

# Economic Voting in Big-City U.S. Mayoral Elections\*

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## Abstract

Retrospective voting is a central explanation for voters' support of incumbents. Yet despite the variety of conditions facing American cities, past research has devoted little attention to retrospective voting for mayors. Local economic conditions are widely reported, making them one likely source of retrospective voting. To test that possibility, we turn to the largest data set to date on big-city mayoral elections between 1990 and 2011. Neither crime rates nor property values consistently influence incumbent mayors' vote shares, nor do changes in local conditions. However, low city-level unemployment relative to national unemployment correlates with higher incumbent support. The urban voter is a particular type of retrospective voter, one who compares local economic performance to conditions elsewhere. Moreover, these effects are present only in cities that dominate their media markets. At a time when the audiences for local media are declining, this research suggests that those outlets play a critical role in facilitating retrospective voting.

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The influence of elected officials' performance on voters' decision-making has long been a central question for political scientists.<sup>1</sup> The evidence of retrospective voting in national elections is strong, and it emphasizes the impacts of economic conditions, wartime success, and government spending (e.g. Key and Cummings, 1966; Kramer, 1971; Kriner and Shen, 2007; Duch and Stevenson, 2008; Healy and Malhotra, 2009; Gasper and Reeves, 2011). Yet the extensive literature on retrospective voting has focused overwhelmingly on national elections, with limited attention to state-level elections (e.g. Stein, 1990; Atkeson and Partin, 1995; Carsey and Wright, 1998; Ebeid and Rodden, 2006; Wolfers, 2007) and almost none to local elections (but see Berry and Howell, 2007; Oliver and Ha, 2007).

Despite this lack of attention, large cities are a critical arena in which to examine retrospective voting. Substantively, large cities make consequential decisions on issues ranging from public safety to economic questions of land use and transportation (e.g. Peterson, 1981; Stone, 1989; Levitt, 1997; Hajnal and Trounstein, 2010; Gerber and Hopkins, 2011; Hopkins and McCabe, 2012). Many of these decisions' consequences are tangible and immediate in the lives of city residents in a way that state- and national-level decisions are not, a fact which might facilitate retrospective voting (see also Arnold and Carnes, 2012). The failure of New York Mayor John Lindsay to plow Queens after a major snowstorm in 1969—and the political fallout—is just one example among many (Cannato, 2002).

In theory, there are a wide variety of local conditions that might influence mayoral elections, from the local economy to crime rates or even sports victories. But we hypothesize that local economic conditions are especially likely to be applicable and influential across big-city elections. Economic conditions are already known to serve as a benchmark for presidential and gubernatorial performance, and they are widely covered by local news outlets. What's more, economic conditions vary markedly across cities. In 2013, ten of American's 50 largest cities had unemployment rates below 6%, while the same number had

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<sup>1</sup>For reviews, see Kiewiet and Rivers (1984); Anderson (2007); Ashworth (2012); and Healy and Malhotra (2013).

unemployment rates above 10% (Bureau of Labor Statistics, 2015). Given the prominence of reporting on the national economy, we also expect that local conditions will be assessed *relative to national conditions*, just as state-level conditions are (Cohen and King, 2004; Wolfers, 2007).

To test this hypothesis, we compile a novel data set of 1,264 mayoral elections between 1990 and 2011. When we focus on those elections that featured an incumbent, were not landslides (e.g. elections in which the winner receives less than 80% of the vote), and had no missing data, we are left with 341 elections in 115 large cities. Drawing on dozens of sources, we are then able to estimate the relationship between local unemployment and general-election support for the incumbent mayor.

Property values and crime rates are salient features of life in some cities, but we find no clear evidence that they shape support for the incumbent mayor. Instead, we identify a strong relationship between a city’s relative economic performance and mayoral support. Overall, when compared to a mayor in a city where the unemployment rate matches the nation’s, a mayor whose city’s unemployment rate is 2.45 percentage points below the national level (that is, one standard deviation) can expect to earn 2.7 percentage points more support.<sup>2</sup> Thirteen of the 341 elections in our data set were decided by less than 2.7 percentage points, so these results are substantively meaningful. Using various robustness checks, we demonstrate that these results are not sensitive to seemingly incidental choices in collecting or modeling the data. They hold when including uncompetitive elections in which the winner received more than 80% of the vote. Nor do they appear to result from selection biases inherent in incumbent mayors’ decisions to seek re-election.

Our results also shed light on the mechanisms that underpin these effects. In aggregate, voters appear unresponsive to year-to-year changes in local conditions—what matters is a city’s performance relative to the rest of the country, not relative to its own past. We also find no strong evidence that retrospective voting differs across cities based on institu-

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<sup>2</sup>The associated 95% confidence interval is from 1.9 to 3.5 percentage points.

tions including partisan nominations, partisan balloting, on-cycle elections, mayor-council systems, or mayoral term limits. We do, however, find that the effect holds only in cities at the center of their TV or newspaper media markets, a fact which suggests the importance of local news outlets in conveying information about how the local economy is doing. Even in urban politics, voters seem to get the information necessary to vote retrospectively from media sources like local TV and newspapers—and not from daily life. This evidence bolsters earlier claims that retrospective voting is primarily sociotropic, since we uncover retrospective voting only in places where voters have readily available information about citywide conditions. In the conclusion, we discuss the implications of these findings for retrospective voting and the future direction of mayoral elections. At a time when local news is facing declining audiences, these results suggest that retrospective voting in big-city mayoral elections might be increasingly limited in the years to come.

## **Retrospective Voting in Mayoral Elections**

Here, we briefly review research on retrospective voting, with an emphasis on those studies which examine state or local elections. We then develop our primary hypothesis—that city-level economic conditions are especially likely to foster retrospective voting across a range of U.S. cities.

### **Economic Voting in State and Nation**

In U.S. politics, there are few facts as widely agreed upon as the role of the economy in shaping support for presidential candidates (e.g. Kramer, 1971; Vavreck, 2009). In explaining this pattern, some emphasize the immediacy of the economy. Since virtually all American voters participate in the economy in some capacity, information about economic conditions is widely available (e.g. Fiorina, 1981; Popkin, 1994). Yet as researchers began to probe the relationship at the individual level, they identified an important caveat. Voters appeared

to be voting based on their perceptions of national economic performance, not their own personal finances (Kinder and Kiewiet, 1981; Kinder, Adams and Gronke, 1989). Such voting is called “sociotropic,” as it is oriented toward a social group rather than an individual. There is a logic to sociotropic economic voting: while the president or other politicians are unlikely to be the cause of an individual’s promotion or a sudden inheritance, it is more reasonable to think that they can influence economic conditions in the nation as a whole (Brody and Sniderman, 1977; Kiewiet and Rivers, 1984).

Still, the persistence of presidential voting that is sociotropic, retrospective, and economic raises additional questions, including what information voters use to develop their perceptions of economic performance. While voters have personal experience with their own finances, they must rely on information from the mass media (Hetherington, 1996), their local contexts (Books and Prysby, 1991; Ansolabehere, Meredith and Snowberg, 2011; Reeves and Gimpel, 2012; Wright, 2012; Healy and Lenz, 2014*a*), or else their social networks (Popkin, 1994) to build an image of the national economy. Among those sources, only the mass media is likely to provide a sufficiently broad impression of national economic conditions in a country of more than 300 million people. Yet newspapers and broadcast television are available in virtually all corners of the U.S. today, meaning that the variation in exposure to economic information is based primarily on voters’ choices regarding media. At the national level, that fact makes it difficult for researchers to identify the effects of the economic information itself.

In reality, the U.S. federal government has a limited capacity to shape the economy. But such limitations are even more binding at the state and local levels, as states and localities have fewer policy instruments at their disposal, face mandates from higher levels of government (Nivola, 2002; Greve, 2012), frequently have balanced-budget requirements, and must compete with one another for businesses and residents (Peterson, 1981; Stone, 1989; Rae, 2003; Hajnal and Trounstein, 2010). Such constraints have the potential to influence the type and extent of retrospective voting (Duch and Stevenson, 2008). When

given information about politicians' roles within the federal system, surveys and survey experiments indicate that voters do take such information into account when assessing those subnational politicians (Arceneaux, 2005, 2006; Malhotra and Kuo, 2008).

