

Election Cycles and Police Levels

Constrained Politicians Respond to Inattentive Voters

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ABSTRACT: Do mayors increase police levels before elections? Do they keep them below optimal levels in nonelection years? In this paper, we examine the relationship between police strength and mayor election years for US cities, 1960-2010. We find an election cycle in police levels: mayors increase police in election years more than they do in nonelection years. We discuss several explanations, and suggest that voter inattention, combined with local budgetary constraints, may explain the cycle. The implications of the cycle may be substantively important, leading to suboptimal levels of public safety and thousands of violent deaths.

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The US stands out for its relatively high murder rates among developed nations, even after several decades of decline. The US has about 4.0 murders per 100,000 residents (per year) while, for instance, the United Kingdom and Germany have 0.9, France has 1.2, Italy has 0.8, and Japan has 0.3. Given these levels of violence, surveys over the last 50 years have, unsurprisingly, shown that the public generally desires more police (see SI section 1.2). This desire is apparently strongest among minority communities (Forman Jr 2017; Fortner 2015; Hahn and Feagin 1970; Kennedy 1997; Weitzer 1999), reflecting the government's failure to provide public safety, arguably the most important public good. In a 2015 Gallup survey, for instance, almost 40% of African Americans desired a greater police presence, while only 10% desired a smaller one (see SI section 1.2).

Evidence suggests that citizen may be justified in desiring additional public safety. Despite its much higher rate of violence, the US apparently maintains police force levels below those of many developed nations. Data from multiple sources suggest that the per capita officer rates in the US fall below the average for EU countries (see SI 1.1), though international police force comparisons are difficult (Maguire and Schulte-Murray 2001). The most recent study on US city police levels also finds that they remain below optimal levels (Chalfin and McCrary Forthcoming).¹

¹ Historical research has argued that the emergence of strong states gradually reduces violence to the comparatively low levels seen today in many countries (Pinker 2011). Consistent with the historical evidence, a slew of recent, mostly well-identified studies have found that increases in police per capita generally lower crime rates (Chalfin and McCrary 2017; Corman and Mocan 2000; Klick and Tabarrok 2005; Levitt 1997; Levitt 2002; Lin 2009; Marvell and

In this paper, we test for a telltale sign of underprovision of public safety: whether mayors increase police hiring (per capita) in election years more than in nonelection years—an election cycle in police levels. If they do, it suggests that voters desire greater public safety but that mayors neglect this desire in nonelection years, when voters are paying less attention. Of course, other explanations exist for such cycles, and we discuss possible explanations after presenting the main findings. A small earlier study (Levitt 1997) found an election cycle in police levels. We search for this pattern in a much larger data set: medium and large US cities between 1960 and 2010, and confirm the existence of an election cycle in police levels.

In an era of mass incarceration and media coverage of police brutality, readers may be justifiably skeptical that mayors are underproviding police. We stress that the inadequate police protections minorities receive reflect both the underprovision of public safety and an overprovision of low-level enforcement (Lacey and Soskice 2015; Miller 2008; Mummolo Forthcoming; Sullivan and O’Keeffe 2017), as reflected in minority distrust for the police combined with minority support for higher police levels (see SI section 1.2). As Jill Leovy writes, the justice system “hauls masses of black men through its machinery but fails to protect them from bodily injury and death. It is at once oppressive and inadequate” (2015). Lisa Miller (2015) calls this apparent paradox racialized state failure: the failure of the state to protect citizens from street crime combined with the failure to minimize the use of repressive state tactics.

Moody 1996; Mello 2017), and that police forces remain below optimal levels in US cities (Chalfin and McCrary Forthcoming).

