Holding Mayors Accountable: New York's Executives from Koch to Bloomberg

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How do citizens evaluate the performance of their mayors? Previous studies have examined mayoral performance either with cross-sectional surveys or by comparing pairs of consecutive elections. In this article, we use 150 surveys conducted in New York City between 1984 and 2009 to carry out the first time-series analysis of mayoral approval. We show that fluctuations in crime and the economy affect mayors' ratings and that black and white citizens react similarly to changing local conditions (although their initial evaluations of mayors often diverge sharply). We also show that how New Yorkers rate mayors in the polls is closely related to how they vote for mayors at the polls.

How do citizens evaluate the performance of American mayors? When mayors run for reelection, do citizens reward them for their accomplishments and punish them for their failures? How do citizens assess mayoral performance between elections? When pollsters ask them whether they approve of the way their mayor is handling his or her job, do their responses depend on the quality of city life? In short, to what extent do citizens hold mayors accountable for what happens on their watches?

The literature on urban politics offers few answers to these questions. Scholars who study American cities seldom ask questions about political accountability—questions that are central to the study of national and state politics. Research on urban elections "is surprisingly limited relative to other topics," and what literature there is suggests "election outcomes . . . are mostly driven by race and ethnicity" (Sharp 2007, 58). Research on mayoral approval ratings is scarce as well, and the few studies that exist also focus centrally on race.

The discipline's lack of sustained attention to the links between mayoral performance and citizens' evaluations is puzzling. Local governments are large and consequential. They account for one-quarter of governmental expenditures and 60% of governmental employees. They deliver a host of essential services, including police and fire protection, snow and trash removal, and parks and libraries (and in some cities, education, water, public transit, and social services). Surveys show that citizens care deeply about problems handled primarily by local governments, especially crime and education (Trounstine 2009). Moreover, citizens experience many local services directly: they do not need the media to inform them that neighborhood streets are filled with snow, potholes, or trash. In light of recent evidence that mayors wield more influence over some local outcomes than scholars once believed (Gerber and Hopkins 2011), it is time to ask whether citizens hold mayors responsible for those outcomes.

This article presents the first systematic study of how citizens' evaluations of mayors respond over time to changes in local conditions. Past research on mayoral approval has examined cross-sectional data, which emphasize variables that are essentially fixed, like race and ethnicity. Most of the literature on presidential popularity, on the other hand, has relied on time-series data, which emphasize variables that fluctuate, like the economy. If one examines a single mayoral election or a single survey, the differences between black and white citizens are often enormous. As Hajnal (2007) shows, however, race explains much less, and performance much

more, if one examines consecutive elections.[1] Of course, analyzing consecutive elections has limitations too; it is difficult to isolate the effects of multiple factors by comparing paired observations four years apart. A better strategy for identifying what aspects of mayoral performance affect citizens' evaluations is to examine approval measures taken routinely throughout a mayor's time in office.

We focus here on New York City, where opinion polls have been conducted with sufficient frequency during the last quarter century for us to collect and analyze the first-ever monthly time-series data on mayoral approval. Our findings provide the strongest evidence to date that citizens' evaluations of mayors are driven by changes in local economic and social conditions. This is not to say that racial divisions are unimportant; citizens' initial evaluations often differ dramatically by race. Consistent with a growing body of research on the importance of mayors to local outcomes, however, we show that New Yorkers—regardless of race—hold their mayors responsible for changes in the quality of urban life.

Political Accountability

The literature on how citizens appraise presidents and governors has long been concerned with questions about political accountability, about the outcomes for which the public holds elected leaders responsible. Gallup began asking Americans in 1937 whether they "approve or disapprove of the way [the incumbent] is handling his job as president." Three decades later, Mueller (1970, 1973) pioneered the time-series analysis of presidential approval. A parade of scholars followed. They found that approval depends on the economy, wars, scandals, domestic and international events, the views of opinion leaders, and how the media cover news (Brody 1991; Erikson, MacKuen, and Stimson 2002; Gronke and Newman 2003). Approval in turn was shown to have consequences for policymaking and elections (Stimson 2004). It affects a president's ability to achieve his goals in Congress (Canes-Wrone and de Marchi 2002; Neustadt 1960), how well his party does in congressional elections (Gronke, Koch, and Wilson 2003; Jacobson 2008), and his own chances of re-election (Campbell 2005; Lewis-Beck and Rice 1992).

Research on gubernatorial accountability was slower to emerge, largely because pollsters long ignored governors. Early studies were based on small samples and reached inconsistent results (Adams and Squire 2001;

Crew and Weiher 1996; Howell and Vanderleeuw 1990). More recently, however, scholars have found that, as with presidents, citizens hold governors accountable for the state's performance during their time in office. Cohen and King (2004) analyzed gubernatorial approval in 50 states over 20 years and found that citizens reward governors when local unemployment is lower than the national average and punish them when it is higher. Voters behave similarly at the polls, rewarding governors for strong state economies and punishing them for weak ones (Atkeson and Partin 1995; Svoboda 1995). Governors' actions also affect their popularity and longevity. Governors who raise taxes do not suffer immediately; once campaign season arrives, however, their approval rates decline (MacDonald and Sigelman 1999) and they eventually lose votes (Niemi, Stanley, and Vogel 1995).

Despite the success of models that link state and national conditions to citizens' evaluations of governors and presidents, few urban specialists have examined the links between local conditions and citizens' evaluations of mayors. As others have noted, the study of local politics has long been disconnected from the larger literature on American politics (Sapotichne, Jones, and Wolfe 2007; Trounstine 2009). One reason for this disconnect is that many urban specialists believe that cities are more constrained in what they can do than states or nations, both for economic reasons—city officials do not want taxpayers or employers to exit—and for legal and political reasons—cities are limited to doing what state legislatures allow (Peterson 1981; Rae 2003). If mayors can do little to affect local conditions, why bother studying the connections between local conditions and citizens' evaluations of mayors?[2]

Of course, it is an open question as to how limited cities and mayors really are. Empirical studies are few. One recent study found that expenditures on police vary depending on whether cities elect Democratic or Republican mayors (Gerber and Hopkins 2011). Another study found that electing black mayors affects the staffing and diversity of local police forces (Hopkins and McCabe 2011). Both studies support the notion that mayors make a difference in at least one important municipal function.

Even where mayoral powers are limited, moreover, citizens are still free to reward and punish mayors for local outcomes. Voters have punished American presidents for droughts, floods, and shark attacks, without establishing what presidents could have done to avoid these calamities (Bartels 2008). Voters in oil-producing states have punished governors when oil prices drop, without

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[1] The same is true for city council elections; Lieske (1989) argues that cross-sectional analysis emphasizes the importance of demographic variables, whereas time-series analysis highlights political variables. See also Zaller (2000).