Nonetheless, there is considerable evidence from state-level voting behavior reinforcing the centrality of the economy in vote decisions. For instance, while disagreeing on other questions, Stein (1990), Atkeson and Partin (1995), Carsey and Wright (1998), and Folke and Snyder (2012) all find that gubernatorial voting is influenced by state-level economic conditions. Additionally, Ebeid and Rodden (2006) demonstrate a relationship between the state economy and incumbent governors' electoral performance, although it weakens in American states that are more dependent on economic sectors that are subject to external shocks such as farming or natural resources. In other words, state-level electorates appear to weight the state economy more when it is plausibly influenced by the incumbent governor. Like Cohen and King (2004), Wolfers (2007) finds that the key question is how the state economy is performing relative to the national economy. Yet it also concludes that even oil shocks can influence gubernatorial support, suggesting that retrospective voting in state elections is based partly on conditions beyond governors' control (see also Achen and Bartels, 2004). In a similar vein, Rogers (2013) finds that national conditions are far more predictive of state legislative outcomes than are state-level conditions.

Thus at the state level, there is a sizeable literature on retrospective voting, virtually all of it on economic conditions. Yet while the national-level research has focused on benchmarking across time (but see Kayser and Peress, 2012), the state-level research emphasizes benchmarking against other jurisdictions at the same point in time. Whether voters respond to absolute changes in local conditions or to relative local conditions might well hinge on how economic conditions are presented by journalists.

## City-level Retrospective Voting

To be sure, there have been various studies of vote choice in big-city elections as well, many of which emphasize the role of ethnic and racial divisions or incumbent mayoral performance (e.g. Fuchs and Shapiro, 1983; Mollenkopf, 1992; Sonenshein, 1993; Kaufmann, 2004; Stein, Ulbig and Post, 2005; Arceneaux and Stein, 2006; Hajnal, 2007; Hopkins and McCabe, 2012; Hajnal and Trounstein, 2014). Yet there is almost no research on retrospective voting in local or mayoral elections that considers more than a single city (Berry and Howell, 2007; Oliver and Ha, 2007, but see). One exception is Berry and Howell (2007), which demonstrates that North Carolina school board members' re-elections were related to district test scores only when the issue was salient. Even in highly local elections, the results of Berry and Howell (2007) suggest the importance of the information environment in facilitating retrospective voting.

Still, we should not assume that the lessons of national-level retrospective voting translate straightforwardly to the local level: local elections can differ in critical ways from state and especially national elections (Oliver, Ha and Callen, 2012). Moreover, U.S. cities differ from one another in various ways that are likely to influence the potential for retrospective voting, from the issues that are most pressing to their political institutions and their media outlets. To ignore retrospective voting in big-city mayoral elections is to miss a valuable opportunity to understand the factors that facilitate retrospective voting.

In developing hypotheses about retrospective voting in big-city mayoral elections, one important question is about the real-world conditions which form the basis of voters' retrospective judgments. As we saw above, economic performance is a primary source of retrospective voting in national and state elections. Given the centrality of local economic conditions in city politics (Peterson, 1981; Stone, 1989), it is quite plausible that economic factors are paramount at the mayoral level as well. Also, if the state-level precedent holds, we might expect such evaluations to be not absolute but relative to a national benchmark.

Unemployment is but one measure of local conditions, and one that less well-off voters might be especially sensitive to. Unemployment is a metric that is widely covered by local journalists, widely understood by the public, and known to be influential in other elections.<sup>3</sup>

To be sure, retrospective voting in mayoral elections might not be limited to economic conditions alone. Arnold and Carnes (2012) find that not just economic conditions but also crime rates shape citizens' approval of New York City mayors. In many cities, criminal justice is a central political issue (e.g. Hopkins and McCabe, 2012), as well as an issue on which cities have considerable autonomy (Gerber and Hopkins, 2011).<sup>4</sup> One might hypothesize that crime rates will serve as a basis for retrospective voting, although it is also possible such effects won't hold across the population of larger U.S. cities, only some of which have high crime rates.

## The Moderating Role of Media Outlets

When asking about which conditions induce retrospective voting, we should also ask about the city-level factors that facilitate or impede it. One such factor is the institutional environment. Some U.S. cities have strong mayors with significant authority to oversee executive agencies; others have weak mayors who lack such authority. To the extent that mayors in strong-mayor systems have more influence over policymaking, it might be appropriate for voters to hold them more accountable for city-level outcomes (see also Duch and Stevenson, 2008). Yet as Trounstein (2009) demonstrates, it is also possible that politicians and parties will be successful in managing and constraining local political competition regardless of the contours of local political institutions (see also Tausanovitch and Warshaw, 2014).

Given that, we focus here on cross-city variation in the information environment. Individual-

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<sup>3</sup>As a related but distinct hypothesis, to the extent that Fischel (2001) is correct about the primacy of property values in local voting, perhaps the key economic metric is local home values rather than unemployment.

<sup>4</sup>By contrast, many school districts are not coterminous with municipal boundaries, and many cities do not control their schools, so we leave to future research the question of school performance and mayoral voting.



level analyses of vote choice frequently contend that when voting retrospectively, voters inquire not about their own personal finances but about the economic situation of the country as a whole (e.g. Kinder and Kiewiet, 1981; Kinder, Adams and Gronke, 1989). Such findings in turn imply an important role for information sources such as mass media outlets in enabling retrospective voting at the national level (e.g. Hetherington, 1996). Still, in recent decades, virtually every American voter has had access to national television news, making it hard to identify exogenous variation in Americans' access to information through that medium.

By contrast, city elections provide an especially useful environment in which to examine the role of information environments. Cities vary markedly in their information environments, with some large cities being home to their own local television stations and newspapers while other, similarly sized cities are in media markets dominated by other cities. For example, some cities are the center of a Designated Market Area (DMA) and thus home to local TV news programs while others are not. By population, Tempe, Arizona and Springfield, Missouri are similarly sized, but while the latter is the center of a DMA, Tempe shares its local television programming with the much larger cities of Phoenix and Mesa.

Prior research has demonstrated that such differences have important consequences for the media voters are likely to have access to—and thus for their knowledge about their representatives in Congress and state politics in general (Stewart and Reynolds, 1990; Carpini, Keeter and Kennamer, 1994; Levy and Squire, 2000; Arnold, 2004). People who live in smaller media markets, for example, get far more coverage of their own Member of Congress (Snyder and Stromberg, 2010; Hayes and Lawless, 2014). And people who live in the same DMA as their state capital are more knowledgeable about state politics as a consequence (Althaus, Cizmar and Gimpel, 2009). Conversely, U.S. counties that had earlier access to television in the days before extensive local programming also saw more nationalized voting patterns (Song, 2014). Also, residents of states with more fragmented media markets are

less likely to see Senate candidates on television, and more likely to back the incumbent. At the city level, we might expect parallel effects of media availability (see also Zukin and Snyder, 1984; Shaker, 2014). Those cities which are the center of a DMA or else those with their own newspaper are likely to have more news content devoted to their politics and government.

One possible mechanism through which the media might act is informational, by providing basic facts about local conditions that are not otherwise visible to individuals. While much smaller than the U.S., cities are still large social aggregates with hundreds of thousands of people, making it difficult for voters to get an accurate image of events from their own experiences. But there is another potential mechanism through which media coverage might work. As Lane (1962) details, information gleaned in day-to-day life is often “morselized” and not integrated with one’s political views. Iyengar (1991) and Mutz (1994) show, however, that media coverage can politicize information, providing it with political frames and so making it relevant to political judgments. In this view, the media coverage not only provides information but also politicizes it. Given the prominence of both national and local economic coverage, local news outlets might make national-local comparisons an especially natural criterion by which to evaluate incumbent mayors.

