Mafia, Elections and Violence against Politicians

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Abstract

Organized crime uses political violence to influence politics in a wide set of countries. This paper exploits a novel dataset of attacks directed towards Italian local politicians to study how (and why) criminal organizations use violence against them. We test two complementary theories to predict the use of violence i) before elections, to affect the electoral outcome and ii) after elections, to influence politicians from the beginning of their term. We provide causal evidence in favor of the latter hypothesis. The probability of being a target of violence increases in the weeks right after an election in areas with a high presence of organized crime, especially when elections result in a change of local government.

1 Introduction

Politicians are a target of violence in several countries around the world, especially in some developing countries. Such violence is often perpetrated by criminal organizations. For instance, in Mexico, assassins hired by drug cartels have killed almost 100 mayors

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in the last decade.[1] In 2002, a political organization with a criminal source of support, the FARC (Fuerzas Armadas Revolucionarias de Colombia), launched a campaign to intimidate opposition political leaders in Colombia, which led to five murdered politicians and the resignation of 222 out of 463 mayors (Dal Bó, Dal Bó, and Di Tella, 2006). In Italy, 134 politicians were killed from 1974 to 2014 (Lo Moro et al., 2015).[2] Thus, investigating *how* and *why* criminal organizations use violence to influence politics is a topic of interest in many countries.

Two complementary theories have been advanced to explain political violence undertaken by organized crime. A first set of models focuses on the post-electoral bargaining that takes place between criminals and politicians. Dal Bó and Di Tella (2003) and Dal Bó, Dal Bó, and Di Tella (2006) suggest that once elections have taken place and the winner takes office, criminal organizations can use threats to "induce a given policy maker to change his action from that preferred by society to that preferred by the group" (Dal Bó and Di Tella, 2003, p. 1128). In other words, criminal organizations use violence after elections to influence policy making while politicians are in office. Organized crime may, however, also use violence before an election in order to alter the electoral outcomes and influence the political selection (Pinotti, 2012; Sberna and Olivieri, 2014; Alesina, Piccolo, and Pinotti, 2016). For instance, Alesina, Piccolo, and Pinotti (2016) find that the homicide rate for politicians in Italy increases before national elections in regions with a high level of organized crime. Like Pinotti (2012), they interpret this as evidence that criminals want to discourage honest politicians from running for office.

In this paper we offer an empirical test of one assumption and two complementary

[1] `www.nytimes.com/2016/01/17/opinion/sunday/why-cartels-are-killing-mexicos-mayors.html?_r=2` (last accessed 18 June 2016).

[2] In 2015, the Italian Parliament undertook its first-ever survey of Italian politicians killed since 1975. A parliamentary commission investigated the circumstances of all local politicians who suffered a violent death, and presented the results in a detailed report including all main facts of each incident (Lo Moro et al., 2015).

theories. The assumption is that criminal organizations use violence against politicians largely to affect politics. The two theories are that criminal organizations strategically use violence (1) before elections, to minimize the adverse selection of politicians or (2) after elections, to minimize the moral hazard from politicians.[3] Our test is based on a novel dataset of attacks on Italian local politicians from 2010-2014.[4] This dataset measures attacks against politicians rather than general crime rates, as in the above-mentioned studies. Our identification strategy exploits the specific design of the Italian city-level elections, which take place at different points in time across cities, a feature that allows us to (1) consider the effect on as many as 18 electoral cycles, even though we only have data on four years of observations and (2) identify the electoral period excluding any effect related to trend or seasonality by using monthly and yearly fixed effects. Therefore, we study the probability of observing an attack with respect to the electoral cycle, which is exogenously determined.

The results show that attacks on politicians in Italy remarkably increase immediately after an election, but only in Southern Italian regions historically characterized by an active presence of criminal organizations in the political arena (i.e., Calabria, Campania and Sicilia).[5] In such regions, we observe a peak of attacks in the month immediately after local elections. The increase in the relative probability of observing an attack is almost 10% (50% of a standard deviation). The fact that the attacks are only tied to the electoral cycle in such areas provides strong evidence for the idea that such attacks are not isolated events, but instead part of a strategy used by criminals to influence politics.

[3]Note that there might be other moments in which to strategically approach politicians. However, while the period around elections represents a clear, identifiable time frame, other attacks are likely to occur based on context-specific events (e.g., before the approval of capital expenditures), which cannot be systematically analyzed.

[4]We exclude data from 2012 for reasons explained in Section 4, which gives us only four years of observations.

[5]Note that our results are unaffected when we also include a fourth region that has more recently been affected by organized crime, i.e., Puglia.

Such findings are line with Dal Bó and Di Tella (2003) and Dal Bó, Dal Bó, and Di Tella (2006), as criminal organizations appear to strategically use violence immediately after a new government is elected, and with Dell (2015), who finds an increase in drug-related violence against Mexican mayors in the period immediately after the inauguration of their government.[6] In fact, right after elections important decisions are made, from official appointments to political programs, and there might be a high return, in terms of influence, on conditioning politicians during this period. Additionally, criminal organizations might incur reputation costs if the new government undertakes political actions explicitly intended to harm the criminal organization. More generally, organized crime might want to send signals about its strength and the risks associated with disobeying its will in order to condition political decisions from the start of the term.[7]

Following this reasoning, criminals might be more likely to target first-time elected governments, as they are less likely to have already been threatened by criminal organizations. While local governments in their second term have most likely already bargained with organized crime during their previous term, newly elected politicians constitute new agents with whom to negotiate. Indeed, this is what we observe: we find that previous results are driven by elections in areas where organized crime is very visible, which led to the appointment of a new local government. Those findings are robust to several robustness tests, such as different definitions of the dependent variable and different measures of organized crime's spatial presence.[8]

[6]In a similar vein, Hodler and Rohner (2012) observe that terrorist groups such as ETA and Hamas historically used to strike right after an election took place. They model this empirical pattern as the result of an incentive mechanism in which striking early in the electoral term allows the terrorists to collect information on the "type" of government they will have to deal with.

