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Is there an electorally-motivated crime rate cycle? Evidence from Argentina.

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Abstract

In the last three decades Argentina tripled its crime rate boosting safety at the top of mayor concerns of Argentinians which leaves open the question about the behavior of incumbent governors of the 24 districts about anti-crime measures in the proximity of elections. How do incumbent governors react to escalating crime as elections approach? Do they carry out short-run actions in the proximity of elections, to increase their chances of remaining in office? This paper investigates the existence of electorally-induced crime rate fluctuations in Argentine subnational districts. I estimate a dynamic panel data that spans all 24 Argentine districts for 24 years. I cover 142 gubernatorial elections from 1983 to 2007. I documented the existence of a V shape relationship between crime and the gubernatorial electoral calendar.

1. Motivation

Despite turbulent politics during most of the second half of the twentieth century, Argentina took pride in its relative safety compared with other emergent as well as developed countries. However, in the 1980s, the crime rate started an unequivocal upward trend that became steeper in the 1990s and definitively worrisome at the turn of the century, when the crime rates made historical records. In less than two decades, from 1983 to 2002, Argentina's crime rate tripled. Since then, the increasing consensus of the media and opinion surveys throughout the country is that crime is foremost in voters' consideration, which clearly relates the security policy to the electoral cycle.

How do incumbents react to escalating crime as elections approach? They know that failing to reduce crime could jeopardize their possibility to remain in office. One of the main conclusions of the empirical literature on political budget cycles in Argentina and elsewhere is that incumbents behave opportunistically, increasing public expenditure and changing its composition to retain power (Drazen and Eslava, 2010; Eslava, 2006; Jones *et al.*, 2012; Meloni, 2016). Do incumbents also behave opportunistically in safety matters, carrying out short-run measures to reduce crime? Do they reinforce anti-crime measures, particularly in the proximity of elections, to increase their chances of remaining in office? This paper investigates the existence of electorally induced crime rate fluctuations in Argentine subnational districts. I estimate dynamic panel data that span all 24 Argentine districts for 24 years. I cover 142 gubernatorial elections from the recovery of democracy, in 1983, to 2007, which is the last year for which the national agency published comprehensive data on crime. I document for the first time the existence of a V-shaped relationship between crime and the gubernatorial electoral calendar. The total crime rate and its main component, property crime, diminish in election years but recuperate in the following year. In contrast, the V pattern is not verified for homicides: in election years murders decrease but do not recover next year. I provide compelling robust parametric support for these patterns.

The rest of the paper is organized as follows. The next section presents theoretical as well as empirical literature linking the political budget cycle and crime. Section 3 briefly considers criminal behavior in Argentina. Section 4 describes the empirical investigation, and Section 5 discusses the results. Finally, Section 6 concludes.

2. Crime rate and elections

The political budget cycle (hereafter PBC) literature is conclusive about the behavior of incumbents leading up to elections. Theoretical models (Persson and Tabellini, 2000; Rogoff and Siebert, 1988) as well as copious empirical discussions find that incumbents engage in opportunistic pre-election profligacy and changes in expenditure composition to influence voters and maximize their chances of remaining in office. In a setting of rational voters, this opportunistic behavior is explained by various circumstances, such as different degrees of voter awareness, voters' costs to process information, low-transparency fiscal policy, or incentives from rules governing the distribution of resources and spending between the central government and the subnational districts in a federation. Both cross-country studies (Brender and Drazen, 2005) and subnational-level panel data (Galli and Rossi, 2002; Petry *et al.*, 1999) support PBCs. Still, the literature on PBCs hardly explains how expenditure influences voters. It is implicitly assumed that incumbents invest resources in goods and services that are highly valued by constituencies in the proximity of elections. Nevertheless, incumbents may also attempt to achieve their goal of remaining in office by affecting some critical variables, like the crime rate, in the short run, for example by moving officers temporarily from 'behind desks' to foot patrols or by displacing policemen to neighborhoods

and shopping centers where crime is more attractive. Henceforth, if the crime rate is among top voters' worries and incumbents try to influence it in the short run, then a crime rate cycle should be observed.