## Data Collection and Sources

To examine retrospective voting in big-city mayoral elections, we compile data from a wide range of sources. The elections of interest are general elections for mayors which took place in any American city larger than 133,000 people between 1990 and 2011.<sup>5</sup> We chose this threshold both because it roughly approximates the lower bound of big cities and because data on election returns becomes notably more sparse just below it. Of course, for some large cities such as Baltimore, Maryland or Washington, D.C., the winner of one party’s

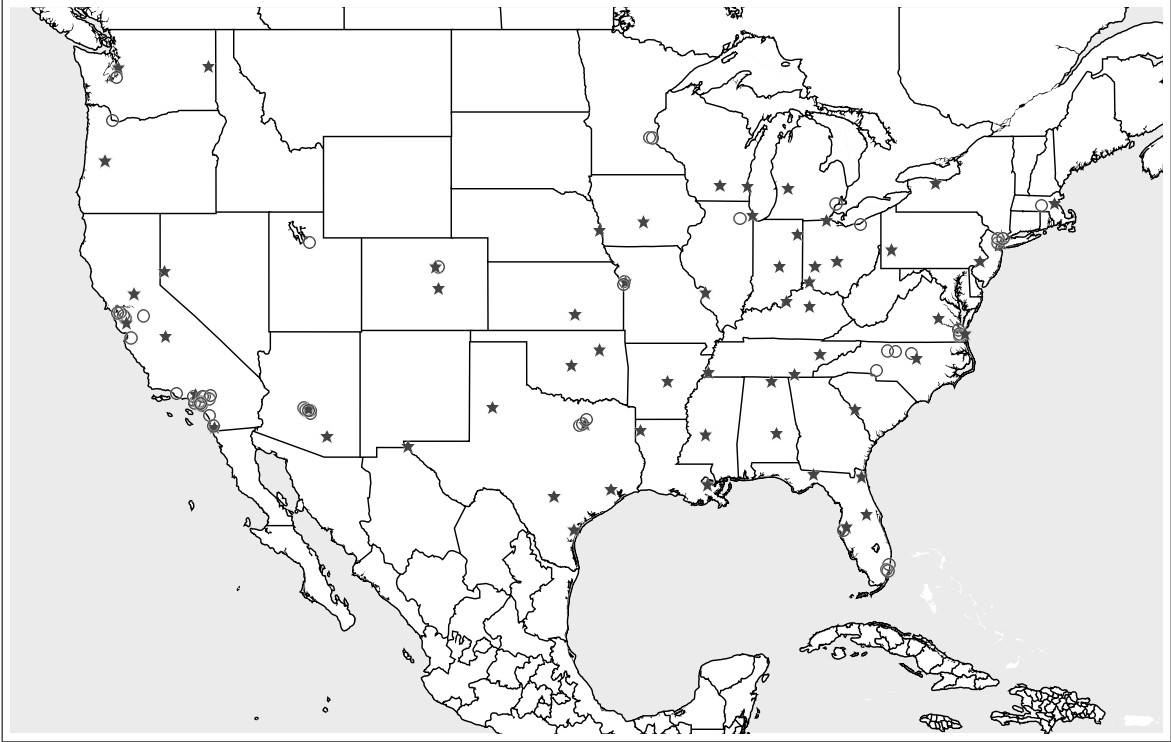
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<sup>5</sup>The smallest city in our data set is Pasadena, CA, with a year-2000 population of 133,871, while the largest is New York City (8,008,278 as of 2000).

primary is very likely to become mayor, meaning that the most competitive election is the primary. Despite their prominence, such cities are in a decided minority, and we consider the selection biases stemming from incumbents not standing in the general election below. Still, the inclusion of primaries remains a promising avenue for future work.

To build our data set, we began with the data on city elections described (author citation). For cases where it was not already available, we then sought information on when each election occurred, the votes received by the top four candidates, the candidates' party affiliations, their racial and ethnic backgrounds, and whether any of the candidates was an incumbent. For each election, we also recorded whether the election resulted in a change in the party overseeing city hall. In addition, we gathered data on incumbent retirements, including the stated reasons for the retirement. To compile this data, we drew on many sources, including state and local election commissions, official city websites, the data set made available in Ferreira and Gyourko (2009), and archived newspaper articles available through LexisNexis or online. Figure 1 presents a map of the cities included in our analyses, distinguishing between cities based on whether they are the center of their DMA (e.g. the largest city within it, denoted by stars) or not (open circles).

Figure 1: Cities included in the analyses.



This map shows cities included in our dataset. Included cities that are the largest in their media markets are depicted with stars, while open circles indicate those which are not. Honolulu is not shown but is analyzed in this paper.

Alongside these election-specific data, we compiled demographic, crime, and economic measures at the city, Metropolitan Statistical Area (MSA), state, and national levels. We obtained demographic data from the 1990 and 2000 decennial censuses. The crime data come from the FBI’s Uniform Crime Reporting database, while economic data for various geographies—including housing prices, unemployment, and income—are from the Bureau of Economic Analysis, the Bureau of Labor Statistics and the Federal Housing Finance Agency. Estimates of local unemployment come from a model using various sources, including the Current Population Survey and each state’s unemployment insurance system.<sup>6</sup>

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<sup>6</sup>For a detailed description of the methodology, see [https://dlr.sd.gov/lmic/pdfs\\_and\\_other\\_files/technicalnotes\\_labor\\_force.pdf](https://dlr.sd.gov/lmic/pdfs_and_other_files/technicalnotes_labor_force.pdf).

As these estimates are based on samples and models, it is important to note that they are approximations, and that the resulting correlations might suffer from a (likely downward) bias as a result (see especially Healy and Lenz, 2014*a*).

The political/institutional data come from ICMA (International City/County Management Association) surveys and from the 1987 United States Census of Governments.<sup>7</sup> In addition, we recorded whether the cities' elections were formally partisan or nonpartisan. Since some nonpartisan elections allow candidates to indicate their party affiliation on the ballot, we recorded this information separately. From the ICMA surveys, we were also able to include data on whether each city has a mayor-council or council-manager system, although cities must have a directly elected mayor to be included in our analysis. We used newspapers and other archives to identify cities where a major sports team won a championship as well as mayors who were under federal or state investigation for wrongdoing. Our final data set consists of 341 elections in 115 different cities between 1990 and 2011.<sup>8</sup>

## Independent Variables

In theory, there are a wide variety of local conditions and events that might generate retrospective voting. Some—say, economic conditions, traffic, or even snow removal—are potential consequences of government policymaking. Others, including how local sports teams perform, are more clearly outside mayoral control. Here, we focus on conditions that are common to many municipalities, including unemployment, income growth, property values, crime, investigations by prosecutors, and victories by professional football and baseball teams.<sup>9</sup>

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<sup>7</sup>In cases where monthly data were available, those data were linked to elections by election month. Similarly, when yearly data were available, those data were linked to elections by election year. See the Appendix for more information on data and sources.

<sup>8</sup>Incumbents lost 58 of those elections, yielding a re-election rate of 83%.

<sup>9</sup>The National Hockey League and National Basketball Association complete their seasons in June, with few mayoral elections soon thereafter. Many large cities have multiple school districts, making it prudent to bracket the question of school performance (see instead Berry and Howell, 2007). And while snowstorms can be critical and visible tests of municipal performance, they are typically concentrated in certain regions of the country, and so are left to future research.

In prior state-level research, the key predictor is frequently state economic performance relative to national economic performance: the nation serves as a benchmark against which to compare subnational outcomes. As a result, our baseline models include measures of both local and national conditions in most cases. Specifically, to measure the impact of local unemployment, we include the U.S. unemployment rate alongside a measure of the difference between the national unemployment rate and the city’s unemployment rate,<sup>10</sup> both measured in the month of the election. As that difference goes up, national unemployment grows relative to city unemployment, and the city’s economy is thriving relative to the nation’s. This variable’s mean is -0.39 with a standard deviation of 2.45, indicating slightly higher baseline unemployment in our cities than in the country as a whole.

There is substantially more variation in unemployment across cities than in the nation over time, so the Pearson’s correlation between this difference and raw city-level unemployment is 0.86. That high correlation means that in practice, it is difficult to distinguish relative comparisons from city-level conditions—and as we detail below, our results prove robust to either measure. The correlations are markedly lower for two other measures we consider: the difference between national and city-level personal income and the difference between national and MSA-level property values.

We do also consider alternative influences on city-level retrospective voting, both as potential confounders and as explanations in their own right. To measure the violent crime rate, we include both the national violent crime rate as well as the difference between the national and local violent crime rates. Similarly, we measure both national housing prices and the difference between that index and MSA-level home prices.<sup>11</sup> We do the same for per capita income. For World Series and Superbowl victories, we include an indicator variable for any such victories within one month of the election. Finally, we combed through

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<sup>10</sup>With some basic algebra, this is equivalent to a model which includes the national and city-level measures side-by-side.

<sup>11</sup>To our knowledge, there is no measure of city-level property values available across the cities in our data set, so we employ an MSA-level measure despite the resulting measurement error.

newspaper archives using LexisNexis and Google News to identify mayors who were under federal investigation at the time of each election.<sup>12</sup>

To make the “all else equal” assumption underpinning any causal interpretation of these models more plausible, they include a series of other independent variables. Some are demographic, such as the logged population as well as the share of the population that is Hispanic, Black, of Italian ancestry, or of Irish ancestry.<sup>13</sup> Others measure socioeconomic status and resources, including the percentage of the city with a Bachelor’s degree, the median household income, and the median home value.<sup>14</sup> We also condition on several explicitly political measures, such as whether the city has a Mayor/Council structure and its Democratic vote share in 1988, the presidential year prior to our earliest observations.<sup>15</sup> Our primary models include a measure of national unemployment. This measure is computed for the month of the election, allowing us to also include year fixed-effects. In robustness checks where we employ an annual measure of U.S. unemployment, we do not include year fixed-effects.