[2] Even urban specialists who do focus on mayors (e.g., Stone 1989) do not make the electoral connection a central part of their analysis.

asking what governors might have done to affect world oil prices (Wolfers 2007). Voters throughout the world have punished presidents and prime ministers for economic distress, without asking if the distress was caused by worldwide economic problems or by the actions of their elected officials (Lewis-Beck 1988). Urban citizens may well do the same—holding mayors accountable for things both within and beyond their effective control.

A second reason that few urban scholars have explored questions about mayoral accountability is that their interests lie elsewhere. Scholars interested in the role of race in American society gravitated to the study of cities because cities offered wider variance. As more cities became majority black, scholars explored how the racial composition of cities matters. As more cities elected black mayors, scholars investigated what factors affect the emergence of black leaders (Browning, Marshall, and Tabb 2003). The puzzle is not why scholars interested in race focused on cities, but why scholars interested in elections, public opinion, and democratic accountability did not.[3]

Elections and governance at the local level share many similarities with elections and governance at the state and national levels. First, the campaign environments in large cities do not seem that different from those in gubernatorial and presidential politics. At least in cities where mayors have substantial powers (in some cities they are figureheads), mayors campaign for office by promising to do good things and campaign for re-election by touting their accomplishments; meanwhile, challengers emphasize where mayors have fallen short. Second, the governing environments are similar. The media cover what mayors do in office and how various groups evaluate mayors' actions. In short, citizens hear the same kinds of evaluative statements about mayors that they do about governors and presidents, and they hear these things throughout the cycles of governing and campaigning. Third, it is not obvious why urban residents would use different decision rules for mayors, governors, and presidents. They might assess performance on different dimensions, since these executives are responsible for different outcomes, but the notion that citizens would reward mayors for good outcomes and punish them for bad results is just as plausible as the idea that the same citizens would reward and punish presidents or governors for their performance.

Several studies support this idea. Kaufmann's (2004) analysis of mayoral elections, which examines the conditions under which interracial conflict trumps party and ideology, also investigates voter retrospection about

changes in city life as an alternative explanation. She finds some evidence that voters took these considerations into account in the 1969 and 1997 Los Angeles elections and the 1993 and 1997 New York elections. Oliver and Ha's (2007) study of voting in 30 suburban communities, which investigates what factors affect whether voters support incumbent mayors and council members, finds that voters' subjective impressions of governmental performance predict their support for incumbents at the polls. Howell's (2007) analysis of race-based gaps in approval ratings in four cities finds that respondents who rate local conditions more favorably rate mayors more favorably.[4]

The principal limitation of these studies is that they are cross-sectional. For example, studies of approval use one-time surveys that ask citizens whether local conditions like crime and the economy seem to be improving or deteriorating. Asking citizens to describe changes in crime or the economy is not the same as measuring actual changes in these conditions. It could be that media coverage or artful public relations affect citizens' perceptions of both the mayor and local conditions. Alternatively, it could be that citizens who admire mayors see local conditions through rose-colored glasses. In the sections that follow, we seek to determine whether citizens' evaluations of mayors change over time in response to actual changes in the quality of urban life.

Holding Mayors Accountable

Citizens might hold mayors accountable for a wide range of social, political, and economic conditions. For one, they can hold mayors responsible for the entire range of city services. They might punish mayors for everything from increased crime to streets filled with unplowed snow, unfilled potholes, or uncollected garbage. They can fault mayors for unpleasant happenings on their watches, including corruption, riots, misbehaving police, and teachers' strikes. Citizens can also reward mayors for improvements on these fronts, including safer streets, declining racial tensions, and enhanced city services. Cities differ in their functional responsibilities, so variation probably

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[3]Berry and Howell (2007) found that less than 1% of election-related articles published in major journals over 20 years examined local elections. See also Marschall (2010).

[4]Other studies that find support for a performance model include Fuchs and Shapiro (1983) on mayoral primaries in Chicago; Hajnal (2001, 2007) on black mayors running for re-election; Howell and McLean (2001) on mayoral approval in New Orleans; Howell and Perry (2004) on mayoral approval in four cities; Stein, Ulbig, and Post (2005) and Arceneaux and Stein (2006) on mayoral elections in Houston; and Berry and Howell (2007) on school board elections. See Trounstine (2010) for an excellent guide to the literature on accountability in cities.

occurs across cities. Citizens also differ in their expectations. Those living where snow rarely falls may be more forgiving of clogged streets than are those living where snow is common and where citizens expect mayors to clear it promptly.

Citizens may also judge mayors' performance in part based on local economic conditions, effectively rewarding mayors for good times and punishing them for bad times. To be sure, mayors can do little to affect the economy in the short term, so they may deserve neither credit nor blame. But the same may be true for state governors, and indeed, for national leaders in an increasingly internationalized economy; yet, economic conditions regularly affect how citizens evaluate these elected executives. The mechanisms that might connect economic conditions to mayoral evaluations are varied. Perhaps citizens simply reflect their general unhappiness with economic conditions by lashing out at all incumbent executives, no matter what level of government and no matter what those executives could have done to revive the economy. Perhaps economic distress simultaneously increases the demand for city services and, as revenues plummet, undermines the capacity of government to deliver services, so that citizens are really reacting to the growing gap between services expected and services supplied.

The relationship between economic conditions and mayoral approval could be further complicated in various ways. First, citizens might respond to local economic conditions, or they might compare local conditions with the national economy, as state residents appear to do when evaluating governors (Cohen and King 2004). Second, citizens might respond differentially to inflation and unemployment. Third, rather than making retrospective judgments about recent economic changes, citizens might make prospective judgments about the future of the city economy (Erikson, MacKuen, and Stimson 2002).

The appropriate data for examining all these factors are not available at the local level, so we are unable to test every notion that we have about how local events, problems, and conditions affect mayoral approval. We focus here on three factors that seem most important to mayoral approval: the economy, crime, and city services.

We first hypothesize that prosperous local economies increase citizens' approval of mayors, while economic decline depresses approval. We focus on local conditions, since these are what citizens experience directly. Following Erikson, MacKuen, and Stimson (2002), we construct an index of economic performance and explore how well this index explains fluctuations in approval. We also explore whether citizens react to the relative performance of the local economy compared to the national economy

and whether they react differently to inflation and unemployment. (We cannot compare citizens' prospective and retrospective judgments because data on New Yorkers' prospective economic judgments do not exist.)

Second, we hypothesize that heightened crime depresses citizens' approval of mayors, while reductions in crime increase approval. Crime is one of the most important issues in large cities. Mayors certainly act as if it matters. They prod the police to initiate new crime-fighting strategies; they work to increase the number of police officers. Mayors claim credit when crime goes down; critics blame them when it does not. The mass media cover crime incessantly.