Notice that such crime prevention efforts do not aim to alter the roots of crime; they are just intended to reduce crime in the short term. The offenders who are deflected simply shift to other targets or places. Most of the so-called desk officers usually perform important investigative and support functions. When they are put on the street, the police department affects the short-run crime rate but diminishes its ability to solve crimes such as murder, robbery, rape, and assault in the long run. Di Tella and Schargrodsky (2004) show that the tendency of policymakers to address the public pressure for more protection from crime by deploying more visible police officers on the streets could imply counterproductive police reallocations.

Despite these reasonable considerations about the behavior of incumbents as elections approach, investigations linking elections and crime are still scarce and focus mainly on the behavior of elected judges facing polls.[1] Dyke (2007) presents evidence on the effects of district attorney elections in North Carolina on criminal case outcomes. He finds that defendants face a higher probability of conviction and a lower probability of having all their charges dismissed in an election year. The results suggest that in election years district attorneys are more likely to prosecute cases that might otherwise be dismissed. The estimated effects are more striking for defendants charged with property or drug crimes than for defendants charged with violent crimes and more pronounced in districts with more electoral competition. Similarly, Berdejó and Yuchtman (2013) show that Washington State judges respond to political pressure by sentencing serious crimes more severely. They find that sentences are around 10% longer at the end of a judge's political cycle than at the beginning; deviations above the sentencing guidelines increase by 50% across the electoral cycle. That is, the two papers agree that elections influence judiciary behavior.

Ghosh (2006) is the nearest reference of this study. He uses annual data on the major Indian states to investigate the effect of the timing of elections on the crime rate. He finds that scheduled elections are associated with a fall in both property crime and violent crime.

3. The evolution of crime in Argentina

Argentina is constitutionally organized as a federal republic with 23 provinces and an autonomous federal district, the city of Buenos Aires. In 1983 Argentina could proudly show its return to democracy after several years of a military regime and one of the lowest crime rates in America, just 1167 offenses per 100,000 inhabitants. The crime rate climbed steadily from the beginning of the decade: by the end of the 1980s, it had grown by 74%. A sharp descent in the early 1990s could not be sustained, and crime initiated a new impetuous upward trend. In 2002, amid the greatest crisis in the nation's existence, the crime rate reached 3573 offenses per 100,000 inhabitants, its highest level in history. Victimization surveys conducted by the Universidad Torcuato Di Tella in the most populated cities of Argentina showed that one-third of the households suffered from crime in 2007.[2]

As the number of offenses hiked and violent crime soared, seemingly beyond police control, the population organized massive protests demanding safety and a deeper investigation into many unresolved murders. The paradigmatic cases of María Soledad Morales in the province of Catamarca (1990), Walter Bulacio in the City of Buenos Aires (1991), Omar Carrasco in Neuquén (1994), and José Luis Cabezas in Buenos Aires (1997), to cite a few, generated

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[1] Another paper relating the electoral cycle and crime is by Levitt (1997), but his focus is completely different. He uses electoral cycles in police hiring to estimate the effect of police on crime.

[2] Victimization surveys ask people whether they have been a victim of crime.

huge popular demonstrations that took the issue of safety to the media and alerted politicians about their importance for election results. In 2004, after the murder of Axel Blumberg, more than 100,000 people marched in the city of Buenos Aires demanding criminal justice reform[3].

The vigorous growth in crime convinced Argentineans that their country had become much more dangerous; nonetheless, the data present high variability across districts: those with the fastest crime rate expansion during the period under study were the City of Buenos Aires (with an average annual growth rate of 8.2%), San Luis (7.5%), and Santa Cruz (6.6%). The provinces of Chubut and Buenos Aires also experienced significant increases in their annual average crime rates, exceeding 5%. Conversely, Chaco and Santiago del Estero had the lowest annual rate of growth, 0.6% in both provinces (see Table 1). In most of the districts, property crimes (robbery, burglary, and larceny) represented more than 50% of the total felonies.

