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ABSTRACT

Using a novel data set linking municipal pension plans to city elections during the period 1962–2014, this paper uses a regression discontinuity design (RDD) focusing on narrow mayoral races to establish that unfunded pension benefits grow faster under Democratic-party mayors. Previous evidence shows that parties do not matter for a range of fiscal outcomes in U.S. cities, and suggests this is because Tiebout sorting imposes fiscal discipline. This paper shows that parties can matter for types of fiscal spending where benefits accrue to narrow constituencies and where costs are difficult to observe and understand for tax payers.

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1 Introduction

In their influential study, Ferreira and Gyourko (2009) show that the identity of the party in power does not appear to matter for any fiscal outcomes in U.S. cities. This stands in contrast to findings from other countries where parties appear to be influential in shaping city level fiscal outcomes (Pettersson-Lidbom, 2008; Fiva, Folke, and Sørensen, 2018). The existing evidence suggests that in U.S. cities Tiebout-sorting, e.g. city residents' voting with their feet, disciplines politicians to keep budgets balanced.

While the types of fiscal spending considered by Ferreira and Gyourko (2009) (total revenue and taxation, expenditure shares, city employment and some crime statistics) are all highly visible to city residents, the political economy literature suggests fiscal profligacy will be more likely for types of expenditure where the cost is less salient or comprehensible to voters (Besley and Burgess, 2002; Adsera, Boix, and Payne, 2003; Ferraz and Finan, 2008), and the benefits go to a more narrowly defined constituency (Olson, 1965; Grossman and Helpman, 2001). This paper shows that parties *do* matter in U.S. cities for exactly such types of fiscal expenditure, which Glaeser and Ponzetto (2014) label 'shrouded benefits'.

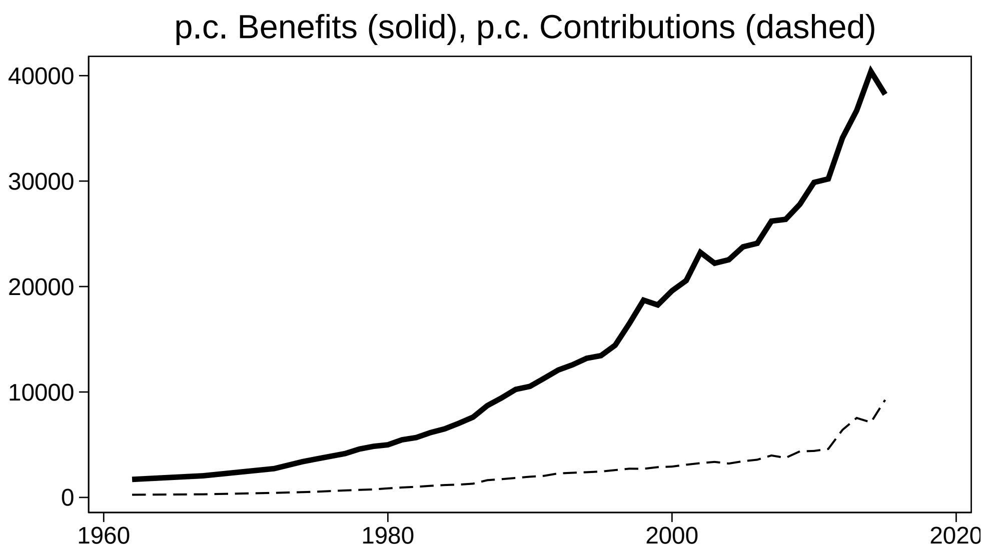
The paper's focus is on the biggest fiscal challenge that U.S. cities face in the coming decades, namely public-sector pension obligations, many of which are severely underfunded.[1] Pension under-funding is the result of benefit increases that are not accompanied by sufficient contribution increases. A general tendency for pension benefits to be underfunded may be discerned in Figure 1, which plots the evolution of the average of per capita benefits and contributions over the last decades. Unlike federal social security, municipal and state pension benefits are legally binding commitments (Burns, 2011; Trusts, 2013). Ultimately, it is therefore tomorrow's taxpayers that are on the hook when these are unfunded. Where the funding gap is sufficiently large, it can culminate in municipal bankruptcy.[2]

In theory, benefit increases lead actuarial accountants to re-calculate the pension contributions

[1] It is difficult to give a precise number since there is no *universal* database that includes all plans. Novy-Marx and Rauh (2009) provide a precise estimate of $3.23 trillion for the largest state and municipal plans; this set of the largest may amount to around ninety percent of the sum total in 2009, since when pensions fundedness has eroded further. Of this total, municipal plans may make up one quarter.

[2] According to Anderson (2013), "between 2007 and 2013, residents of twenty-eight cities suffered drastic cuts in fire and police protection as their cities went into bankruptcy or receivership." These bankruptcies are not mono-causal, but a re-negotiation of pension obligations is usually the most important order of business once a city has gone into bankruptcy, as was the case in Detroit in 2014 (The Economist, 2014).

Figure 1: per Capita Benefits and Contributions Over Time



Notes: Based on a panel of yearly averages of over 1,000 state and municipal plans from the U.S. Census' *Annual Survey of Public Pensions* (ASPP).

that are required to finance the higher benefits. In practice, there are a number of reasons benefit increases may not result in appropriate contribution increases: One, actuarially required contributions under-adjust to certain benefit formula enhancements, especially those that incentivize earlier retirement and change effective retirement ages (Mitchell and Smith, 1994, 282). Two, the transmission of benefit increases to actuarially required contributions can be neutralized by simultaneously increasing the actuarially assumed rate of return (AAR) of pension funds, even if this rate is too high (Novy-Marx and Rauh 2011, Kelley 2014, p24). Third, *actual* contributions paid can substantially fall behind the *actuarially required* contributions (Brinkman, Coen-Pirani, and Sieg, 2018).[3]

Pension under-funding is at its core a political economy problem: while voters may fail to account for the Ricardian equivalence of public debt more generally, this failure is more severe in the case of unfunded pension benefit increases because these are treated as if they were budget neutral (Johnson, 1997; Munnell, Aubry, and Quinby, 2011; Mohan and Zhang, 2014).[4] This mis-

[3] Required contributions are paid in part by employers and in part by employees. The employee portion is taken out of paychecks and cannot be shirked, but employers can shirk on their contributions (Brown and Dye, 2015).

[4] This is no less true at the federal level, where conservative estimates by rating agencies put the net present value of unfunded social security and medicare obligations at at least three times the amount of federal debt held by the public (Scope Ratings, 2017). Yet these obligations receive far less coverage than the theater surrounding the annual raising of

leading budget neutrality creates a 'fiscal illusion' (in the words of Buchanan and Wagner 1977) that makes pension benefit increases an attractive substitute to wage increases in politicians' eyes. This is illustrated by an interview with the former mayor of Houston, Lee P. Brown. During a tight re-election campaign that he narrowly won with 51.7 percent of votes, he was instrumental in a large increase in municipal employees' pension benefits. He later justified his decision to increase pension benefits by the fact that it was budget neutral, and that he did not "have the funds to give municipal employees the raises they deserved" (Boylan, 2016).

In the long run, the municipal employer still needs to cover benefit increases through local taxes. One objection to the fiscal illusion argument is therefore that the budget neutrality of unfunded pensions should not matter because home-buyers capitalize future tax obligations into property values (Daly, 1969; Brinkman et al., 2018). However, the reality of the 'shroudedness' of pension accounting means that even home buyers who are aware of this future tax burden will be prone to significantly underestimating it. That is because, aside from imperfectly observing official funding levels in local pensions, these official funding level figures can also be way off because the actuarial assumptions underlying them are settled in a highly politicized process (Greenhut, 2009; Novy-Marx and Rauh, 2011; Anzia and Moe, 2016).[5] One insider summarizes this problem as follows: "consistent low-balling of pension costs over the past two decades has made it easy for elected officials and union representatives to agree on very valuable benefits, for very much smaller current pay concessions."[6]

It is not clear that one should expect a partisan tilt in these political economy dynamics. There is no evidence that Democratic party mayors are more fiscally profligate than Republican ones on other issues (Ferreira and Gyourko, 2009), and it is not clear that the Democratic party is more fiscally profligate at any level of government.[7] However, anecdotal evidence does suggest that Democratic party politicians at the municipal level tend to be closer to (and more dependent on the political support of) public-sector employees (Greenhut, 2009, p.137), and political-economy

the debt ceiling (Ferguson, 2013).

[5] There is some empirical evidence that announced levels of pension under-funding get capitalized into home prices (MacKay, 2014; Epple and Schipper, 1981).

[6] Quote from a speech by Jeremy Gold, member of the American Academy of Actuaries and the Society of Actuaries Pension Financing Task Force, at MIT's Golub Center for Finance and Policy, in November 2015.

[7] It is perhaps worth emphasizing that not finding a partisan effect would not imply the absence of the political economy problem laid out here, and that finding a partisan effect does not indicate that the political economy problem involves only one party.

theories that emphasize the importance of 'bringing out the core' would thus predict a partisan tilt (Glaeser, Ponzetto, and Shapiro, 2005; Glaeser and Ponzetto, 2014).[8]

The primary source of data used in this paper is the U.S. Census' *Annual Survey of Public Pensions* (ASPP), which, after linking to its historical versions, covers the years 1962–2016. This paper's primary focus is on the evolution of a plan's per capita benefit payments relative to per capita contributions.[9] This paper's unit of observation is a pension plan in a year; the mapping from municipal pension plans to cities is 'many-to-one' because some cities have different plans for their major employee groups.[10]

This paper analyzes the evolution of per capita benefits relative to per capita contributions in municipal pension plans as a function of the party of the city mayor, using an extension of the mayoral election data produced by Ferreira and Gyourko (2009). Many unobserved factors that can also influence pensions may determine whether city residents elect a Democratic or Republican party mayor. To gain identification on the effect of the mayor's party, the paper therefore uses a regression discontinuity design (RDD) around close elections. By focusing on narrow election victories, the RDD controls for confounding factors that independently shape the outcome of interest. Standard tests for bunching of the running variable (Democratic Party vote share) do not come close to rejecting its smoothness around the winning cutoff, suggesting the RDD identifying assumptions hold in this data, as also confirmed in previous research on U.S. city elections (Eggers, Fowler, Hainmueller, Hall, and Snyder Jr, 2015).

The first empirical exercise in the paper is to confirm that none of the fiscal outcomes in Ferreira and Gyourko (2009) respond to the party of the mayor in the slightly different data and using the slightly different measures I use. This means that the absence of partisanship holds true for all the highly visible major budget items in a city, and thus forms the benchmark of the analysis. The core finding of the paper is that changes in the political party of the mayor do, however, have a sizeable effect on the per capita benefits of a city's pension plan. Having a Democratic Party mayor

[8] Many cities are "institutionally nonpartisan" in that they prohibit party labels from being printed on election ballots. However this de jure constraint appears to have little bearing on the actual de facto importance of parties in a given city. See (Ferreira and Gyourko, 2009, fn.7).

[9] The paper uses the terms 'unfunded' or 'excess' benefits as a shorthand for observed changes in per capita benefit payments after conditioning out observed changes in per capita contributions. Actuarially unfunded benefit payments could only be measured with full knowledge of a plans' future beneficiaries' age structure, and the actual promises made to them relative to contributions asked of them, which is knowledge unavailable to the researcher.

[10] Cities can run their employees' pensions under the umbrella of state-level pension plans. For example, Los Angeles teachers' pensions are managed by state-wide CalSTRS. Those plans cannot be statistically related to city politics.

is associated with increases in annual per capita benefits of $2,000–3,000 per person (expressed in constant 2010 dollars). The effect on per capita benefits is robust to a range of specifications, different polynomials and optimal RDD bandwidth selection.

At the city level, pension benefits are either adjusted as part of collective bargaining or by statute. Since such adjustments take time, the core analysis studies changes in benefits four years out from the election, i.e. at the end of the narrowly won mayoral term. Varying this time horizon reveals that a statistical effect can be discerned starting three years after the election, is economically and statistically strongest five years later, and then becomes less precise six years out.

Interestingly, visual RD plots suggest neither a strong relationship between the Democratic Party vote share and pension benefits, nor an across-the-board shift in pension benefits when the Democratic party wins. Instead, the results are driven by a spike in pension benefit increases right around the close election cutoff. This suggests that, rather than reflecting preferences by the Democratic Party, the local average treatment effect (LATE) estimated by the RDD primarily reflects commitments that are made to win close elections.

Investigation of other pension-related outcomes provides evidence on the mechanisms linking short-run benefit expansions to the longer-run erosion of funding levels: As benefits expand, the city begins to shirk on part of the required contribution payments, active contribution-paying members begin to retire, the number of pension recipients relative to paying contributors inside a plan increases, and the plan's asset base begins to erode.

As a final exercise, the data are sliced in a number of ways to provide further evidence on the political-pork mechanism. First, slicing the data by plan type reveals that the effect is concentrated in pension plans for police and fire-fighters as opposed to general city employee plans. This suggests that pork barrel politics is aimed at the most well-organized employee groups. Second, slicing the data into elections won by incumbents and challengers reveals that the effect is concentrated in elections where the challenger wins. This suggests that incumbents need to rely less on pork to win close elections.

