year—although many also adopt tax increases for the next year (Fisher 2008; Poterba 1992).
local political economy. Three local political conditions in particular stand out as theoretically relevant: the presence of collective bargaining and strength of unions, the degree to which local governments are constrained by TELs, and the partisan or ideological leanings of local residents.

First, consider collective bargaining and union strength. Local government employees and their unions are some of the most active and best organized groups in local politics in most states—especially when it comes to the local governments that employ them (DiSalvo 2015; Moe 2011). In general, better organized and more politically active groups should be in a better position to secure favorable policies. Local public-sector unions in particular have collective bargaining rights in many places, which means that local government employers are required to bargain and come to legal agreement with them on matters related to compensation and work rules. There is strong reason to expect collective bargaining and union strength—which, empirically, are very highly correlated (Moe 2011)—to shape local officials’ responses to rising pension costs.

That said, the direction of any such effect is theoretically ambiguous. One possibility is that well-organized, politically active groups of employees are better able to stave off employment reductions and persuade officials to raise revenues instead. But if raising revenue is too politically difficult, local officials under pressure to limit spending might be more likely to

16 In the online appendix, I show that cities, counties, and states with stronger unions and mandatory collective bargaining tend to spend more on pension contributions per employee and have experienced more pronounced growth in pension contributions. However, in the analysis to follow, my focus is on whether local governments with collective bargaining respond differently to the same pension cost increase than places without collective bargaining.
reduce employment levels in places with collective bargaining and stronger unions—because
they may have fewer politically palatable levers for keeping costs down in other ways. For
example, local officials in cities with collective bargaining and strong unions might be less able
to limit employee salary increases or reduce other fringe benefits like OPEB,\textsuperscript{17} because doing so
could generate significant political pushback from unions, possibly leading to a strike. Thus,
while there are reasons to expect the local union and bargaining context to influence local
responses to rising pension costs, how exactly this works is an empirical question.

Second, local government vary in the extent to which they are constrained by TELs.
These fiscal institutions, imposed by the states, may well limit local officials’ options for
responding to rising pension costs. Empirical studies on the effects of TELs find that they make it harder for local officials to raise revenue and thus that they work to limit local spending (e.g.,
Poterba and Rueben 1995; Dye, McGuire, and McMillen 2005). Thus, we might expect cities and counties more heavily constrained by state TELs to be less likely to respond to pension cost increases by increasing revenue and more likely to reduce employment and spending.

Third, the American politics literature in general and recent work in the local politics
literature in particular place heavy emphasis on the role of ideology and partisanship in shaping local policy, particularly spending. Some studies find evidence that the partisanship of local officials matters for local policy (e.g., de Benedictis-Kessner and Warshaw 2016, forthcoming; Gerber 2013), and other work finds a clear association between citizen ideology or partisanship and local spending (Einstein and Kogan 2016; Tausanovitch and Warshaw 2014). Extending

\textsuperscript{17} As Anzia and Moe (2015) argue, unions favor greater employment, but they also favor higher per-employee compensation, and there is a tradeoff between the two.
these findings to local public pensions, one might predict that cities and counties with more liberal or Democratic residents should be more likely to increase revenue (and less likely to decrease employment or spending) in response to pension cost increases. Yet other work on local politics calls into question whether local ideology or partisanship heavily shape local policy (e.g., Oliver 2012, Thompson 2019). Also, Anzia and Moe (2017, 2019) show that state-level decisions about public pensions in particular tend not to divide politicians along party lines. Thus, there are also reasons to think that local politicians’ responses to rising pension costs may not vary systematically with citizen ideology or partisanship. This, too, is an empirical question.

To evaluate how local governments have responded to changes in their pension costs, I turn to the full panel dataset of city and county pension expenditures from 2005 to 2016 and test whether larger pension cost increases are associated with local fiscal and employment trends. I first explore whether cities and counties tend to cope with rising pension costs by increasing revenue. I model two dependent variables, both of which are from the U.S. Census Survey of Governments Finance files for 2005 to 2016: the log of total general revenue per capita and the log of total own-source general revenue per capita, adjusted to 2016 dollars.\(^\text{18}\) While general revenue (which includes intergovernmental revenue) better captures the total revenue cities and counties have at their disposal, own-source general revenue may more clearly reflect local government actions to increase revenue in response to rising pension costs.\(^\text{19}\) Throughout, the

\(^{18}\) I log-transform the data because the distributions of both are right skewed.

\(^{19}\) Unfortunately, I know of no existing data on local government decisions about tax rates, assessments, or charges that cover all of the governments in this dataset.
main independent variable of interest is logged pension expenditures per full-time equivalent employee.  