DATA

We have assembled a dataset of mayoral elections in the US, focusing on 226 cities whose populations exceeded 100,000 between 1960 and 2010 (and did not fall below 50,000 after 1980). We collected the data from a variety of primary and secondary sources, including Ferreira and Gyourko (2009), ourcampaigns.com, city and county websites, and city clerks (see SI section 2). The median city has 12 elections, and over 90% of cities have at least 5 elections, for 2,712 total elections. For cities with spring elections (January-June), we lag police levels by one year because mayors presumably want to raise police levels before primary and general elections. Our estimates therefore capture the effect of primary and general elections on police levels. We exclude special elections and elections for which we could not determine the month. Election timing appears arbitrary and uncorrelated with key variables, often changing within city. Data on the number of sworn police officers come from two sources: the Law Enforcement Officers Killed or Assaulted (LEOKA) collection from the FBI's Uniform Crime Reporting (UCR) program and the Annual Survey of Government (ASG) from the Census Bureau. These measure the number of officers on October 31 (LEOKA) and October 12 (ASG), with some exceptions. Given the considerable measurement error in these data (Chalfin and McCrary Forthcoming), we take the average of the two measures, except for select years in which the ASG data are implausible (see SI section 2.3).

ELECTION CYCLES IN POLICE LEVELS

Do mayors underprovide public safety in nonelection years, primarily increasing its provision only in election years, when voters may be paying attention? An earlier study, using a sample of 59 large US cities from 1970-1992, reported as a secondary finding that police hiring increased by about 1% more in gubernatorial and mayoral election years than in non-election

years (Levitt 1997; McCrary 2002); see SI section 3.2 for details. To examine whether this finding holds in this much larger data set, table 1 presents the average percent change in sworn officers per capita in election years and nonelection years (log +1), the difference between them, and the standard error on the difference (robust, clustered at the city level). Each table row represents a separate least squares regression. The estimates show that mayors do appear to increase police forces in election years more than in nonelection years. In the full sample (8524 city years, row 1), police forces increase by 0.76 percentage points in nonelection years and 1.31 percentage points in election years—a highly statistically significant difference of 0.55. This cycle is smaller than Levitt’s original estimate of about 1 point, but still substantively important, as we discuss below. Row 2 replicates Levitt's estimate in his sample but with our data, finding a slightly larger difference (0.74).

For measurement reasons, we expect to find a stronger tendency to hire police in election years in cities with fall elections. We expect this because the measure of sworn officers comes from October. If police levels remained similar throughout the year, the month of measurement would not matter, but levels change monthly because of retirements, police academy graduations, and transfers, leading to large within-year changes (see SI section 3.3 for an example). Since agencies count sworn officers in October, we might expect to see larger police cycles in cities with elections held in or near the month of October, as mayors may time maximal police presence to the election month. Indeed, row 3 reveals that cities with early elections (January-June) increase their police by only 0.36 percentage points more in election years, but cities with late elections (July-December) increase them by 0.68 points (row 4), a statistically significant difference ($p=0.04$). Figure 1 presents these findings visually, showing the consistency of the finding, especially for cities with fall elections. If we could observe police

numbers in the spring, we would expect to see a similarly large police cycle in spring-election cities. Since fall elections likely provide a better estimate, we focus on these elections in the remaining rows of table 1. We also always include city and year fixed effects and controls.

The police cycle appears robust. Rows 5-7 show that it holds up to fixed effects for city and year, city and state-year fixed effects, and controls for population change and the change in overall crime rates in the previous year. Using these specifications, rows 8-9 show that the effect holds up when estimated using only the ASG sworn officer measure and only the UCR sworn officer measure. Our estimates also pass placebo tests, revealing no evidence that police levels rise disproportionately the year before or after the election (rows 10-11). Finally, in the SI (section 3.4), we show that the police cycle holds with median regression and with raw sworn officer counts (not per 100,000 residents).

To further assess the finding, we test for heterogeneous effects. Compared to cities with two-year terms, cities with four-year terms may exhibit stronger election-year cycles—their mayors get a longer break from voters. Indeed, rows 12-13 suggest a smaller election-year increase for mayors with two-year terms than for those with four-year terms (0.26 versus 0.97 percentage points, with $p=0.10$ on the difference). Next, incumbent mayors seeking reelection may be particularly likely to increase the police in election years. Rows 14-15 show that incumbent mayors appear to exhibit a slightly stronger cycle (0.92 versus 0.62), though the difference could result from chance ($p=0.25$ on the difference). The modest difference here may result from mayors having to decide on police increases before they decide on reelection (recruitment, screening, and academy training take about a year), and other actors, such as police chiefs and city councilmembers, may also desire election-year police increases. Rows 16-17

show that cities with a mayor-council form of government also exhibit a slightly stronger cycle (0.95 versus 0.74), though the difference could result from chance ($p=0.61$ on the difference).

