

“SET THE NIGHT ON FIRE!”

MAFIA VIOLENCE AND ELECTIONS IN ITALY

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PRELIMINARY VERSION

ABSTRACT

Do criminal organizations use strategically violence for electoral purposes? This research aims at analyzing the relation between criminal violence and elections in Southern Italy (1983-2003) where four regionally-based organized crime networks operate. In this study, criminal-electoral violence is defined as any organized act or threat by criminal organizations that occur during an electoral process, from the date of nomination for political offices to the date of elections, to intimidate, physically harm, blackmail, or abuse a political stakeholder in seeking to influence directly or indirectly the electoral process. The empirical analysis is drawn from a unique panel data of monthly crimes (incendiary and explosive attacks) reported by police forces in 105 Italian provinces from 1983 to 2003 (Minister of Interior - SDI data set). Through a diff-in-diff design, the paper finds statistical evidence that there is a positive correlation between mafia violence and elections, which means that as elections approach intimidation attacks increase in Southern Italy. Criminal violence especially increases when electoral results are more uncertain. These findings are consistent with a large case study literature documenting the interventions of criminal organizations into the electoral process in Southern Italy. All the evidence indicates that criminal groups use a wide variety of strategies to make sure that their preferred candidates get elected¹.

Keywords: Election, Political Violence, Organized Crime, Electoral Behavior

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It is widely acknowledged that criminal organizations are a threat to society at local, national and international level. In many countries they have grown in scale and scope to the point where they are able to overwhelm the integrity of local institutions and national governments through corruption, violence, and extortion. Neither democracies nor autocracies are immune from those phenomena, which especially undermine countries' fragile moves toward real democracy.

Although criminal organizations are policy relevant in many countries, few empirical studies have dealt with this urgent issue due to secrecy and lack of data. This paper seeks to overcome these serious methodological problems, by focusing on the relationship between elections and criminal violence. Elections are crucial in democracy, and when they are perceived as unfair, unresponsive, or corrupt their political legitimacy is compromised.

Press provides compelling evidence that criminal organizations are directly involved in electoral campaigns both in consolidated democracies (Allum & Siebert, 2003) and many democracies in transition that experience a dramatic rise in reported criminality and citizen insecurity, such as in Mexico and Latin America (Bailey & Godson, 2000; Villareal, 2002; Bergman & Whitehead, 2009). A large case study literature has emerged documenting such interventions. Interaction and exchanged resources between politicians and criminals can vary significantly from campaign finance to voter mobilization, or eventually violence.

In Mexico drug cartels use violence to influence elections by targeting candidates. Only in 2010, a PAN mayoral candidate in the town of Valle Hermoso was fatally shot in May after receiving threats, and more recently a PRI gubernatorial candidate, Rodolfo Torre, was killed just days before an election he was expected to win in the state of Tamaulipas. Similar interferences were conducted during state elections in Michoacán².

In Italy all the evidence indicates that criminal groups used a wide variety of strategies to influence the electoral process. In 1992 the Antimafia Parliament Commission investigated about episodes of violence and homicides during electoral campaigns. Intimidation is especially used in subnational elections to intimidate opposition candidates, voters, or criminal rivals³. Homicides are sporadic compared to intimidation attacks. There is abundant evidence about the involvement of mafia groups in the burning of cars, candidates' houses or properties.

Numerous studies on political violence and terrorism show that terrorist groups (Eubank and Weinberg, 2001; Pape, 2003; Kydd and Walter, 2002, 2006; Chenoweth, 2010; Aksoy, 2010) or ethnic groups (Cohen, 1997; Collier, 2009) use strategically violence around elections times, or that political violence can be manipulated by incumbents according to the competitiveness of elections (Wilkinson, 2004; Collier and Vicente, 2009; Acemoglu & al., 2009). Other studies have examined the relation between greater electoral competition and homicides at the subnational level in countries undergoing a transition to democracy (Villareal, 2002). However, no empirical works

² <http://latino.foxnews.com/latino/news/2011/11/19/mexican-drug-cartel-used-threats-to-influence-state-election-vote/>

³ In the town of Seminara in Calabria, for example, the local boss decides to confiscate some voters' electoral cards, giving them back few hours before poll closed, and providing to illiterate voters of the so called 'stampino', which was a mould with the name of favored candidate stamped on it (DPR. 29/12/2007).

exist on *criminal-electoral* violence, i.e. that violence employed strategically by criminal organizations as elections approach. This is the first cross-provincial analysis of criminal violence in Italy where several criminal groups operate and are commonly clustered in four regional organizations: Camorra in Campania, Sacra Corona Unita in Apulia, 'Ndrangheta in Calabria and Cosa Nostra in Sicily.

This paper contributes to recent stream of research on the micro-dynamics of violence (Cederman&Gleditsch, 2009). We use data of monthly crimes (arson and bomb attacks) reported by police forces in Italian provinces from 1983 to 2003 (Minister of Interior Archive) and we exploit the causal relationship between elections and crime using a *difference-in-difference* approach. In particular, we compare mafias violence of Italian provinces in electoral and no-electoral years in provinces where regional (and municipal) elections occur with a control group of provinces where elections do not simultaneously occur. The control group provides a counterfactual scenario for mafias violence in electoral provinces in the absence of elections. The evidence shows a significant increase in the number of crimes during electoral months. Thus, Italian mafia groups are most likely to strategically use violence in electoral periods, in order to influence the electoral process.

1. The links between Crime and Politics in Italy

According to the Direzione Nazionale Antimafia, 40 mafia groups are counted in Southern Italy with ramifications in several provinces of Northern Italy and other countries in Europe and abroad (Paoli, 1997). Data on people arrested for mafia-type association show that Southern Italy is the area where criminal organizations mostly operate. A significant divide exists between the rest of country and four regions: Campania, Apulia, Calabria and Sicily (see Figure 1 and Figure 2). Since the inclusion of the mafia-type association crime into the criminal code in 1982, more than 4,350 people have been arrested for being a member of a mafioso organization. Data on mafia-type homicides depict again a highly polarized phenomenon. In twenty years, more than 5570 mafia-related homicides have been committed until 2003, mainly in the same regions. Calabria is the one with the highest per-capita rate.

More interestingly, the presence of mafia groups varies across provinces even within Southern regions. Figure 1 and 2 show that some Southern provinces have a lower crimes rate, such as in Sicily (Ragusa, Enna) or in Campania (Avellino, Benevento). According to these data, Italian mafia cannot be considered as though it was a uniform and nation-wide entity, or even regionally organized. Although it is heuristically valid to speak of 'mafia-type association' for the four regionally-based organized crime networks (Camorra, Sacra Corona Unita, 'Ndrangheta, Cosa Nostra), several features concerning origins and development deserve attention from a comparative perspective. No single organizational formula is applicable to all Italian mafia groups. Each group has its own criminal formula, degree of institutionalization,

strategic objectives, expressed by the different temporal and geographical expansion dynamics.