Most of the variation in per capita general revenue is across rather than within cities and counties, but here I am focused on how cities and counties might be changing their general revenue in response to rising pension costs. I therefore model the general revenue variables with OLS and fixed effects for each city and county, which partial out the influence of any time-constant characteristics of the local governments that lead them to have higher or lower general revenue and pension expenditures. I also include year fixed effects because there are likely secular trends that affect pension costs and general revenue in all cities. During the Great Recession, for example, required pension expenditures increased because of the overall decline in fund asset values, and at the same time, city and county revenues dropped. More generally, though, the analysis above made it clear that some cities and counties have had much greater increases in pension expenditures per employee than others, and including year fixed effects allows me to test whether those greater-than-average increases are associated with greater-than-average increases in general revenue.

I also lag the pension expenditure variable by one year so that I am estimating the relationship between pension costs in year \( t-1 \) and general revenue per capita in year \( t \). This models government decision-making in a realistic way; presumably officials make decisions about next year’s budget based on what they observe of this year’s. An insignificant coefficient on per-employee pension costs would therefore imply that on average, greater increases in

\[ \text{As discussed earlier, pension expenditures per employee is the better measure of the extent to which cities and counties are under fiscal stress because of pensions.} \]
pension expenditures per employee the year prior are not associated with greater increases in general revenue per capita. A positive coefficient would imply that greater increases in per-employee pension costs are associated with larger revenue increases—and would be evidence that the average local government is increasing revenue to make room for rising pension costs.

Finally, because there might be changes in the local jurisdiction that affect general revenue and may be correlated with pension cost increases, I include a series of time-varying local demographic variables: log per capita income, log population, percent urban, percent homeowners, and percent black, Asian, and Hispanic.21

The estimates from this model are shown in column 1 (general revenue per capita) and column 2 (own-source general revenue per capita) of Table 1. In both, the coefficients on pension costs per employee are close to zero and statistically insignificant. Certain other variables are related to growth in general revenue per capita, such as per capita income and population, but there is no evidence of a link between rising pension costs and increasing general revenue. In cities and counties that experience greater-than-average increases in pension costs per employee, the next year does not bring greater-than-average increases in revenue.

Next, I carry out a series of tests to evaluate whether rising pension costs are having a negative effect on local government employment. Modeling the relationship between pension costs and local employment is less straightforward than it might seem, because the independent

21 These variables are from the U.S. Census Bureau. I lose a few observations for a few reasons: because pension costs for some city- and county-years are not comparable to other years within the same government, because of clear errors in the finance and employment data, or because of extreme changes in pension expenditures for a single year. See online appendix for details.
variable of interest—pension expenditures per employee—itself has employment in the denominator. Lagging the pension cost variable by one year (as I did for the models of general revenue) helps to address the mechanical endogeneity of pension costs and employment in the same year—and again, it is a plausible model of government decision-making.