Third, we hypothesize that expansions of city services increase citizens' approval of mayors, while reductions in city services depress overall approval. Although citizens may have different tastes for individual services, we believe they collectively prefer a larger basket of services to a smaller basket.[5]

Many other factors may also influence citizens' evaluations of mayors. Although we can imagine tracking other local problems (high school graduation rates, racial conflicts, incidents of corruption) or citizens' satisfaction with particular city services (snow removal, trash removal, park maintenance), we have been unable to compile reliable time-series data on these things.

Data

The most significant hurdle to research on mayoral accountability is the scarcity of approval data. Whereas monthly data on presidential approval are readily available, there is no archive of mayoral approval data for even a single city, to say nothing of appropriate data from multiple cities. Only a few American cities have routine polls about the mayor's performance, and most of these surveys do not have long histories.

We focus here on New York City because it has had routine surveys about mayoral approval for more than a quarter century. Survey houses may one day collect comparable data in other cities. For now, just as studies of approval began with a single executive—the president— our time-series analysis of mayoral approval begins with a single city.

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[5]Of course, there are limits to how much mayors can expand services, since citizens also prefer low taxes. This was not a serious constraint during this period. Three of our four mayors (not Dinkins) increased the city workforce substantially (see Figure 1).

Fourteen organizations collected data about New York City mayors from 1966 to 2009.[6] Unfortunately, early polls were too infrequent for systematic analysis. Between 1966 and 1983, only 12 polls were available—one every 18 months or so—and the question wordings often varied from poll to poll. Beginning in 1984, however, polling about mayors took place more frequently, and most pollsters had settled on a single question patterned after the Gallup question for presidents: "Do you approve or disapprove of the way [the incumbent] is handling his job as mayor of New York City?" We focus on the 310 months from March 1984 through December 2009. This standard approval question was asked at least once during 144 of these months. We compiled these marginals into a single dataset. For the six months when approval questions were asked twice, we take the mean of those observations; for months with missing observations, we use linear interpolation.

The top panel in Figure 1 plots the resulting time series. As the graph illustrates, we relied more heavily on interpolated data for Koch and Dinkins than for Giuliani and Bloomberg. The graph also reveals wide fluctuations in mayoral approval, ranging from a low of 29 and a high of 75 for Koch, to 26 and 79 for Dinkins, 34 and 82 for Giuliani, and 23 and 75 for Bloomberg.[7] Some of these fluctuations occurred rapidly. For example, Bloomberg's approval surged 52 points between November 2003 and November 2005.

To assess the health of the local economy, we use local measures of unemployment and inflation from the Bureau of Labor Statistics, which estimates monthly unemployment for New York City and monthly inflation for the metropolitan area. To simplify the analysis, we sum these two measures to create a New York City economic misery index.

To assess local crime, we use monthly counts of homicide incidents in New York City. The Federal Bureau of Investigation collects these data (available through the Inter-university Consortium of Political and Social Research). Homicides are the gold standard for crime statistics because they are the toughest for citizens to misreport

or for police officials to misrepresent. Homicides are also highly visible, covered extensively by print and electronic media, and therefore most likely to affect citizens' evaluations of mayors.[8] In New York City, the homicide rate closely tracks changes in other crimes as well—assault, rape, robbery, burglary, larceny, and auto theft (Zimring 2012).

To assess city services, we use the number of people employed by the New York City government. Many city services are labor intensive, particularly education, police, fire, and sanitation, which together employed more than 200,000 personnel in 2009 (71% of total personnel). Cuts in the city's workforce usually result in a deterioration of city services, while increases in the workforce are designed to expand and improve city services. Although the size of the workforce is an imperfect measure of the quality and quantity of city services, it approximates what we seek to capture. New York City's Independent Budget Office collects and reports annual workforce data. Since hiring and layoffs in such a large municipal government take place gradually and are typically noncyclical (except perhaps for classroom teachers), we use linear interpolation to create monthly data.

The bottom three panels in Figure 1 show how these measures varied over the 310 months in our study, beginning in March 1984. The NYC economic misery index fluctuated widely, with several peaks and valleys, and ranged from a high of 12.82 in January 1993 (12.1% unemployment; 0.72% inflation) to a low of 3.86 in October 2006 (4.4% unemployment; −0.54% inflation). Monthly homicide incidents increased steadily from around 100 per month in 1984 to a peak of 214 in August 1991 and then declined steadily to about 35 per month in 2009.[9] Total city employees increased from a low of 208,536 in 1984 to 252,584 in 1990, declined to 235,069 in 1996, and then resumed their growth to 280,614 employees in 2009. Municipal employment at the end of our time series was 35% greater than in 1984.
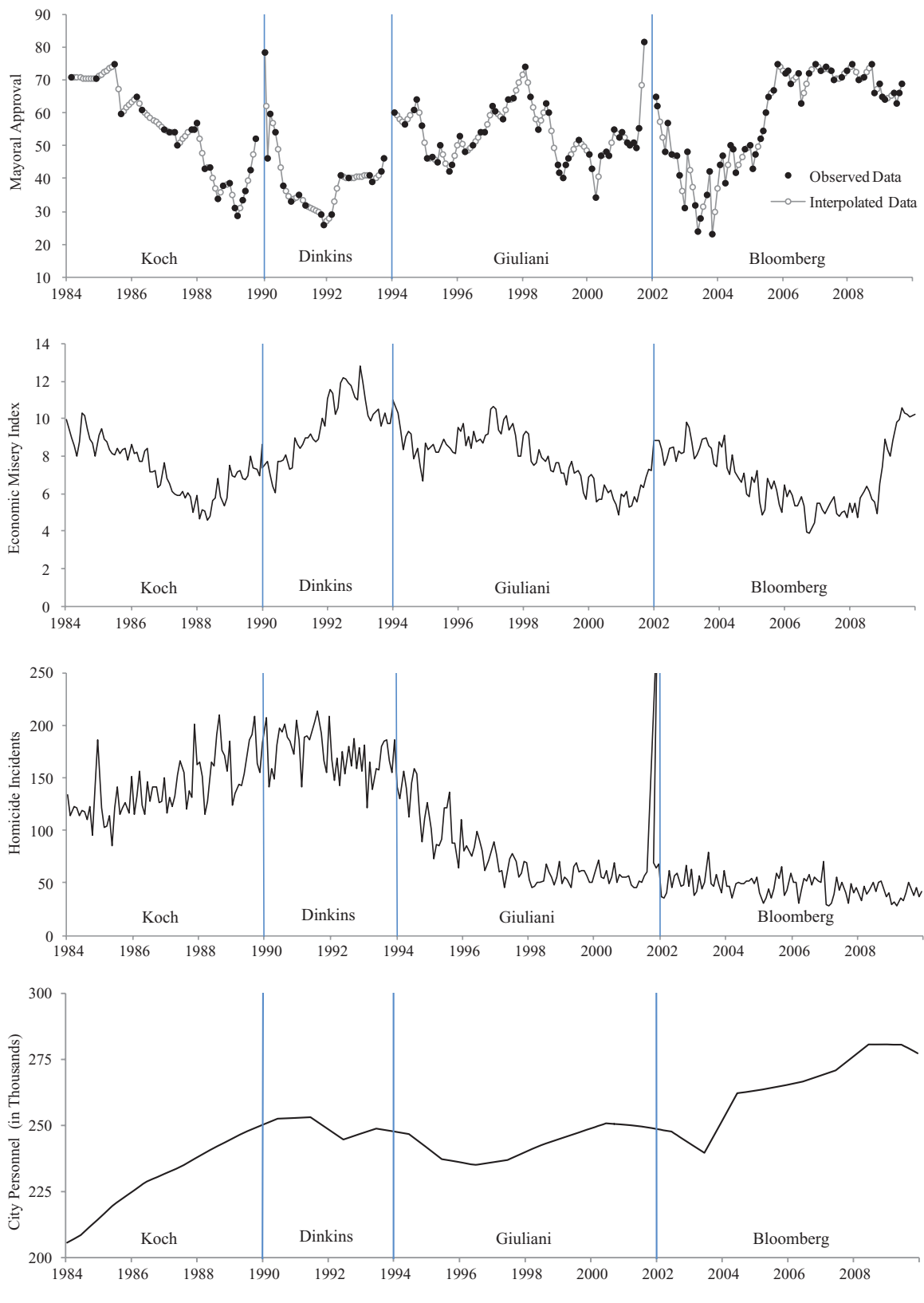
[6]The most frequent pollsters were Gallup for *New York Newsday*, the Marist Institute, the *New York Times* (sometimes with *CBS News* or *WCBS-TV*), and Quinnipiac University. Both Marist and Quinnipiac provide data on their websites. Some *New York Times* polls are available from ICPSR. We obtained other polls from news stories in *Newsday*, the *Times*, and other papers.