<< Figures 1 & 2 >>

Italian mafias have been structurally integrated within the Italian political system despite the regime changes that occurred in the country since the last century. Such relations were by no means contingent but regular and systemic. Police and historical records present exhaustive evidence convincingly demonstrating the persistence of a close link between organized crime and politics since the unification of the country (Franchetti, 1900; Lupo, 2010). Unlike ordinary criminal organizations, which are avowedly nonpartisan and have virtually no contact with parties, mafias are structurally integrated within the political systems in which they operate. In fact, although they operate in illegal markets and are driven by profit (Gambetta, 1993), they naturally gravitate toward government because they seek to influence the direction and content of governmental action to reach organizational goals – immunity against law-enforcement, rent-seeking (Harasymiw, 2003). Mafias are, after all, organizations which pay attention to whatever is necessary to the maintenance of the integrity and continuity of the organization itself (Selznick, 1948: 29). Therefore, mafias have preferences over public policies and do not attempt to displace the state, even though they are at war with it. It exists side-by-side with the state, in a relationship variously referred to as complementary or symbiotic (Armao, 2003). This relation is based on mutual interests, both of criminal organizations and politicians. The latter, in fact, are captured by special mafias interests (Barro, 1993; Grossman&Helpman, 2001; Golden&Tiwari, 2009; Acemoglu et al., 2009). In exchange of immunity and rents, criminal organizations can affect elections in many ways by contributing to finance campaigns, or mobilizing voters to provide electoral support to politicians they prefer to favor, or, in extreme cases, being themselves running for elections (Della Porta and Vannucci, 1999). Their presence opens alternative strategies normally not available to candidates in democratic elections, including intimidation and violence, ballot fraud. Menu of electoral manipulation (Schedler, 2002) consists of several alternatives for controlling voters, more than the mere use of intimidation and force. Through these means criminal organizations help favored politicians in retaining political support by voters. As a consequence of it, mutual interests reduce the incentives of politicians to disrupt criminal networks. This explains why mafia-politics equilibria likely persist along the time (Acemoglu et al., 2009).

Studies on crime and politics has been traditionally focused on the theoretical analysis of such links, only some qualitative researches have been conducted (Della Porta & Vannucci, 2010). Researchers have been more interested in evaluating the *outcomes* of organized crime. In economics, some recent studies have estimated the costs of organized crime (Asmundo & Lisciandra, 2008), or the effect of organized crime on economic structure (Lavezzi, 2008), growth (Pinotti, 2010) and foreign investments. In political research, there is a growing literature on the *criminalization* of politics, its extent and incidence, and on the impact to democracy (Allum & Siebert, 2003). Some studies have tried to address theoretically the impact on political selection (Dal Bò&Di Tella,

2006), or empirically on electoral turnout (Sanchez&Chacon, 2005) and accountability (Sberna, 2011). On the contrary, no *large-n* analysis has scrutinized the *determinants* of mafias' activities. A large theoretical literature has been proposed (Gambetta, 1993; Skaperdas, 2001), and Bandiera (2003) finds empirical support for some of these hypotheses. In this study we go further questioning whether some political determinants of organized crime do exist. Before assessing the effects of organized crime, it is essential to find empirical evidence about the effective relation between crime and democracy.

2. The politics of crime: the effect of elections on violence

Criminal organizations use violence in a myriad of ways and for several motives both in legal and illegal markets. Violence clearly arises from producing illegality (Reuter, 1983), and it is exploited instrumentally to pursue diverse goals, such as to resolve disputes among mafioso families, or to enforce the monopoly in illegal markets (Schelling, 1967). However this paper is not interested in explaining all several motives, goals and strategies of mafias' violence. We look at a specific type of criminal violence, that we define *criminal-electoral violence*, i.e. any organized act or threat by criminal organizations that occur during an electoral process, from the date of nomination for political offices to the date of elections, to intimidate, physically harm, blackmail, or abuse a political stakeholder in seeking to influence directly or indirectly an electoral process (Fisher, 2002). Therefore, the strategic timing differentiates this violence from other cases. Election times are crucial for at least two reasons. (1) In democracy, elections increase uncertainty in political equilibriums. Around election times many political groups try to influence the political process and they increase the volume of their activities. Political parties seek contributions and resources for campaigns while interest groups increase their lobbying activities providing their own resources. Criminal organizations' action is also driven by this logic. If this is true, we should observe an increase in the number of intimidation attacks as elections are close since even criminal groups fiercely compete. Homicides or intimidation among criminals in election times are demonstration of the willingness to use violence and of power both to legal and illegal actors. By those acts they can indirectly enforce other illegal deals and their control upon voters and candidates. (2) An additional reason makes elections crucial for criminal lobbying. During elections the saliency of organized crime as policy issue raises inevitably, because electoral campaigns can draw public attention to mafia-politics collusion. Lack of debate about crime is the first goal criminal groups seek to reach, and this is why they would intimidate political candidates. These informative asymmetries between political-criminal networks and voters can be put at risk if opposition parties' candidate denounce the existence of such links, or simply move suspicions about people involved. Therefore public attention can lead to criminal violence. Drawing on these propositions, we formulate synthetically the main hypothesis of this study: i.e. in those areas controlled by organized crime intimidation attacks increase when elections are

close.

<< Table 1 >>

According to this formulation, we argue that elections have an exogenous effect on criminal-electoral violence. We would expect an overall increase of intimidation attacks before elections in those areas controlled by organized crime; conversely, we expect that a not significant variation in areas not controlled by criminal organizations. Many empirical studies about political violence in electoral times have already tested a similar hypothesis (Wilkinson, 2004; Collier and Vicente, 2009; Aksoy, 2010). In literature some theoretical studies show that the timing of terrorist attacks is not random, but strategically decided (Kydd and Walter, 2002, 2006). This paper goes further these contributions, in which electoral violence remains confined to developing democracies, or to countries highly fragmented along ethnic lines. We do not refer to spontaneous or terrorist violence, but to that violence employed by criminal organizations. Doing it, this paper is similar to some recent empirical analyses about the impact of criminal/guerilla violence in Colombia. These studies investigate the electoral effect of guerrilla in a sample of municipalities, and also the willingness of federal government in disrupting guerilla networks (Sánchez & Chacón, 2005), and thus lower the intensity of non-state violence (Acemoglu et al., 2009). However, the existing related literature shows that approaching elections do not unconditionally increase violent attacks from terrorist or ethnic groups, other institutional variables can intervene: the permissiveness of electoral system (Aksoy, 2010); the competitiveness of elections (Wilkinson, 2004); cost-benefit calculations depending on being incumbent or challenger (Collier and Vicente, 2009)⁴.