Table 1: Local government pension costs, revenue, and employment

<table>
<thead>
<tr>
<th></th>
<th>General revenue</th>
<th>Own-source revenue</th>
<th>FTE employment</th>
<th>Full-time employment</th>
<th>Part-time employment</th>
<th>Capital outlays</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5)</td>
<td>(6)</td>
</tr>
<tr>
<td>Ln(pension costs)</td>
<td>-0.001</td>
<td>0.008</td>
<td>-0.066</td>
<td>-0.068</td>
<td>-0.009</td>
<td>-0.015</td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.019)</td>
<td>(0.014)</td>
<td>(0.013)</td>
<td>(0.039)</td>
<td>(0.095)</td>
</tr>
<tr>
<td>Ln(income per capita)</td>
<td>0.72</td>
<td>0.706</td>
<td>0.328</td>
<td>0.355</td>
<td>0.074</td>
<td>1.662</td>
</tr>
<tr>
<td></td>
<td>(0.196)</td>
<td>(0.187)</td>
<td>(0.091)</td>
<td>(0.105)</td>
<td>(0.258)</td>
<td>(0.798)</td>
</tr>
<tr>
<td>Ln(population)</td>
<td>-0.683</td>
<td>-0.722</td>
<td>-0.634</td>
<td>-0.63</td>
<td>-0.824</td>
<td>-1.144</td>
</tr>
<tr>
<td></td>
<td>(0.140)</td>
<td>(0.148)</td>
<td>(0.105)</td>
<td>(0.107)</td>
<td>(0.177)</td>
<td>(0.525)</td>
</tr>
<tr>
<td>% Urban</td>
<td>0.183</td>
<td>0.435</td>
<td>0.431</td>
<td>0.472</td>
<td>0.949</td>
<td>-1.803</td>
</tr>
<tr>
<td></td>
<td>(0.402)</td>
<td>(0.400)</td>
<td>(0.172)</td>
<td>(0.179)</td>
<td>(0.791)</td>
<td>(1.259)</td>
</tr>
<tr>
<td>% Homeowner</td>
<td>0.056</td>
<td>0.002</td>
<td>0.012</td>
<td>0.021</td>
<td>0.217</td>
<td>0.609</td>
</tr>
<tr>
<td></td>
<td>(0.233)</td>
<td>(0.274)</td>
<td>(0.137)</td>
<td>(0.144)</td>
<td>(0.451)</td>
<td>(1.477)</td>
</tr>
<tr>
<td>% Black</td>
<td>1.083</td>
<td>1.168</td>
<td>0.687</td>
<td>0.623</td>
<td>2.22</td>
<td>3.138</td>
</tr>
<tr>
<td></td>
<td>(0.790)</td>
<td>(0.746)</td>
<td>(0.388)</td>
<td>(0.353)</td>
<td>(1.293)</td>
<td>(3.521)</td>
</tr>
<tr>
<td>% Asian</td>
<td>0.323</td>
<td>-0.037</td>
<td>0.081</td>
<td>-0.024</td>
<td>-0.32</td>
<td>-2.014</td>
</tr>
<tr>
<td></td>
<td>(0.521)</td>
<td>(0.501)</td>
<td>(0.576)</td>
<td>(0.575)</td>
<td>(1.080)</td>
<td>(2.721)</td>
</tr>
<tr>
<td>% Hispanic</td>
<td>0.339</td>
<td>0.199</td>
<td>-0.064</td>
<td>-0.16</td>
<td>0.542</td>
<td>2.01</td>
</tr>
<tr>
<td></td>
<td>(0.370)</td>
<td>(0.449)</td>
<td>(0.338)</td>
<td>(0.342)</td>
<td>(1.085)</td>
<td>(1.890)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.98</td>
<td>0.97</td>
<td>0.99</td>
<td>0.99</td>
<td>0.94</td>
<td>0.75</td>
</tr>
<tr>
<td>Observations</td>
<td>4,133</td>
<td>4,133</td>
<td>4,075</td>
<td>4,075</td>
<td>4,041</td>
<td>4,066</td>
</tr>
</tbody>
</table>

Notes: Standard errors clustered by state in parentheses. All models include local government and year fixed effects. Dependent variables are logged, per capita.

The dependent variables come from the U.S. Census Survey of Governments employment files, which have information on full- and part-time government employment and payroll for 92% of the city- and county-years in my pension costs dataset. Large cities naturally
have more employees than small cities, so I divide each of the employment dependent variables (detailed below) by local government population in thousands. The distributions of these employment variables are skewed right, so I take the log of each one. I model them using the same approach as in columns 1 and 2, with local government fixed effects, year fixed effects, and time-varying local demographics. The main focus is on log pension costs per employee. An insignificant coefficient would imply that on average, larger increases in per-employee pension expenditures are not associated with greater employment reductions the following year. A negative coefficient would imply that greater increases in per-employee pension costs are associated with larger employment reductions the next year—and would be evidence that pension costs are leading to service reductions.

In column 3 of Table 1, I present the results of a model of logged full-time equivalent employment per thousand residents. The coefficient estimates suggest that rising pension expenditures have indeed led to an average reduction in public-sector employment: a 10% increase in pension expenditures per employee is associated with a 0.66% decrease in employment the following year. To get a sense of the magnitude of this effect, consider that the median increase in pension costs per employee from 2007 to 2016 was $1,203, and that is approximately a 25% increase from the 2007 median pension expenditure per employee ($4,901, see online appendix). The coefficient estimate in column 3 of Table 1 suggests that a 25% increase in pension costs is associated with a 1.63% decrease in local employment per capita. Given that the median local government in this dataset had 10.13 full-time equivalent employees per thousand residents as of 2007, a 1.63% decrease represents the loss of 0.17 employees per thousand residents—or for a city or county of 100,000 people, 17 of its employees. Naturally, the
model predicts larger employment losses for the cities and counties that experienced larger growth in pension costs.