This paper contributes to a broad literature applying RD designs to local elections and local public finance (Pettersson-Lidbom, 2008; Ferreira and Gyourko, 2009; Vogl, 2014; Fiva et al., 2018).[11] Within this literature, the paper's primary contribution is to show that the Tiebout-

[11] A related literature uses local RD designs to study the effects of party turnover itself, with the primary outcome

sorting-induced fiscal discipline documented by Ferreira and Gyourko (2009) fails for 'shrouded' types of fiscal spending, i.e. types that benefit narrow constituencies and whose costs are not easily observed or understood by all tax payers.[12]

The paper's second contribution is to the literature on public-sector pension funding. Most observers agree that underfunded public-sector pensions are first and foremost a political economy problem (Mitchell and Smith, 1994; Greenhut, 2009; Burns, 2011; Trusts, 2013; Kelley, 2014; Gale and Krupkin, 2016; Anzia and Moe, 2016). However, rigorous studies on plans' fundedness have tended to focus on fund management performance or on accounting practices (Novy-Marx and Rauh, 2009, 2014a,b; Brown and Wilcox, 2009).

In the following, section 2 provides background information on how the actuarial accounting of public pensions works, discusses how benefits and contributions are determined, and explains why an interest group representing public sector workers would lobby for benefit expansions even when they are unfunded. section 3 describes the data. Section 4 presents the results. Section 5 concludes.

2 Background on Pension Under-Funding

This paper's empirical focus is on changes in benefits relative to changes in contributions, since these are what is observed in the ASPP Census data. Section 2.1 explains how the (concurrent) flow of benefits and contributions determines the (future) stock of pension under-funding. Section 2.2 discusses the value of under-funded pension benefits relative to fully funded ones in practice.

2.1 Actuarial Accounting

The basic metric of a public pension's funding gap is the difference between its assets and its discounted future benefit obligations committed to its pensioners and active members. This gap

being patronage politics and public-office hiring (Akhtari, Moreira, and Trucco, 2017; Colonnelli, Prem, and Teseo, 2018). This literature is primarily focused on developing countries, since patronage politics has largely disappeared from U.S. local politics since the professionalization of municipal bureaucracies starting in the 1930s (Grindle, 2012), although a fascinating recent study by Ornaghi (2018) suggests it may have been prevalent well into the 1970s.

[12] In fact, Tiebout-sorting may even accentuate the incentive to support underfunded pensions for the recipients of the benefits: Today's public-sector employees need to live reasonably close to their plan's tax base in order to work there, but are free to move away upon retirement. Consistent with this logic, Johnson (1997) finds evidence that public employees that accrue unfunded pension benefits are systematically more likely to retire early and leave their municipality so as to be shielded from later tax increases aimed at closing pensions' funding gap.

is referred to as a plan's *Unfunded Actuarially Accrued Liabilities* (UAAL). The actuarial accounting that goes into calculating a plan's UAAL is complicated, but it can be broadly summarized (at time τ) by the following expression

$$\text{UAAL}_{i\tau} = \text{Assets}_{i\tau} - \sum_{t>\tau}^{\infty} \frac{\text{Benefits}_{it}}{(1+AAR_i)^{t-\tau}}. \tag{1}$$

The AAR is the *Actuarially Assumed Return* on a plan's assets, and at a higher AAR future benefit obligations are discounted more steeply. A plan's current assets consist of past contributions paid into the plan (by employers and employees) and the return that was earned on those. In Defined Contribution (DC) plans, benefits payments are directly tied to asset returns and expression (1) equals zero by construction. However, almost all municipal pensions in the U.S. are *Defined Benefit* (DB) plans, where future benefits in (1) are legally binding obligations, irrespective of a plan's funding.

A funding gap opens up in a plan in essentially one of two ways. One, while benefit expansions should be covered by changes in the *Actuarially Required Contributions* (ARC) into the plan, the actuarial assumptions used to calculate the ARC can be inappropriate (e.g. an AAR that is too high), or can have 'blind spots' (e.g. systematically over-estimating retirement ages). Eventually, assumptions need to adjust to reality and this leads to adjustments that either raise the numerator or lower the denominator in the negative term in expression (1). Two, the ARC are divided into employer- and employee-paid portions, and employers can shirk on their portion of the payments.[13] To better these processes, the following discusses benefits, the ARC, and actual employer and employee contributions through the lens of how each is determined in practice.

Benefit increases can occur through collective bargaining, but are also frequently determined by statute or by the executive.[14] Benefit increases take a number of forms. The simplest form is a straightforward increase of benefits, e.g. 10% higher benefits for all recipients. A more common (and more 'shrouded') form is "formula enhancements". Many plans are on formulas such as "2

[13] Clearly, a funding gap can also open up temporarily because of variation in fund management since $\text{Assets}_{i\tau}$, i.e. the plan's assets at time τ are determined by the returns on past contributions. Accounting rules can also play a role in determining a pension's assets: At different points in time and under different state-regulated accounting regimes, assets were listed as *Book Value Assets* (BVA), i.e. essentially their purchase price, *Market Value Assets* (MVA), i.e. adjusting in real time to stock and bond market movements, or *Actuarially Valued Assets* (AVA), which can thought of as a smoothed average of the MVA.

[14] At the municipal level, this means the city council or the mayor. At the state level, this means the state legislature or the governor (Anzia and Moe, 2016, p.9).

at 50," which means a worker can retire starting at age 50, and draw a pension that equals 2% of their last annual salary for every year of service. So a policeman who has worked since age 20 could retire at age 50 and receive 60% of their last year's salary as a pension, or retire at age 65 and draw 90% of their last annual salary. Formula enhancements take the form of moving a "2 at 50" formula to a "3 at 50" formula, or a "3 at 55" formula to a "3 at 50" formula (Greenhut, 2009).

Actuarially required contributions (ARC) are calculated by independent actuarial accountants so that they in theory always adequately fund any benefit increases. In practice, however, calculating the ARC hinges critically on a range of actuarial assumptions, and these assumptions are determined by pension boards that are heavily influenced by representatives of the unions and retired worker associations (Greenhut 2009, 43, Anzia and Moe 2016, 9).[15] One important set of such assumptions pertains to modeling retirement choices: Many benefit enhancements will in practice lead to earlier retirement, which reduces a member's years of contributions (and thus lowers the expected asset base) and increases that member's years of drawing benefits. Actuarial calculations often do not adequately model changes in expected retirement ages of active plan members, and this creates major 'blind spots' in the ARC calculations (Mitchell and Smith, 1994, 282). Contributions also frequently do not adjust sufficiently to keep up with benefit-increases that are driven by cost-of-living-adjustments because these are assumed to are commonly loaded onto higher assumed nominal investment returns (Gale and Krupkin, 2016). Lastly, pension boards have in the past neutralized the transmission from benefit expansion to the ARC by simultaneously increasing their AAR (Mitchell and Smith 1994, footnote1, Kelley 2014, 24, Novy-Marx and Rauh 2011). The ARC are by definition 'actuarially adequate' under the given actuarial assumptions. Because the UAAL is calculated under the same actuarial assumptions, systematic biases in them will not create an official funding gap in the short run. IF the assumption adjust to reality however, the can very pronounced and sudden effects on funding gaps. This is best illustrated by considering adjustments to the AAR. The AAR in most plans is between 7 and 8 percent, and it is almost always higher than actual returns have been over the last decade (Wall Street Journal, 2016).[16] Efforts to lower plans' AAR have been the most acrimonious battleground in the pension

[15] There are exceptions. For example, in some states, the ARC are legislated to be a fixed share of payroll (Anzia and Moe, 2016, p.17).

[16] A second and related question is whether the practice of discounting future obligations at the expected rate of return on assets is appropriate. Logically, it is inconsistent to discount a stream of effectively 'risk-free obligations' at the rate of return of a risky portfolio of assets (Novy-Marx and Rauh, 2009, 2011, 2014a,b; Brown and Wilcox, 2009).

field in recent years, typically fought out between union representatives on and treasury representatives on a plan's board. Lowering the AAR is consequential because it immediately opens up a gap in expression (1), which then immediately results in higher ARC for both employers and employees (Gillers, 2016). The Economist (2017) reports that the *National Association of State Retirement Administrators* estimates that cutting the AAR by 0.25 percentage points increases the required contribution rate of plans' active members (as a proportion of payroll) by two to three percentage points, so that "it is in no one's interest to make more realistic assumptions about returns." Anzia and Moe (2016) provide an illustrative account of the bruising political battles surrounding efforts to reduce the state pensions' AAR in Rhode Islands in 2011 and California in 2015.

Actual contributions are different from the ARC because municipalities and states can chose to simply not pay all or part of the employer portion of actuarially required contributions. While the employee portion is taken out of paychecks and cannot be shirked, no one forces the municipal employer to pay their contributions in the short run, although the money is still owed in the long run. Evidence suggests that a significant chunk of pension under-funding is caused by employers not paying their contributions (Brown and Dye, 2015; Munnell, Aubry, Cafarelli, et al., 2015). Insufficient actual contributions transmit into expression (1) in a more continuous and predictable way than inadequate ARC.

2.2 The Value of Under-funded Pension Promises

This section provides an answer to the question why both public sector unions and politicians may favor unfunded pension benefit expansions.

Pension benefit and contribution setting may be best characterized as a bargaining process between a politician and a public-sector union representative, in which the politician maximizes votes from core supporters (union-members) and other voters, while the union representative can earn rents from union members for generating higher benefits, and from the politician for mobilizing political support. The politician can promise pension benefits to secure the political support of their core supporters. In practice, the blind spots in the ARC discussed in Section 2.1 above,

Yet, state laws sanction public-sector plans to do precisely this (while simultaneously prohibiting private-sector 401(k) plans from doing the same).

in combination with the ability to let actual employer-contributions fall behind their actuarially required levels, conspire to make pension promises a 'shrouded' benefit from the politician's point of view: they can bring out their core supporters while keeping a balanced budget in the eyes of other voters. Many of these features are part of the theory in Glaeser and Ponzetto (2014).

If the ability to under-fund pensions is key to the 'shroudedness' of pension benefits, it also raises the question how union representatives and union members discount under-funded pension benefits relative to fully funded ones in practice. It is possible that there is no discount at all because under-funded benefits are still legally binding commitments. One caveat to that view is that even if all obligations end up being paid in full, many union members may belong to the tax base from which they are paid.[17] However, this should be equally true of funded benefits. If, as suggested by Inman (1982), retired pensioners are more likely to move out of the tax base, then under-funding may actually be preferred.

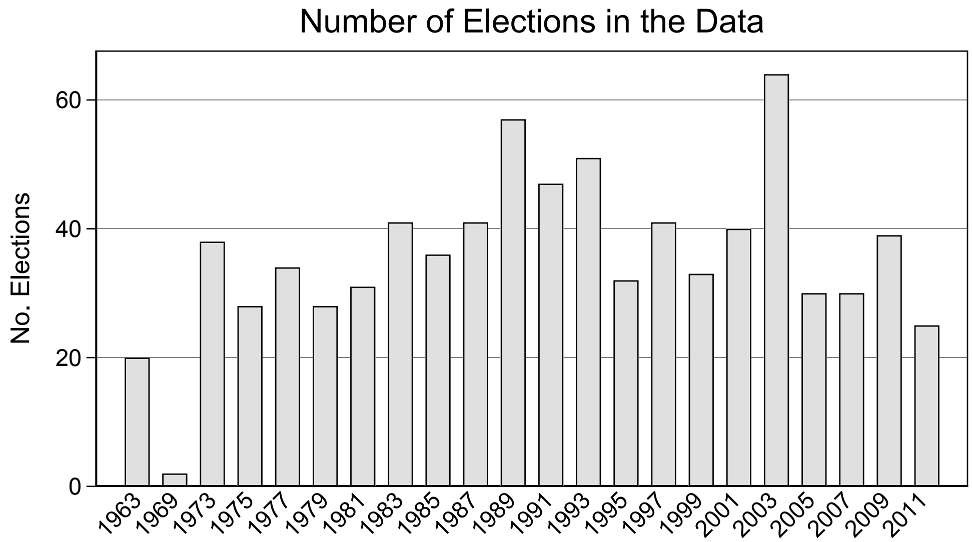
There is also a separate question of how union members view biased actuarial assumptions (such as over-optimistic AARs), when these are likely to be eventually adjusted and lead to future increases in employee-paid actuarially required contributions. It seems probable that this scenario is not salient enough to impact the average union member's views of their benefits, although it is likely to be very salient to the union representatives on pension boards. The narrative evidence of union representatives pushing for and defending unrealistically high AARs supports this characterization (Greenhut, 2009; Anzia and Moe, 2016).