3. Data and variables

Our main source of data is the Minister of Interior Archive on crimes reported by the three main Italian police forces (Arma dei Carabinieri, Polizia di Stato, Guardia di Finanza) to the judiciary authority⁵. Criminal acts are grouped into several categories according to the type of action and crime. We have information on criminal violence at province level for the all country and at municipal level for province principal towns (*capoluoghi*). The uniqueness of this dataset derives from the temporal disaggregation which permits to exploit violence at monthly level. Our period of analysis spans from

⁴ In a recent study about elections in Nigeria, Collier and Vicente (2009) come to this result through a field experiment. They found that voter intimidation is effective in reducing voter turnout, and that violence was systematically dissociated from incumbents, contradicting Wilkinson's results (2004). Interestingly, they established that incumbents have a comparative advantage in alternative strategies as vote buying and ballot fraud, because they control both the electoral process and state resources.

⁵ Under the "165 scheme report", the Minister of Interior collected data about those crimes reported by police in all Italian provinces from 1983 to 2003. The system of reporting was not based on a hierarchical rule according to severity of criminal events, but, on the contrary, gather data about specific and single criminal acts and offenses. It included up to 20 separate offenses per incident, without providing elements on victims and offenders.

January 1983 to December 2003.⁶ Unfortunately, this dataset does not provide information about both victims and offenders of such events. Therefore, our panel includes all violent acts, not only those targeting voters, politicians, bureaucrats or those committed by criminal organizations.

Table 2 shows the number of crime at provincial level per one million of inhabitants. For every considered type of crime, this rate is higher in provinces where it is more likely that organized crime's pressure is strong, like Southern provinces and provinces with a high number of mafia-association arrests: in these areas the number of arson attacks is three times higher than in the Italian average; the number of incendiary attacks and homicides almost two times.

Our proxy of *criminal violence* is constructed by aggregating only two different kinds of crimes: "arson attacks" and "incendiary attacks" ("incendi dolosi" and "attacchi dinamitardi e incendiari"). Tactics used by criminals to influence voters, politicians, bureaucrats is much more complex than simple arson attacks; indeed, selecting only these crimes we explicitly restrict our analysis to a subsample of relevant cases of mafias' violence. In spite of that, all other reported offences – such as extortion, criminal association, drug dealing – encounter two main limits: they are not intimidating attacks possibly related to the electoral process, and they capture also the effectiveness of anti-mafia programs (Calderoni, 2010). This is also the reason why we use the offences reported by the police instead of the crimes prosecuted by district tribunals and gathered by the Minister of Justice.

Concerning the reliability of these data, although indicators on crime and delinquency are notoriously fraught with problems, our proxy of *criminal violence* is expected to be quite well measured. Noteworthy, arson attacks are well reported for insurance purposes, therefore under-reporting is a negligible issue. Furthermore, police and fire department necessarily intervene in these circumstances. Thus, we expect that only a low percentage of offences - which do not need any intervention by the police or the firefighters – are under-reported by victims.

Consistently with the previous literature⁷, our measure of criminal violence is correlated with the main local determinants of crime (social capital, age structure of the population, education, unemployment, per capita income). In particular, figure 3 graphs provincial average violence against two proxies of social capital (electoral participation and blood donations). A clear negative trend is observable, with Southern provinces (orange dots) standing on the left part of the plot. Furthermore, figures 4 and 5 graphs provincial average violence and some other structural correlates of crime (age structure, education, unemployment, provincial per capita value added). Again, negative correlation exists between violence and education and income. As expected, violence is positively correlated with unemployment and the percentage of the provincial population constituted by young individuals (under 36 years old).

⁶ We select the period 1983 to 2003 for two reasons: only since 1983 police forces reported separately crimes committed by criminal organizations from ordinary crimes; second, the information system of data collection changed after 2003.

⁷ See Villareal (2002 for a review of previous works.

<< Figures 3, 4 & 5 >>

Finally, in our analysis we will measure the amount of election-related violence looking at the difference between the number of incendiary and explosive attacks in the election period and afterwards using regional and municipal elections from 1983 to 2003 (Table 1). Given that elections are not held at the same time in all the regions/municipalities, our identification strategy will be based on the comparison of changes in crime in electoral and non-electoral periods in: (i) provinces where elections occur and (ii) in provinces where elections do not take place at that time (see section 4.2 for further details). Figure 7 shows the number of crimes per inhabitant at provincial level in electoral and non-electoral months for provinces where elections take place and for other provinces. As far as provinces with a low organized crime's pressure are concerned, both the amount of crimes and their trend over electoral months are similar in provinces with and without elections. This evidence suggests that elections don't influence in any significant way crime intensity in non-organized crime provinces. Conversely, in organized crime provinces the number of crimes increases in electoral months only in provinces where elections take place. This is consistent with the hypothesis that criminal organizations use strategically violence for electoral purposes.

4. Empirical strategy

In this section we present a set of empirical models to identify the effect of regional elections on criminal violence.

4.1 Testing the effect of regional elections on crime

We first test through a rough OLS empirical strategy what is the effect of regional elections on crime. We sum up crimes at province and annual level and we compare the average number of crimes with and without elections using the following model:

$$\log CRIME_{p,y} = \alpha + \beta ELECTION_{p,y} + PROVINCE_p + TIME_y + \xi_{p,y} \quad (1)$$

where the dependent variable is the log number of crimes in a province in a certain year and the main explicative is a dummy variable equal to one in electoral years in provinces where regional elections occur. We include province fixed effects to control for the time invariant heterogeneity among provinces and year dummies to take out the business cycle and every other episodic events correlated with the number of crimes. Standard errors are robust to heteroschedasticity and clustered by provinces.

We estimate this model for the all Italian provinces and for three subsets of provinces where it is likely that organized crime's pressure is stronger: (i) provinces of four regions of Southern Italy (Campania, Apulia, Calabria and Sicily), (ii) provinces where the number of mafia-association arrests is greater than the 75th percentile of the distribution of these arrests in Italian provinces, and (iii) provinces with a mafia index greater than the 75th percentile of the distribution of this index in Italian provinces (see

Calderoni, 2011).

Finally, we check whether electoral violence is lower (or higher) when elections are supposed to be more competitive. Data on regional elections come from the Minister of Interior's archive on elections. Unfortunately, we have information only on provinces of Southern Italy. In particular, we regress a measure of expected election competitiveness (the difference between the share of the first and the second party) in previous elections on the number of crimes at province level.

4.2 Testing the effect of regional elections with a *diff-in-diff* strategy

In this section we estimate the impact of elections on crime focusing only on months close to the elections. We define as 'electoral months' the month where regional elections take place as well as the previous month. We choose this time period in order to cover the entire electoral campaign. We compare the number of crimes during the electoral period with the number of crimes in the two months immediately after elections (what we call 'non-electoral period'). Differently from model (1), the comparison of these two short and close groups of months makes us confident about the fact that the difference in the number of crimes in these two time-periods is crucially affected by the approaching of elections rather than to other illegal goals (Angrist and Pischke, 2008).