## Results: Economic Voting in Mayoral Elections

Our outcome of interest is the share of the total votes won by the incumbent in the general election (see also Trounstein, 2011). Running from an empirical minimum of 0.20 to a maximum of 0.80, the variable’s mean is 0.59 with a standard deviation of 0.13. While the average incumbent seeking re-election wins handily, there is substantial variation in

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<sup>12</sup>Specifically, mayors are coded as “under investigation” if there are any public investigations of a mayor written about in archived newspapers prior to the election in question.

<sup>13</sup>We include measures of the percentage Italian and Irish given the prospect that the historical development of political machines and other local political institutions varied with the presence of these non-Hispanic white ethnic groups (Dahl, 1961; Erie, 1988).

<sup>14</sup>Our baseline model conditions on median household income in both 1990 and 2000. However, our core results prove robust to the removal of 2000 median household income, which has the potential to be post-treatment for some elections.

<sup>15</sup>Presidential results are available by county, meaning that for cities that are coterminous with counties, such measurement is straightforward. For cases where the city is not coterminous with one or more counties, the average vote share across all applicable counties was used. See the codebook for the 26 cities affected.

incumbent performance at the ballot box.

First, consider the difference between the national and city unemployment rates during the month of the election, as shown in the top entry in the left-most column of Table 1. The estimated coefficient in our baseline linear model is 0.011, with a standard error of 0.004. (Given the strong correlation between the national-local unemployment difference and city-level unemployment, it is not surprising that the coefficient from a model where the key independent variable is simply city unemployment is very similar in absolute magnitude, at -0.011 (SE=0.004).) For every one percentage point increase in national unemployment relative to local unemployment, incumbent support should increase by 0.011, meaning 1.1 percentage points. That is a sizeable effect, one we illustrate in Figure 2. The figure plots the predicted level of incumbent support (solid line) and associated 95% confidence intervals (dashed lines) as the national-local unemployment difference changes. Using gray diamonds, it depicts the actual elections in the data set, and hash marks on the x-axis convey the distribution of the independent variable.

To make these results substantively meaningful, consider elections being held in the same city under two different scenarios. In the first scenario, local and national unemployment are equal. But in the second, the local economy is outperforming the national economy, and local unemployment is 2.45 percentage points lower than the national benchmark. These two scenarios represent a difference of one standard deviation—and all else equal, the scenario with lower city-level unemployment should lead to an incumbent advantage of 2.7 percentage points more on average. In our data set, there are 13 incumbents whose margin of victory was less than 2.7 percentage points. There is thus strong evidence of retrospective voting based on local unemployment, a visible and broadly meaningful economic indicator. After considering other would-be sources of local retrospective voting, we will probe the robustness of this finding below.



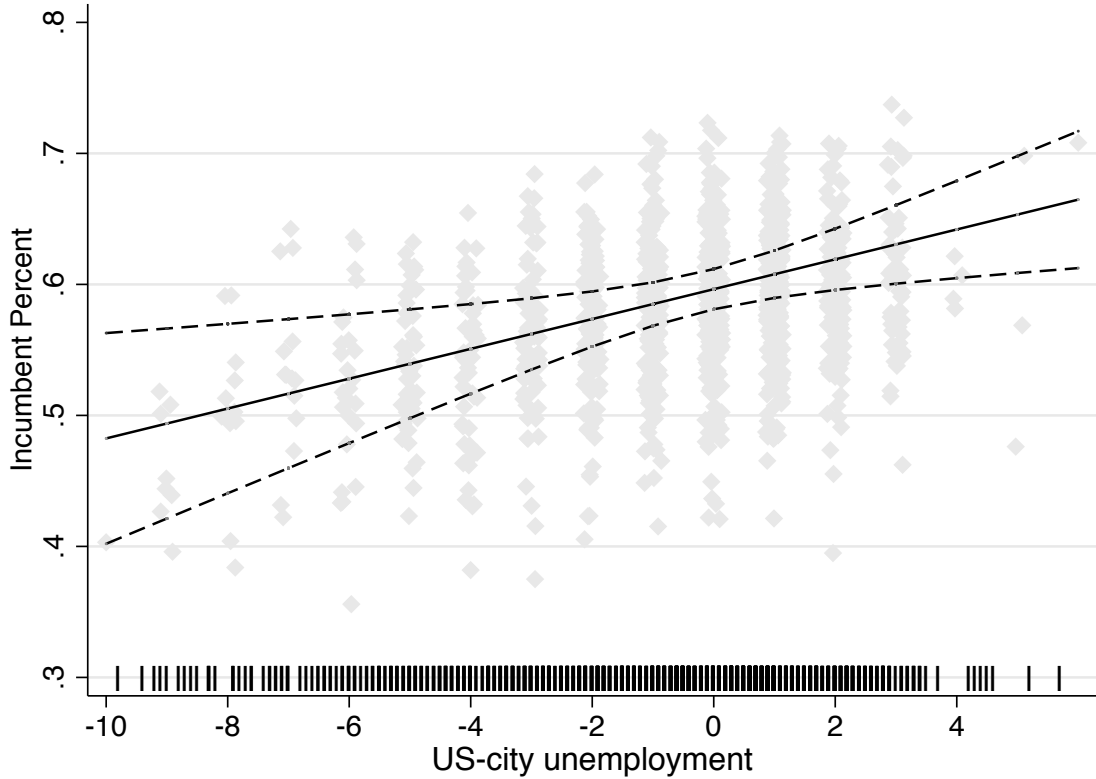
Table 1: Regression models predicting the incumbent vote share in big-city elections, 1990-2011.

	Base Model	Income	Housing Prices	Violent Crime	Homicides	Major Wins, In- vest.
US - city monthly unemployment	0.011* (0.004)					0.012* (0.005)
US monthly unemployment rate	0.007 (0.026)					-0.003 (0.028)
US - city annual income per capita		-0.011 (0.009)				
US income per capita		4.382 (2.277)				
US - MSA housing price index			0.123 (0.137)			
US housing price index			0.038 (0.019)			
US - city violent crime rate				-0.031 (0.019)		
US violent crime rate				1.770 (0.969)		
US - city annual homicide rate					-0.095 (0.244)	
US homicide rate					-0.387 (0.343)	
Won World Series						0.007 (0.045)
Won Super Bowl						0.061 (0.064)
Mayor under Investigation						-0.058* (0.028)
US unemployment rate		-2.926 (1.511)	-2.625 (1.620)	-1.576 (2.601)	-2.916 (1.632)	-3.383* (1.585)
Median household income, 2000	0.007* (0.002)	0.006* (0.002)	0.008* (0.002)	0.008* (0.002)	0.008* (0.002)	0.007* (0.002)
Population, logged	0.005 (0.011)	-0.009 (0.010)	0.007 (0.011)	0.001 (0.011)	0.007 (0.012)	0.005 (0.011)
% Hispanic	0.161* (0.075)	0.151* (0.076)	0.109 (0.076)	0.044 (0.071)	0.073 (0.071)	0.134 (0.076)
% Black	0.057 (0.076)	0.069 (0.082)	0.004 (0.080)	-0.070 (0.082)	-0.031 (0.105)	0.025 (0.079)
% w/ BA	-0.309 (0.168)	-0.177 (0.153)	-0.146 (0.153)	-0.263 (0.156)	-0.272 (0.152)	-0.316 (0.170)
Median Home Value	-0.001 (0.002)	-0.001 (0.002)	-0.004 (0.002)	-0.003 (0.001)	-0.002 (0.002)	-0.001 (0.002)
Median household income, 1990	-0.006* (0.003)	-0.006* (0.003)	-0.006* (0.003)	-0.005 (0.003)	-0.006* (0.003)	-0.007* (0.003)
Mayor/Council	0.022 (0.019)	0.039 (0.021)	0.025 (0.021)	0.020 (0.023)	0.028 (0.022)	0.019 (0.020)
Democratic vote share, 1988	-0.033 (0.094)	-0.122 (0.093)	-0.035 (0.099)	-0.073 (0.094)	-0.096 (0.087)	-0.043 (0.100)
% Italian ancestry, logged	0.013 (0.020)	0.022 (0.017)	0.005 (0.022)	-0.009 (0.020)	-0.001 (0.021)	0.014 (0.021)
% Irish ancestry, logged	0.018 (0.025)	0.019 (0.022)	0.023 (0.027)	0.024 (0.025)	0.023 (0.026)	0.006 (0.026)
Constant	0.350 (0.203)	8.367* (3.994)	18.258 (11.092)	7.989 (14.552)	20.361* (9.824)	19.410* (8.911)
$R^2$	0.156	0.161	0.161	0.155	0.161	0.169
N	341	310	332	303	313	319

\*  $p < 0.05$ . Standard errors appear in parentheses.