Given that local governments are reducing employment in response to rising pension costs, there is good reason to expect that the cuts would be greater among full-time employees than part-time local employees, because part-time employees often are not eligible for pensions. I explore this in columns 4 and 5 of Table 1. In column 4, the dependent variable is the log of the local government’s full-time employees per thousand residents. The coefficient on log per-employee pension expenditures is negative and statistically significant, suggesting that a 10% increase in pension costs is associated with a 0.68% reduction in full-time employment. When I instead model the log of the local government’s part-time employees per thousand residents, in column 5, the coefficient on pension costs is statistically insignificant. This suggests that growing pension costs are associated with declining numbers of full-time employees—not part-time employees.

Finally, in column 6, I test for a link between rising pension costs and capital outlays. This is an important dimension of local government activity because it relates to its investments in construction and the purchase of land, equipment, and existing buildings, and because I can be

\[ \text{22 The number of observations is lower due to a few local governments without part-time employees.} \]

\[ \text{23 Local governments could also reduce the hours worked by part-time employees even if the number of part-time employees stays the same. However, when I model logged part-time employee payroll in each government, which reflects total hours, I find no significant relationship with pension costs.} \]
confident that these expenditures do not include pension costs. On average, I find that larger increases in pension costs are not associated with greater reductions in capital outlays in these local governments: the coefficient on per-employee pension costs is statistically insignificant. Thus, results in Table 1 suggest that local governments respond to rising pension costs with employment reductions—more so than revenue increases or reductions in capital outlays.

Next, I consider whether local governments’ responses to rising pension costs vary with the local political environment, starting with the labor context. Unfortunately, there are no existing datasets that track the presence of collective bargaining or the strength of public-sector unions in all local governments throughout the United States. Therefore, to measure the presence of local collective bargaining and the strength of public-sector unions in each of these local governments, I rely on two datasets assembled by Anzia and Moe (2015, 2016). The first contains indicators of whether police officers and firefighters in municipal governments have collective bargaining; these data are available for 176 of the 227 city governments in my dataset.

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24 For many of the city and county spending variables in the U.S. Census Survey of Governments Finance files, it is not clear whether they include pension expenditures, and it would be problematic to analyze the effects of rising pension costs on expenditure variables that might include those very pension costs.

25 However, when I limit the model to only municipal governments, I find a negative, statistically significant relationship. This may be because city governments typically spend a larger share of total revenue on capital outlays than counties—on average 27% for cities as opposed to 10% for counties—which makes capital outlays a more obvious place for cities to cut costs.
For the remaining municipal governments, and for all county governments, there are no existing data on whether their employees have collective bargaining. However, the presence of collective bargaining and the strength of public-sector unions in local governments is heavily shaped by state collective bargaining laws: in states that require government employers to bargain with their employees if those employees form unions, it is typical for local governments to have both collective bargaining and high union membership rates (see Flavin and Hartney 2015; Moe 2011; Saltzman 1985). For the remaining 51 cities and all of the counties, therefore, I use a dataset of state collective bargaining laws collected by Anzia and Moe (2016) and code local governments as having collective bargaining if state law requires bargaining for police, firefighters, and other local employees.

In the following analysis, I focus on two main dependent variables from Table 1: own-source general revenue, and full-time employment. In columns 1 and 2 of Table 2, I interact the pension cost variable with the indicator for collective bargaining, evaluating whether the relationship between rising pension costs and these outcomes varies with the presence of collective bargaining. In column 1, I find that local governments with collective bargaining are

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26 I code a city as having collective bargaining if either police officers or firefighters in the city have collective bargaining.

27 This state-level variable is a good proxy for local-level bargaining. Of the 176 cities for which I have both the state-level and the local-level indicator, 94 are in states with mandatory bargaining, and every single one of those has collective bargaining at the local level. 82 are in states without mandatory bargaining (according to this measure), and only 35% of those have collective bargaining at the local level.
no more likely than those without to respond to pension cost increases with revenue increases. Even in places with collective bargaining, there is no relationship between pension costs and revenue increases, as I show at the bottom of the table.

Column 2 of Table 2 turns the focus to full-time employment per thousand residents. The coefficient on the pension expenditures variable remains negative, but it is smaller than before and statistically insignificant. Thus, for the average local government without collective bargaining, larger pension expenditure increases are not significantly associated with larger decreases in full-time employment. For governments with collective bargaining, however, the effect is large and negative: combining the coefficients on log per-employee pension expenditures and its interaction with collective bargaining shows that a 10% increase in per-employee pension costs is associated with about a 0.79% decrease in full-time local government employment. Thus, the relationship between rising pension costs and employment reductions is more pronounced in places with collective bargaining. This is consistent with an account in which local governments with strong unions and collective bargaining have lower capacity to reduce or constrain employment costs by other means.