However, many other factors unfolding over times, besides elections, might have caused the change in violence over time. In order to exclude the presence of confounding factors we adopt a *difference-in-difference* identification strategy, which is usually used in economics to study the impact of some 'treatments' (i.e. policy reforms) on economic issues such as unemployment, income, etc. etc. This estimation model compares changes over time for treated units with the change experienced by a control group in the same time period. Applied to this study, elections can be considered as a suitable form of treatment. In fact: (a) elections are clearly exogenous since organized crime cannot affect their timing; (b) they also occur at a single point in time because they have clear starting and stopping dates thus it permits to observe the variation in criminal violence both before and after elections are held; (c) and, finally, we have more elections over time (i.e. more pre-/post- time periods) and they do not occur necessarily across provinces at the same moment (as national elections do).

In this setting the control group is composed by areas which do not experience elections in the same time period. Thus, the impact of elections on criminal violence can be estimated by computing a double difference, one over time (in electoral and non-electoral months) and one across units (in electoral and non-electoral areas). The crucial assumption is that in the absence of elections the trend among the two groups would have been the same. In particular, we estimate the following model:

$$CRIME_{p,t} = \alpha + \delta ELECTION_{p,t} + \lambda ELECT_PROVINCE_{p,t} + PROVINCE_p + TIME_t + \xi_{p,t} \quad (2)$$

where p is the province and t the time. The dependent variable is the number of arsons

and bomb attacks in a province in a certain month; the two main explicatives are two dummy variables: *ELECTION* identifies electoral months in electoral provinces, while *ELECT_PROVINCE* identifies electoral provinces. The estimated coefficient for δ represents the differential effect of elections on crime in provinces where elections occur with respect to other provinces.

Given the characteristics of our dependent variable and the high frequency of our data, an OLS strategy would be misleading. Thus, we estimate a more proper model for count data. Many count models that have been proposed by the literature (see Cameron and Trivedi, 1998 for a survey on count models) are variants of the Poisson model. Noteworthy, the Poisson model has limited applicability in practice because of its implication of equidispersion, that is, the variance of the dependent variable should be equal to its mean both conditional on the explanatory variables. Among the variants of the Poisson regression model, the negative binomial model turns out to be a widely used one for its exhibity and parsimony.⁸ Given the level of overdistribution we have in our data, the negative binomial distribution should fit data better than Poisson model (figure 7).⁹

<< Figure 6 >>

Again, we estimate this model in a separate way for the all country, Southern provinces, provinces with a high concentration of mafia-association arrests and provinces with a high mafia index.

5. Results

Table 3 presents the results of model (1) using a OLS estimator. We find that the occurrence of elections has a positive and significant effect on the amount of crimes in provinces of Southern Italy. In particular, the elections lead to an increase by 6 per cent in local crimes. This effect is even higher if we define *mafia areas* according to the number of mafia arrests (here having elections increases by almost 8 per cent the number of crimes) or by mafia index (7 per cent).

Conversely, both the magnitude and the significance of the coefficient are much lower when we consider the all country. These results shed light on the hypothesis that crimes in electoral periods are strictly related to organized crime.

Furthermore, in table 4 we show that electoral violence is lower when elections are supposed to be more uncertain. The dependent variable is the annual number of crimes (arsons and bomb attacks), defined as in model (1); the main explicative is equal to the difference between the vote shares of the first party and the second party during

⁸ For other applications of negative binomial model, see, e.g., Hausman, Hall and Griliches (1984) on patents and R&D relationship, Cameron, Trivedi, Milne and Piggott (1988) on the determination of health service utilization and health insurance service, and Haab and McConnell (1996) on recreation demand analysis, among others.

⁹ In all our estimations we reject the hypothesis that the dispersion parameter \square is equal to zero. Only when the parameter is zero the model reduces to the simpler Poisson model.

previous elections. Thus the higher the explicative, the lower the degree of competition expected by voters as well as by criminal organizations. Despite the low number of observations, we find evidence of an increase in criminal violence when the electoral results are more uncertain, thus, when intimidation can be more effective.

Table 5 shows the estimated results from the *difference-in-difference* strategy (model 2). We find that having elections increases the number of crimes by 14 per cent in Italy. The all increase comes from those areas which suffer the most pressures by the organized crime: in Southern Italy during electoral months the amount of violence increases by 25 per cent. In provinces with a high number of mafia-association arrests the increase is by 37 per cent; in provinces with a high mafia index by 28 per cent. We find support to the hypothesis that mafia groups increase their lobbying activities when elections are close.

6. Robustness and extensions

In this section we discuss robustness checks and some extensions of the empirical analysis. First of all, we verify in section 6.1 a key assumption in the difference-in-difference approach: treated should be similar to controls before the treatment, conditional to all the considered covariates. Thus, provinces with elections should be similar to other provinces during non-electoral months.

In section 6.2 we verifies whether our results are affected by the fact that regional elections occur during spring months everywhere but a small number of Italian regions (including Sicily).

Finally, in sections 6.2 and 6.3 we extend our analysis to other possible definitions of *electoral months* and to municipal elections.

6.1 Treated and controls in non-electoral periods

One of the hypotheses of the difference-in-difference approach is related to the dynamics of the dependent variables for treated and control groups in absence of treatment. The more these dynamics are similar, the more reliable the estimated results. In our framework, we want to test whether electoral and non-electoral provinces are similar in non-electoral periods. We test that adding to model (2) the interactions between time dummies and the *ELECTION_PROV* dummy for every possible non-electoral time period. Then we test the hypothesis that the coefficients of these interaction variables are all simultaneously equal to zero. We find that there is not any difference between treated and controls in non-electoral periods for provinces of Southern Italy (i.e. Prob > chi2 = 0.127) and for provinces with a high mafia index (0.351); they are significant different at 5 per cent only for provinces with an high number of arrests (0.023). Overall, our results do not seem to be driven by a differential pattern of treated and controls before the treatment.

6.2 The timing of regional elections over the year

Regional elections in Italy do not occur everywhere during the same months of the year. In particular, table 1 shows that in Southern regions they usually take place in April-May, except Sicily, where elections are in June. This difference in electoral timing may affect all our specifications.

In order to verify that the timing of elections over the year is not relevant, we use two different strategies. The first one consists in estimating model (2) including interaction terms between the month of the year and our main explicative (the variable *Elections*). In so doing, we estimate the effect of election on crime separately for every possible electoral timing. Then, we test the hypothesis that all the estimated coefficients of the interaction variables are equal. We find no evidence of a differential impact of elections over the year: for all our territorial definition the chi-square test statistics are very low and not different from zero at any standard significance level.¹⁰

The second strategy consists in estimating a new difference-in-difference model:

$$CRIME_{p,y,m} = \alpha + \delta ELECTION_{p,y,m} + \lambda ELECT_PROVINCE_{p,y,m} + PROVINCE_p * YEAR_y + MONTH_m + \xi_{p,t} \quad (3)$$

where we include the interaction between province and year specific dummies, and month specific dummies. Now we specifically control for every month-specific effect and the main estimated coefficient represents the increase in monthly crime due to elections with respect to the province average number of crimes during that year. Our main results (in table 6) stay significant even using this specification.