Table 1. **Evolution of the Total Crime Rate in Argentina.**

Districts	Offenses per 100,000 inhabitants		Annual Growth rate 1983-2007 (%)
	1983	2007	
Buenos Aires	452.8	1646.8	5.5
Catamarca	1654.8	4920.6	4.6
Chaco	2217.4	2552.0	0.6
Chubut	757.6	3454.3	6.5
Córdoba	1927.5	4157.2	3.3
Corrientes	1137.0	2405.9	3.2
Entre Ríos	925.0	2186.0	3.6
Formosa	1062.7	2106.3	2.9
Jujuy	2158.4	3441.2	2.0
La Pampa	1218.7	2890.0	3.7
La Rioja	1059.9	1885.4	2.4
Mendoza	1988.8	6075.0	4.8
Misiones	735.3	1921.9	4.1
Neuquén	2019.7	5849.0	4.5
Río Negro	1673.7	2992.9	2.5
Salta	2860.2	4648.7	2.0
San Juan	1802.7	3771.7	3.1
San Luis	442.8	2509.1	7.5
Santa Cruz	1160.0	5399.4	6.6
Santa Fe	1929.1	3833.0	2.9
Santiago del Estero	1902.5	2177.1	0.6
Tierra del Fuego	1184.3	3555.0	4.7

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[3] Axel Blumberg was the most prominent victim of a wave of extortive kidnappings that hit Argentina in the lapse 2002-2004. Axel was the only son of Juan Carlos Blumberg, a businessman that leaded massive demonstrations asking government to be tough on crime.

Tucumán	1649.3	2551.2	1.8
City of Buenos Aires	1220.5	8145.2	8.2
Country Average	**1167.0**	**3095.4**	**4.1**

4. Empirical specification

I estimate the effect of the electoral calendar on crime by merging the standard political budget cycle equation (Brender and Drazen, 2005) with the typical supply of offenses (Cerro and Meloni, 1999):

$$\text{CRIME}_{it} = \alpha_0 + \alpha_1 \text{CRIME}_{it-1} + \alpha_2 \text{ELECTION}_{it} + \alpha_3 \text{POST-ELECTION}_{it}\ Z_{it} + X_{it} + \varepsilon_{it}\ \ (1)$$

The dependent variable CRIME is measured as the number of offenses per 100,000 inhabitants in a given district i and year t. I work with three dependent variables corresponding to the following categories of felonies: property crime, homicides, and total crime. All three dependent variables are expressed in logarithms. The homicide rate encompasses non-negligent manslaughter. Federal felonies, like drug trafficking, counterfeiting, and smuggling, are excluded.

A distinctive feature of the empirical literature on political budget cycles is the inclusion of a dummy variable (ELECTION) that takes the value **1** if the gubernatorial election is carried out during year t, and **0** otherwise. A negative sign is expected. I consider t to be an election year if the voting ballot was carried out between May and December. I also add a POST-ELECTION dummy coded 1 in the years following the gubernatorial elections and 0 otherwise. Both dummies attempt to capture the idea that the crime rate diminishes in election years but recovers in non-election years. Gubernatorial elections have taken place regularly every four years since 1983 in most of the districts. Governors have the authority to change electoral dates. However, election dates are barely moved more than six months and usually restricted to the year when the election was originally scheduled by law or constitutional arrangements, thus ameliorating the potential endogeneity of elections, a common problem in political budget cycle studies. This study covers six of the nine gubernatorial elections carried out in Argentina since democracy was recovered. I exclude the 1983 election because I could not identify an incumbent in that election: it was the first election after almost eight years of dictatorship and there was no party allied with the military regime. The ballots of 2011 and 2015 are excluded because the Government of President Cristina Fernández stopped reporting criminal statistics from 2008.[4]

Vector Z includes the level and the rate of growth of the variable *Condemnatory Sentences* to capture the deterrence effect of the probability of conviction. *Condemnatory Sentences* is calculated as the ratio of total condemnatory sentences to total reported offenses. This variable is only available for total crimes.

Vector X contains political and economic controls. I include four variables to control for an environment prone to crime: the level and the rate of growth of the *rate of unemployment* and the level and the rate of growth of the *GDP per capita*. I expect them to be positively associated with crime, except for the rate of growth of the GDP per capita. On one hand, earning opportunities in the labor market influence the allocation of time and effort between legal and illegal activities; therefore, higher rates of unemployment are expected to increase

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[4] After failing to manipulate the official data on crime, President Fernandez decided to stop reporting nationwide crime rate statistics.

the number of illegal activities due to the lower rates of return of legal activities (Cerro and Meloni, 2000).[5] I also include the rate of growth of unemployment to take into account the effect on crime of the huge variations in the unemployment rate prevailing in Argentina throughout most of the period under study. On the other hand, per capita income is used to measure potential returns from legal earnings, so an increase in income may lead to an increase in crime. Provinces with a higher GDP per capita are expected to be more attractive for criminals, since they entail greater opportunities. The rate of growth of the GDP per capita is included to capture the pure income effect. If criminal activity were an inferior good, the pure income effect would be negative.