[7]These lows and highs are from April 1989 and July 1985; December 1991 and January 1990; April 2000 and October 2001; and November 2003 and (in the case of Bloomberg's high, achieved four times) November 2005, January 2007, March 2008, and November 2008.

[8]The FBI did not report New York homicides for 10 of our months. For these months, we estimated the mean proportion of annual homicides in that month for years with complete data and then assumed that the missing month had the same proportion of that year's total homicides.

[9]We ignore for now the all-time peak in September 2001, when the World Trade Center fell. The FBI recorded 305 homicide incidents that month in New York and 2,837 homicides. (A homicide incident is defined as a crime involving one or more homicides. Only a handful of the incidents in New York each year involve more than one homicide, and the two figures are usually nearly identical; September 2001 was a notable exception.) Although the peak in homicide incidents in September 2001 is depicted on the graph in Figure 1, the scale of the vertical axis is truncated at 250 to avoid obscuring the smaller variations between more typical months.

FIGURE 1 Mayoral Approval and Explanatory Variables, 1984–2009

In order to control for the possibility that election campaigns affect New Yorkers' evaluations of their mayors, we also created indicators for the months when mayors were running for re-election (from June until October of each election year, unless a mayor was defeated earlier than November) and for the months after unsuccessful re-election bids.

The end of Mayor Giuliani's term was so unusual that we omitted the last two months for which we have approval data (September and October 2001). Although the terrorist attacks against the World Trade Center on September 11 produced the largest monthly homicide count in New York's history (2,837), we would not expect local citizens to punish the mayor for this murderous attack. Instead, citizens treated Mayor Giuliani much as they treated President Bush, by driving both men's approval levels into the stratosphere. In August, Giuliani was moderately popular, with an approval rating of 55%. Two months later, he was not only "America's Mayor," but enjoyed a local approval rating of 82%. Although we think the presidential model of approval, with its "rally around the flag" effect (Mueller 1970, 1973), explains nicely Bush's and Giuliani's surges, we do not believe our understanding of urban politics would be advanced by incorporating such rare happenings into a general explanation for mayoral approval. The usual dynamics of mayoral accountability were not operating in the wake of the World Trade Center attacks; we therefore exclude these two cases from our analysis.

Methods

How should we measure the relationship between mayoral approval and our economic, crime, and city services variables? For reasons that are well documented in the literature on presidential approval, it is inappropriate to estimate a linear regression model relating approval in a given month to measures of the quality of city life in that month. As Beck (1991) notes, estimating this static model is tantamount to assuming that "approval instantaneously adjusts to new information, and that prior information is of no consequence" (58–59). Just as Americans do not make up their minds anew about the president each month based on his current job performance, New Yorkers do not observe the quality of urban life each month and make up their minds anew about the mayor. Using the previous month's approval rating as a control variable would solve some of the problems associated with the static model, but doing so is appropriate only if the

approval time series is stationary, that is, if approval does not generally trend in one direction over time. Unfortunately, standard tests suggest that our approval data are nonstationary.[10]

A third possibility, which we adopt here, is to estimate first-difference models, models that relate *changes* in approval (a time series that, in our case, is stationary)[11] to *changes* in the explanatory variables. If the mayor's current approval rating is a function of both the quality of city life and the mayor's previous approval rating, then as the quality of city life improves, mayoral approval should increase, and as life in New York City worsens, approval should decrease. To estimate this model, we difference each variable, that is, we subtract last month's approval rating from this month's approval rating to produce a variable *change in approval*, and then regress that on measures of *change in the economic misery index, change in the number of homicide incidents*, and *change in the number of city employees*, computed in the same fashion.

Because it is implausible that changes in the economy, crime, and city services instantaneously produce changes in approval, we lag our explanatory variables. It takes time for citizens to notice fluctuations in the quality of life and update their opinions of the mayor's performance. Unemployment and inflation rates are computed and released a month after actual economic changes occur and therefore have a one-month built-in lag. Although the media may report noteworthy homicides immediately, aggregate homicides are reported after a lag. Changes in city services may not be perceptible to citizens for several months. To allow time for these processes to play out, we regress current changes in approval on the second lag of changes in each explanatory variable. In doing so, we test the hypothesis that increases or decreases in approval one month are the product of changes in objective conditions two months ago (e.g., changes in crime in January are reported in February and register in approval in March).

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[10]Using the Augmented Dickey-Fuller (ADF) test, we could not reject the hypothesis that our approval time series was nonstationary during the tenures of three mayors (Koch, Giuliani, and Bloomberg) or for all four mayors together. This test is a low-power test, meaning that it may fail to reject the null hypothesis of nonstationarity even when the series is stationary, but the estimated p-values were not close to acceptable levels (0.68 for Koch; 0.85 for Giuliani; 0.53 for Bloomberg). Lacking evidence of stationarity, we treat these time series as nonstationary.