6.3 Different definitions of electoral and non-electoral periods

The length of the electoral and non-electoral periods of time is selected in an arbitrary way. Our choice is driven by the intent to capture the entire length of the electoral campaign and to have a non-election period sufficiently close to the electoral one. In this section we modify the number of months in both the electoral and non-electoral periods in order to show that estimated results in table 5 are not crucially determined by our way to select observations.

Table 7 shows that results become lower when time periods are longer, consistently with the idea that we are including ‘less relevant’ observations. When our electoral period is equal to 4 months, our main coefficients are almost equal to zero.

6.4 The effects of municipal elections on crime

¹⁰ Chi-square test statistics is 9.6 for the all country, with an estimated probability to be higher equal to 0.14. For Southern provinces these values are respectively equal to 1.9 and 0.60; for provinces with a high number of mafia-arrests 3.6 and 0.31; for provinces with a high mafia index 2.37 and 0.50.

In this section we try to estimate model (2) using data on municipal elections for Italian *capoluoghi*. Since now elections do not occur at the same time in all the provinces of the same region, treated and controls may belong to the same regions. Thus, this choice takes out all possible interregional differences among treated and controls, making our results more robust.

By the way, using municipal data has one relevant cons: we do not have data on the timing of municipal elections. We solved this problem estimating the election timing on the basis of the date of the first municipal council reunion¹¹. To be sure to cover all the electoral period, we extend the definition of ‘electoral month’ to the four months before the first council reunion and we exclude the month of the first council reunion. Analogously, ‘non-electoral months’ are the four months after the first reunion.

Consistently with the results in section 5, we find that in cities of Southern Italy crimes increase in electoral months by 36 per cent. In cities with a high number of mafia-related arrests the increase is 17 per cent; for cities in provinces with a high mafia-index it is equal to 28 per cent (table 8).

7. Conclusions

According to the estimation, elections cause a 22% increase in intimidation attacks in Southern Italian provinces and a 30% in those provinces intensively controlled by organized crime. To the best of our knowledge, this is the first estimate of the impact of elections on criminal violence accounting for cross-areas and secular trends. These findings are consistent with a large case study literature documenting the interventions of criminal organizations into the electoral process in Southern Italy. All the evidence indicates that criminal groups used a wide variety of strategies to make sure that their preferred candidates got elected.

Even though the goal of the study was not to evaluate empirically the effects of criminal-electoral violence upon the electoral process, we can reasonably argue that in some parts of the country an impact on electoral turnout or on voters’ preferences might be discovered. The effect of criminal-electoral violence still needs to be estimated carefully. In fact, by moving beyond the existing work, we argue that the increase in criminal violence during electoral campaigns is not linked with stronger criminal control upon electorate, but, in contrast, it is associated positively to higher degree of opposition and electoral accountability. The likelihood to use intimidation depends on an evaluation of likely payoff from relying on alternative non-violent resources (money, reputation, membership) and the capacity to effectively influence candidates and voters (Collier and Vicente, 2009). Violence is only one, and probably the most costly resource to be exploited in order to provide mafioso “protection”, compared to not-coercive means which are equally strategic, such like reputation and information (Gambetta, 1993). When non-violent means become useless, violence is the only available tactic to influence elections. Therefore, first we need victimization data. These data can reveal

¹¹ We use data of the *Anagrafe degli Amministratori Locali*, Minister of Interior.

which side of the political market is particularly favored and targeted by criminal organizations. In fact, criminal groups may choose between two different channels to affect representation: the demand side or the offer side. In the first case, the attempt to change preferences of restive voters through intimidation is not only the most costly strategy, but also the less effective because it might lead to unforeseeable outcomes, such as the increase of antimafia opposition. Only in small municipalities where criminal groups can control directly voters, we can suppose that it would be rational to use violence to convince them.

In other conditions, the alternative way is more attractive and cheap. Criminal organizations can target the offer side of political market, by contributing to candidate nominees or creating a climate of fear and terror that would raise the cost of political campaigns and, especially at local level, it would avoid people from standing as candidate cause the risk of being victim of such violence. This becomes the first-best option if criminal groups are capable to capture the nominee of that candidate with preferences very close to theirs, and most likely to win such elections. When criminal groups are not able to capture candidates, therefore they tend to more often resort to violent means to exert influence at a time when the degree of electoral uncertainty is higher. Increased level of competition around election times motivates criminal groups to use violence to influence electoral results.

The findings of the paper confirm the abundant judiciary evidence about criminal-electoral violence. More importantly the paper illustrates a previously unexplored dynamic between electoral institutions and the strategic timing of organized crime's intimidation attacks. However, a full analysis on electoral behavior and turnout should be conducted in order to assert confidently that criminal-electoral violence has an effect on them. A similar study would help researchers evaluating whether organized crime can only mobilize voters or also change their preferences.

Figure 1. Mafia-type homicides per 50.000 inhabitants (1983-2003) Source: SDI Min. Interno

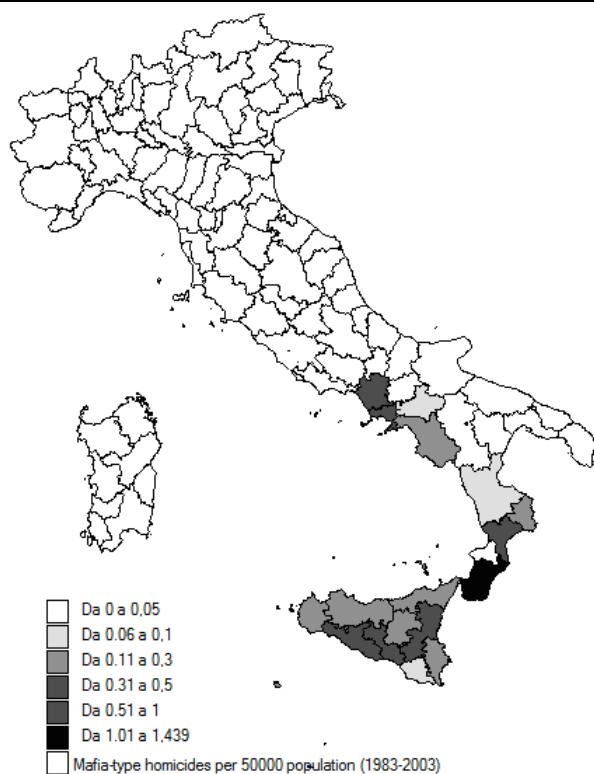


Figure 2. People arrested for mafia-type association (c.p art. 416 bis) 1983-2003 per 50.000 inhabitants Source: SDI Min. Interno