3 Data

The Pension Plan Data is based on the U.S. Census' *Annual Survey of Public Pensions* (ASPP). The ASPP in its present form covers the years 1992–2015. A largely overlapping set of pension-plans is covered by the Census' *Historical Database on Public Employee-Retirement Systems*, which includes 1962, 1967, and 1972–1991. Fortunately, plans can be manually linked across the two data-sources. From here, the ASSP is understand to denote the linked data that cover 1962–2015. The ASPP contain information on plans' assets, but without the plans' internally projected NPV of future benefit payments, this is not enough to calculate the UAAL as described by expression (1). Plans'

[17] They may also be homeowners, and unfunded pension obligations may be capitalized into house prices (Daly, 1969; Glaeser and Ponzetto, 2014; Brinkman et al., 2018).

Figure 2: Mayoral Elections linked to Municipal Pension Plans, Over Time



Notes: This bar chart reports, in two-year bins, on the number of mayoral elections in cities with municipal pensions covered by the *Annual Survey of Public Pensions* (ASPP).

UAAL is only separately included in the ASPP starting in 2012.[18] The paper's primary focus is therefore on the evolution of the two primary flows that govern the UAAL, namely per capita benefit payments (as they are being paid out to retirees) relative to per capita contributions (as they are being paid by active members).

The ASPP covers municipal- as well as state-level plans. Naturally, this paper considers only the municipal plans, where each plan is mapped to its corresponding city. (The plan-to-city mapping is many-to-one, i.e. each plan is uniquely mapped to a city but the opposite is not true.) This omits principally two types of plans: plans for state employees, and plans for municipal employees that are organized as state-wide plans. Principally, this second type is made up of teacher plans, the vast majority of whom are organized state-wide. By contrast, police, fire-fighters and other municipal employees tend to have pension plans that are organized at the municipal level. To a large degree, whether pension plans are organized at the municipal or state-level depends on the historical pattern of union organization. When public-sector unions expanded in the 1960s, they mostly organized themselves out of pre-existing trade associations (Freeman, 1986; Reder, 1988). Trade associations for police and fire-fighters had traditionally been organized at the city-

[18] The *Center for Retirement Research at Boston College* (CRC) has collected the largest plans' UAALs from their annual going back to 2001 and made the data publicly available as the *Public Plans Data*. These data primarily cover state-level pension plans.

level, and as a result police and fire-fighter unions are today mostly organized locally, and so are their pension plans.[19] By contrast, teachers unions had traditionally been organized at the state or even federal level. The two largest teachers unions, the NEA and AFT, emerged out of associations that even in the early 1960s had operated nation-wide (Greenhut, 2009, 212). As a result, while teachers unions collectively bargain for wages at the city-level, their pension plans are almost exclusively organized at the state-level.

In the time-series, the city-election data used in this paper extends the Ferreira and Gyourko (2009) data to cover 2005-2014. In the cross-section, the data for Southern cities collected by Vogl (2014) are added. Only the subset of cities with municipal pension plans appears in the analysis undertaken here. To be included in the analysis, (*i*) a city must be included in the sample of cities in Ferreira and Gyourko (2009) or Vogl (2014), and (*ii*) and it must have a municipal pension plan covered in the ASPP data. Of the over 4,000 elections in the data, this is true for 1,200, covering 311 plans in 195 cities. For reference, Online Appendix A lists all cities in the data and their number of observations by decade. The resulting linked data of elections are quite evenly spaced over the time-horizon covered by the ASPP data, as shown in Figure 3.

Lastly, city-level controls as well as the fiscal outcomes in Ferreira and Gyourko (2009) are obtained from the Census Bureau's *Annual Survey of Governments*.

3.1 Defining the Key Variables

The ideal measure of an increase in pension benefits would be changes in the net present value of all future benefits to a member relative to changes in that member's contributions. The ASPP pension data can only approximate this: by definition, observed per capita benefit payments are paid to *current pensioners*, while increases in the (future) benefits of currently active members are not reported. Also by definition, observed per capita contribution payments are paid by *current active members*.

One implication of these features of the ASPP data is that it is unappealing to directly study the ratio of benefits to contributions because these flows pertain to different populations. Instead, the focus will therefore be on changes in per capita benefits, while controlling in most specifications

[19] While many police and fire-fighter unions belong to larger umbrella organizations (there is even an *International Association of Fire Fighters*), these are loose federations that play little role in collective bargaining.

for changes in per capita contributions.[20] Fortunately, one outcome that is observable in the ASPP data is whether actual contributions are insufficient relative to the ARC. This is because the ASPP separates the employee-paid and employer-paid portions of the contributions, and because, as discussed in Section 2, the employee-paid portion is taken out of payroll in full. Any divergence between employee-paid and employer-paid contributions is therefore a direct measure of insufficient contribution payments by the municipal employer.

A second implication of observing the benefit payments to current retirees is that there may be a bias against finding a concurrent effect of elections on observed benefits if the majority of the benefactors of a benefit expansion are still active employees. Indeed, some of the benefit expansions discussed in Section 2, particularly those incentivizing earlier retirement (e.g. from "3 at 55" to "3 at 50"), probably will go undetected, and the estimated results may therefore be a lower bound.[21] For this reason, the main outcome considered in what follows is the 5-year change in per-capita benefits measured as the change from the year before an election to the end of the mayor's term four years after the election, formally $\Delta_{t+5}\text{Benefits}_{it}$. By focusing on the longest time horizon that still falls under the term of the mayor whose election is the treatment, benefit promises made to active members will be captured to a larger extent. A second reason to chose this time horizon is that pension benefits are adjusted infrequently (often as as part of a new round of collective bargaining), so that it makes sense to allow some time for such adjustments to occur.

3.2 Descriptive Statistics

Table 1 reports averages for changes in outcomes from one year before an election to four years after. Since the elections in the data span more than fifty years, the second column additionally reports deflated values for variables that are defined in dollar-terms. The top row shows that over a five-year window around an election, per capita pension benefits go up on average by 3,642$ or 2,582 constant 2010 dollars. Per capita pension contributions go up on average by 825$ or 661 constant 2010 dollars. The eight main outcomes in Ferreira and Gyourko (2009) are measured in

[20] It is worth reiterating that it is not possible to say if a specific observed increase in benefits is too large for a specific observed increase in the ARC. (By definition, it should be *actuarially appropriate*.) Instead, the researcher can only measure if an increase in payments is statistically large, in the sense that it is not explained by controlling for the change in observed contributions.

[21] Benefit enhancements that simply increase the level of benefits (e.g. from "2 at 60" to "3 at 60") are usually extended to current retirees, whose associations almost always bargain together with the unions, and are frequently sub-branches of them (Anzia and Moe, 2016, footnote7).

either log terms or percentage shares, and the same transformations are retained here for comparability. City-level revenues, taxes and expenditures all increase by about 20 percent in nominal terms or around 14 percent in real terms over the same time window, while the share of city employees to city residents barely moves. Unsurprisingly there is no systematic movement in the four outcomes at the bottom. These are expenditure shares for specific purposes and there is no reason for these to move when averaged over all elections.

Table 1: Descriptives on Outcomes

	5-year Changes	Deflated
Pension Outcomes		
Δ per capita pension benefits $_{t-1}$	3.642	2.582
	(5.146)	(4.312)
Δ per capita pension contributions $_{t-1}$	0.825	0.661
	(4.924)	(4.684)
City Fiscal Outcomes		
Δ log per capita revenues $_{t-1}$	0.297	0.148
	(0.208)	(0.098)
Δ log per capita taxes $_{t-1}$	0.267	0.139
	(0.187)	(0.098)
Δ log per capita expenditures $_{t-1}$	0.296	0.150
	(0.217)	(0.109)
Δ log # city employees per resident $_{t-1}$	0.008	
	(0.175)	
Δ % spent on salaries $_{t-1}$	-0.015	
	(0.079)	
Δ % spent on police departm $_{t-1}$	0.009	
	(0.068)	
Δ % spent on fire departm $_{t-1}$	0.014	
	(0.088)	
Δ % spent on parks and recreation $_{t-1}$	0.009	
	(0.071)	
Observations	1,195	1,195

Notes: This table reports averages for changes in outcomes from one year before an election to four years after. Standard deviations in parentheses. The second column additionally reports deflated values for variables defined in dollar-terms.

4 Framework and Results

4.1 Identification Framework

To identify the effect of the party in power, this paper relies on a regression discontinuity design around close elections. Among non-experimental identification strategies, the RDD has gained increasing credence and popularity, in part because it entails perfect knowledge of the selection process (i.e. the discontinuity) and because it requires comparatively weak assumptions (Lee and Lemieux, 2010). The most prominent application of the RD design to political economy applications has been the use of close election outcomes (Lee, Moretti, and Butler, 2004; Pettersson-Lidbom, 2008; Ferreira and Gyourko, 2009; Dal Bó, Dal Bó, and Snyder, 2009; Ferraz and Finan, 2011; Eggers et al., 2015; Fiva et al., 2018; Akhtari et al., 2017; Colonnelli et al., 2018; Ornaghi, 2018).

The RD design entails the regression of an outcome (i.e. $\Delta\text{Benefits}_{it}$) on a treatment (i.e. having a Democratic mayor, $\text{D}_{jt} = 1$) that is a sharp or exact function of an underlying running variable (i.e. the vote share for the Democratic candidate VSD_{jt}):

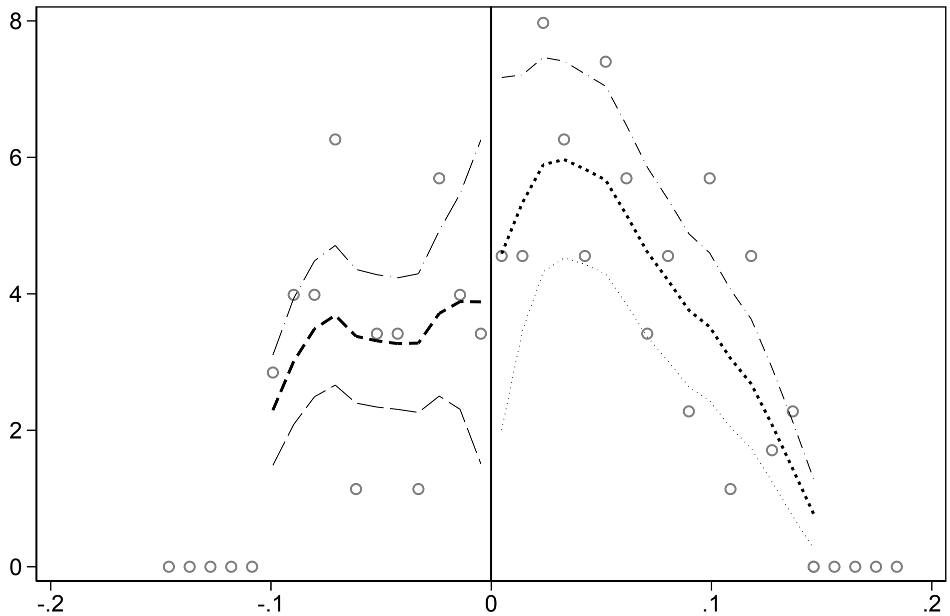
$$\Delta\text{Benefits}_{it} = \beta_D \text{D}_{jt} + f(\text{VSD}_{jt}) + \beta_X X_{it} + \epsilon_{it}. \tag{2}$$

Including a flexible function $f(\text{VSD}_{jt})$ of the running variable itself in equation (2) captures any underling differences in the electorate's preferences and other unobservable that may correlate with who wins the election.

The RDD always requires the researcher to (*i*) make a choice of functional form $f(\text{VSD}_{jt})$ and to (*ii*) choose a bandwidth of how to discount data that is further away from the discontinuity. In choice (*i*), traditional approaches starting with Hahn, Todd, and Van der Klaauw (2001) have favored using flexible higher-polynomial approximations to $f(\text{VSD}_{jt})$.[22] However, Gelman and Imbens (2018) in particular have identified a number of problems arising from the use of higher-order polynomials. Namely, while they provide a good description of the data overall, they typically give a poor approximation locally, i.e. around the 50% win-margin where the RD analysis estimates the effect of a Democratic-party mayor. As a result, best practice in RDD now favors using only local linear or at most local quadratic approximations at either side of the threshold, as

[22] As Lee and Lemieux (2010) state: "from an applied perspective, a simple way of relaxing the linearity assumption is to include polynomial functions of running variable in the regression model."

Figure 3: McCrary Test for Bunching of the Running Variable



Notes: This figure shows the McCrary Test for manipulation of the running variable VSD_{jt}. The estimated discontinuity (the 'log difference in height') is 0.0245, with a standard error of 0.5739 (and a resulting t-stat of 0.04270, thus one cannot reject the hypothesis that the running variable has continuous support at the cutoff.

in the following equation

$$\Delta\text{Benefits}_{it} = \beta_1 \text{VSD}_{jt} + \beta_D \text{D}_{jt} + \beta_2 \text{D}_{jt} \times \text{VSD}_{jt} + \beta_X X_{it} + \epsilon_{it}. \tag{3}$$

In choice (*ii*), there is always a tradeoff between precision and bias: Including observations further away from the discontinuity improves precision by including more data but also introduces bias, since the identifying assumptions are more likely to hold close to the discontinuity. Traditional approaches have provided little guidance on the choice of bandwidth, but best practice now favors a data-driven choice of bandwidth that is determined by an explicit optimization criterion rather than the researcher's discretion (Cattaneo, Idrobo, and Titiunik, 2018). Section 4.2 will follow these best-practice recommendations.