[11]When we repeated the ADF test with differenced approval, we were able to reject the hypothesis of nonstationarity for $p < 0.001$ for each individual mayor and for the entire sample.

TABLE 1 First-Difference Models Relating
Changes in Mayoral Approval to
Changes in Objective Conditions

	#1	#2
Δ Economic misery index (second lag)	−0.50	−0.70[+]
	(0.32)	(0.41)
Δ Homicide incidents (second lag)	−0.02[+]	−0.03[*]
	(0.01)	(0.02)
Δ City personnel, in 1000s (second lag)	0.14	0.57
	(0.39)	(0.50)
Re-election campaign (indicator)	1.33[+]	2.21[*]
	(0.75)	(0.94)
Mayor defeated (indicator)	5.62[*]	5.77[+]
	(2.65)	(2.96)
Intercept	−0.38	−0.46
	(0.25)	(0.33)
N	294	201
R^2	0.04	0.07
SE	3.71	4.13

[+]$p < 0.10$, [*]$p < 0.05$, [**]$p < 0.01$, two tailed.
Notes: Equation #1 was estimated using the full sample (1984–2009). Equation #2 was estimated without data from heavily interpolated years. It runs from 1987 to 2009, excluding 1988, 1991, 1992, and 1998.

Results

Table 1 displays the results for our basic model (labeled equation 1).[12] As expected, changes in mayoral approval were negatively associated with changes in crime. An increase of 20 homicide incidents (approximately one standard deviation) would reduce the mayor's approval by nearly half a percentage point. The largest one-month swing in the dataset—a 70-incident increase in homicides—would cost the mayor nearly 2 percentage points. Although most month-to-month swings in crime were modest, successive months of increasing homicides could seriously damage a mayor's standing with the public. Multiyear increases, like those that occurred from 1985 to 1992, could be devastating.

Changes in mayoral approval were also sensitive to changes in local economic conditions. The first equation shows that a 1 percentage point increase in the economic misery index would engender, with some delay, a nearly

significant ($p < 0.12$) half-point decrease in the mayor's approval rating. Although modest, these monthly shifts in approval could quickly add up. A mayor whose tenure included a serious local recession would suffer conspicuous drops in approval. During the early 1990s recession, for example, the local misery index increased 8 points, which, all else equal, would produce a 4-point drop in mayoral approval.

We did not find a significant relationship between changes in approval and changes in city personnel, although the coefficient was in the expected direction. We are not sure whether this reflects the crudeness of our measure or whether citizens are really immune to fluctuations in city services. We probably have greater confidence in our original hypothesis than we do in our ability to capture fluctuations in city services with annual observations of city employment.

We also find that mayors get a small boost in approval when they campaign for re-election. Perhaps this is because mayors' campaigns are better (or louder) than challengers' campaigns. Perhaps citizens find incumbents more appealing when they compare them to real-world challengers rather than to the more saintly alternatives they imagine outside of campaign season. Whatever the source, the cumulative results over a five-month campaign amount to a nearly 7-point boost in approval. The coefficient for our defeated mayor variable suggests that mayors who lose their bids for re-election enjoy large spikes in approval during their final months in office.[13] Perhaps mayoral critics, knowing that exit is near, stop their incessant criticism, and citizens—hearing a one-sided, mostly positive flow of messages—approve more strongly of a soon-to-be-departed mayor, as Zaller's (1992) model of opinion change would predict. Whatever the cause, incumbents enjoy an 11-point boost in approval in the two months after voters send them packing. Finally, since the dependent variable is change in approval, the negative intercept can be interpreted to mean that, on average, mayors experience a decrease in approval of almost half a percentage point each month, net of the other factors included in our model. As with presidents and governors, the longer mayors serve, the less citizens approve of their performance.[14]

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[12]We report results for 294 months, rather than 310 months, because we have no observations for two months at the beginning of mayoral terms and eight months at the end of mayoral terms, because we omitted two extreme outliers (September and October 2001), and because we cannot estimate changes in approval for each mayor's first observation (four cases).

[13]Data on presidential approval show similar spikes for two defeated presidents (Ford and Bush, but not Carter) and for the two presidents who declined to run again (Truman and Johnson).

[14]For Model 1, Breusch-Godfrey tests for first- through fourth-order serial correlation failed to reject the null hypothesis of no serial correlation. The Durbin-Watson test statistic was 1.79, however, suggesting that the residuals exhibited slight serial correlation (possibly because many observations were interpolated).

Some readers may share our concern that the dataset used to estimate the first equation contains lots of interpolated data on mayoral approval, particularly in the early years (see Figure 1). We are not bothered by estimating an occasional data point with linear interpolation.[15] As the number of missing data points grows, however, so, too, does our discomfort. In order to determine whether excessive interpolation affected our results, we eliminated all years in which we had interpolated more than half the data points. The new dataset, beginning in 1987 and running until 2009, drops four years (1988, 1991, 1992, and 1998) and reduces our cases from 294 to 201.

The second equation in Table 1 reestimates the basic model with the smaller but higher-quality dataset. The results largely support the original findings. The coefficient for homicides is slightly larger and remains significant. The coefficient for economic misery, which was large but just shy of statistical significance in Model 1, is larger and significant.[16] And the coefficient for city personnel, which was small and insignificant in the previous model, is larger and closer to being significant ($p < .25$). Together, these results suggest that our inability to observe mayoral approval ratings every month slightly obscured, but did not seriously distort, the relationships that we hypothesized.

In light of debates about the best way to operationalize economic variables in approval models (see Cohen and King 2004), we compared the results in Table 1 to models that used several alternative measures of economic change. One possibility is that citizens respond differentially to local unemployment and local inflation (the two components of our economic misery index). Another possibility is that citizens react more to national changes in the economy than to local changes. A third possibility is that it is the performance of the local economy relative to the national economy that matters. The six equations in Table 2 examine these alternative specifications, first with the full dataset and then with the higher-quality data. The first pair of equations (3 and 4), which includes changes in local unemployment, changes in local inflation, and the interaction between them, confirms that both unemployment and inflation matter, but that the two combined are much more dangerous for may-

ors than either inflation or unemployment alone.[17] The second pair of equations (5 and 6), which includes separate measures of economic performance at the local and national levels, demonstrates that local performance matters more than national performance. The third pair of equations (7 and 8) rejects the notion that citizens evaluate mayors by comparing local economic conditions with national conditions. Taken together, the results in Table 2 reinforce our notion that citizens reward and punish mayors for local economic conditions, not national conditions, and that the combined misery of inflation and unemployment matters more than either factor by itself.