One final question relevant to union strength relates to which employees are most affected by rising pension costs. Even if local governments with collective bargaining are more likely to turn to employment reductions than those without collective bargaining, they may still act to protect employees that are better organized and more politically active. Again, there are no modern data on the relative unionization rates of different groups of employees in cities and counties, but existing evidence does suggest that public safety employees (particularly police and fire protection employees) tend to be somewhat better organized than other city and county employees—and also that they are highly active in local politics (Anzia and Moe 2015; Anzia
One possibility, then, is that the political strength of public safety workers better insulates them from employment reductions than non-public safety workers.

Table 2: Collective bargaining, public safety

<table>
<thead>
<tr>
<th></th>
<th>Own-source general revenue (1)</th>
<th>Full-time employment (2)</th>
<th>Public-safety employment (3)</th>
<th>Non-public-safety employment (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ln(pension costs)</td>
<td>0.003</td>
<td>-0.025</td>
<td>0.005</td>
<td>-0.027</td>
</tr>
<tr>
<td></td>
<td>(0.055)</td>
<td>(0.026)</td>
<td>(0.026)</td>
<td>(0.027)</td>
</tr>
<tr>
<td>Collective bargaining * Ln(pension costs)</td>
<td>0.006</td>
<td>-0.052</td>
<td>-0.042</td>
<td>-0.054</td>
</tr>
<tr>
<td></td>
<td>(0.057)</td>
<td>(0.028)</td>
<td>(0.028)</td>
<td>(0.030)</td>
</tr>
<tr>
<td>Ln(income per capita)</td>
<td>0.706</td>
<td>0.35</td>
<td>0.231</td>
<td>0.342</td>
</tr>
<tr>
<td></td>
<td>(0.187)</td>
<td>(0.105)</td>
<td>(0.101)</td>
<td>(0.113)</td>
</tr>
<tr>
<td>Ln(population)</td>
<td>-0.722</td>
<td>-0.633</td>
<td>-0.665</td>
<td>-0.638</td>
</tr>
<tr>
<td></td>
<td>(0.148)</td>
<td>(0.103)</td>
<td>(0.091)</td>
<td>(0.107)</td>
</tr>
<tr>
<td>% Urban</td>
<td>0.439</td>
<td>0.433</td>
<td>0.795</td>
<td>0.207</td>
</tr>
<tr>
<td></td>
<td>(0.405)</td>
<td>(0.176)</td>
<td>(0.351)</td>
<td>(0.199)</td>
</tr>
<tr>
<td>% Homeowner</td>
<td>0.002</td>
<td>0.019</td>
<td>-0.289</td>
<td>0.083</td>
</tr>
<tr>
<td></td>
<td>(0.274)</td>
<td>(0.144)</td>
<td>(0.209)</td>
<td>(0.152)</td>
</tr>
<tr>
<td>% Black</td>
<td>1.17</td>
<td>0.604</td>
<td>0.31</td>
<td>0.592</td>
</tr>
<tr>
<td></td>
<td>(0.746)</td>
<td>(0.352)</td>
<td>(0.397)</td>
<td>(0.398)</td>
</tr>
<tr>
<td>% Asian</td>
<td>-0.04</td>
<td>0.004</td>
<td>0.15</td>
<td>-0.15</td>
</tr>
<tr>
<td></td>
<td>(0.503)</td>
<td>(0.562)</td>
<td>(0.658)</td>
<td>(0.560)</td>
</tr>
<tr>
<td>% Hispanic</td>
<td>0.197</td>
<td>-0.135</td>
<td>-0.18</td>
<td>-0.181</td>
</tr>
<tr>
<td></td>
<td>(0.450)</td>
<td>(0.338)</td>
<td>(0.343)</td>
<td>(0.339)</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.97</td>
<td>0.99</td>
<td>0.98</td>
<td>0.99</td>
</tr>
<tr>
<td>Observations</td>
<td>4,133</td>
<td>4,075</td>
<td>4,054</td>
<td>4,075</td>
</tr>
<tr>
<td>Ln(pension costs) +</td>
<td>0.009</td>
<td>-0.077</td>
<td>-0.037</td>
<td>-0.081</td>
</tr>
<tr>
<td>Collective bargaining * Ln(pension costs)</td>
<td>(0.019)</td>
<td>(0.015)</td>
<td>(0.013)</td>
<td>(0.015)</td>
</tr>
</tbody>
</table>

Notes: Standard errors clustered by state in parentheses. All models include local government and year fixed effects. Dependent variables are logged, per capita.