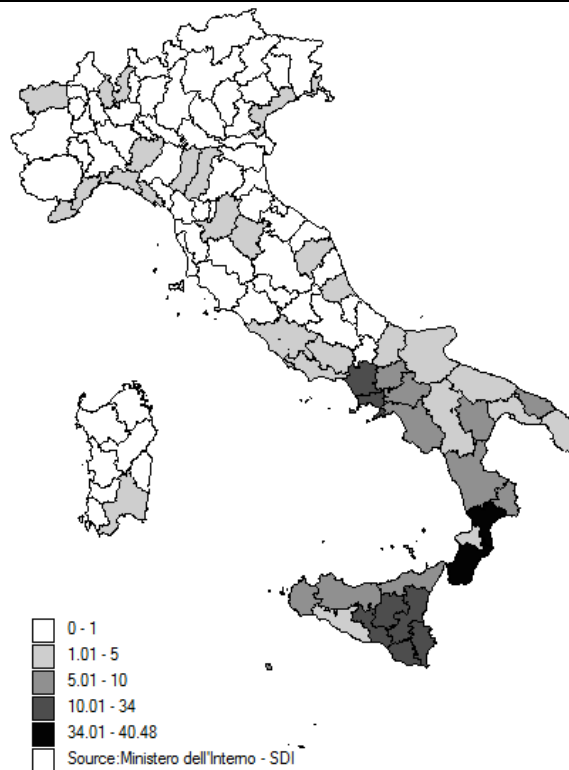


Figure 3. *Average crimes per million of inhabitants against social capital*

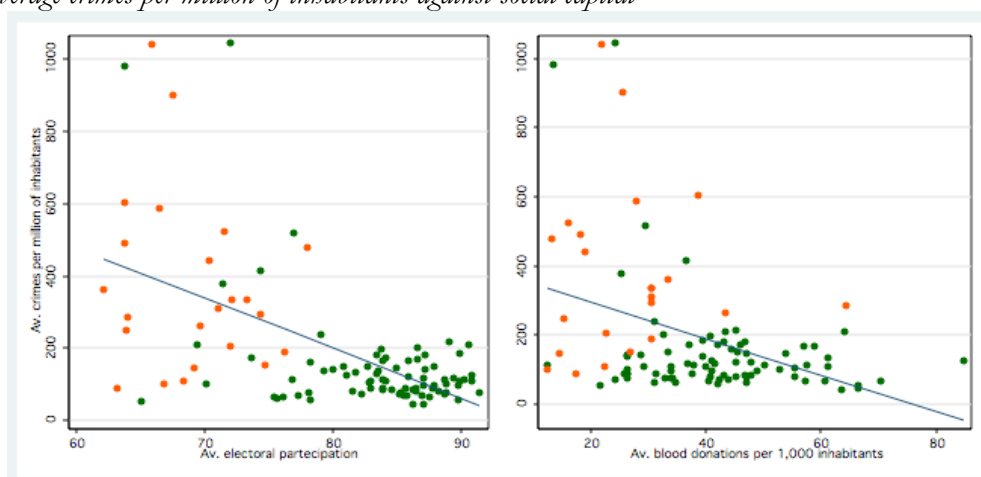


Figure 4. *Average crimes per million of inhabitants against age structure and education*

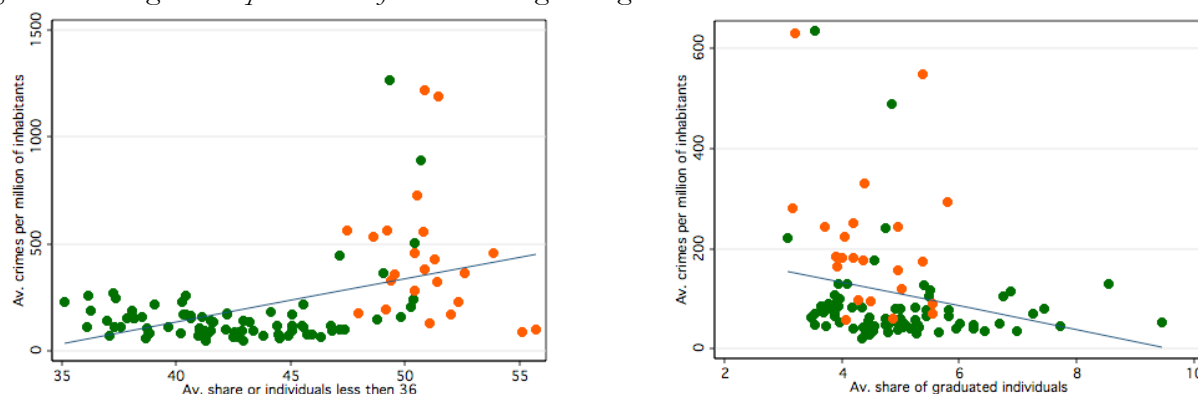


Figure 5. *Average crimes per million of inhabitants against unemployment rate and average value added per inhabitant*

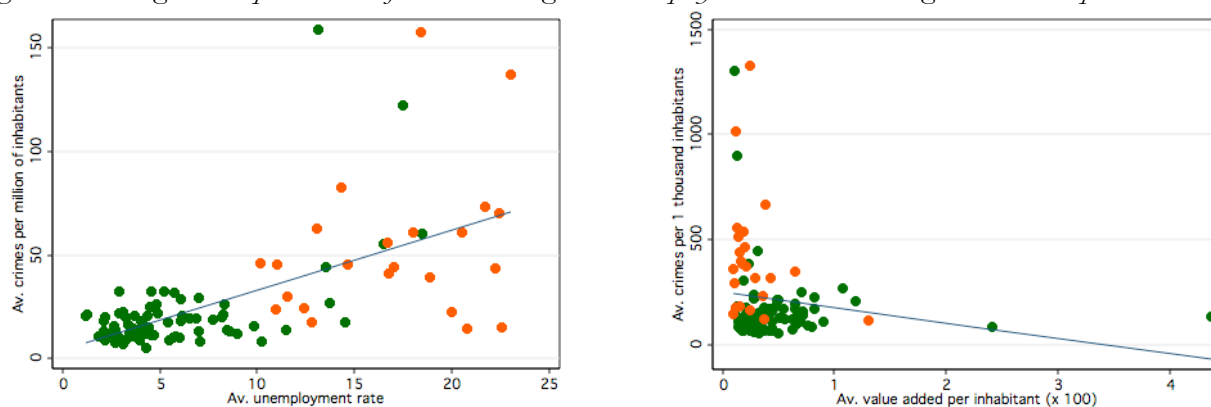


Table 1. *Regional Elections in Southern Italy (1983-2003)*

<i>Region</i>	<i>Province</i>	<i>Regional Elections</i>	<i>National Elections</i>
SICILY	Agrigento		
	Caltanissetta		
	Catania	June 24, 2001	
	Enna	June 16, 1996	
	Messina	June 16, 1991	
	Palermo	June 22, 1986	
	Ragusa		
	Siracusa		
	Trapani		
CALABRIA	Catanzaro		
	Cosenza		May 13, 2001
	Crotone*		April 21, 1996
	Reggio Calabria		March 27, 1994
	Vibo Valentia*		April 5, 1992
			June 14, 1987
			June 26, 1983
CAMPANIA	Avellino	April 16, 2000	
	Benevento	April 23, 1995	
	Caserta	May 6, 1990	
	Napoli	May 12, 1985	
	Salerno		
APULIA	Bari		
	Brindisi		
	Foggia		
	Lecce		
	Taranto		

Source: Archivio Elettorale, Ministero dell'Interno.