All models include standard errors clustered at the city level and year indicators. Output omitted for year indicator variables.

Figure 2: This figure shows the marginal effect of the difference between national and local unemployment, with gray diamonds representing the observed data points. The vertical lines at the bottom illustrate the distribution of the national-city unemployment difference.



Certainly, unemployment is not the only measure of economic performance. The next two columns in Table 1 consider different economic indicators, indicators that typically correlate with economic conditions at higher ends of the income distribution than does unemployment. The first is the city’s personal income per capita, which refers to total earnings from wages and investment. The second is a housing price index, a variable emphasized by Fischel (2001)’s “homevoter hypothesis.” It measures price changes in resold residential properties. For both variables, the difference between national and local performance is statistically indistinguishable from zero and substantively small. For example, the standard deviation for the difference in annual income is 0.094, so a change of one standard deviation is associated with a change of less than 0.1 percentage points in incumbent vote

share. For per capita income as well as housing prices, the evidence is instead suggestive that national conditions themselves correlate with incumbent vote share, albeit not quite at statistically significant levels. Separate models indicate null results when we measure local conditions without considering the deviation from the national benchmark for these alternative economic metrics.

Criminal justice is a central issue in some big cities’ politics, and one on which mayors have substantial discretion (Gerber and Hopkins, 2011; Arnold and Carnes, 2012; Hopkins and McCabe, 2012). So our next models include two types of crime, measured against a national baseline: violent crime and homicide. Given local TV news coverage, there is reason to think that homicides in particular might attract attention, a fact which explains why we consider homicide rates separately.<sup>16</sup> The means are negative for the difference in violent crime and in homicide, at -0.41 and -0.05, respectively, indicating higher levels of both types of crime in these large cities as compared to the U.S. overall. As Table 1 illustrates, the coefficients for both variables are negative but substantively insignificant and statistically indistinguishable from zero. The best conclusion is that across large U.S. cities, there is not strong evidence that incumbent mayors suffer for relatively high violent crime or homicide rates.

In the final model, we consider indicator variables for cities that won the World Series or Superbowl within a month of the election, as well as for mayors under federal investigation. The first two of these outcomes could produce significant pro-incumbent feeling (Healy, Malhotra and Mo, 2010; Miller, 2013), even though they are outcomes that incumbent mayors are unlikely to influence. On average, only 3.1% of our elections took place with such a championship in the recent past. Still, in our baseline specification, the coefficients associated with a major sports championships are positive but insignificant—and in the case of World Series victories, the coefficient is quite close to zero.

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<sup>16</sup>To define homicide we use the FBI’s classification, which includes crimes of murder and non-negligent manslaughter.

The measure of federal and state-level investigations is a coarse attempt to capture the issue of corruption that confronts many city governments. Overall, 13% of our elections involve incumbents being investigated. But as the careers of former mayors such as Washington, D.C.’s Marion Barry and Providence, Rhode Island’s Buddy Cianci suggest, voters’ support can sometimes withstand criminal charges. Here, we find a large correlation in the expected direction, with a coefficient of -0.058 and a standard error of 0.028. An official investigation into a mayor should reduce his vote share by 5.8 percentage points on average.

## Changes in City Conditions

The models above indicate that mayors in cities with lower unemployment relative to other cities enjoy increased support come election day. But in presidential politics, what matters is the change leading up to the election (Bartels, 2008; Healy and Lenz, 2014*b*), suggesting that national voters benchmark today’s outcomes against those of the recent past. Might the same pattern hold in cities? This possibility is certainly plausible, as the voters of a crime-plagued city could well reward a mayor whose administration reduced the crime rate in absolute terms even as it remains high compared to other cities.

To consider that question, we modified the models reported in Table 1 to include measures of the annual change in each of our core measures. In the first column in Table 2, for example, we see that a one standard deviation increase in city unemployment (0.013 given the scaling here) dampens the incumbent’s vote share by a substantively tiny 0.06 of a percentage point on average, an effect that is far from significant ( $\beta=-0.046$ ,  $SE=0.95$ ). Increases in city annual income and home prices are associated with substantively small and statistically insignificant improvements in the incumbent’s vote share as well. For violent crime, the coefficient is 0.083, and although its sign is in the unexpected direction, it is statistically insignificant ( $SE=0.065$ ) and substantively small. A one standard deviation increase in the homicide rate is associated with a small and insignificant decline in

the incumbent's vote share of -0.6 percentage points ( $\beta=1.52, SE=2.47$ ). In short, there is little strong or consistent evidence that city voters are benchmarking based on year-to-year changes in local conditions.

Table 2: OLS models predicting the incumbent vote share with one-year changes in key independent variables.

	Base Model	Income	Housing Prices	Violent Crime	Homicides
$\Delta$ unemployment	-0.046 (0.949)				
City monthly unemployment	-0.012* (0.004)				
US monthly unemployment	0.030 (0.029)				
$\Delta$ income per cap.		0.074 (0.111)			
City annual per cap. personal inc.		0.016 (0.008)			
US personal inc. per cap.		4.621 (2.377)			
$\Delta$ housing price index			0.053 (0.088)		
US housing price index			0.041 (0.024)		
MSA housing price index			-0.038 (0.945)		
$\Delta$ violent crime rate				0.083 (0.065)	
Violent crime, city				0.313 (0.186)	
Violent crime, US				1.871 (1.015)	
$\Delta$ homicide rate					-1.521 (2.467)
Homicide rate, city					32.324 (23.409)
US homicide rate					-1.900 (1.822)
US unemployment		-3.088 (1.577)	-2.684 (1.597)	-2.693 (2.684)	-2.714 (2.596)
Median household inc., 2000	0.007* (0.002)	0.007* (0.002)	0.008* (0.002)	0.008* (0.002)	0.008* (0.003)
Population, logged	0.003 (0.011)	-0.006 (0.010)	0.007 (0.012)	0.003 (0.011)	0.000 (0.012)
% Hispanic	0.179* (0.076)	0.125 (0.080)	0.108 (0.076)	0.045 (0.071)	0.088 (0.074)
% Black	0.068 (0.078)	0.038 (0.087)	0.006 (0.081)	-0.075 (0.086)	-0.063 (0.109)
% w/ BA	-0.322 (0.171)	-0.176 (0.153)	-0.159 (0.152)	-0.238 (0.166)	-0.164 (0.166)
Median home value	-0.001 (0.002)	-0.003 (0.002)	-0.004 (0.002)	-0.004* (0.002)	-0.002 (0.002)
Median household inc., 1990	-0.006* (0.003)	-0.006* (0.003)	-0.006* (0.003)	-0.005 (0.003)	-0.006* (0.003)
Mayor/Council	0.024 (0.020)	0.037 (0.020)	0.026 (0.021)	0.018 (0.024)	0.019 (0.024)
Democratic vote share, 1988	-0.036 (0.094)	-0.090 (0.096)	-0.035 (0.099)	-0.051 (0.098)	-0.059 (0.091)
% Italian ancestry, logged	0.010 (0.020)	0.026 (0.017)	0.005 (0.022)	-0.005 (0.021)	-0.006 (0.021)
% Irish ancestry, logged	0.027 (0.026)	0.006 (0.024)	0.024 (0.027)	0.016 (0.026)	0.030 (0.028)
Constant	0.279 (0.235)	8.748* (4.177)	18.659 (10.929)	14.120 (15.021)	33.453 (31.687)
$R^2$	0.164	0.169	0.162	0.165	0.144
N	332	310	332	291	285

\* p<0.05. Standard errors appear in parentheses.

All models include standard errors clustered at the city level and year indicators. Output omitted for year indicator variables.

## Media Availability as Moderator

Retrospective voting in America’s large cities appears to be primarily economic in nature. But U.S. cities vary markedly in their political and governing institutions (Trounstine and Valdin, 2008; Trounstine, 2009; Marschall, Ruhil and Shah, 2010)—and if the experience of other countries prove relevant, those institutions might influence city-level retrospective voting (Duch and Stevenson 2008; but see Tausanovitch and Warshaw 2014). At the same time, some cities have robust sources of information about local conditions, while others must compete with larger neighbors for attention. Do such differences shape retrospective voting, and if so, which ones?