We also searched for heterogeneous effects with city population and demographics, changes in crime, media market location, the incumbent mayor's party, on cycle versus off cycle elections, and the competitiveness of incumbent elections, finding only indications of heterogeneity when incumbents face close elections (see SI section 3.5).

We also examined whether the police cycle resulted from a more general cycle in city expenditures. Table 1's row 18 shows the estimate in the smaller sample for which we have expenditure data and finally row 19 controls for general expenditures (other than police). Despite evidence of an election cycle in general expenditures (not shown), controlling for these expenditures fails to change the estimate of the police cycle. For estimates of individual cities, which are imprecise, see SI section 3.6.

Levitt's original study also found a police hiring cycle for gubernatorial elections, but while this cycle replicates for his 59 cities in 1970-1992, it fails to hold outside of that sample (see SI section 3.2). We therefore fail to generally replicate the finding for governors.

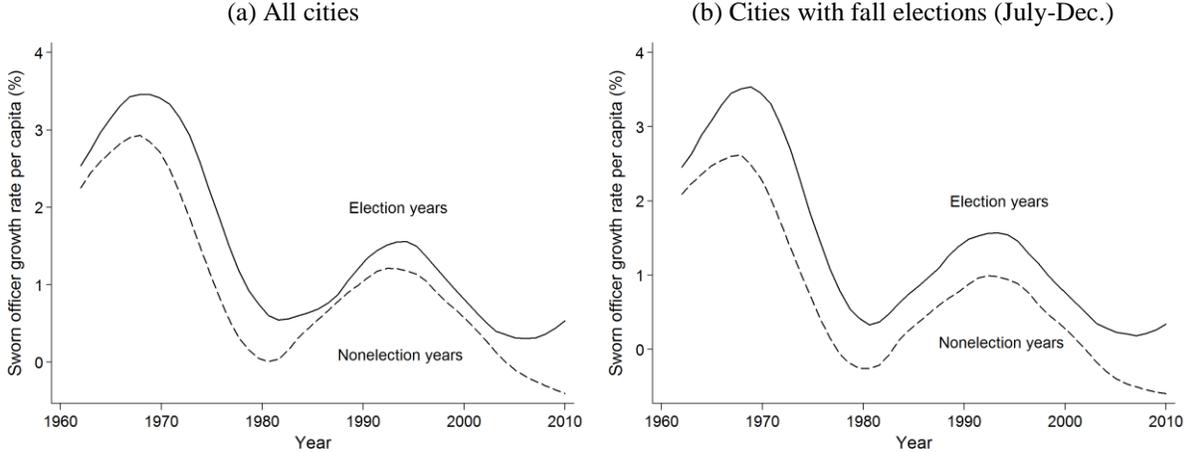
Finally, even in this much larger sample, we still fail to estimate the original Levitt instrumental-variables finding about the effect of police on crime with sufficient precision to draw inferences.