Table 2. *Number of Crimes in Italian Provinces*

ITALY				
	MEAN		STD. DEV.	
	ELECTORAL MONTHS		ELECTORAL MONTHS	
ARSON ATTACKS	7.2	7.4	10.7	13.5
BOMB AND INCENDIARY ATTACKS	1.3	1.3	3.7	3.8
ROBBERIES	80.4	79.5	144.6	143.1
HOMICIDES	0.7	0.6	1.4	1.5
OBS.	9,131	795	9,131	795
SOUTHERN ITALY⁺				
	MEAN		STD. DEV.	
	ELECTORAL MONTHS		ELECTORAL MONTHS	
ARSON ATTACKS	13.9	14.8	10.7	13.2
BOMB AND INCENDIARY ATTACKS	3.8	4.0	3.7	6.2
ROBBERIES	93.9	99.5	144.6	162.2
HOMICIDES	1.5	1.6	1.4	2.4
OBS.	2,120	180	2,120	180
ORGANIZED CRIME PROVINCES⁺⁺				
	MEAN		STD. DEV.	
	ELECTORAL MONTHS		ELECTORAL MONTHS	
ARSON ATTACKS	14.5	15.5	13.0	13.7
BOMB AND INCENDIARY ATTACKS	3.5	3.7	6.2	6.1
ROBBERIES	155.7	162.2	246.7	248.4
HOMICIDES	1.7	1.7	2.1	2.5
OBS.	2,269	194	2,269	194

Crimes at province level per 1 million inhabitants. Source: SDI, Ministero dell'Interno.

+ Sicily, Campania, Calabria and Apulia.

++ Provinces with a number of mafia-association arrests greater than the 75th percentile.

Figure 6. *Observed proportions along with the poisson and negative binomial probabilities*

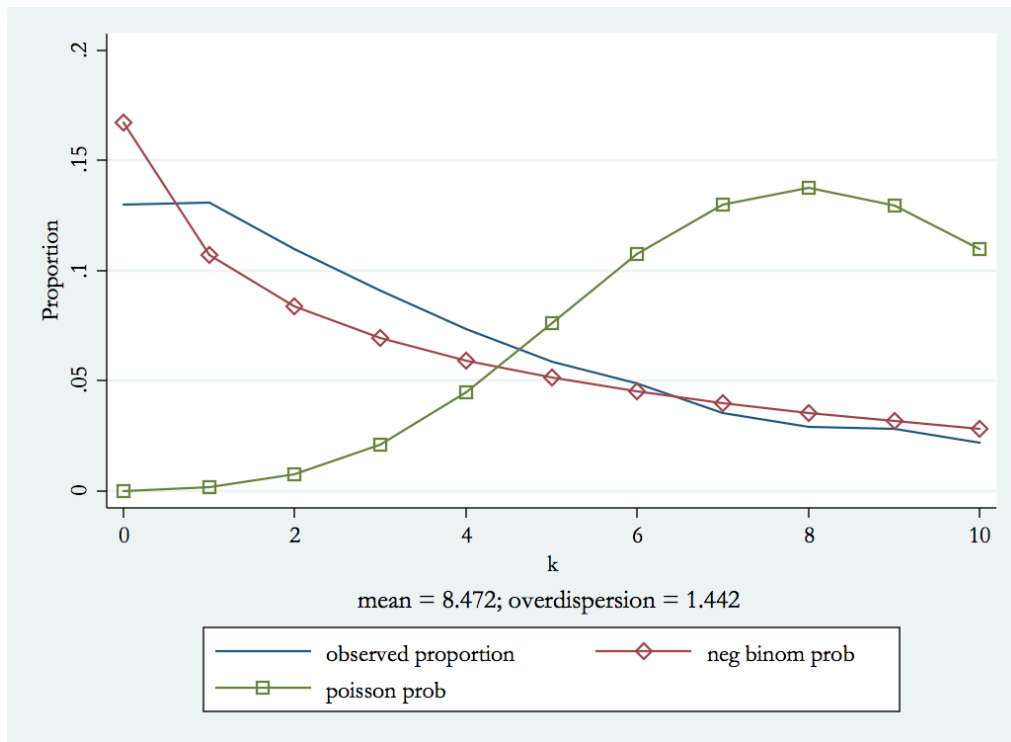


Table 3. *Impact of regional elections on crime at annual level*

	ITALY	SOUTHERN ITALY ⁺	AREAS WITH A HIGH NUMBER OF MAFIA-ASSOCIATION ARRESTS ⁺⁺	AREAS WITH A HIGH MAFIA INDEX ⁺⁺⁺
Election	0.020 (0.020)	0.060** (0.028)	0.078*** (0.028)	0.066** (0.026)
Prov. FE	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Obs.	2,059	478	546	520

⁺ Sicily, Campania, Calabria and Apulia.

⁺⁺ Provinces with a number of mafia-association arrests greater than the 75th percentile.

⁺⁺⁺ Provinces with a mafia index greater than the 75th percentile (Calderoni, 2011).

The dependent variable is the log number of crimes (arsons and bomb attacks). Standard errors in parenthesis are clustered by province. Note: *** p<0.01, ** p<0.05, * p<0.10.

Table 4. *Impact of electoral competition on crime*

	CRIME
ELECTORAL COMPETITION	-1.38*
	(0.68)
PROV. FE	Yes
YEAR DUMMIES	Yes
OBS.	90

The dependent variable is the number of crimes (arsons and bomb attacks). The main explicative is equal to the difference between the vote shares of the first party and the second party during previous elections. Only provinces of Southern Italy are included. Standard errors in parenthesis are clustered by province. Note: *** p<0.01, ** p<0.05, * p<0.10.

Table 5. *Impact of regional elections on crime: a diff-in-diff approach*

	ITALY	SOUTHERN ITALY ⁺	AREAS WITH A HIGH NUMBER OF MAFIA-ASSOCIATION ARRESTS ⁺⁺	AREAS WITH A HIGH MAFIA INDEX ⁺⁺⁺
Elections	1.135** (0.070)	1.251*** (0.099)	1.365*** (0.111)	1.279*** (0.100)
Elect. Prov.	0.984 (0.043)	0.920 (0.052)	0.888** (0.051)	0.911* (0.051)
Prov. FE	Yes	Yes	Yes	Yes
Time dummies	Yes	Yes	Yes	Yes
Obs.	9,131	2,120	2,269	2,306

⁺ Sicily, Campania, Calabria and Apulia.