As described in Section 3, my sample period is characterized by a strong upward trend in crime, so I add a linear time trend to each province to capture that effect. I also incorporate *Federal Administration* into the set of explanatory variables. This is a dummy variable that takes the value one if the central government administers a given district directly and zero otherwise. The Argentine Constitution allows the federal government to take control of a province in certain extreme cases of social commotion. Upon federal intervention, one or more branches of the provincial government are dissolved, and the federal government appoints a new authority (called the *interventor*), which serves for a short term until order is reestablished. We expect the *interventor* to diminish the crime rate. In the period 1983–2007, there were six episodes of federal intervention, two of them in the Province of Corrientes in the years 1992–1993 and 2000–2001 and the others in the provinces of Catamarca (1991), Tucumán (1991), and Santiago del Estero (1994). Table 1 presents the descriptive statistics of the data set.

Table 2. **Descriptive Statistics**.

Variable	Obs.	Mean	Std. Dev.	Min	Max
Dependent Variables					
Total Crime Rate (per 100,000 inhabitants)	576	2681.3	1361.8	485.4	8145.2
Property Crime Rate (per 100,000 inhabitants)	576	1780.7	923.1	217.9	4978.0
Homicides (per 100,000 inhabitants)	576	7.8	7.7	0	62.0
Explanatory Variables					
Condemnatory Sentences (per 100 crimes)	576	2.6	2.2	0	14.5
Rate of growth of Condemnatory Sentences (%)	576	-0.05	0.4	-1.9	1.4
Election (dummy)	576	0.2413	0.4283	0	1
Post-Election (dummy)	576	0.2118	0.4089	0	1
Rate of Unemployment (%)	576	9.5	4.7	1.0	25.5
GDP per capita (pesos of 2004)	576	385.4	272.6	93.9	1811.2
Rate of growth GDP per capita (%)	576	1.3	9.9	-44.8	43.6

[5] Theoretically, variations in the crime rate may have an impact on the unemployment rate, but this is likely to occur in analyses based on city-level rather than state-level data.

Federal Administration (dummy)	576	0.05	0.2	0	1

Focusing on the subnational districts of Argentina has several advantages, like mitigating some of the concerns regarding the institutional heterogeneity and data comparability present in cross-country studies. Standards for crime measurement in Argentina are held at the federal level, making the data homogeneous.

My empirical specification includes the lagged dependent variable to handle the inertia of the crime rate and the asymmetric response of crime to economic opportunities and deterrence reported by Mocan and Bali (2010). They find that the increases in the crime rate are sharp but the decreases are gradual. The econometric estimations of equation (1) are displayed in Table 3. To avoid estimating inconsistent coefficients due to a likely correlation between unobserved panel-level effects with the lagged dependent variable, I use the one-step Arellano–Bond technique. As a robustness check, I also estimate equation (1) by OLS with fixed effects. The results of this alternative technique, which differ slightly from those in Table 3, are shown in the Appendix.

Table 3. **Dynamic Panel data Estimations**.

Period: 1984 -2007   Provinces: 24

Explanatory Variables	Dependent variables (in Logs)		
	Total Crime	**Property Crime**	**Homicides**
Log Total Crime Rate (t-1)	0.792*** (0.0461)		
Log Property Crime Rate (t-1)		0.857*** (0.0946)	
Log Property Crime Rate (t-2)		-0.211** (0.0904)	
Log Homicides (t-1)			0.314*** (0.0902)
Election	-0.0406** (0.0173)	-0.0277* (0.0162)	-0.0819*** (0.0310)
Post-election	0.0472** (0.0198)	0.0459*** (0.0126)	-0.00901 (0.0543)
Condemnatory Sentences (level)	-0.1257*** (0.0247)		
Condemnatory Sentences (rate of growth)	-0.1284*** (0.0397)		
Rate of Unemployment (level)	0.00226 (0.00171)	0.00512** (0.00219)	0.0303*** (0.00905)
Rate of Unemployment (rate of growth)	0.0826*** (0.0218)	0.0821*** (0.0263)	0.0880 (0.0779)
GDP per capita (level)	0.000113 (7.51e-05)	0.000171** (7.43e-05)	0.000512 (0.000440)
GDP per capita (rate of growth)	-0.228* (0.139)	-0.385** (0.155)	0.114 (0.327)
Federal Administration	-0.112	-0.104*	-0.242