Table 1: Police Cycles, 226 Largest US Cities, 1960-2010

		Percent change in sworn officers/100K residents			
		Election	Nonelect		
		years	Years	Diff(SE)	R2 N
1	All	1.31	0.76	0.55(0.13)	0.00 8524
2	Original Levitt cases, 59 cities, 1970–1992	1.82	1.08	0.74(0.37)	0.00 1397
3	Jan-Jun elect	1.45	1.09	0.36(0.17)	0.00 3784
4	Jul-Dec elect	1.19	0.51	0.68(0.19)	0.00 4740
5	Jul-Dec elect, city & year fixed effects			0.82(0.21)	0.11 4740
6	Jul-Dec elect, city & state-year fixed effects			0.77(0.27)	0.42 4740
7	Jul-Dec elect, city & year fixed effects, controls			0.81(0.21)	0.12 4740
Robustness to police measure					
8	ASG sworn officer measure (specification from prev. estim.)			1.11(0.41)	0.07 3436
9	UCR sworn officer measure ...			0.72(0.20)	0.12 4740
Placebo					
10	Sworn officer t-1 ...			-0.05(0.18)	0.11 4632
11	Sworn officer t+1 ...			-0.28(0.20)	0.11 4693
Term length					
12	Two-term cities ...			0.26(0.32)	0.18 1183
13	Four-term cities ...			0.97(0.28)	0.12 3455
Incumbent running					
14	Mayor ran ...			0.92(0.23)	0.12 2933
15	Mayor did not run ...			0.62(0.29)	0.16 2387
Form of government					
16	Mayor-council...			0.97(0.33)	0.12 2853
17	Council-manager...			0.74(0.26)	0.16 1743
Controlling for general expenditures (other than police)					
18	Sample with expenditure data ...			0.77(0.23)	0.12 3534
19	Controlling for expenditures ...			0.76(0.24)	0.12 3534

Note: Each row presents a separate regression model showing the differences between police growth in election and non-election years. Robust standard errors clustered at the city level in parentheses. In rows 8-20, we subset on fall elections and include city and year fixed effects and controls. “Controls” refers to population growth and lagged crime growth. The expenditure measures are from the ASG. Please see the text for tests of statistically significant differences between rows.

Figure 1: Increasing Police in Election Years



Note: Local polynomial plots of the difference between police growth rates in non-election and election years, in a) all US cities and b) only cities with fall elections. The figures show the police forces grew more rapidly in election years, especially in cities where our sworn-officer measure, which is from the fall, corresponds with the timing of elections.

WHY THE CYCLE?

In the 1991 election, Frank Jordan, the Chief of Police, ran against the mayor of San Francisco, Mayor Art Agnos, criticizing him for understaffing his department. In Agnos' first three years, police force levels dropped or stagnated, but anticipating a tough reelection bid, Agnos increased its size by 3% in the election year. Jordan defeated Agnos, but inherited a \$300 million budget shortfall. Despite his intentions, Jordan followed his predecessor's pattern over the next four years: three years of decline followed by a large, one-year increase during a difficult reelection (see SI section 3.1).

Why do mayors increase police forces in election years? Definitively answering this question is difficult, but we think this San Francisco case illustrates a likely explanation.

Mayors may often desire to satisfy voters by increasing police, but face such severe budget constraints that they can often only do so in election years, when voters are paying the most attention. In nonelection years, by contrast, they are less likely to increase police levels.

City budgets face constraints arising from the inability of cities to run deficits and the threat of exit by businesses and the wealthy (Peterson 1981). Since crime also hastens exit, high crime cities typically have severely constrained budgets. Figures 2b and 2c show just how constrained high crime cities are, presenting the relationship between police levels and murder and the relationship between median family income and murder from 1992, when crime peaked in the US. The pattern is similar for other years. Figure 2a shows that police levels rise with the murder rate, but that rise slows markedly among the most violent cities, who can ill afford public safety, as figure 2b shows. Other countries may have more police in part because they fund their police nationally, and therefore do not face local constraints.² Besides revenue constraints, cities may also face pressure from a variety of interest groups, such as teacher unions, who advocate for city governments to spend on their issues (Anzia 2013), pressure that may be absent for police hiring, as police unions generally prefer higher wages, benefits, and overtime pay to hiring increases (Anzia and Moe 2014). Additionally, businesses that might otherwise advocate for increased police can procure security by forming Business Improvement Districts (Briffault 1999; Mitchell 2009). Given this political landscape, in nonelection years, mayors may spend on other priorities, thus allowing attrition and population growth to limit per capita police increases.