To answer that question, we subdivide our data set based on a variety of binary moderating variables, and present the key estimates for each subset in Tables 3 below and 4 in the Appendix. Specifically, the tables’ first columns present the share of observations that have the feature of interest. In the second and third columns, they present the estimated effect without and then with the feature of interest. For these estimates, we use the baseline model from above, but remove a few variables to avoid over-fitting given the small sample sizes in some cases.<sup>17</sup> The fourth columns estimate the difference between these two effects, while the fifth columns indicate the p-value associated with that difference.

Broadly, the Appendix table makes it clear that electoral and governmental institutions do not have strong or predictable moderating effects in mayoral elections.<sup>18</sup> The overall impression is of institutional factors playing a limited role in moderating the effect of retrospective voting.

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<sup>17</sup>Specifically, we remove the year indicator variables and replace them with a single, linear time trend. We also remove the measures of the percentage Irish and percentage Italian.

<sup>18</sup>For example, it is plausible that cities dominated by a single party are able to stifle competition and reduce retrospective voting. We create an indicator variable for those cities where the Democratic vote share in 1988 was above the median value of 45.7%. The results vary relatively little between cities that are or are not above that threshold, as the first line of Table 4 in the Appendix makes clear. The effects also differ little for Democratic and non-Democratic mayors. Nor do cities with mayor-council systems see markedly larger effects than those with council-manager systems, despite the fact that mayors in the latter systems tend to be more symbolic even when they are directly elected.

Table 3: Difference in retrospective voting by local media availability.

	Mean	$\beta_1$	$\beta_2$	$ \beta_1 - \beta_2 $	P-value
Has Newspaper	0.87	-0.013	0.016*	0.029	0.008*
Has TV Station	0.49	0.003	0.017*	0.013	0.037*

*Note:* This table compares the coefficient estimates on our key independent variable (national minus city unemployment) across subsets of our data. The first column indicates the share of observations with the media outlet in question, while columns two and three show the estimated coefficient given its absence or presence, respectively. Column 4 shows the absolute value of the difference between those coefficients, and Column 5 shows the p-value associated with that difference.



Yet alongside differences in their electoral and governmental institutions, cities also differ markedly in their media environments, differences which are likely to be central in shaping voters' knowledge of and interest in city-level politics (e.g. Zukin and Snyder, 1984; Delli Carpini, Keeter and Kennamer, 1994; Song, 2014). The results in Table 3 bear out this hypothesis. They show that for the 87% of observations from cities with their own newspaper,<sup>19</sup> the unemployment-incumbent voting coefficient is 0.016, which is significantly larger than that in other cities. Moreover, for the 49% of observations in cities which are the center of their DMA,<sup>20</sup> the coefficient is 0.017, as compared to just 0.003 elsewhere. For every one percentage point improvement in the local unemployment rate relative to the national rate, incumbents should win 1.7 percentage points more of the two-candidate vote share in cities with their own TV stations. That same figure drops to 0.3 percentage points elsewhere. This differential effect also holds when augmenting the baseline models to include any of the measures of institutions outlined above, indicating that it is not simply masking institutional differences. Many more cities have their own newspapers than have their own television stations. Yet in both cases, there is substantively meaningful and statistically significant evidence that media markets enable retrospective voting. In fact, for the 13% of elections in cities without newspapers and the 51% without their own TV stations, the estimated effect of local unemployment is essentially zero. Where there is no easy way to learn about city-level conditions, there is also no evidence of retrospective voting based on local unemployment.

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<sup>19</sup>We measure whether cities have their own newspaper using a panel data set compiled by Jessica Troun-  
stine. We converted the data so that a value of 1 represents a city with a daily local paper in all observed  
years (1986, 1992, 1996, and 2001), and 0 represents either a city without a local paper or one that lost its  
local paper in this timeframe.

<sup>20</sup>We measure cities as having their own TV station if they are the largest city by population size in their  
DMA.

## Selection Bias and Robustness

The result here that is novel, theoretically relevant, and broadly applicable across cities is that for local unemployment, benchmarked nationally. Accordingly, we now probe the robustness of that result here. One clear alternative explanation for the results above emphasizes selective retirement. Like other politicians, mayors might prove more likely to retire if their electoral prospects are weak (e.g. Jacobson, 1989). Weak local conditions might make incumbents vulnerable in primary elections as well. After considering those alternative explanations, we then report a variety of robustness checks indicating that our core result holds when making a variety of defensible assumptions about measurement and modeling.

In the Appendix's Table 5, we first use the original data set to model incumbent victories, classifying cases as one where the incumbent wins re-election and zero in any cases where he or she does not, regardless of whether or not she stood for re-election. Such a model groups general election losses with primary losses and retirements, and so allows us to consider the influence of local conditions net of decisions about whether to run again. If it were the case that incumbent mayors chose not to run when the local economy was in comparatively poor share, this model should turn up a strong relationship. But it does not: the estimated coefficient from a logistic regression is 0.051 (SE= 0.054), indicating that as national unemployment rises relative to the city's, mayors are slightly but not significantly more likely to run and to win. In combination with the results above, this suggests no strong selection biases shaping whether the incumbent is on the general election ballot. We then turn to modeling retirement explicitly, coding cases as a "1" when an incumbent retires and "0" when he or she runs again. The coefficients associated with the national-local unemployment difference are negative both when the reason for the retirement is unspecified and when there is any retirement, suggesting that as the national economy performs better relative to the city's, the probability of a mayor's retirement decreases.

That is certainly not evidence of selection bias in the expected direction. Moreover, across the model specifications detailed in Appendix Table 5, we never find a relationship that is substantively statistically significant.

We consider a variety of alternative specifications in Table 6 in the Appendix. In the first column, we restrict the data set to the 247 elections in which we have data on the incumbent’s prior vote share, and then re-specify the dependent variable as the change in the incumbent’s vote share from the prior election. Here, the coefficient for the national-city difference in unemployment is 0.026 with a standard error of 0.006, indicating an effect that is sizeable and statistically different from zero.<sup>21</sup> As the second column indicates, we observe a slightly smaller but still sizeable and significant effect when we instead re-specify the model to include the lagged incumbency measure.

In nationally oriented studies, one important question is about the time-frame for retrospection (Huber, Hill and Lenz, 2012; Healy and Lenz, 2014*b*). Accordingly, in the third column in Table 6, we consider an alternative specification in which we consider unemployment measured for the year prior to the election rather than simply the month. In the fourth, we demonstrate that the effect of local unemployment holds irrespective of whether it is specified as a difference or not. The fifth column illustrates that even when removing national conditions entirely, the effect of local unemployment remains significant and nearly identical in size. In short, the results prove quite robust to alternative specifications.<sup>22</sup> City-level unemployment influences mayoral support.

To this point, the models have assumed that the relationship between city unemployment and incumbent support is linear—but that is simply an assumption. To test it, we re-specify the independent variable as five indicator variables for five groups of the unemployment difference, and then we include all but the first in our baseline model. Figure

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<sup>21</sup>This model is effectively the same as including candidate fixed-effects. Only 34 cities contribute more than 3 observations to our data set, so it is wholly unsurprising that the inclusion of city fixed-effects leaves the result statistically indistinguishable from zero, although still positive (0.008, SE=0.007).

<sup>22</sup>The effect also remains similar in size when iteratively removing each city. The smallest estimated coefficient is 0.009 with a corresponding standard error of 0.004 when removing Fresno, California.

3 in the Appendix illustrates the results, and clarifies that the effect is driven primarily by those cities in the top group of national-local unemployment, meaning cities with unemployment rates at least 1.5 percentage points lower than the nation's. Incumbents earn a vote premium that is most pronounced when local unemployment is significantly better than national unemployment. As yet another robustness check, we also re-ran our model when expanding the data set to include all 418 contested general mayoral elections, even those that were landslides. There, the effect of the national-local unemployment difference remains meaningful and significant, at  $\beta = 0.015$  (SE= 0.04).

## Discussion and Conclusion

There are a wide range of local conditions that could plausibly generate retrospective voting in mayoral elections, from crime rates and property values to economic performance and even World Series titles. Yet like presidents and governors, mayors appear to be evaluated primarily based on local economic performance, with some indication that investigations reduce support. Our research does not rule out that snowstorms, traffic, or crime might cost specific mayors votes—or even their jobs. But it does suggest that across the large U.S. cities analyzed here, retrospective voting is primarily economic in nature. It also suggests that urban voters are comparing local conditions to those in the U.S. generally, not to their own city's past performance.