In columns 3 and 4 of Table 2, I model the full-time employment levels of public safety employees (police protection, fire protection, and corrections) and non-safety, non-education employees. (Very few of these local governments handle education, but in the cities and counties...
that do, the education employees are a large share of the total workforce, so I exclude them.) I continue with the same model setup from columns 1 and 2, allowing the relationship between pension costs and employment to vary depending on the presence of collective bargaining.

I find that larger increases in pension expenditures per employee are indeed associated with greater reductions in public safety employment, but only in the places with collective bargaining: a 10% increase in per-employee pension expenditures is associated with a 0.37% reduction in full-time public safety employment per capita. For non-public safety employees, including parks and recreation and sanitation, the marginal effect for collective bargaining cities and counties is more than twice as large—an average decrease of 0.8% in employment per capita for every 10% increase in pension costs. Thus, in local governments with collective bargaining, rising pension costs have a clear association with employment reductions, but the magnitude of that association is greater for non-public safety workers than for public safety.

I next evaluate whether local responses to rising pension costs vary with the strength of local TELs. For this, I turn to a widely-used index of local TEL severity as of 2005 developed by Amiel, Deller, and Stallmann (2009), which incorporates information on the type of TEL, its scope and restrictions, and the provisions and established methods for exemptions and overrides. The index ranges from 0 (e.g., New Hampshire) to 38 (Colorado). In columns 1 and 2 of Table 3, I interact this measure of local TEL severity, centered around its mean, with the pension cost variable, evaluating whether local governments more constrained by TELs are less likely to increase revenue and more likely to cut employment in response to pension cost increases.
Table 3: Local TELs, partisanship, and ideology

<table>
<thead>
<tr>
<th></th>
<th>Own-source revenue (1)</th>
<th>Full-time employment (2)</th>
<th>Own-source revenue (3)</th>
<th>Full-time employment (4)</th>
<th>Own-source revenue (5)</th>
<th>Full-time employment (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ln(pension costs)</td>
<td>0.038</td>
<td>-0.067</td>
<td>0.009</td>
<td>0.004</td>
<td>-0.062</td>
<td>-0.066</td>
</tr>
<tr>
<td>(0.035)</td>
<td>(0.013)</td>
<td>(0.021)</td>
<td>(0.023)</td>
<td>(0.013)</td>
<td>(0.014)</td>
<td></td>
</tr>
<tr>
<td>Local TEL *</td>
<td>-0.0015</td>
<td>-0.002</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(pension costs)</td>
<td>(0.001)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dem. presidential vote *</td>
<td>-0.022</td>
<td>-0.131</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(pension costs)</td>
<td>(0.127)</td>
<td>(0.081)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local ideology *</td>
<td></td>
<td></td>
<td>-0.036</td>
<td>0.032</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(pension costs)</td>
<td>(0.065)</td>
<td>(0.039)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ln(income per capita)</td>
<td>0.697</td>
<td>0.347</td>
<td>0.705</td>
<td>0.793</td>
<td>0.352</td>
<td>0.465</td>
</tr>
<tr>
<td>(0.187)</td>
<td>(0.104)</td>
<td>(0.187)</td>
<td>(0.197)</td>
<td>(0.104)</td>
<td>(0.108)</td>
<td></td>
</tr>
<tr>
<td>Ln(population)</td>
<td>-0.723</td>
<td>-0.634</td>
<td>-0.722</td>
<td>-0.66</td>
<td>-0.63</td>
<td>-0.692</td>
</tr>
<tr>
<td>(0.148)</td>
<td>(0.103)</td>
<td>(0.148)</td>
<td>(0.132)</td>
<td>(0.103)</td>
<td>(0.107)</td>
<td></td>
</tr>
<tr>
<td>% Urban</td>
<td>0.43</td>
<td>0.455</td>
<td>0.429</td>
<td>0.549</td>
<td>0.436</td>
<td>0.536</td>
</tr>
<tr>
<td>(0.401)</td>
<td>(0.179)</td>
<td>(0.404)</td>
<td>(0.510)</td>
<td>(0.179)</td>
<td>(0.268)</td>
<td></td>
</tr>
<tr>
<td>% Homeowner</td>
<td>0.004</td>
<td>0.016</td>
<td>0.001</td>
<td>0.333</td>
<td>0.012</td>
<td>0.028</td>
</tr>
<tr>
<td>(0.271)</td>
<td>(0.138)</td>
<td>(0.274)</td>
<td>(0.356)</td>
<td>(0.141)</td>
<td>(0.176)</td>
<td></td>
</tr>
<tr>
<td>% Black</td>
<td>1.194</td>
<td>0.551</td>
<td>1.161</td>
<td>0.769</td>
<td>0.58</td>
<td>1.007</td>
</tr>
<tr>
<td>(0.778)</td>
<td>(0.364)</td>
<td>(0.741)</td>
<td>(0.440)</td>
<td>(0.354)</td>
<td>(0.512)</td>
<td></td>
</tr>
<tr>
<td>% Asian</td>
<td>0.011</td>
<td>0.046</td>
<td>-0.029</td>
<td>0.383</td>
<td>0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>(0.505)</td>
<td>(0.567)</td>
<td>(0.503)</td>
<td>(0.691)</td>
<td>(0.558)</td>
<td>(0.587)</td>
<td></td>
</tr>
<tr>
<td>% Hispanic</td>
<td>0.179</td>
<td>-0.168</td>
<td>0.201</td>
<td>0.312</td>
<td>-0.143</td>
<td>0.077</td>
</tr>
<tr>
<td>(0.437)</td>
<td>(0.328)</td>
<td>(0.452)</td>
<td>(0.427)</td>
<td>(0.341)</td>
<td>(0.306)</td>
<td></td>
</tr>
<tr>
<td>R-squared</td>
<td>0.97</td>
<td>0.99</td>
<td>0.97</td>
<td>0.98</td>
<td>0.99</td>
<td>0.99</td>
</tr>
<tr>
<td>Observations</td>
<td>4,122</td>
<td>4,064</td>
<td>4,133</td>
<td>3,640</td>
<td>4,075</td>
<td>3,615</td>
</tr>
</tbody>
</table>