4.2 Results

The identifying assumption of the RDD is that the electorate's preferences can be held constant in a narrow window around the same vote share, where the relevant vote share is obviously the one that narrowly elects one party or candidate over the closest rival. The logic of applying the RD design to close election hinges the outcome of a close election being quasi-random. A common test for the validity of the RDD approach in elections is to verify that there is no bunching at the cut-off, e.g. no disproportionate amount of close wins relative to close losses (McCrary, 2008). Early studies in this literature, e.g. Ferreira and Gyourko (2009), commonly did not test for this. Eggers et al. (2015) investigate the validity of this assumption in a wide rang close elections including historical and contemporary elections for the U.S. House, statewide gubernatorial, state legislative, and mayoral races in the U.S., as well as close elections in other countries, and conclude that the post-WW2 U.S. House appears to be the *only* setting where there is some evidence of heaping, i.e. that incumbents are more likely to win very close elections.[23] Figure 3 shows that the McCrary (2008) test confirms there is no bunching of the running variable in the data.

If the identifying assumptions of the RD design hold, covariates should be to be balanced across the cutoff. Table 2 reports on the balancedness of city and election covariates, after trimming the sample to include only elections within a ten-percent window around the winning cutoff. Table 2 includes the election year, and per capita benefits and contributions in the year before the election. The table also reports on one-year lags of the eight main fiscal outcomes in Ferreira and Gyourko (2009, TableII). Since these are all defined in per capita terms, the table also separately reports on the underlying totals. Of the fourteen covariates, only the percentage of revenues spent on salaries displays a marginally significant difference.

The top-panel of Table 3 reports results when the RD design is estimated for the main fiscal outcomes in Ferreira and Gyourko (2009, TableII). Columns 1 and 2 include no controls other than a linear or quadratic of the running variable. None of these highly visible budget items respond to whether there is a Democratic Party or Republican Party mayor in power. As a point of comparison, columns 3–4 also report on the equivalent OLS estimations, again with no controls other than a linear of quadratic of the running variable. The OLS point estimates are somewhat different from the RD point estimates but the key observation is the consistent lack of any statistical relation between the mayor's party and any of the variables under any of the specifications. This sets an important benchmark because it confirms that the core results in Ferreira and Gyourko (2009)

[23] Vogl (2014) finds some evidence that in cities in the U.S. South black mayoral candidates are more likely to see close wins than close losses. However, as Eggers et al. (2015) note, his evidence is based on only 38 close mayoral races in the South between a white and black candidate.

Table 2: Covariate Balance

	Democrat Vote Share 40-50%	Democrat Vote Share 50-60%	Difference
election-year	1992	1990	-2.156
	(10.600)	(11.805)	[0.111]
per capita pension benefits $_{t-1}$	13.527	12.591	-0.936
	(10.293)	(8.596)	[0.399]
per capita pension contributions $_{t-1}$	2.342	1.955	-0.387
	(3.924)	(1.298)	[0.224]
log per capita revenues $_{t-1}$	0.256	0.135	-0.121
	(0.882)	(0.810)	[0.271]
log per capita taxes $_{t-1}$	-0.851	-0.921	-0.070
	(0.938)	(0.802)	[0.537]
log per capita expenditures $_{t-1}$	0.241	0.113	-0.128
	(0.859)	(0.825)	[0.247]
log # city employees per resident $_{t-1}$	-3.963	-3.960	0.003
	(0.615)	(0.560)	[0.968]
% spent on salaries $_{t-1}$	0.369	0.395	0.027*
	(0.115)	(0.096)	[0.052]
% spent on police departm $_{t-1}$	0.056	0.057	0.001
	(0.039)	(0.081)	[0.897]
% spent on fire departm $_{t-1}$	0.088	0.097	0.009
	(0.055)	(0.113)	[0.469]
% spent on parks and recreation $_{t-1}$	0.045	0.038	-0.007
	(0.045)	(0.098)	[0.498]
log total population $_{t-1}$	12.344	12.419	0.075
	(1.563)	(1.389)	[0.672]
log total revenues $_{t-1}$	12.592	12.706	0.114
	(1.831)	(1.595)	[0.608]
log total expenditures $_{t-1}$	12.576	12.684	0.108
	(1.815)	(1.596)	[0.626]
Observations	117	178	295

Notes: Column 1 reports on average characteristics of city- (or pension plan-)years were the Democratic party candidate narrowly lost. Column 2 reports on average characteristics of city- (or pension plan-)years were the Democratic party candidate narrowly won. Standard deviations in parentheses. Column 3 reports on the difference between the two, with the p-value reported in brackets.

Table 3: Effect of Democratic Mayor on Visible Fiscal Outcomes vs Pension Outcomes

	(1)	(2)	(3)	(4)
	RDD		OLS	
	quadratic	linear	quadratic	linear
City Fiscal Outcomes				
Δ_{+5} log per capita revenues $_{t-1}$	-0.037	-0.029	-0.008	-0.050
	[0.569]	[0.576]	[0.919]	[0.438]
Δ_{+5} log per capita taxes $_{t-1}$	-0.011	-0.027	0.044	-0.047
	[0.800]	[0.453]	[0.471]	[0.222]
Δ_{+5} log per capita expenditures $_{t-1}$	-0.036	-0.029	-0.032	-0.042
	[0.469]	[0.489]	[0.664]	[0.401]
Δ_{+5} log # city employees per resident $_{t-1}$	-0.065	-0.045	-0.076	-0.049
	[0.193]	[0.257]	[0.264]	[0.255]
Δ_{+5} % spent on salaries $_{t-1}$	0.014	0.010	0.028	0.009
	[0.426]	[0.503]	[0.192]	[0.528]
Δ_{+5} % spent on police departmnt $_{t-1}$	0.159	0.024	0.205	0.039
	[0.158]	[0.634]	[0.199]	[0.260]
Δ_{+5} % spent on fire departmnt $_{t-1}$	-0.000	-0.001	0.005	-0.004
	[0.969]	[0.853]	[0.472]	[0.458]
Δ_{+5} % spent on parks and recreation $_{t-1}$	0.001	0.000	0.003	-0.001
	[0.879]	[0.997]	[0.731]	[0.874]
Pension Outcomes				
Δ_{+5} total benefits / #beneficiaries $_{t-1}$	5.128***	3.322***	3.814***	3.517***
	[0.000]	[0.000]	[0.001]	[0.000]
Δ_{+5} contributions / #active members $_{t-1}$	1.210*	0.819	1.285***	0.521
	[0.056]	[0.323]	[0.002]	[0.418]

Notes: The top-panel of this table reports on the effect of having a Democratic Party mayor on the city-level fiscal outcomes considered in Ferreira and Gyourko (2009, TableII). *(b)* Columns 1–2 report on the RD results, which will be the empirical focus from here on, with no controls and only a a linear or quadratic approximation of $f(\text{VSD}_{jt})$ included. As a point of comparison, this table also reports results from an OLS estimation in columns 3–4. *(c)* In columns 1–2, the choice of bandwidth is automated based on MSE-minimization (Cattaneo et al., 2018, 4.2.4), separately for each estimation. In columns 3–4, the bandwidth was set so that the number of observations equals the average number of observations in columns 1–2 (N=384). *(c) p-values* are reported in brackets for standard errors clustered at the city-level.

hold up in the slightly different sample and transformation of the data studied here.

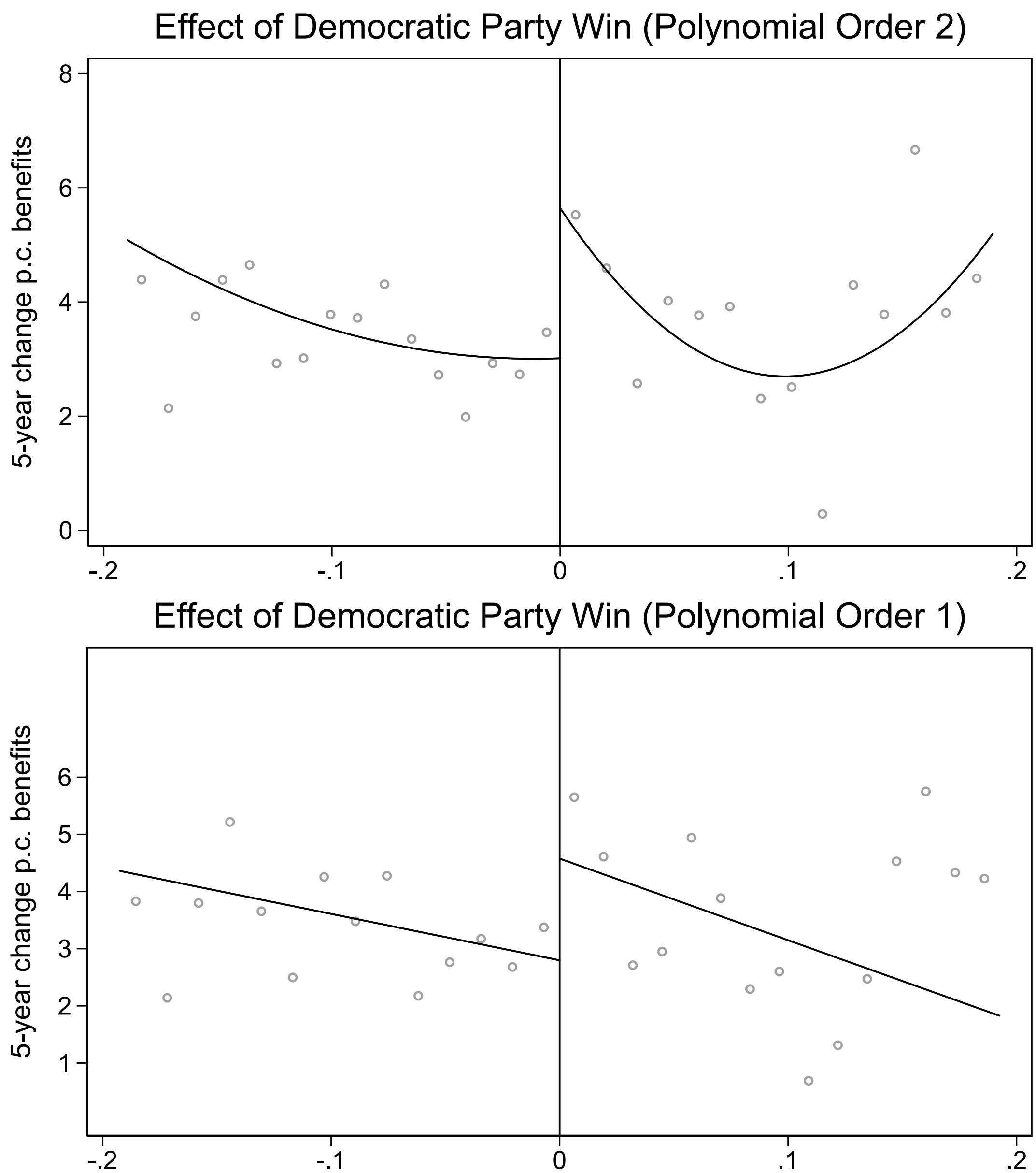
The bottom-panel of Table 3 reports on the core estimation of the paper, i.e. expression (3) estimated with per capita pension benefits as the outcome. There is a striking difference to the more visible budget items studied in Ferreira and Gyourko (2009). The core result is that a city's pension plan's average per capita benefit payments increase by between 5,000 and 3,500 $ in the four-years after a narrow Democratic Party mayoral win. As discussed in Section 3.1, per capita benefit expansions are less valuable to recipients when accompanied by per capita contribution increases. It is therefore important to investigate how contributions respond, and if they do respond, to adequately control for them in order to obtain a measure of unfunded benefit increases. Contributions per active member increase by around 1,200$ in the four-years after a narrow Democratic Party mayoral win.

The quadratic polynomial in column 1 and 3 generates stronger results. As well, the RDD generates stronger results than the OLS under the quadratic polynomial, because the RDD places greater weight on observations close to the cutoff. An appealing feature of any RDD is the transparency afforded by the fact that it is so easily graphically illustrated.

Figure 4 visually displays the core results of estimating equation (3) for per capita pension benefit increases as the outcome, with either linear or quadratic function of the running variable and no other controls added. The discontinuity is clearly visible in both panels. Interestingly, there is little evidence for an overall relationship between the electorates' vote share for the Democratic party and the evolution of pension benefits. The discontinuity appears to be drive by a jump up in benefits only in the range of narrow Democratic party victories. If one takes out the narrow range around the close-election cutoff, then the relationship appears flat. This suggests that, rather than reflecting overall Democratic-party preference, pension pension benefit increases may be political pork used to bring out the base in close elections, as in Glaeser et al. (2005); Glaeser and Ponzetto (2014).