Earlier generations of scholarship cast doubt on the idea that pocketbook voting was the primary mechanism of retrospective, economic voting (e.g. Kinder and Kiewiet, 1981; Kinder, Adams and Gronke, 1989). But in national politics, sociotropic alternatives are difficult to test empirically, in part because information about basic conditions is so widely available that levels of exposure are primarily the result of people's choices. At the city level, they are not. Some cities are home to newspapers and local television stations, while others do without one or both. As a result, there is plausibly exogenous variation in residents'

exposure to information about local government, politics, and conditions.

Berry and Howell (2007) find that retrospective voting in school board elections hinges on the salience of education as an issue. In a similar vein, we show here that economic retrospective voting in mayoral elections depends on local media outlets. In cities with their own TV stations and newspapers, there is a robust relationship between city-level unemployment and the performance of the incumbent mayor. As the city performs better relative to the nation or in absolute terms, support for the incumbent mayor rises. In cities without local media sources, the relationship disappears. It is plausible that urban issues are tangible and immediate in a way that state and national issues are not; if any type of government in our federal system could generate significant voting based on personal experience, it should be the local level, making this a difficult test for sociotropic voting. Even so, the availability of locally oriented media is crucial in enabling retrospective voting. That might well be because of the information such outlets provide about city-level conditions. But that might also be because the media have an unparalleled capacity to politicize information and to make it consequential for vote choice (e.g. Iyengar and Kinder, 1987; Mutz, 1994).

This pattern of findings should encourage additional research on several tracks. For one thing, additional research on individual voters could lead to a better understanding of how voters acquire information about local conditions, and what specific benchmarks they use in evaluating those conditions. Individual-level studies could also illuminate who within a city is more or less likely to vote retrospectively. Although we do not find consistent evidence of overall sociotropic voting on crime, it is plausible that specific groups of voters—say, those in high-crime neighborhoods—are more influenced. At the same time, studies of local media could identify the specific content that enables voters to benchmark local economic conditions. Given the prominence of racial divisions in prior accounts of mayoral voting, future research might consider the role of group- or neighborhood-specific conditions in shaping voting as well (see also Mutz and Mondak, 1997). Finally, scholars might investigate whether racially charged elections reduce retrospective voting, as inter-group tensions

become a primary voting criterion.

In the decades surrounding the turn of the twentieth century, many cities hosted ongoing struggles over local political and electoral institutions (e.g. Bridges, 1997; Trounstone, 2009). Yet in contrast to the findings for media outlets, we do not find strong or consistent evidence that electoral and political institutions moderate the extent of retrospective voting. Mayor-council systems, on-cycle elections, partisan nominating procedures, term limits—none of these institutions seem related to the strength of cities’ retrospective voting. It does appear that cities with ward-based elections have higher levels of retrospective voting. However, we suspect that this is due to the nature of the cities which typically have ward-based elections and we encourage future research into that correlation.

This pattern of differing effects depending on the local media environment takes on special importance given the recent transformation of the American media market. As of 1990, 70% of Americans were regular viewers of local television news, the same figure that reported regularly reading print newspapers (Pew Center for the People and the Press, 2012). By 2012, the audience for local television news had declined to around 50% of the population, and the share of newspaper readers was down sharply as well. In fact, local newspapers including the *Rocky Mountain News* and the *Seattle Post-Intelligencer* have gone out of print in recent years, and in an increasingly competitive media environment, others are likely to follow. Whether because of the information they provide or the ways in which they frame that information, local news outlets are a critical factor in enabling local political accountability. Their declining audiences are likely to have consequences for local retrospective voting as well.

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## Appendix

Table 4: Difference in retrospective voting for various subsets of cities.

	Mean	$\beta_1$	$\beta_2$	$ \beta_1 - \beta_2 $	P-value
High Dem. Voting '88	0.50	0.016*	0.005	0.011	0.103
Party Affiliation- Democrat	0.62	0.016	0.013*	0.003	0.400
Mayor/Council System	0.43	0.008	0.011	0.003	0.606
Council Elected At-Large	0.25	0.027*	-0.019	0.046	0.099
Council Elected by Ward	0.32	0.004	0.039*	0.035	0.008*
Partisan Ballot	0.29	0.013*	0.002	0.101	0.101
Partisan Nomination	0.13	0.011*	0.022	0.011	0.317
Term Limits	0.75	0.011	0.011*	0.000	0.501
November Election	0.57	0.014*	0.008	0.006	0.761
Local and Ntl Election	0.21	0.011*	0.008	0.003	0.620

*Note:* This table compares the coefficient estimate on our key independent variable (national minus city unemployment) across various subsets of our data. The first column indicates the share of observations with the binary characteristic, while columns two and three show the estimated coefficient given its absence or presence, respectively. Column 4 shows the absolute value of the difference between those subsets, and Column 5 shows the p-value associated with that difference.

Table 5: Predicting Mayoral Retirements

	Victories vs. Loss/Retire	Unspecified	Any retirement
US - city monthly unemployment	0.028 (0.030)	-0.136 (0.093)	-0.096 (0.060)
US monthly unemployment rate	-0.035 (0.246)	0.029 (0.437)	0.029 (0.411)
Median household income, 2000	-0.003 (0.018)	-0.005 (0.052)	-0.025 (0.028)
Population, logged	-0.077 (0.054)	0.011 (0.141)	0.173 (0.092)
% Hispanic	0.275 (0.596)	0.015 (1.613)	0.868 (0.953)
% Black	0.464 (0.531)	-1.102 (1.483)	0.490 (0.894)
% w/ BA	1.156 (1.197)	-3.721 (3.121)	0.330 (2.003)
Median Home Value	-0.020 (0.013)	-0.078* (0.037)	-0.014 (0.021)
Median household income, 1990	0.020 (0.024)	0.054 (0.072)	0.051 (0.043)
Mayor/Council	0.056 (0.105)	-0.093 (0.280)	0.003 (0.192)
Democratic vote share, 1988	0.350 (0.534)	0.473 (1.655)	0.800 (0.986)
% Italian ancestry, logged	-0.030 (0.092)	-0.567 (0.299)	-0.243 (0.163)
% Irish ancestry, logged	-0.078 (0.153)	1.070 (0.621)	0.829* (0.333)
# Victories	0.785* (0.068)	-0.983* (0.240)	-0.835* (0.140)
White		-0.021 (0.375)	-0.110 (0.255)
Democrat		0.110 (0.286)	-0.043 (0.194)
Constant	-0.082 (2.337)	-0.624 (3.659)	-3.442 (2.945)
N	1208	468	570

*Note:* The first model is fit to the full data set with all available mayoral elections, while the second and third are fit to data where either the incumbent ran or was known to have retired. All models include standard errors clustered at the city level and year dummies. Output omitted for year indicators.

Table 6: Robustness of the core results across various modeling decisions.