Notes: Standard errors clustered by state in parentheses. All models include local government and year fixed effects. Dependent variables are logged, per capita.

The estimates in column 1 show little sign that local governments are responding to pension cost increases by increasing revenue, regardless of how constrained they are by local TELs. The coefficient on log per-employee pension costs is statistically insignificant, suggesting that in local governments with average TELs, larger pension cost increases are not associated with larger revenue increases. Moreover, the coefficient on the interaction term is negatively signed but not significant. Thus, the association between pension costs and revenue does not vary
significantly with the strength of local TELs. Even in local governments with no TELs at all, the coefficient on the pension costs variable is positive (0.038) but insignificant.

In column 2, however, I do find that stricter TELs matter for the local government employment effect. The coefficient on the main pension cost variable shows that in a local government with average local TEL severity, a 10% increase in per-employee pension costs is associated with a 0.67% reduction in full-time employment. The coefficient on the interaction term is also negative and statistically significant, indicating that the employment reduction effect is more pronounced in places with stricter local tells. For example, the estimated coefficient on log per-employee pension costs in a government with a TEL that is 10 points (roughly a standard deviation) higher than the average is 0.089, suggesting that a 10% increase in pension costs is associated with a 0.89% reduction in full-time employment.

Finally, I turn to an assessment of whether local citizen partisanship or ideology influences responses to rising pension costs. I employ two different measures. The first is presidential vote share for Barack Obama in 2008, centered around its mean. In column 3 of Table 3, I interact this measure with the pension cost variable in a model of logged own-source revenue per capita. There is no evidence of a stronger relationship between pension cost increases and revenue increases in more Democratic cities and counties. In column 4, I instead use the Tausanovitch and Warshaw (2013) citizen ideology scores; higher values indicate more

\[\text{These data come from a variety of sources, including Tausanovitch and Warshaw (2013). City-level presidential election returns were not available for a few cities; for them, this variable equals presidential vote in the parent county. See online appendix for details.}\]
conservative constituencies.\textsuperscript{29} There, too, I do not find a stronger connection between pension cost increases and revenue increases in more liberal cities and counties.

In columns 5 and 6, I model the relationship between pension cost increases and full-time employment, interacting pension costs with the measures of partisanship and ideology. Neither set of estimates suggests that officials representing more liberal or Democratic constituencies are more likely to avoid employment reductions in dealing with rising pension costs. In fact, the coefficient on the interaction term in column 5 is negative (p=0.11), suggesting that the employment reductions are even more pronounced in more Democratic constituencies. The reason for this, almost certainly, is that more Democratic cities and counties are much more likely to have public-sector collective bargaining: the correlation between those two variables in this dataset is 0.42.\textsuperscript{30} Thus, to the extent that local responses to pension costs vary with local partisanship and ideology, it is not in the way suggested by the literature. More liberal, Democratic constituencies are not more likely to increase revenue in response to rising pension costs. If anything, they are the places more likely to respond with employment reductions.

\textsuperscript{29} The Tausanovitch and Warshaw scores are unavailable for some of the smaller cities and counties in this dataset, so models that incorporate this measure have fewer observations.