As discussed in Section 3.1, changes in benefits are studied four years out from the election, i.e. at the end of the narrowly won mayoral term, because collective bargaining arrangements are only adjusted infrequently. Table 4 investigates what the results look like for different time horizons. The pattern that emerges is that the effect on pension benefits is still weak two years after the election (i.e. Δ_{+3}), but begins to show up strongly three years after the election (i.e. Δ_{+4}) The

Figure 4: RD plot, Effect on Pension Benefits



Notes: This two-panel figure reports on the baseline estimation of equation (3), with no controls added and the bandwidth chosen through MSE-minimization for each specification separately. The top panel shows the RD plot where $f(\text{VSD}_{jt})$ is quadratic , on the bottom panel it is linear. The two panels are the visual representations of the estimation results for per capita pensions reported in columns 1 and 2 of Table 3. Both panels use the same underlying data but different optimal bandwidth are chosen under the two polynomials (Cattaneo et al., 2018, 4.2.4), and the visual data bins therefore aggregate over somewhat different data points in the two panels.

Table 4: Robustness and Time Path of Adjustments

	(1)	(2)	(3)	(4)	(5)	(6)
total benefits / # beneficiaries						
Δ_{+3}	2.379*	0.624	2.726*	0.849	2.734*	0.845
	[0.095]	[0.558]	[0.068]	[0.401]	[0.066]	[0.404]
Δ_{+4}	3.766***	1.899**	3.413***	2.108**	3.474***	2.030**
	[0.001]	[0.019]	[0.003]	[0.018]	[0.002]	[0.022]
Δ_{+5}	5.128***	3.322***	3.105***	2.924***	3.216***	2.903***
	[0.000]	[0.000]	[0.007]	[0.002]	[0.007]	[0.003]
Δ_{+6}	3.309**	2.683**	2.512*	2.393**	0.315	1.455
	[0.022]	[0.022]	[0.055]	[0.026]	[0.819]	[0.157]
total contributions / # active members						
Δ_{+3}	-0.224	-0.397	-0.460	-0.653		
	[0.883]	[0.637]	[0.779]	[0.572]		
Δ_{+4}	1.110	1.674***	1.440	1.812***		
	[0.332]	[0.003]	[0.182]	[0.007]		
Δ_{+5}	1.210*	0.819	0.733	0.920		
	[0.056]	[0.323]	[0.315]	[0.268]		
Δ_{+6}	0.130	0.559	0.073	0.888*		
	[0.925]	[0.124]	[0.956]	[0.071]		
total benefits / # beneficiaries (Inflation-Adjusted)						
Δ_{+3}	1.638	0.259	2.088*	0.604	2.082*	0.598
	[0.171]	[0.768]	[0.093]	[0.465]	[0.094]	[0.469]
Δ_{+4}	3.126***	1.438**	2.738***	1.605**	2.720***	1.554**
	[0.001]	[0.040]	[0.004]	[0.025]	[0.004]	[0.028]
Δ_{+5}	4.194***	2.360***	2.160**	2.218***	2.388**	2.375***
	[0.000]	[0.002]	[0.017]	[0.004]	[0.011]	[0.002]
Δ_{+6}	2.700**	2.027**	1.886*	1.723**	-0.154	0.959
	[0.026]	[0.038]	[0.057]	[0.033]	[0.886]	[0.214]
total contributions / # active members (Inflation-Adjusted)						
Δ_{+3}	-0.352	-0.516	-0.599	-0.790		
	[0.813]	[0.525]	[0.707]	[0.484]		
Δ_{+4}	0.654	1.396***	1.258	1.458***		
	[0.597]	[0.002]	[0.204]	[0.008]		
Δ_{+5}	1.103**	0.540	0.554	0.624		
	[0.020]	[0.453]	[0.362]	[0.392]		
Δ_{+6}	0.327	0.354	0.017	0.512		
	[0.756]	[0.221]	[0.988]	[0.156]		
Polynomial	quadratic	linear	quadratic	linear	quadratic	linear
Controls			✓	✓	+ contrib.	+ contrib.

Notes: *(a)* The baseline results study pension benefits four years after the election (i.e. Δ_{+5} denotes five years after the baseline year before the election) This table investigates different time horizons, from three to six years after the election. The bottom panel transforms the outcomes into constant 2010 dollars. slices the baseline results into sub-samples in three different ways: by plan type, by city type, and by mayor type. *(b)* Columns 1–2 report on the RD results, which will be the empirical focus from here on, with no controls and only a linear or quadratic approximation of $f(\text{VSD}_{jt})$ included. Columns 3–4 add as control variables the year of the election, the log of city population, the log of total revenue, the log of total city employees, and per capita benefits, all measured in the year before the election. *(c)* *p-values* are reported in brackets for standard errors clustered at the city-level.

Table 5: A Closer Look Inside the Pension Adjustments

	(1)	(2)		(3)	(4)
employer contributions / employee contributions			# beneficiaries / # contributors		
Δ_{+3}	0.059	-2.685	Δ_{+3}	-0.190	-0.214
	[0.957]	[0.167]		[0.445]	[0.331]
Δ_{+4}	1.724	-0.785	Δ_{+4}	-0.180	-0.246
	[0.575]	[0.600]		[0.531]	[0.323]
Δ_{+5}	-4.389**	-3.452**	Δ_{+5}	0.206*	0.119*
	[0.041]	[0.043]		[0.096]	[0.091]
Δ_{+6}	-5.416**	-4.829**	Δ_{+6}	0.107	-0.033
	[0.015]	[0.018]		[0.553]	[0.790]
log # active members			log plan assets in $		
Δ_{+3}	0.027	0.015	Δ_{+3}	0.122	0.118
	[0.587]	[0.688]		[0.391]	[0.286]
Δ_{+4}	-0.082*	-0.033	Δ_{+4}	-0.001	-0.010
	[0.050]	[0.539]		[0.991]	[0.911]
Δ_{+5}	-0.163***	-0.101*	Δ_{+5}	-0.059	-0.063
	[0.005]	[0.050]		[0.665]	[0.559]
Δ_{+6}	-0.052	0.044	Δ_{+6}	-0.125	-0.154
	[0.405]	[0.465]		[0.375]	[0.166]
Polynomial	quadratic	linear		quadratic	linear

Notes: *(a)* This table reports on four additional pension outcomes that shed light on the adjustment mechanisms: The top-left panel reports on the ratio of employer to employee contributions. The top-right panel reports the number of retires vs active contributors. The bottom-left reports on the log of active members (contributors). The bottom-right reports on the log pf plan assets. *(b) p-values* are reported in brackets for standard errors clustered at the city-level.

effect is strongest at the end of the mayor's electoral cycle (i.e. Δ_{+5}), but then loses precision in the year after, i.e. into the subsequent mayoral term. In columns 3–4, Table 4 also adds the following control variables from Table 2: the year of the election, the log of city population, the log of total revenue, the log of total city employees, and per capita benefits, all measured in the year before the election. As well, because this paper's focus is on unfunded benefits, column 5–6 also investigate the response of pensions benefits conditional on contributions changes. The qualitative patterns in columns 1–2 hold true when control variables are added, including controlling for changes in contributions, and when the numbers are expressed in constant 2010 dollars. Since the data span elections from the 1960s to today, I also check the robustness of the patterns to deflating all nominal figures into constant dollar terms in the bottom half of Table 4.

As discussed in Section 2, employers have the ability to not pay part of their required contributions (piling up more obligations in the future). If politicians prefer benefit increases in part because they are budget neutral then it is also likely that they will shirk on some of their required contributions. The top-left panel of Table 5 investigates this and it indeed appears that starting four years after a narrow Democrat win, cities begin to fall behind on their part of the contribution. Further, as also discussed in Section 2, formula enhancements may incentivize public sector employees to retire earlier, turning them from active contribution-paying members into pension-recipients. The top-right and bottom-left panel suggest that starting around four years after the election, there is an increase in retirements resulting in a significant increase in the number of pension recipients vs paying contributors inside a plan. Lastly, the bottom-right panel of Table 5 investigates the evolution of the value of a plan's assets. If both per capita pension benefits and the number of pension-recipients increase relative to per capita contributions and the number active contributors, then a negative effect on a plan's asset base would be expected. This indeed appear to happen starting again around four years after the election. It is not surprising that this last effect is not statistically significant, since a plan's actuarial asset calculations are notoriously slow to adjust. It is noteworthy, however, that sign patterns as well as economic and statistical significance of the change in assets all evolve in ways that are consistent with the other patterns.

If the core results are driven by political pork that is used to bring out the base, then two further hypotheses suggest themselves: First, the effect should be stronger where this base is better organized. Second, the effect may be differ between challengers who win narrow elections and incumbent mayors who win narrow elections It is not clear in which direction this effect will go. On the one hand, incumbents may have a broader range of political tools and are better able to use pension benefit promises as political pork. On the other hand, partisan differences in how pork is used may disappear for incumbents because incumbent mayors have had opportunities to develop close working relations with public sector employees regardless of party affiliation.

Fortunately, the data allow for both of these hypotheses to be tested. First, pension plans can be divided into police and fire-fighter plans and other municipal plans.[24] This makes intuitive sense because police and fire-fighters are clearly the most well-organized employee group at the city level. Second, elections can be divided into those won by challengers and those won by incumbents.

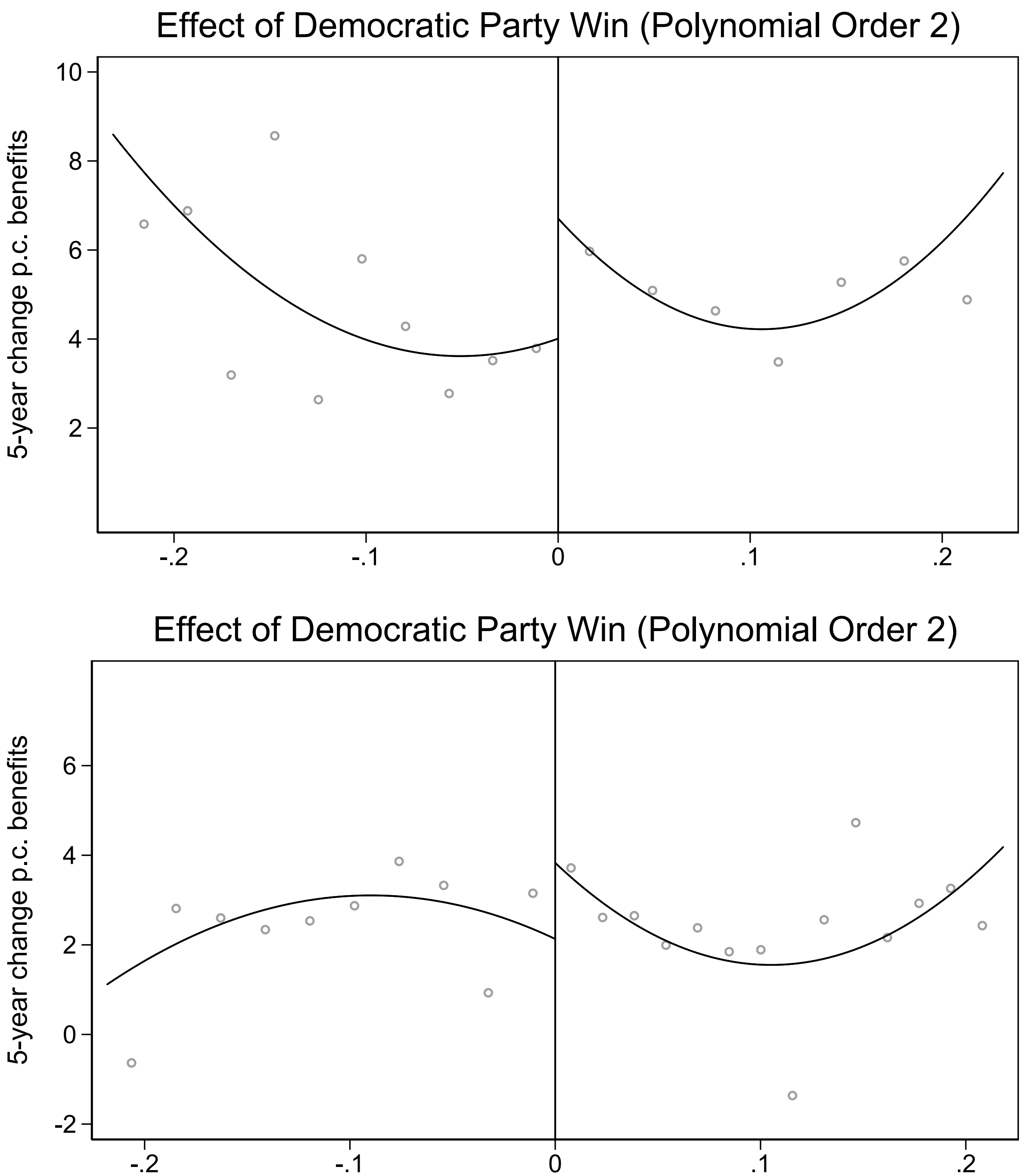
[24] It would be attractive to study police and fire-fighter plans separately but this is not practical because roughly half of these plans are actually shared between the two groups. Teacher plans would be worthy of separate investigation but, as discussed in Section 3, almost all teacher plans are state-wide plans.