We also tested a variety of alternative modeling approaches. We added mayor-specific indicators to our basic model to allow for the possibility that some mayors' approval ratings fell faster than others. They did not. We ran a model that included the two months after the 9/11 terrorist attacks (which we dropped in the original analysis) and an indicator for those months. The results were essentially the same. We added time-in-office variables to allow for the possibility that mayoral approval fell faster the longer mayors served in office. We switched from a first-difference specification to a more complex error-correction model to see whether the relationship between approval and our explanatory variables was more nuanced than we initially assumed. We used total city expenditures as an alternative measure of city services. Overall, we found nothing to change our sense that the basic model (equations 1 and 2) captures reality nicely.[18] (The online Supporting Information presents results for each of these auxiliary models.)

How Race Matters

The preceding analyses find strong evidence that New Yorkers hold mayors accountable for changes in local conditions. But does race also matter? Do black and white New Yorkers evaluate mayors differently? Do they

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[15]Linear interpolation has been widely studied in the fields of statistics, mathematics, and computer science and generally performs well (Meijering 2002).

[16]Other measures of model performance were also stronger: the Durbin-Watson test statistic was 1.99 (compared to 1.79 in the full sample), and Breusch-Godfrey tests for first- through fourth-order serial correlation again could not reject the null hypothesis of no serial correlation.

[17]Without the interaction term, the coefficients for changes in inflation and unemployment are somewhat larger, although still far from statistically significant.

[18]Early in the project, we also created an index of racial conflict—based on content analysis of the *New York Times*—that attempted to capture racial incidents that were somehow connected to the mayor, but we never found any relationship between that index and mayoral approval. No doubt the problem was with the index, which was too simplistic. A proper content analysis would require a separate paper. We also tested models that used city personnel in particular functional areas (education and police) but concluded that total personnel worked just as well.

TABLE 2 Approval Models Using Alternative Economic Variables

	#3	#4	#5	#6	#7	#8
Δ Unemployment (second lag)	−0.34	−0.36	–	–	–	–
	(0.52)	(0.71)				
Δ Inflation (second lag)	−0.40	−0.65	–	–	–	–
	(0.49)	(0.64)				
Δ Unemployment (second lag)	−1.86[+]	−2.35[+]	–	–	–	–
× Δ Inflation (second lag)	(1.08)	(1.39)				
Δ NYC economic misery index	–	–	−0.50	−0.66	−0.52	−0.88
(second lag)			(0.33)	(0.43)	(0.59)	(0.71)
Δ US economic misery index	–	–	−0.02	−0.22	–	–
(second lag)			(0.57)	(0.70)		
Δ NYC − Δ US economic misery	–	–	–	–	0.02	0.22
index (second lag)					(0.57)	(0.70)
Δ Homicide incidents	−0.02*	−0.04*	−0.02[+]	−0.03[+]	−0.02[+]	−0.03[+]
(second lag)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Δ City personnel in 1000s	0.10	0.56	0.14	0.59	0.14	0.59
(second lag)	(0.39)	(0.50)	(0.39)	(0.50)	(0.39)	(0.50)
Re-election campaign (indicator)	1.33[+]	2.20*	1.33[+]	2.19*	1.33[+]	2.19*
	(0.75)	(0.94)	(0.75)	(0.94)	(0.75)	(0.94)
Mayor defeated (indicator)	5.73*	5.89*	5.61*	5.67[+]	5.61*	5.67[+]
	(2.65)	(2.96)	(2.66)	(2.98)	(2.66)	(2.98)
Intercept	−0.30	−0.34	−0.37	−0.46	−0.38	−0.46
	(0.25)	(0.33)	(0.25)	(0.33)	(0.25)	(0.33)
N	294	201	294	201	294	201
R^2	0.05	0.09	0.04	0.08	0.04	0.07
SE	3.71	4.12	3.72	4.14	3.72	4.14

[+]$p < 0.10$, *$p < 0.05$, **$p < 0.01$, two tailed.
Notes: Odd-numbered equations were estimated using the full sample (1984–2009). Even-numbered equations were estimated without data from heavily interpolated years. They run from 1987 to 2009, excluding 1988, 1991, 1992, and 1998.

differ in how they respond to changes in local conditions? Given how central race has been in the study of both mayoral elections (Browning, Marshall, and Tabb 2003) and mayoral approval (Howell 2007), these questions deserve careful investigation with time-series data.

Most of our surveys recorded separate approval ratings for black and white New Yorkers.[19] The top panel of Figure 2 plots average approval among black and white respondents, computed in the same fashion as Figure 1; the bottom panel plots the absolute value of the gap between the two. There are important differences in how black and white New Yorkers evaluate mayors. White citizens consistently evaluated white mayors more positively than did black citizens; blacks consistently evaluated the one black mayor (Dinkins) more positively than
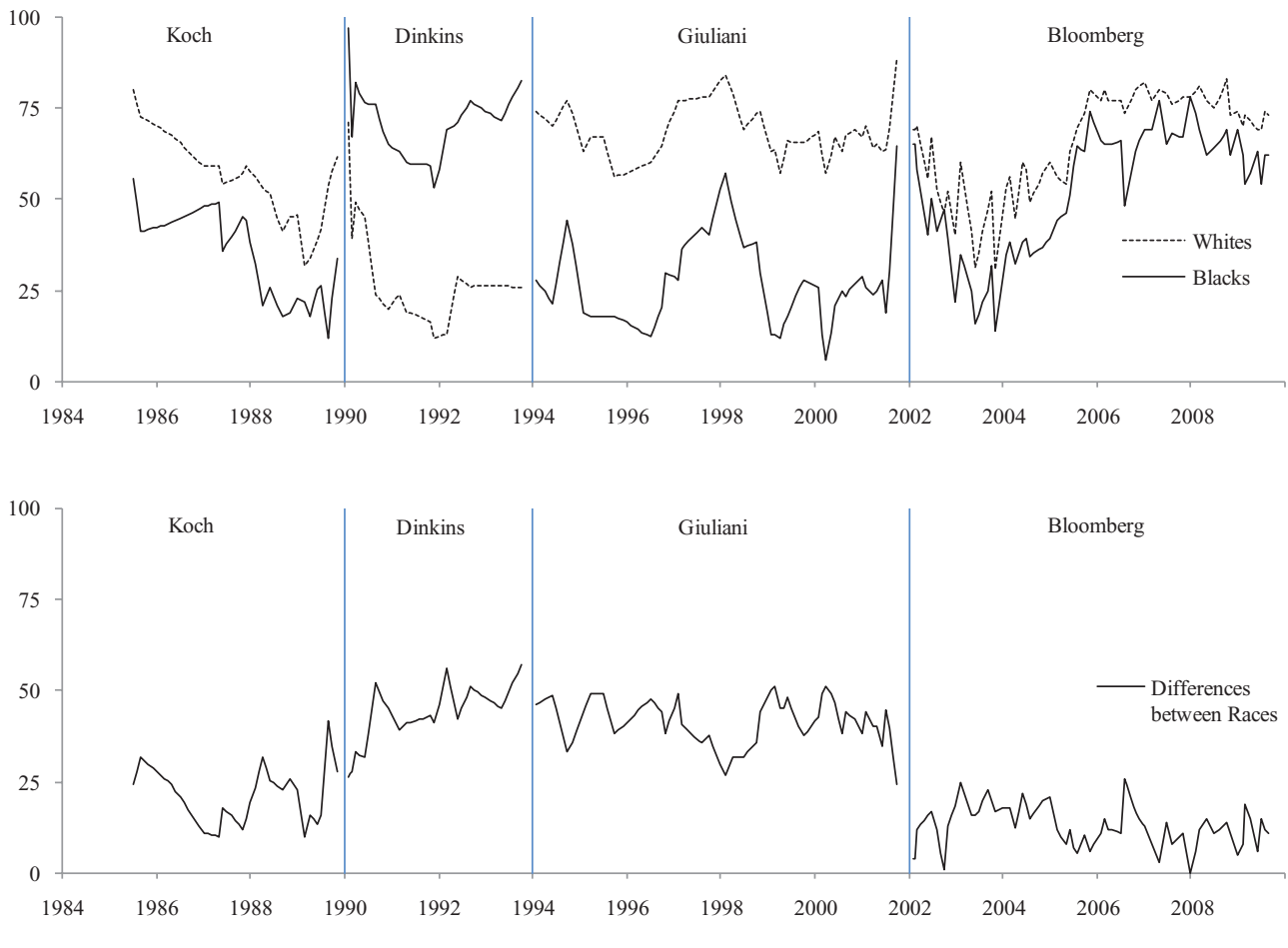
did whites.[20] Sometimes the racial gap was large (Giuliani and Dinkins), sometimes small (Bloomberg), and sometimes volatile (Koch). The racial gap ranged from 0 to 57 points.