\textsuperscript{30} When I model full-time employment with the pension cost variable interacted with all three of these local conditioning variables—collective bargaining, local TEL severity, and Democratic presidential vote—the coefficients on the interactions with Democratic presidential vote and collective bargaining are both negative but insignificant. The coefficient on the interaction with local TEL severity is significant at the 10% level (p=0.082).
Conclusion

Many experts argue that local government in the United States is being transformed by the rising cost of public pensions, yet scholars in the relevant fields—including political science, public policy, public administration, and public finance—have yet to examine how local pension costs have changed over time or how local governments are responding.

There is existing research on public pensions, but nearly all of it focuses on explaining variation in plan-level quantities such as funding ratios, unfunded liabilities, investment returns, and changes to benefit formulas. This body of research has shed considerable light on the political, economic, and actuarial decisions that have contributed to the underfunding problems that plague so many U.S. pension plans today. But on the issue of how local governments across the U.S. have been affected, scholars have advanced different views. Some claim that generous pension benefits combined with severe underfunding are putting strain on local government budgets and that widespread pension-induced fiscal pressure is forcing local governments to cut back on public services. Others maintain that the big problems are limited to a few governments. Until now, researchers haven’t had the data necessary to assess which is closer to the mark.

Meanwhile, the local political economy literature in political science puts the spotlight on the political factors that shape local spending and policy outcomes, but it does not emphasize how local governments respond to structural changes in costs that are partially or mostly out of their control. It almost entirely ignores questions about public-sector retirement costs. And in explaining local policy outcomes of interest, political scientists prioritize explanatory variables like partisanship and ideology—not collective bargaining, union strength, or TELs, which stand to be important for local fiscal policy and employment.
This paper makes headway by introducing a new dataset that allows us to evaluate for the first time the extent to which local pension expenditures have increased over time and whether they are crowding out public services. I collected up to twelve years of annual financial documents for a diverse set of 442 cities and counties throughout the country, and then I combed each one for information about what they spent on their employees’ pensions.

Descriptive analysis of these data reveals that city and county pension costs have risen just about everywhere since 2005, but also that there is substantial variation in that growth. By connecting these local annual pension cost data to U.S. Census data on local government employment and finances, I find that the average local government is not responding to larger pension cost increases by increasing general revenue. Instead, rising per-employee pension expenditures are associated with declines in public-sector employment. This pattern is especially pronounced in cities and counties with collective bargaining, and while it has affected public safety and non-public safety employees alike, the average employment reductions have been smaller for public safety employees. I also find that the link between pension cost increases and employment reductions is larger for local governments that are more constrained by state-administered TELs. However, I find no evidence that localities with more liberal or Democratic residents respond to pension cost increases differently than conservative or Republican ones.

These findings advance our understanding of the impacts of public-sector pensions in several ways. At a most basic level, these new data enable a discussion of the tradeoffs of public pension costs that is relatively easy to understand. Discussions of public pensions in recent years have focused almost entirely on quantities such as unfunded liabilities and actuarial assumptions, which are difficult for many citizens, policy practitioners, and government employees to understand. Most people probably do not have a good sense of what an unfunded pension
liability is, why they should care about the discount rate, or what the implications of pension underfunding are likely to be for them. It doesn’t help that the consequences of pension underfunding are usually described in terms of events that will happen in the distant future. By comparison, people are probably much more likely to appreciate the significance of how much their governments spend on pensions, how that has changed, and how their local governments are reducing jobs as a result. Putting the focus on what local government is doing less of—not in the future, but right now—in response to pension costs thus has potential to encourage greater public engagement on the issue.

These findings also put the spotlight on important tradeoffs faced by public-sector employees and their unions. Debates about public pensions are often framed as pitting pro-employee, pro-pension interests against anti-pension, anti-public-worker interests, but the findings here suggest that such a characterization is overly simplistic. Public-sector employees have an interest in more generous and more reliable retirement benefits, but local governments’ payments for those retirement benefits can cut into their ability to maintain or grow employment. The analysis here shows that as local governments spend more on pensions, they have fewer public-sector jobs to offer.

A pension-induced transformation of local government as it affects government employees is no small matter, but the implications of rising pension costs are broader than that. Indeed, it stands to affect everyone who relies on local government service provision. Many Americans take for granted that their local governments will provide public services like police protection, fire protection, street sweeping, and refuse collection. But in the years to come, it may well become harder for local governments to carry out those basic functions—because of rising retirement costs.
References


*Journal of Finance* 73 (5): 2041-86.


https://www.federalreserve.gov/releases/z1/dataviz/pension/funding_ratio/table/

(accessed August 6, 2019).