Table 6: Suggestive Evidence on Mechanisms

	(1)	(2)	(3)	(4)
Full Sample (N=1,195)				
Δ_{+5} per capita pension benefits $_{t-1}$	5.128***	3.322***	3.814***	3.517***
	[0.000]	[0.000]	[0.001]	[0.000]
Δ_{+5} per capita pension contributions $_{t-1}$	1.210*	0.819	1.285***	0.521
	[0.056]	[0.323]	[0.002]	[0.418]
Plan Type: police and fire-fighters (N=567)				
Δ_{+5} per capita pension benefits $_{t-1}$	7.290***	5.516***	5.973***	4.158***
	[0.000]	[0.001]	[0.001]	[0.003]
Δ_{+5} per capita pension contributions $_{t-1}$	1.704	0.539	1.135	0.026
	[0.155]	[0.710]	[0.234]	[0.984]
Plan Type: general municipal plans (N= 628)				
Δ_{+5} per capita pension benefits $_{t-1}$	1.065	0.329	0.706	-0.065
	[0.430]	[0.769]	[0.506]	[0.943]
Δ_{+5} per capita pension contributions $_{t-1}$	0.825**	0.847***	0.624*	0.699**
	[0.048]	[0.009]	[0.077]	[0.013]
Mayor Type: winner=challenger (N= 537)				
Δ_{+5} per capita pension benefits $_{t-1}$	6.136***	4.992***	4.893***	3.948***
	[0.000]	[0.000]	[0.000]	[0.000]
Δ_{+5} per capita pension contributions $_{t-1}$	0.364	1.616*	0.406	1.230*
	[0.733]	[0.083]	[0.616]	[0.077]
Mayor Type: winner=incumbent (N=658)				
Δ_{+5} per capita pension benefits $_{t-1}$	1.218	0.868	0.345	0.122
	[0.575]	[0.626]	[0.844]	[0.934]
Δ_{+5} per capita pension contributions $_{t-1}$	-0.400	-1.206	-0.514	-1.261
	[0.668]	[0.394]	[0.560]	[0.363]
Polynomial	quadratic	linear	quadratic	linear
Inflation-Adjusted			✓	✓

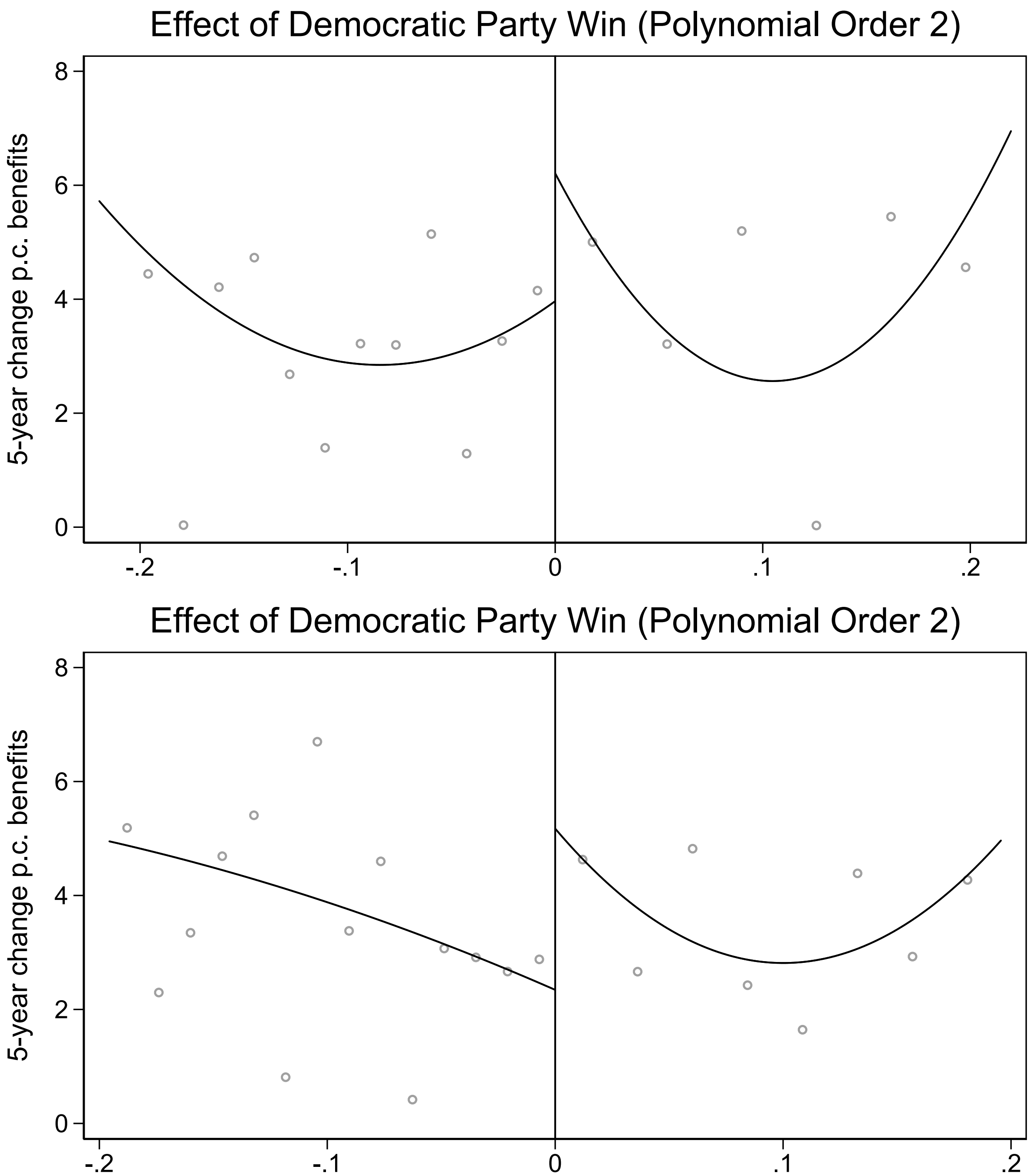
Notes: *(a)* This table slices the baseline results into sub-samples: First by the beneficiary group, and then by the type of electoral win. *(b)* Columns 1–2 report on data in nominal terms, with no added controls and only a linear or quadratic approximation of $f(\text{VSD}_{jt})$ included. Columns 1–2 report on data in constant 2010 dollars. *(c) p-values* are reported in brackets for standard errors clustered at the city-level.

Figure 5: Effect by Plan Type



Notes: This figure displays the RD plot when the estimation of equation (3) is performed separately by two broad types of pension plans, with police and fire-fighter plans being the best-organized public-sector employees. The top panel reports on pension plans for police and fire-fighters (N=567). The bottom panel reports on other municipal pension plans (N= 628).

Figure 6: Effect by Mayor Type



Notes: This figure displays the RD plot when the estimation of equation (3) is performed separately by whether the winner of the close election was the incumbent or not. The top panel reports on close mayoral elections where the winner was the incumbent (N=658). The bottom panel reports on mayoral elections where the winner was the challenger (N= 537).

Table 6 reports the results for these sub-slicings. The table shows that the effect is indeed concentrated in pension plans for police and fire-fighters relative to general city employee plans, suggesting that pork barrel politics is concentrated where the beneficiaries are a more narrowly defined and better organized interest group. The table also shows that the effect is more pronounced when the narrow Democratic Party winner was the challenger than when they were the incumbent. This implies that incumbents who win close elections do not pursue differential policies along partisan lines Figures 5–6 represent these three breakdowns visually.

5 Conclusion

In their influential study, Ferreira and Gyourko (2009) show that the identity of the party in power does not appear to matter for any fiscal outcomes in U.S. cities. This stands in contrast to findings from other contexts where parties appear to be influential in shaping municipal/city level fiscal outcomes (Pettersson-Lidbom, 2008; Fiva et al., 2018). The existing evidence suggests that in U.S. cities Tiebout-sorting, e.g. city residents' voting with their feet, disciplines politicians to keep budgets balanced.

However, the types of fiscal spending considered by Ferreira and Gyourko (2009) are all highly visible budget items, and tend to benefit city residents broadly. This paper shows that parties *do* matter in U.S. cities for types of fiscal spending that benefit narrow constituencies and whose benefits and costs are not easily observed or understood by all tax payers.

This paper's focus is on the biggest fiscal challenge that U.S. cities face in the coming decades, namely public-sector pension obligations. Using a regression discontinuity design around close elections, the paper's core finding is that per capita pension benefits increase by about $2,000–3,000 per person (expressed in constant 2010 dollars) after a narrow Democratic Party mayoral win.

Rather than reflecting overall Democratic Party preferences, the results appear to be primarily the result of political pork used to win close elections. This is suggested by the fact that pensions only respond right around the close election cutoff, as well as by the fact that pensions increase primarily for the most well-organized employee groups.

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Online Appendix

to

"Political Parties Do Matter in U.S. Cities ... For Their Unfunded Pensions"

Online Appendix A Cities in the Pension-Plan to Election Matched Data-Set

Alabama (Birmingham) *No Obs 1973-85: 22; No Obs 1986-95: 28; No Obs 1996-2005: 24; No Obs 2006-15: 19.* •

Alabama (Dothan) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 8; No Obs 2006-15: 0.* •

Alabama (Montgomery) *No Obs 1973-85: 8; No Obs 1986-95: 9; No Obs 1996-2005: 2; No Obs 2006-15: 4.* •

Alabama (Phenix City) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Alabama (Tuscaloosa) *No Obs 1973-85: 0; No Obs 1986-95: 4; No Obs 1996-2005: 9; No Obs 2006-15: 3.* •

Alaska (Anchorage municipality) *No Obs 1973-85: 3; No Obs 1986-95: 8; No Obs 1996-2005: 1; No Obs 2006-15: 4.* •

Arizona (Phoenix) *No Obs 1973-85: 7; No Obs 1986-95: 10; No Obs 1996-2005: 10; No Obs 2006-15: 6.* •

Arizona (Tucson) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 8; No Obs 2006-15: 10.* •

Arkansas (Pine Bluff) *No Obs 1973-85: 0; No Obs 1986-95: 19; No Obs 1996-2005: 20; No Obs 2006-15: 6.* •

Arkansas (Rogers) *No Obs 1973-85: 0; No Obs 1986-95: 4; No Obs 1996-2005: 5; No Obs 2006-15: 0.* •

California (Fresno) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 14; No Obs 2006-15: 7.* •

California (Long Beach) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 2.* •

California (Los Angeles) *No Obs 1973-85: 33; No Obs 1986-95: 30; No Obs 1996-2005: 24; No Obs 2006-15: 30.* •

California (Oakland) *No Obs 1973-85: 13; No Obs 1986-95: 9; No Obs 1996-2005: 5; No Obs 2006-15: 0.* •

California (Pasadena) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 5; No Obs 2006-15: 0.* •

California (Sacramento) *No Obs 1973-85: 9; No Obs 1986-95: 9; No Obs 1996-2005: 9; No Obs 2006-15: 8.* •

California (San Diego) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 5; No Obs 2006-15: 8.* •

California (San Francisco) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 10; No Obs 2006-15: 10.* •

California (San Jose) *No Obs 1973-85: 22; No Obs 1986-95: 20; No Obs 1996-2005: 20; No Obs 2006-15: 15.* •

Colorado (Denver) *No Obs 1973-85: 34; No Obs 1986-95: 20; No Obs 1996-2005: 11; No Obs 2006-15: 11.* •

Colorado (Fort Collins) *No Obs 1973-85: 0; No Obs 1986-95: 1; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Colorado (Littleton) *No Obs 1973-85: 0; No Obs 1986-95: 3; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Colorado (Longmont) *No Obs 1973-85: 3; No Obs 1986-95: 14; No Obs 1996-2005: 10; No Obs 2006-15: 8.* •

Connecticut (Bristol) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 6; No Obs 2006-15: 16.* •

Connecticut (Cromwell) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 5.* •

Connecticut (Darien) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 2; No Obs 2006-15: 9.* •

Connecticut (East Hartford) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 2; No Obs 2006-15: 7.* •

Connecticut (Fairfield) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 2.* •

Connecticut (Farmington) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 3; No Obs 2006-15: 4.* •

Connecticut (Granby) *No Obs 1973-85: 0;*

No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 5. •

Connecticut (Greenwich) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 9.* •

Connecticut (Hamden) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 2; No Obs 2006-15: 4.* •

Connecticut (Hartford) *No Obs 1973-85: 7; No Obs 1986-95: 10; No Obs 1996-2005: 5; No Obs 2006-15: 8.* •

Connecticut (Middletown) *No Obs 1973-85: 3; No Obs 1986-95: 6; No Obs 1996-2005: 0; No Obs 2006-15: 3.* •

Connecticut (Milford) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 5; No Obs 2006-15: 7.* •

Connecticut (New Britain) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 12; No Obs 2006-15: 16.* •

Connecticut (New Haven) *No Obs 1973-85: 21; No Obs 1986-95: 17; No Obs 1996-2005: 13; No Obs 2006-15: 12.* •

Connecticut (Norwalk) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 18; No Obs 2006-15: 23.* •