Even when racial divisions existed, however, white and black New Yorkers responded similarly to changes in local conditions. The top panel in Figure 2 shows that approval ratings among blacks and whites moved in tandem, with increases and decreases occurring at the same time and in similar magnitudes. Regression analyses tell a similar story. Table 3 reports four models: two (9 and 10) that replicate our basic model for blacks and whites and two (11 and 12) that add a Dinkins indicator to allow for the possibility that approval changes for the city's only black mayor differed from changes for the others.

[19]Most samples were too small to estimate approval for other racial or ethnic groups.

[20]The dataset broken down by race runs from July 1985 to September 2009. We interpolated approval scores for 55% of these months, compared with 52% in the full dataset.

FIGURE 2 Mayoral Approval by Race (Top Panel) and Approval Differences between Races (Bottom Panel), 1984–2009

No important differences in how blacks and whites react to changes in the economy, crime, and services are evident. The coefficients for the Dinkins indicator, which were negative for whites and zero for blacks—suggesting that Dinkins lost more ground among whites than other mayors—were not significant in either model. The effects attributable to our explanatory variables were statistically indistinguishable across models; F-tests could not reject the hypothesis that coefficients for the misery index, the homicide rate, city personnel, and the Dinkins indicator were the same in each pair of equations.

Race affects how citizens evaluate mayors, but it does so in ways that are more complex than cross-sectional analyses would suggest. Most of the differences in how blacks and whites evaluate particular mayors were present in the initial polls. From day one, blacks were less enthusiastic about Koch and Giuliani than were whites, and whites were less enthusiastic about Dinkins than were blacks. From day one, blacks and whites viewed Bloomberg in similar ways. Once established, these differences persisted for a given mayor but often changed substantially when a new mayor took office. And blacks and whites held mayors responsible for changes in local conditions in roughly equal measure.

Discussion

Mayor Koch was fond of traveling throughout New York City asking everyone, "How'm I doing?"[21] Most people were not shy about letting him know. They praised him; they blamed him; they told him how the city was doing and how he was doing, often in the same breath. When pollsters came knocking, citizens registered their opinions using surveyors' categories of approval and disapproval.

[21] It was such a trademark that he wrote a book by that name (Koch 1981).

TABLE 3 **Mayoral Approval among White and Black New Yorkers**

	#9 (Whites)	#10 (Blacks)	#11 (Whites)	#12 (Blacks)
Δ Economic misery index (second lag)	−0.69*	−0.44	−0.68[+]	−0.44
	(0.35)	(0.39)	(0.35)	(0.40)
Δ Homicide incidents (second lag)	−0.03*	−0.03*	−0.03*	−0.03*
	(0.01)	(0.01)	(0.01)	(0.01)
Δ City personnel, in 1000s (second lag)	0.05	0.20	−0.06	0.19
	(0.43)	(0.49)	(0.44)	(0.50)
Re-election campaign (indicator)	1.52[+]	1.03	1.56[+]	1.03
	(0.83)	(0.95)	(0.83)	(0.95)
Mayor defeated (indicator)	5.11[+]	11.89**	4.98[+]	11.88**
	(2.82)	(3.21)	(2.81)	(3.22)
Dinkins (indicator)	–	–	−0.87	−0.03
			(0.66)	(0.75)
Intercept	−0.41	−0.35	−0.25	−0.35
	(0.27)	(0.30)	(0.29)	(0.34)
N	278	278	278	278
R^2	0.05	0.07	0.05	0.07
SE	3.95	4.50	3.94	4.51

[+]$p < 0.10$, *$p < 0.05$, **$p < 0.01$, two tailed.
Notes: Odd-numbered equations were estimated using changes in the approval rating among whites as the dependent variable; even-numbered equations were estimated using changes in approval among blacks. These race-specific approval data were available from July 1985 to September 2009.
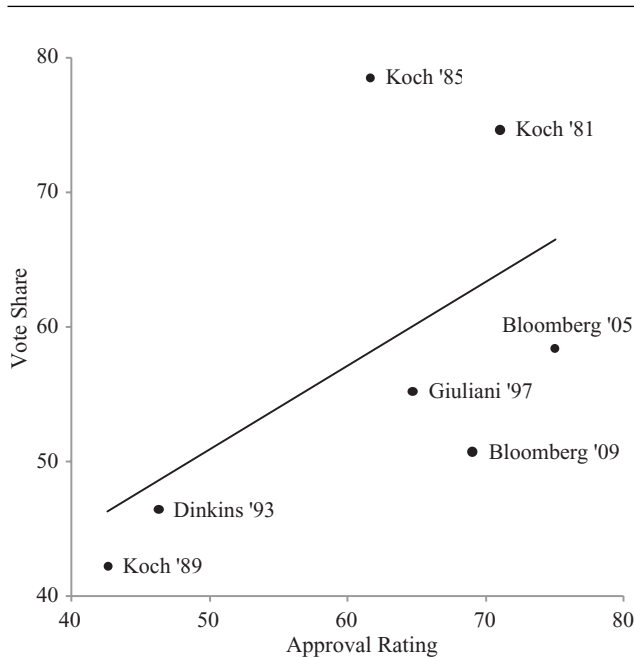
Approval ratings for Koch ranged from a high of 75% to a low of 29%. When the real polls opened, citizens cast their ballots. Their collective verdict ranged from two record-setting re-elections (1981, 1985) to a decisive defeat (1989).