In election years, mayors may finally feel enough pressure to increase police. Voters pay more attention to election year news (Marshall 2016), and the content of news reporting during election season may focus on evaluating incumbent performance generally, and crime specifically. Increasing police in election years can help to allay voter concerns and deflect

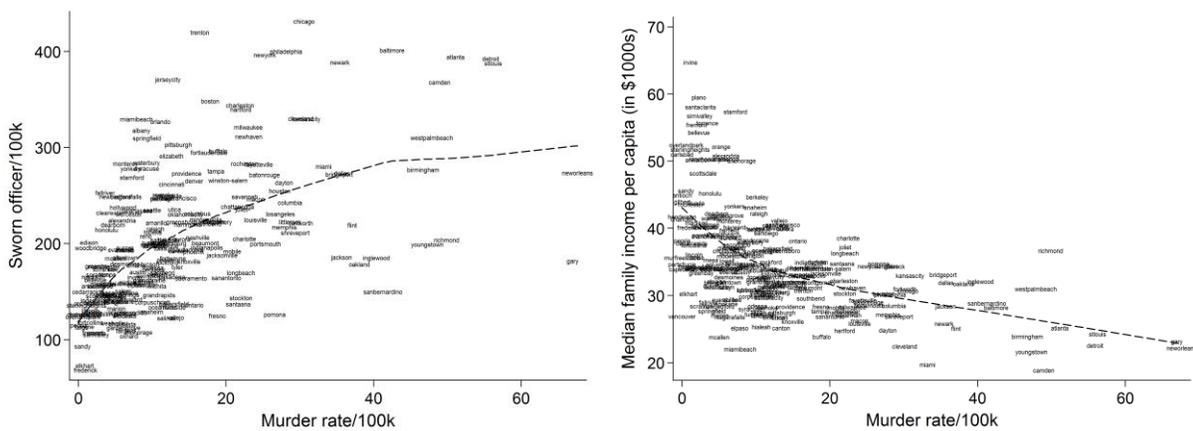
² Even when the federal government provides funding assistance, it sometimes does so indirectly through state institutions, in order to leave control in the hands of partisan allies, or to prevent usage by minority groups (Weaver 2007).

attacks by rivals. A few voters may ask why the incumbent left them underprotected until the election year, but incomplete information, the complexity of the budget process (Rogoff 1990), and a tendency to evaluate performance based on the end of a mayor’s term, rather than the whole term (Achen and Bartels 2016), create the conditions for voter myopia. Indeed, numerous studies have documented a tendency to substitute the end for the whole when retrospectively assessing one’s own personal experience or the performance of others (Kahneman, Wakker, and Sarin 1997; Redelmeier and Kahneman 1996; Varey and Kahneman 1992), a tendency that other primates also exhibit (Blanchard et al. 2014).

Figure 2: Underpolicing in the US and Resource Constraints

(a): US City Police and Murders Per Capita

(b): US City Police and Income Per Capita



Note: This figure presents evidence that high murder rate cities are likely underpoliced for 226 US cities in 1992. Panel (a) shows the relationship between murder rates and police levels for 226 US cities, and panel (b) shows murder rates and median family income (all per capita). It shows that cities with the highest murder rates tend to have the lowest median incomes and are least able to afford public safety. Sworn officer data comes from FBI Uniform Crime Reports in 1992 and includes local sworn officers only. Income per capita is from the 1990 census.

Of course, other explanations for the police cycle are possible. Although police unions appear not to prioritize police numbers (Anzia and Moe 2014), other interest groups may lobby for increased police especially in election years, when mayors may feel more pressure to

acquiesce to them, lest they lose their endorsement. Indeed, Miller (2008) finds that community-based groups often focus their efforts on policing and crime. State legislatures or the federal government may provide extra funding to municipalities to increase their police force (or expenditures more generally) when mayors are up for reelection. They might do so because mayors and other interest groups increase their lobbying at the state or federal level, or because other levels of government share the same partisanship and attempt to aid the mayor's reelection.

HOW MANY MORE POLICE? HOW MANY MORE LIVES SAVED?