Connecticut (Norwich) *No Obs 1973-85: 0; No Obs 1986-95: 4; No Obs 1996-2005: 3; No Obs 2006-15: 8.* •

Connecticut (Stamford) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 7; No Obs 2006-15: 15.* •

Connecticut (Suffield) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 3.* •

Connecticut (Torrington) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 18; No Obs 2006-15: 9.* •

Connecticut (Wallingford) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 0.* •

Connecticut (Waterbury) *No Obs 1973-85: 9; No Obs 1986-95: 8; No Obs 1996-2005: 6; No Obs 2006-15: 10.* •

Connecticut (Westbrook) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 0.* •

Connecticut (Westport) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 3; No Obs 2006-15: 15.* •

Delaware (Wilmington) *No Obs 1973-85: 6; No Obs 1986-95: 14; No Obs 1996-2005: 9; No Obs 2006-15: 11.* •

Florida (Apopka) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 2.* •

Florida (Bradenton) *No Obs 1973-85: 0; No Obs 1986-95: 6; No Obs 1996-2005: 6; No Obs 2006-15: 1.* •

Florida (Cape Coral) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 10.* •

Florida (Davie) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 7.* •

Florida (Dunedin) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 0.* •

Florida (Fort Lauderdale) *No Obs 1973-85: 0; No Obs 1986-95: 10; No Obs 1996-2005: 14; No Obs 2006-15: 19.* •

Florida (Fort Pierce) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 11.* •

Florida (Hialeah) *No Obs 1973-85: 4; No Obs 1986-95: 9; No Obs 1996-2005: 2; No Obs 2006-15: 8.* •

Florida (Hollywood) *No Obs 1973-85: 0; No Obs 1986-95: 27; No Obs 1996-2005: 24; No Obs 2006-15: 24.* •

Florida (Kissimmee) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 6; No Obs 2006-15: 0.* •

Florida (Lake Worth) *No Obs 1973-85: 1; No Obs 1986-95: 26; No Obs 1996-2005: 14; No Obs 2006-15: 3.* •

Florida (Melbourne) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 7.* •

Florida (Miami Beach) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 4.* •

Florida (Miami) *No Obs 1973-85: 19; No Obs 1986-95: 17; No Obs 1996-2005: 18; No Obs 2006-15: 20.* •

Florida (Ocala) *No Obs 1973-85: 5; No Obs*

1986-95: 4; No Obs 1996-2005: 3; No Obs 2006-15: 17. •

Florida (Orlando) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 2; No Obs 2006-15: 18.* •

Florida (Ormond Beach) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 6.* •

Florida (Pinellas Park) *No Obs 1973-85: 1; No Obs 1986-95: 6; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Florida (Plantation) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 8; No Obs 2006-15: 8.* •

Florida (St. Petersburg) *No Obs 1973-85: 11; No Obs 1986-95: 21; No Obs 1996-2005: 20; No Obs 2006-15: 18.* •

Florida (Tallahassee) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 7; No Obs 2006-15: 15.* •

Florida (Tampa) *No Obs 1973-85: 22; No Obs 1986-95: 18; No Obs 1996-2005: 9; No Obs 2006-15: 10.* •

Florida (West Palm Beach) *No Obs 1973-85: 0; No Obs 1986-95: 3; No Obs 1996-2005: 16; No Obs 2006-15: 3.* •

Georgia (Albany) *No Obs 1973-85: 6; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Georgia (Atlanta) *No Obs 1973-85: 33; No Obs 1986-95: 30; No Obs 1996-2005: 17; No Obs 2006-15: 30.* •

Georgia (Savannah) *No Obs 1973-85: 0; No Obs 1986-95: 5; No Obs 1996-2005: 6; No Obs 2006-15: 5.* •

Illinois (Addison) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 5.* •

Illinois (Alton) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 6.* •

Illinois (Arlington Heights) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 18; No Obs 2006-15: 3.* •

Illinois (Aurora) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 6; No Obs 2006-15: 16.* •

Illinois (Berwyn) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 6.* •

Illinois (Bloomington) *No Obs 1973-85: 0; No Obs 1986-95: 14; No Obs 1996-2005: 15; No Obs 2006-15: 0.* •

Illinois (Calumet City) *No Obs 1973-85: 0; No Obs 1986-95: 14; No Obs 1996-2005: 6; No Obs 2006-15: 6.* •

Illinois (Carol Stream) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 0.* •

Illinois (Champaign) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 7; No Obs 2006-15: 14.* •

Illinois (Chicago Heights) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 6; No Obs 2006-15: 4.* •

Illinois (Chicago) *No Obs 1973-85: 53; No Obs 1986-95: 50; No Obs 1996-2005: 38; No Obs 2006-15: 24.* •

Illinois (Cicero) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Illinois (DeKalb) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 4; No Obs 2006-15: 0.* •

Illinois (Decatur) *No Obs 1973-85: 0; No Obs 1986-95: 14; No Obs 1996-2005: 20; No Obs 2006-15: 12.* •

Illinois (Des Plaines) *No Obs 1973-85: 0; No Obs 1986-95: 12; No Obs 1996-2005: 16; No Obs 2006-15: 5.* •

Illinois (Dolton) *No Obs 1973-85: 0; No Obs 1986-95: 6; No Obs 1996-2005: 2; No Obs 2006-15: 4.* •

Illinois (Downers Grove) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 8; No Obs 2006-15: 8.* •

Illinois (East St. Louis) *No Obs 1973-85: 0; No Obs 1986-95: 14; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Illinois (Elgin) *No Obs 1973-85: 0; No Obs 1986-95: 10; No Obs 1996-2005: 14; No Obs 2006-15: 8.* •

Illinois (Elk Grove Village) *No Obs 1973-85: 0; No Obs 1986-95: 9; No Obs 1996-2005: 16; No Obs 2006-15: 4.* •

Illinois (Elmhurst) *No Obs 1973-85: 0; No*

Obs 1986-95: 8; No Obs 1996-2005: 0; No Obs 2006-15: 4. •

Illinois (Elmwood Park) *No Obs 1973-85: 0; No Obs 1986-95: 20; No Obs 1996-2005: 7; No Obs 2006-15: 0.* •

Illinois (Evanston) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 8; No Obs 2006-15: 10.* •

Illinois (Freeport) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 5; No Obs 2006-15: 3.* •

Illinois (Glen Ellyn) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 10; No Obs 2006-15: 3.* •

Illinois (Glenview) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 6; No Obs 2006-15: 5.* •

Illinois (Granite City) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 8.* •

Illinois (Hanover Park) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 8; No Obs 2006-15: 0.* •

Illinois (Harvey) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 4; No Obs 2006-15: 4.* •

Illinois (Hoffman Estates) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 4.* •

Illinois (Lansing) *No Obs 1973-85: 0; No Obs 1986-95: 4; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Illinois (Lombard) *No Obs 1973-85: 0; No Obs 1986-95: 3; No Obs 1996-2005: 1; No Obs 2006-15: 9.* •

Illinois (Maywood) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 4; No Obs 2006-15: 0.* •

Illinois (Moline) *No Obs 1973-85: 0; No Obs 1986-95: 9; No Obs 1996-2005: 8; No Obs 2006-15: 8.* •

Illinois (Mount Prospect) *No Obs 1973-85: 0; No Obs 1986-95: 13; No Obs 1996-2005: 18; No Obs 2006-15: 7.* •

Illinois (Naperville) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 13; No Obs 2006-15: 13.* •

Illinois (Niles) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 2; No Obs 2006-15: 7.* •

Illinois (Northbrook) *No Obs 1973-85: 0; No Obs 1986-95: 5; No Obs 1996-2005: 1; No Obs 2006-15: 10.* •

Illinois (Oak Forest) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Illinois (Oak Lawn) *No Obs 1973-85: 0; No Obs 1986-95: 12; No Obs 1996-2005: 16; No Obs 2006-15: 7.* •

Illinois (Oak Park) *No Obs 1973-85: 0; No Obs 1986-95: 2; No Obs 1996-2005: 5; No Obs 2006-15: 6.* •

Illinois (Orland Park) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 3.* •

Illinois (Palatine) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 7; No Obs 2006-15: 10.* •

Illinois (Park Ridge) *No Obs 1973-85: 0; No Obs 1986-95: 2; No Obs 1996-2005: 14; No Obs 2006-15: 10.* •

Illinois (Pekin) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 6; No Obs 2006-15: 0.* •

Illinois (Peoria) *No Obs 1973-85: 3; No Obs 1986-95: 18; No Obs 1996-2005: 11; No Obs 2006-15: 2.* •

Illinois (Quincy) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 6.* •

Illinois (Rock Island) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 10; No Obs 2006-15: 4.* •

Illinois (Rockford) *No Obs 1973-85: 6; No Obs 1986-95: 20; No Obs 1996-2005: 20; No Obs 2006-15: 6.* •

Illinois (Schaumburg) *No Obs 1973-85: 0; No Obs 1986-95: 3; No Obs 1996-2005: 3; No Obs 2006-15: 10.* •

Illinois (Skokie) *No Obs 1973-85: 0; No Obs 1986-95: 2; No Obs 1996-2005: 16; No Obs 2006-15: 18.* •

Illinois (Springfield) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 14; No Obs 2006-15: 16.* •

Illinois (Streamwood) *No Obs 1973-85: 0;*

No Obs 1986-95: 3; No Obs 1996-2005: 8; No Obs 2006-15: 0. •

Illinois (Tinley Park) *No Obs 1973-85: 0; No Obs 1986-95: 3; No Obs 1996-2005: 10; No Obs 2006-15: 3.* •

Illinois (Urbana) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 14; No Obs 2006-15: 9.* •

Illinois (Wheaton) *No Obs 1973-85: 0; No Obs 1986-95: 6; No Obs 1996-2005: 4; No Obs 2006-15: 0.* •

Illinois (Wheeling) *No Obs 1973-85: 0; No Obs 1986-95: 4; No Obs 1996-2005: 8; No Obs 2006-15: 6.* •

Illinois (Wilmette) *No Obs 1973-85: 0; No Obs 1986-95: 10; No Obs 1996-2005: 4; No Obs 2006-15: 4.* •

Indiana (Anderson) *No Obs 1973-85: 0; No Obs 1986-95: 13; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Indiana (Columbus) *No Obs 1973-85: 0; No Obs 1986-95: 6; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Indiana (East Chicago) *No Obs 1973-85: 0; No Obs 1986-95: 2; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Indiana (Evansville) *No Obs 1973-85: 3; No Obs 1986-95: 11; No Obs 1996-2005: 5; No Obs 2006-15: 0.* •

Indiana (Fort Wayne) *No Obs 1973-85: 6; No Obs 1986-95: 15; No Obs 1996-2005: 1; No Obs 2006-15: 0.* •

Indiana (Frankfort) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 8.* •

Indiana (Gary) *No Obs 1973-85: 3; No Obs 1986-95: 10; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Indiana (Greensburg) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 6; No Obs 2006-15: 0.* •

Indiana (Hammond) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 6; No Obs 2006-15: 0.* •

Indiana (Huntington) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 2.* •

Indiana (Indianapolis) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 6; No Obs 2006-15: 1.* •

Indiana (Kokomo) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Indiana (Lake Station) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 1.* •

Indiana (Marion) *No Obs 1973-85: 0; No Obs 1986-95: 1; No Obs 1996-2005: 1; No Obs 2006-15: 0.* •

Indiana (Muncie) *No Obs 1973-85: 0; No Obs 1986-95: 5; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Indiana (New Castle) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 4; No Obs 2006-15: 2.* •

Indiana (South Bend) *No Obs 1973-85: 8; No Obs 1986-95: 20; No Obs 1996-2005: 14; No Obs 2006-15: 0.* •

Iowa (Council Bluffs) *No Obs 1973-85: 0; No Obs 1986-95: 6; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Iowa (Davenport) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Iowa (Dubuque) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Iowa (Mason City) *No Obs 1973-85: 0; No Obs 1986-95: 3; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Kansas (Wichita) *No Obs 1973-85: 0; No Obs 1986-95: 14; No Obs 1996-2005: 15; No Obs 2006-15: 10.* •

Kentucky (Bowling Green) *No Obs 1973-85: 0; No Obs 1986-95: 1; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Kentucky (Covington) *No Obs 1973-85: 0; No Obs 1986-95: 1; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Kentucky (Henderson) *No Obs 1973-85: 1; No Obs 1986-95: 2; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Kentucky (Paducah) *No Obs 1973-85: 0; No Obs 1986-95: 1; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Louisiana (Baton Rouge) *No Obs 1973-85: 0;*

No Obs 1986-95: 8; No Obs 1996-2005: 5; No Obs 2006-15: 3. •

Louisiana (Lake Charles) *No Obs 1973-85: 0; No Obs 1986-95: 3; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Louisiana (New Orleans) *No Obs 1973-85: 37; No Obs 1986-95: 30; No Obs 1996-2005: 15; No Obs 2006-15: 15.* •

Louisiana (Shreveport) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 1; No Obs 2006-15: 4.* •

Maryland (Baltimore) *No Obs 1973-85: 22; No Obs 1986-95: 20; No Obs 1996-2005: 15; No Obs 2006-15: 22.* •