This article has shown that changes in New York's crime rate and the local economy affect mayoral approval. We also find that (a) it is the condition of the local economy that matters, not the national economy; (b) both inflation and unemployment matter, but the two combined are particularly dangerous; and (c) both black and white New Yorkers react similarly to changes in crime and the economy. These findings provide the first evidence that the quality of urban life affects mayoral evaluations throughout the cycle of governing and campaigning. They also suggest that time-series analysis of approval ratings, the methodology central to our understanding of executives in other levels of government, holds enormous potential for understanding political accountability in urban settings.

The factors that shape mayoral approval also seem important at election time. How New Yorkers rate mayors *in* the polls is closely related to how they vote *at* the polls. When Mayor Koch enjoyed high approval (71%

in late 1981; 61% in late 1985), he was re-elected with ease (75% in 1981; 78% in 1985). When Koch's overall approval plummeted to 43% in 1989, his own party sent him packing with 42% of the primary vote. Although his successor, Mayor Dinkins, entered office with high approval, by the 1993 election, only 46% of New Yorkers approved of his performance; he lost to Giuliani, 46 to 49. When Mayor Giuliani ran for re-election in 1997 with an approval of 65%, he was re-elected with ease, 55 to 41. Mayor Bloomberg ran for re-election twice. His approval of 75% in late 2005 foretold his victory that year, 58 to 39. His approval of 69 in late 2009 forecast his second re-election victory, 51 to 46.

Figure 3 plots these mayors' vote margins against their pre-election approval ratings and includes the best-fit line from a simple linear regression. Over three decades, a 10-point drop in approval is associated with an average drop of 6.2 points in vote share. Although the relationship is not statistically significant, it comes surprisingly close for a sample of seven observations. Every incumbent New York mayor who had an approval rating of at least 50% won re-election; every mayor who earned the disapprobation of a majority of New Yorkers lost. Unpopular mayors—who, as we have shown,

FIGURE 3 **Mayoral Approval and Vote Share, 1981–2009**

Notes: The best-fit line above was estimated using simple linear regression. The intercept estimate was 19.79 (s.e. = 25.69, *t*-value = 0.77, p-value = 0.48), the coefficient for approval was estimated at 0.62 (s.e. = 0.41, *t*-value = 1.51, p-value = 0.19), the model R^2 was 0.31, and the standard error of the regression was 12.51.

oversee weak economies and increasing crime—are punished at the polls, whereas popular mayors enjoy comfortable margins of victory.

The portrait we have painted of New York mayors looks remarkably similar to the standard picture of American presidents. A presidential poll is largely an assessment of how well the incumbent is performing in office. We think the same is true for New York mayors. A presidential election is largely a referendum on how well the incumbent has performed in office. The same appears to be true for New York mayors. We are not surprised that citizens evaluate New York mayors and American presidents in similar ways. The national media portrays the president as the center of national policymaking, with little concern for the messy realities of checks and balances, bicameralism, or divided party control. Indeed, the president does everything to reinforce that image. The local media portrays New York's mayor as the center of local policymaking, with little concern for the roles of the city council, state legislature, or governor. The mayor does everything to reinforce that image.

Of course, New York is not a typical American city. One of its attractions for our research is that the basic conditions for executive accountability—elected positions with substantial powers, ambitious politicians who seek those positions, competitive elections among strong candidates, and an informative media environment—are all present. These conditions may not be so easily met in some other cities. First, cities differ in how much power mayors may exercise. Some cities have strong mayoral positions, others have weak mayors, and yet others have appointed city managers who serve with ceremonial mayors. Presumably, citizens are more likely to hold mayors accountable when they have the power to make a difference in city affairs. Second, cities differ in how competitive local elections are. Political monopolies can dominate urban politics—either in the form of machine or reform coalitions—and thus dampen competition (Trounstine 2008). When citizens have little control over who the mayor is, they may care little about holding the mayor accountable for the quality of city life. Third, cities differ in how they conduct local elections. Some cities conduct partisan elections, where citizens can choose among parties as well as candidates; others have nonpartisan elections, where candidates are not identified by party. Fourth, the richness of informational environments varies widely. In cities with few newspapers, television stations, and radio stations, it may be hard for citizens to learn about local conditions or what the mayor has been doing. It is an open question, then, as to how citizens evaluate mayors in other cities, especially cities with less powerful mayoralties, nonpartisan electoral systems, less competitive elections, or impoverished media environments. Where the conditions for executive accountability are favorable, however, we suspect that scholars will find evidence similar to what we have uncovered in New York.

Our data do not allow us to say much about the mechanisms that connect local conditions with citizens' evaluations of mayors. Perhaps citizens notice changes in neighborhood crime or the local economy and assign the mayor credit or blame. Perhaps they notice what mayors are doing to fight crime or stimulate the economy. Perhaps they react to media coverage of local crime or the economy. Perhaps citizens use information about life in the city to make prospective judgments about the future of crime and the economy. Whatever the mechanisms, our analysis supports the notion that citizens' evaluations of mayors are rooted in changing local conditions.

Urban scholars have long emphasized that city governments are constrained in their abilities to solve large economic and social problems (Peterson 1981). Unlike nations, cities cannot control their borders, redistribute income, or set their own macroeconomic policies. Although cities and mayors may be limited, citizens need not respect those limits. As we have shown, citizens

hold mayors accountable for weakening economies and rising crime, even if these conditions are beyond mayors' control. In short, citizens behave just as they do when they judge presidents, prime ministers, and governors—rewarding and punishing elected executives for things that matter to citizens. The electoral connection provides powerful incentives for mayors to do their best in tackling whatever problems occur on their watches, just as it does for elected executives around the world.

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Supporting Information

Additional Supporting Information may be found in the online version of this article:

- **Table A1:** Model Estimated with Mayoral Indicators
- **Table A2:** Model Estimated Using the Post-9/11 Observations (September to October, 2001) and an Indicator for Those Cases
- **Table A3:** Models Estimated with Time-in-Office Measures
- **Table A4:** Error-Correction Model
- **Table A5:** Model Estimated with Alternative Measure of City Service Provision

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