	(0.0721)	(0.0610)	(0.198)
Trend	0.00724***	0.0108***	-0.0291***
	(0.00270)	(0.00206)	(0.00592)
Constant	1.496***	2.371***	1.145***
	(0.328)	(0.226)	(0.241)
Sargan test	0.2812	0.2637	0.7529
Test that average autocovariance in residuals of order 1 is 0. Pr>z=	0.0003	0.0007	0.0009
Test that average autocovariance in residuals of order 1 is 0. Pr>z=	0.9153	0.5511	0.1387
Observations	576	576	564

Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

5. Discussion of the results

I find evidence of an electorally motivated crime rate cycle. My key variables, *Election and Post-election*, are statistically significant at usual levels in the models with *Total Crime* and *Property Crimes* as dependent variables, indicating that incumbent governors affect the crime rate in the short run. The total crime rate and property crime diminish in election years, while they jump upwards in the year after an election. That is, I document the existence of V-shaped behavior in the crime rate in election years. The question of which instruments incumbents manipulate to affect crime in election years remains unclear. Obvious candidates are crime prevention measures with short-run effects, like the already-mentioned transferring of police officers from desks to foot patrols and the coverage of critical areas reported in "crime maps" at the cost of other localities. Other explanations put forth in PBC studies, like increases in expenditures, are less plausible in this case, since expansions in the police force and equipment are expected to have long-lasting effects on crime, which are not validated by my empirical study.

In contrast, the V pattern is not verified for homicides. The Election dummy is negative and significant at 1% level but the Post-election dummy is not significant, which may indicate that government also behave opportunistically in election years but do not carry out short-term policies regarding violent crimes.

In all three regressions, the lagged dependent variable is statistically significant at the usual levels, and the estimated coefficients indicate the existence of important inertial effects. Similarly, the time trend variables are statistically significant at the 1% level in all the regressions, but the trend is positive for total crime and property crime and negative for homicides. Unsurprisingly, the deterrence effect variables, which are only available for total crime, are significant at the 1% level. For the property crime equation all explanatory variables controlling for the socioeconomic environment are statistically significant at the usual levels. As expected, high levels of unemployment and increasing unemployment spur crime. Likewise, the estimations confirm that property crime flourishes with a higher GDP per capita but diminishes as the economy grows, indicating that good prospects divert criminals to legal activities. On the other hand, the only socioeconomic variables that impact on total crime are the rate of growth of unemployment and the rate of growth of GDP per capita, while the homicide rate is only influenced by the level of the unemployment rate, which is significant at the 1% level. Quite the reverse, none of the socioeconomic variables but the rate of growth of the unemployment rate are significant in the total crime regression.

The Sargan–Hansen test results do not reject the null hypothesis of valid overidentifying restrictions. The Arellano–Bond serial correlation tests indicate the presence of first-order serial correlation but the absence of second-order autocorrelation.

6. Concluding remarks

This paper contributes to the political budget cycle literature as well as to the research on crime by presenting further evidence on the opportunistic behavior of incumbent governors in Argentina. I found that governors generate electoral cycles in the crime rate. My estimations show that the total crime rate and its main category, property crime, have a V shape, with the minimum in an election year. The argument explaining such behavior is simple: since public safety ranks high among Argentineans' concerns, incumbent governors dedicate additional efforts to improving the crime indicators in election years. Presumably, incumbents carry out actions to achieve concrete short-run results for the crime rate, such as displacing police forces to critical areas and transferring officers from administrative and investigative tasks to street patrols. I also found that incumbents also act opportunistically in election years regarding homicides, but the V shape is not verified since, apparently, they do not carry out short-term policies.

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