Massachusetts (Arlington) *No Obs 1973-85: 4; No Obs 1986-95: 6; No Obs 1996-2005: 4; No Obs 2006-15: 8.* •

Massachusetts (Attleboro) *No Obs 1973-85: 2; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 3.* •

Massachusetts (Boston) *No Obs 1973-85: 16; No Obs 1986-95: 14; No Obs 1996-2005: 10; No Obs 2006-15: 10.* •

Massachusetts (Chicopee) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 8; No Obs 2006-15: 5.* •

Massachusetts (Everett) *No Obs 1973-85: 0; No Obs 1986-95: 6; No Obs 1996-2005: 3; No Obs 2006-15: 0.* •

Massachusetts (Fall River) *No Obs 1973-85: 11; No Obs 1986-95: 7; No Obs 1996-2005: 4; No Obs 2006-15: 3.* •

Massachusetts (Gloucester) *No Obs 1973-85: 0; No Obs 1986-95: 1; No Obs 1996-2005: 8; No Obs 2006-15: 6.* •

Massachusetts (Holyoke) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 10; No Obs 2006-15: 10.* •

Massachusetts (Lawrence) *No Obs 1973-85: 1; No Obs 1986-95: 10; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Massachusetts (Leominster) *No Obs 1973-85: 3; No Obs 1986-95: 10; No Obs 1996-2005: 10; No Obs 2006-15: 10.* •

Massachusetts (Marlborough) *No Obs 1973-85: 5; No Obs 1986-95: 10; No Obs 1996-2005: 4; No Obs 2006-15: 8.* •

Massachusetts (Melrose) *No Obs 1973-85: 0; No Obs 1986-95: 5; No Obs 1996-2005: 8; No Obs 2006-15: 0.* •

Massachusetts (New Bedford) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 4; No Obs 2006-15: 6.* •

Massachusetts (Northampton) *No Obs 1973-85: 3; No Obs 1986-95: 10; No Obs 1996-2005: 8; No Obs 2006-15: 5.* •

Massachusetts (Peabody) *No Obs 1973-85: 11; No Obs 1986-95: 9; No Obs 1996-2005: 3; No Obs 2006-15: 5.* •

Massachusetts (Quincy) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 5; No Obs 2006-15: 0.* •

Massachusetts (Salem) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 5; No Obs 2006-15: 3.* •

Massachusetts (Taunton) *No Obs 1973-85: 10; No Obs 1986-95: 10; No Obs 1996-2005: 10; No Obs 2006-15: 1.* •

Massachusetts (Waltham) *No Obs 1973-85: 9; No Obs 1986-95: 6; No Obs 1996-2005: 7; No Obs 2006-15: 1.* •

Massachusetts (Westfield) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 4; No Obs 2006-15: 0.* •

Massachusetts (Woburn) *No Obs 1973-85: 6; No Obs 1986-95: 10; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Michigan (Ann Arbor) *No Obs 1973-85: 6; No Obs 1986-95: 3; No Obs 1996-2005: 10; No Obs 2006-15: 8.* •

Michigan (Dearborn Heights) *No Obs 1973-85: 0; No Obs 1986-95: 3; No Obs 1996-2005: 5; No Obs 2006-15: 0.* •

Michigan (Detroit) *No Obs 1973-85: 23; No Obs 1986-95: 18; No Obs 1996-2005: 14; No Obs 2006-15: 20.* •

Michigan (Farmington Hills) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 8; No Obs 2006-15: 1.* •

Michigan (Flint) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 6; No Obs 2006-15: 5.* •

Michigan (Kalamazoo) *No Obs 1973-85: 7; No Obs 1986-95: 7; No Obs 1996-2005: 7; No Obs 2006-15: 10.* •

Michigan (Lincoln Park) *No Obs 1973-85: 0;*

No Obs 1986-95: 16; No Obs 1996-2005: 12; No Obs 2006-15: 4. •

Michigan (Madison Heights) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 8; No Obs 2006-15: 7.* •

Michigan (Oak Park) *No Obs 1973-85: 0; No Obs 1986-95: 6; No Obs 1996-2005: 10; No Obs 2006-15: 9.* •

Michigan (Roseville) *No Obs 1973-85: 0; No Obs 1986-95: 3; No Obs 1996-2005: 6; No Obs 2006-15: 3.* •

Michigan (Royal Oak) *No Obs 1973-85: 5; No Obs 1986-95: 3; No Obs 1996-2005: 2; No Obs 2006-15: 8.* •

Michigan (Southfield) *No Obs 1973-85: 3; No Obs 1986-95: 20; No Obs 1996-2005: 12; No Obs 2006-15: 0.* •

Michigan (Sterling Heights) *No Obs 1973-85: 0; No Obs 1986-95: 2; No Obs 1996-2005: 14; No Obs 2006-15: 0.* •

Michigan (Taylor) *No Obs 1973-85: 0; No Obs 1986-95: 6; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Michigan (Troy) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 9; No Obs 2006-15: 2.* •

Michigan (Warren) *No Obs 1973-85: 13; No Obs 1986-95: 14; No Obs 1996-2005: 6; No Obs 2006-15: 6.* •

Michigan (Wyoming) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 2; No Obs 2006-15: 3.* •

Minnesota (Bloomington) *No Obs 1973-85: 0; No Obs 1986-95: 7; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Minnesota (Minneapolis) *No Obs 1973-85: 42; No Obs 1986-95: 35; No Obs 1996-2005: 20; No Obs 2006-15: 10.* •

Minnesota (Rochester) *No Obs 1973-85: 0; No Obs 1986-95: 7; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Mississippi (Jackson) *No Obs 1973-85: 4; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 0.* •

Missouri (Columbia) *No Obs 1973-85: 0; No Obs 1986-95: 10; No Obs 1996-2005: 4; No Obs 2006-15: 7.* •

Missouri (Kansas City) *No Obs 1973-85: 36; No Obs 1986-95: 40; No Obs 1996-2005: 40; No Obs 2006-15: 16.* •

Missouri (Kansas) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 7; No Obs 2006-15: 1.* •

Missouri (Springfield) *No Obs 1973-85: 0; No Obs 1986-95: 7; No Obs 1996-2005: 8; No Obs 2006-15: 10.* •

Missouri (St. Joseph) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 8; No Obs 2006-15: 0.* •

Missouri (St. Louis) *No Obs 1973-85: 44; No Obs 1986-95: 31; No Obs 1996-2005: 24; No Obs 2006-15: 11.* •

Nebraska (Lincoln) *No Obs 1973-85: 4; No Obs 1986-95: 10; No Obs 1996-2005: 10; No Obs 2006-15: 10.* •

Nebraska (Omaha) *No Obs 1973-85: 33; No Obs 1986-95: 24; No Obs 1996-2005: 24; No Obs 2006-15: 22.* •

New Hampshire (Manchester) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 10.* •

New Jersey (Jersey City) *No Obs 1973-85: 9; No Obs 1986-95: 10; No Obs 1996-2005: 6; No Obs 2006-15: 8.* •

New Jersey (Newark) *No Obs 1973-85: 9; No Obs 1986-95: 10; No Obs 1996-2005: 1; No Obs 2006-15: 0.* •

New York (New York) *No Obs 1973-85: 52; No Obs 1986-95: 39; No Obs 1996-2005: 31; No Obs 2006-15: 46.* •

North Carolina (Charlotte) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 10; No Obs 2006-15: 8.* •

North Carolina (Winston-Salem) *No Obs 1973-85: 9; No Obs 1986-95: 10; No Obs 1996-2005: 6; No Obs 2006-15: 10.* •

North Dakota (Bismarck) *No Obs 1973-85: 3; No Obs 1986-95: 24; No Obs 1996-2005: 30; No Obs 2006-15: 0.* •

North Dakota (Fargo) *No Obs 1973-85: 0; No Obs 1986-95: 23; No Obs 1996-2005: 14; No Obs 2006-15: 14.* •

North Dakota (Minot) *No Obs 1973-85: 0; No Obs 1986-95: 17; No Obs 1996-2005: 16; No Obs 2006-15: 6.* •

Oklahoma (Lawton) *No Obs 1973-85: 0; No*

Obs 1986-95: 0; No Obs 1996-2005: 6; No Obs 2006-15: 2. •

Oklahoma (Oklahoma City) *No Obs 1973-85: 25; No Obs 1986-95: 12; No Obs 1996-2005: 18; No Obs 2006-15: 15.* •

Oklahoma (Tulsa) *No Obs 1973-85: 22; No Obs 1986-95: 6; No Obs 1996-2005: 6; No Obs 2006-15: 6.* •

Oregon (Portland) *No Obs 1973-85: 2; No Obs 1986-95: 6; No Obs 1996-2005: 0; No Obs 2006-15: 1.* •

Pennsylvania (Allentown) *No Obs 1973-85: 8; No Obs 1986-95: 20; No Obs 1996-2005: 4; No Obs 2006-15: 6.* •

Pennsylvania (Erie) *No Obs 1973-85: 0; No Obs 1986-95: 21; No Obs 1996-2005: 13; No Obs 2006-15: 6.* •

Pennsylvania (Lancaster) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 16; No Obs 2006-15: 10.* •

Pennsylvania (Philadelphia) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 7; No Obs 2006-15: 22.* •

Pennsylvania (Pittsburgh) *No Obs 1973-85: 32; No Obs 1986-95: 23; No Obs 1996-2005: 11; No Obs 2006-15: 11.* •

Pennsylvania (Scranton) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 3; No Obs 2006-15: 19.* •

Pennsylvania (State College) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 1; No Obs 2006-15: 9.* •

Pennsylvania (Wilkes-Barre) *No Obs 1973-85: 0; No Obs 1986-95: 3; No Obs 1996-2005: 6; No Obs 2006-15: 16.* •

Pennsylvania (Williamsport) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 24.* •

Rhode Island (Cranston) *No Obs 1973-85: 0; No Obs 1986-95: 16; No Obs 1996-2005: 7; No Obs 2006-15: 7.* •

Rhode Island (Newport) *No Obs 1973-85: 0; No Obs 1986-95: 4; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

South Carolina (Greenville) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 10; No Obs 2006-15: 1.* •

Tennessee (Chattanooga) *No Obs 1973-85: 9; No Obs 1986-95: 11; No Obs 1996-2005: 16; No Obs 2006-15: 5.* •

Tennessee (Knoxville) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 10; No Obs 2006-15: 10.* •

Tennessee (Memphis) *No Obs 1973-85: 22; No Obs 1986-95: 18; No Obs 1996-2005: 20; No Obs 2006-15: 20.* •

Texas (Abilene) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 6; No Obs 2006-15: 0.* •

Texas (Amarillo) *No Obs 1973-85: 3; No Obs 1986-95: 10; No Obs 1996-2005: 10; No Obs 2006-15: 5.* •

Texas (Austin) *No Obs 1973-85: 14; No Obs 1986-95: 20; No Obs 1996-2005: 20; No Obs 2006-15: 22.* •

Texas (Beaumont) *No Obs 1973-85: 3; No Obs 1986-95: 10; No Obs 1996-2005: 6; No Obs 2006-15: 2.* •

Texas (Corpus Christi) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 3.* •

Texas (Dallas) *No Obs 1973-85: 24; No Obs 1986-95: 20; No Obs 1996-2005: 12; No Obs 2006-15: 26.* •

Texas (Fort Worth) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 8; No Obs 2006-15: 4.* •

Texas (Houston) *No Obs 1973-85: 15; No Obs 1986-95: 26; No Obs 1996-2005: 24; No Obs 2006-15: 21.* •

Texas (Longview) *No Obs 1973-85: 0; No Obs 1986-95: 6; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Texas (McAllen) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 8; No Obs 2006-15: 0.* •

Texas (Midland) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 10; No Obs 2006-15: 1.* •

Texas (Odessa) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 8; No Obs 2006-15: 0.* •

Texas (San Antonio) *No Obs 1973-85: 11; No Obs 1986-95: 10; No Obs 1996-2005: 6; No Obs 2006-15: 6.* •

Texas (Temple) *No Obs 1973-85: 0; No Obs*

1986-95: 8; No Obs 1996-2005: 8; No Obs 2006-15: 0. •

Texas (Tyler) *No Obs 1973-85: 0; No Obs 1986-95: 4; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Virginia (Newport News) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 0; No Obs 2006-15: 2.* •

Virginia (Richmond) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 2; No Obs 2006-15: 10.* •

Washington (Seattle) *No Obs 1973-85: 0; No Obs 1986-95: 0; No Obs 1996-2005: 3; No Obs 2006-15: 10.* •

Washington (Tacoma) *No Obs 1973-85: 0; No Obs 1986-95: 7; No Obs 1996-2005: 10; No Obs 2006-15: 8.* •

West Virginia (Charleston) *No Obs 1973-85: 0; No Obs 1986-95: 8; No Obs 1996-2005: 2; No Obs 2006-15: 0.* •

Wisconsin (Milwaukee) *No Obs 1973-85: 6; No Obs 1986-95: 7; No Obs 1996-2005: 0; No Obs 2006-15: 4.* •