The police cycle's effect on overall police levels and murder rates may be substantively important. To explore its possible impact, we conduct simulations on the 98 cities for which we have data back to the early 1960s, and focus on murders. Together, these cities employed 150 sworn officers per hundred thousand in 1960. They also suffered 305,000 murders between 1960 and 2010—about one third of the nearly 900,000 total murders in the US during this period. To examine the effect of various police levels on murders, we use Chalfin and McCrary's (Forthcoming, Table 6) -0.67 estimate of the effect of police on the murder rate (elasticity). Although this estimate is consistent with a large number of recent studies (see footnote 1), uncertainty remains about the effect of police on murder rates, and these effects may vary greatly depending on tactics.

Scenario 1: Every year is an election year. Mayors could have increased police in every year at the same rate they did in the election year. Of course, this is only one of many ways mayors could respond to a longer break from voters, and assumes that mayors face much less constraints on raising revenue than they likely do. To conduct this simulation, we add the election-year difference in police growth (0.81 from table 1, row 7) to the police growth that actually occurred in cities in nonelection years, calculate the rise in police, and simulate the

number of murders in each city in each year. In this scenario, police levels reach 380 police officers per hundred thousand individuals by 2010, substantially larger than the current 260. In this scenario, we estimate 13% fewer murders would have occurred, saving almost 40,000 lives in these 98 cities.

Scenario 2: Gains realized at beginning of election cycle. Given city funding constraints, a more realistic non-myopic scenario is that mayors shift the election-year increase in police to the first year of their term—providing constituents with greater protection throughout their term, not just at the end. This strategy may still cost additional funds to maintain higher police levels, but nothing like the first scenario. Of course, this scenario does not overall increase the number of police, but could still affect the total number of murders. To simulate this, we swap the election year police force growth rate with the first year of mayors' terms. We find that doing so would reduce murders by about 1.7%, all else being equal, saving 4,000 lives in the 98 cities, and, applied nationally, about 15,000 lives.

Scenario 3: No constraints. If cities lacked local constraints on funding (as nationally funding countries do) and voters were willing to pay for public safety for everyone, police forces may have rapidly grown to the levels of some European countries of, say, an average of 400 police officers per capita by, say, 1965. While extreme, some cities have rapidly raised and maintained high police levels, such as Washington, DC after the 1968 riots (see SI section 2.4). If they had, the murder rate could have quickly fallen, all else being equal, by more than 60%, saving almost 200,000 lives in these 98 cities.

CONCLUSION

Despite its comparatively high violence rate, police levels in US cities remain arguably low. Procuring the funds to increase public safety generally requires local officials to increase taxes,

reduce other municipal services, or procure grants from state and federal agencies. Mayors appear more likely to do this in election years—potentially because voters are more attentive. Lack of responsiveness in non-election years may leave police forces below optimal levels. Of course, other factors likely contribute to an underprovision of public safety in the US, including systematic unresponsiveness to the preferences of vulnerable groups in society, especially people of color and/or low socioeconomic status. This lack of responsiveness may stem in part from disproportionate sway of homeowners in local government, who can segregate and protect their own neighborhoods through zoning, rather than provide effective public safety for everyone (Hajnal and Trounstein 2005; Lacey and Soskice 2015; Trounstein 2016). Low public safety levels could also result from a general distrust of governmental authority (Lipset 1997). Policing that suppresses crime through harassment and mass incarceration imposes tremendous costs on society (Clear 2009; Lerman and Weaver 2014). If police reduce crime through deterrence (Owens 2013), however, then increased police hiring can reduce incarceration rates as well.

Our results are consistent with studies that have found election cycles in other aspects of criminal justice (Berdejó and Yuchtman 2013 ; Brooks and Raphael 2002; Dyke 2007; Huber and Gordon 2004; Shepherd 2009) and in policymaking more generally, including Italian city taxation rates (Alesina and Paradisi 2017), Senate appropriations (Shepsle et al. 2009), expenditures in developing countries (Schuknecht 2000; Shi and Svensson 2006), expenditures in new democracies (Brender and Drazen 2005), and even in police hiring in Germany (Tepe and Vanhuyse 2013). They also provide an explanation for why voters may fail to reward or punish incumbents for changes in crime (Hopkins and Pettingill 2017).

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