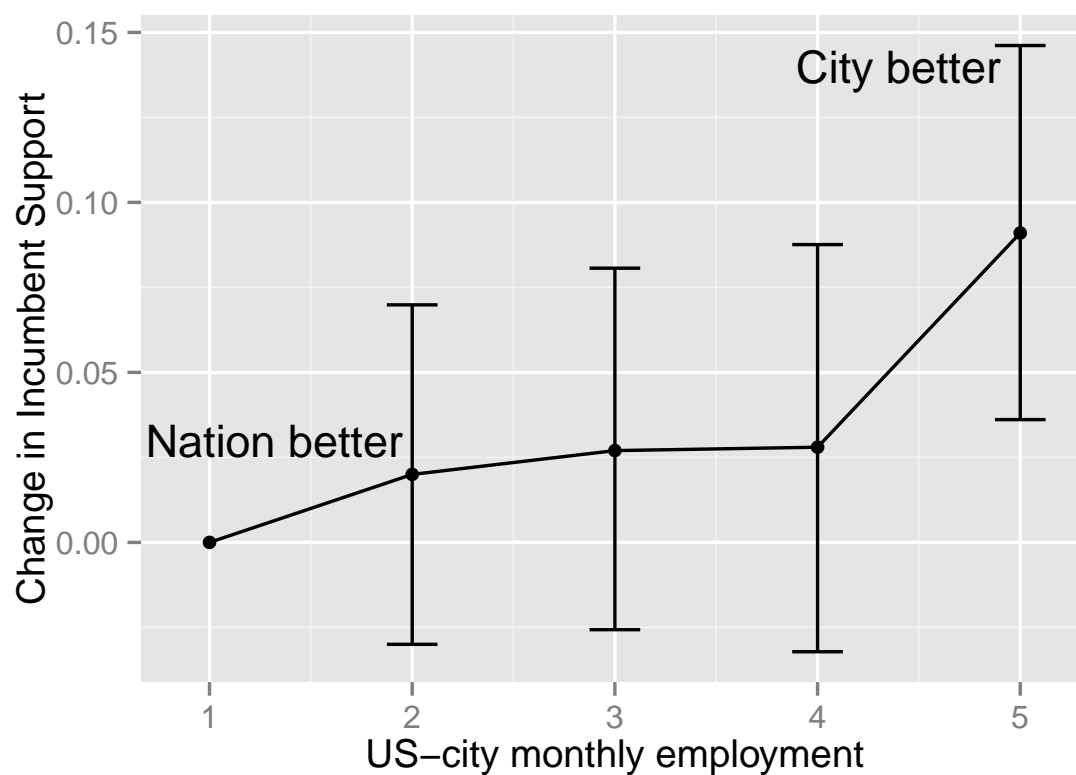
	$\Delta$ in Incum- bent %	Lagged DV with Monthly Unemp.	Lagged DV with Yearly Unemp.	City and US Unemp.	City Unemp. Only
US - city monthly unemployment	0.026* (0.006)	0.019* (0.006)			
Lagged incumbent %		0.300* (0.089)	0.284* (0.091)		
US mon.- city ann. unemployment			0.019* (0.005)		
US annual unemployment rate			-4.238 (2.278)		
City monthly unemployment rate				-0.011* (0.004)	-0.011* (0.004)
US monthly unemployment rate	0.012 (0.045)	0.018 (0.037)		0.019 (0.027)	
Median household income, 2000	0.005* (0.002)	0.006* (0.003)	0.007* (0.003)	0.007* (0.002)	0.007* (0.002)
Population, logged	0.030* (0.012)	0.005 (0.011)	0.003 (0.012)	0.005 (0.011)	0.005 (0.011)
% Hispanic	-0.063 (0.092)	0.153 (0.078)	0.158* (0.078)	0.161* (0.075)	0.160* (0.074)
% Black	-0.030 (0.093)	0.024 (0.089)	0.030 (0.091)	0.057 (0.076)	0.055 (0.075)
% w/ BA	-0.876* (0.250)	-0.524* (0.231)	-0.558* (0.236)	-0.309 (0.168)	-0.303 (0.168)
Median Home Value	0.002 (0.002)	0.001 (0.001)	0.001 (0.002)	-0.001 (0.002)	-0.001 (0.002)
Median household income, 1990	-0.007* (0.003)	-0.006 (0.003)	-0.007* (0.003)	-0.006* (0.003)	-0.006* (0.003)
Mayor/Council	-0.005 (0.023)	0.035 (0.023)	0.037 (0.024)	0.022 (0.019)	0.022 (0.020)
Democratic vote share, 1988	-0.047 (0.120)	-0.086 (0.103)	-0.106 (0.105)	-0.033 (0.094)	-0.031 (0.094)
% Italian ancestry, logged	0.042* (0.018)	0.021 (0.019)	0.016 (0.019)	0.013 (0.020)	0.013 (0.020)
% Irish ancestry, logged	-0.057* (0.024)	-0.004 (0.032)	0.002 (0.032)	0.018 (0.025)	0.019 (0.025)
Constant	-0.274 (0.292)	0.304 (0.301)	29.422 (15.601)	0.350 (0.203)	0.451* (0.148)
$R^2$	0.151	0.352	0.356	0.156	0.155
N	247	163	163	341	341

\* p&lt;0.05. Standard errors appear in parentheses.

All models include standard errors clustered at the city level and year indicators. Output omitted for year indicators.



Figure 3: The impact of the national-city unemployment difference when divided into quintiles. For higher quintiles, national unemployment outpaces local unemployment to a greater extent.



## Data Sources

### 1. Candidate data

- (a) Vote percentages, Race, Party, Retirement status, FBI investigation: Lexis-Nexis and web searches. Additional gaps were filled by a dataset provided by Fernando Ferreira and Joseph Gyourko.

### 2. Economic data

- (a) National Unemployment rates, Annual data: 1947-2002 [http://www.census.gov/compendia/statab/hist\\_stats.html](http://www.census.gov/compendia/statab/hist_stats.html) and 2003-2010 [http://www.bls.gov/cps/prev\\_yrs](http://www.bls.gov/cps/prev_yrs).
- (b) National Unemployment rates, monthly data for all years: <http://data.bls.gov/timeseries/LNS14000000>
- (c) Local Unemployment rates, annual and monthly data extracted from BLS Local Area Unemployment Statistics: <http://data.bls.gov/cgi-bin/dsrv>. Data are *not* seasonally unadjusted.
- (d) National Income: Census Bureau's Statistical Abstracts 1999-2002 [http://www.census.gov/prod/www/statistical\\_abstract.html](http://www.census.gov/prod/www/statistical_abstract.html) and 2003+ <http://www.bea.gov/regional/reis/default.cfm?selTable=CA1-3&section=2>,
- (e) Local Income: Bureau of Economic Analysis' "Local Areas Personal Income and Employment/ Per Capital Personal Income, Table CA1-3" <http://www.bea.gov/iTable/iTable.cfm?reqid=70&step=1#reqid=70&step=1&isuri=1>. Where city data were not available, MSA-level data were used.
- (f) National Housing Prices: HPI from The Federal Housing Finance Agency: [http://www.fhfa.gov/DataTools/Downloads/Documents/HPI/HPI\\_AT\\_us\\_and\\_census.csv](http://www.fhfa.gov/DataTools/Downloads/Documents/HPI/HPI_AT_us_and_census.csv). HPI was divided by 100 for estimation and data are not seasonally adjusted.

- (g) Local Housing Prices: HPI from The Federal Housing Finance Agency: [http://www.fhfa.gov/DataTools/Downloads/Documents/HPI/HPI\\_AT\\_metro.csv](http://www.fhfa.gov/DataTools/Downloads/Documents/HPI/HPI_AT_metro.csv)

### 3. Demographic Data

- (a) Median household income (1990 and 2000) (transformed to tens of thousands of dollars), plus logged population, percent Hispanic, percent Black, percent of population with a bachelor's degree or higher, median home value (transformed to tens of thousands of dollars) logged percentage of population with Italian ancestry, logged percentage of population with Irish ancestry (all 2000): 2000 Decennial Census. All files downloaded using American Fact Finder <http://factfinder2.census.gov>.

### 4. Institutional Variables

- (a) Variables indicating whether a mayor or council system is in place, a council or manager system is in place, the mayor has budget authority and method of council selection: International City/County Management Association's 1996 "Municipal form of Government Survey"
- (b) Party ballot: International City/County Management Association's 1986 "Municipal Form of Government Survey"
- (c) Partisan nomination: 1987 "United States Census of Governments"

### 5. Media variables

- (a) Media Market data: Kantar Media SRDS (Standard Rate & Data Service) DMA Maps and Profiles.
- (b) Newspaper data: Data were kindly provided by Jessica Trounstone at the University of California, Merced. In our dataset, '0' indicates that there is no local

paper over the panel, or the loss of one. ‘1’ indicates a local paper throughout the panel.

## 6. Additional Data

- (a) Violent and Property Crime rates: Data extracted online from FBI’s Uniform Crime Reports <http://www.ucrdatatool.gov/>. FBI crime rates are per 100,000 population, re-scaled to per 1,000.<sup>23</sup>
- (b) Democratic vote share (per county) in 1988: from Brad Gomez at Florida State University [http://myweb.fsu.edu/bgomez/Weather\\_Public\\_File.zip](http://myweb.fsu.edu/bgomez/Weather_Public_File.zip) <sup>24</sup>
- (c) World Series or Super Bowl wins: Lexis-Nexus and web searches.

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<sup>23</sup>Reporting is not mandatory, and a lack of funds is usually reason for non-reporting. See [http://www.fbi.gov/about-us/cjis/ucr/frequently-asked-questions/ucr\\_faqs](http://www.fbi.gov/about-us/cjis/ucr/frequently-asked-questions/ucr_faqs)

<sup>24</sup>County-level data. When cities fell into more than one county, the average across all applicable counties was used. This includes: Huntsville AL, Aurora CO, Aurora IL, Hattiesburg MS, Jackson MS, Kansas City MO, New York NY, Rocky Mount NC, Columbus OH, Youngstown OH, Oklahoma City OK, Salem OR, Portland OR, Charlestown SC, Columbia SC, SanAntonio TX, Plano TX, Dallas TX, Houston TX, Corpus Christi TX, Amarillo TX, Milwaukee WI, Peoria AZ, Chicago IL, Grand Prairie TX, and Fort Worth TX.