⁺⁺ Provinces with a number of mafia-association arrests greater than the 75th percentile.

⁺⁺⁺ Provinces with a mafia index greater than the 75th percentile (Calderoni, 2011).

The dependent variable is the log number of crimes (arsons and bomb attacks). Incidence-rate ratios. Standard errors in parenthesis are clustered by province. Note: *** p<0.01, ** p<0.05, * p<0.10.

Table 6. *Impact of regional elections on crime: an alternative specification*

	ITALY	SOUTHERN ITALY ⁺	AREAS WITH A HIGH NUMBER OF MAFIA-ASSOCIATION ARRESTS ⁺⁺	AREAS WITH A HIGH MAFIA INDEX ⁺⁺⁺
Elections	1.102*** (0.040)	1.113** (0.051)	1.177*** (0.055)	1.129*** (0.051)
Elect. Prov.	1.203*** (0.077)	1.191** (0.098)	1.128 (0.097)	1.185** (0.097)
Prov. * Year dummies	YES	YES	YES	YES
Month dummies	YES	YES	YES	YES
Obs.	9,131	2,120	2,269	2,306

⁺ Sicily, Campania, Calabria and Apulia.

⁺⁺ Provinces with a number of mafia-association arrests greater than the 75th percentile.

⁺⁺⁺ Provinces with a mafia index greater than the 75th percentile (Calderoni, 2011).

The dependent variable is the log number of crimes (arsons and bomb attacks). Incidence-rate ratios. Standard errors in parenthesis are clustered by province. Note: *** p<0.01, ** p<0.05, * p<0.10.

Table 7. *Alternative definitions of electoral and non-electoral periods*

	ITALY	SOUTHERN ITALY ⁺	AREAS WITH A HIGH NUMBER OF MAFIA- ASSOCIATION ARRESTS ⁺⁺	AREAS WITH A HIGH MAFIA INDEX ⁺⁺⁺
1 MONTH	1.141* (0.091)	1.248** (0.136)	1.272* (0.168)	1.297** (0.140)
2 MONTHS	1.135** (0.070)	1.251*** (0.099)	1.365*** (0.111)	1.279*** (0.100)
3 MONTHS	1.062 (0.055)	1.220*** (0.081)	1.221*** (0.078)	1.234*** (0.081)
4 MONTHS	1.001 (0.045)	1.099 (0.064)	1.105* (0.062)	1.115* (0.064)

⁺ Sicily, Campania, Calabria and Apulia.

⁺⁺ Provinces with a number of mafia-association arrests greater than the 75th percentile.

⁺⁺⁺ Provinces with a mafia index greater than the 75th percentile (Calderoni, 2011).

The dependent variable is the log number of crimes (arsons and bomb attacks). Incidence-rate ratios of the interaction term. Standard errors in parenthesis are clustered by province. Note: *** p<0.01, ** p<0.05, * p<0.10.

Table 8. *Impact of municipal elections on crime*

	ITALY	SOUTHERN ITALY ⁺	AREAS WITH A HIGH NUMBER OF MAFIA-ASSOCIATION ARRESTS ⁺⁺	AREAS WITH A HIGH MAFIA INDEX ⁺⁺⁺
Elections	1.080 (0.066)	1.363*** (0.159)	1.165 (0.126)	1.281** (0.140)
Elect. Prov.	0.897** (0.050)	0.716 (0.078)	0.803** (0.081)	0.756*** (0.077)
City dummies	YES	YES	YES	YES
Time dummies	YES	YES	YES	YES
Obs.	20,583	4,780	5,198	5,198

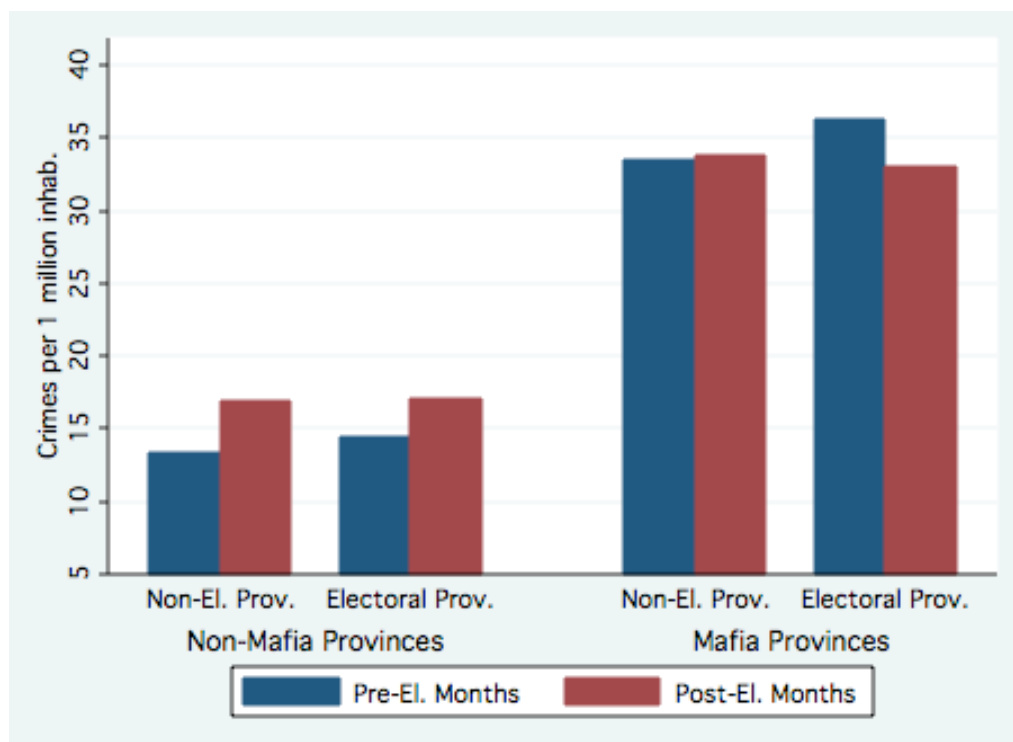
⁺ Sicily, Campania, Calabria and Apulia.

⁺⁺ Cities with a number of mafia-association arrests greater than the 75th percentile.

⁺⁺⁺ Cities in provinces with a mafia index greater than the 75th percentile (Calderoni, 2011).

The dependent variable is the log number of crimes (arsons and bomb attacks). Incidence-rate ratios. Standard errors in parenthesis are clustered by province. Note: *** p<0.01, ** p<0.05, * p<0.10.

Figure 7. *Impact of elections on crime in non-electoral and electoral provinces*



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