[7]A recent report of the Italian Parliament (Lo Moro et al., 2015) provides evidence of the motives that might trigger violence against mayors and politicians at the city level (see next section). The report devotes a section to electoral violence, pointing out that different episodes, from threatening letters to severe threats, "show the existence of a very precise dynamic criminal organization interference in determining political and administrative equilibria" (Lo Moro et al., 2015, 177).

[8]A similar prediction could arise from the model of state-sponsored protection rackets developed by

Overall, this paper contributes to our understanding of the strategic behaviors criminal organizations use to influence politics. The previous literature has discussed how organized crime has manipulated the political selection process and electoral outcomes in different countries. For instance, Acemoglu, Robinson, and Santos (2013) show that paramilitary groups in Colombia have significant effects on both elections and politicians' behaviors when in office. De Feo and De Luca (2013) provide similar evidence for Italy, showing that the Sicilian mafia has been able to obtain economic advantages for its electoral support. In this light, Barone and Narciso (2011) show that city councils where organized crime is more active are more likely to attract national funds. Moreover, criminal organizations can affect political selection, discouraging high ability candidates from entering in politics, as shown by Daniele (2015) and Daniele and Geys (2015). Finally, this paper is also linked to the broader literature on pressure groups and lobbies. Lobbying activities by organized groups peak during the electoral period (e.g., through campaign contributions): this is investigated in several studies that model the behavior of lobbies in the electoral context (Austen-Smith, 1987; Baron, 1994; Besley and Coate, 2001).

In the next section, we provide descriptive evidence of the ways in which organized crime influences politicians. In Sections 3 and 4, we present the empirical strategy used to test the two theories mentioned above, the main results and some robustness tests. We conclude in 6.

Snyder and Duran-Martinez (2009). They suggest that the breakdown of state-sponsored protection rackets can lead to increases in violence. In our case, the observed increase in political violence after the election of a new government might reflect a coordination failure between mafia and local politicians rather than bargaining (we thank an anonymous reviewer for this insight).

2 Local government in Italy

Italy is administratively divided into 20 regions, 110 provinces [9] and about 8,000 municipalities. The regions have general competencies in terms of occupational protection and safety, education and scientific research, cultural heritage, sport, airports and harbors. Before being abolished, provinces used to have specific competencies in terms of construction and maintenance of schools, roads and long-term planning in terms of environment and waste management. Italian municipalities constitute the smallest autonomous administrative unit in the country.

2.1 Competences of the municipal government

Municipal governments provide many basic civil functions, from keeping the Registry Office to managing and providing social services, transport, welfare and public works. Their responsibilities are mostly focused on local management facilities such as building permits, and concessions of leases for water, sewage and waste management, which often entail handling large amounts of resources.

According to Lo Moro et al. (2015), organized crime targets municipalities to obtain contracts for waste management, quarries and other public procurements from which high profits can be extracted by using low quality materials and cheap illegal labor. Municipal governments also receive pressure for a variety of reasons, including requests for employment for the city hall, housing, welfare subsidies. Finally, municipalities have competencies in terms of prevention and control of money-laundering and racket in local commercial activities and are directly responsible for the management of the assets confiscated from the Mafia.

[9] Provinces were abolished in 2015.

2.2 Municipal Elections

Municipal governments are headed by a mayor, an elected legislative body, the municipal council, and an executive body appointed by the mayor, the College of Aldermen. The mayor and the council are elected every five years, but the electoral term can be interrupted earlier if the mayor or more than half of the council resigns, or if the mafia infiltrates the municipal government.[10] In municipalities with less than 15,000 inhabitants, elections take place in one round only; the candidate with the most votes becomes mayor. In larger cities, mayors must obtain an absolute majority to be elected. If this is not reached in the first round of the election, a second round takes place between the two candidates who received the most votes. Finally, mayors can be elected for a maximum of two consecutive terms, after which a change in government must take place. In our analysis we consider electoral information about local elections in the period 2010-2014. Such data are provided by the Italian Minister of Interior Affairs.[11]

2.3 The first steps of a municipal government

The inauguration of municipal governments happens within the first two months from elections and some crucial decisions are taken within the first 45 days. The first step is the proclamation of the Mayor, which coincides with the official proclamation of the results of the elections by the electoral office. Within three days, the mayor announces the elected members of the Council which need to gather in the Council for the first time within 10 days from their announcement. Within the announcement and before the first Council, the mayor has to nominate the Aldermen and the Vice-Mayor. Within 20 days

[10] Other reasons include: the inability of the mayor or more than half of the council to continue with their activity due to permanent impediment, removal, appointment decay or death; violation of the Italian Constitution or persistent violation of laws; and inability to approve the budget. See Articles 141, 143–146 of Legislative Decree N. 267/2000.

[11] `http://elezionistorico.interno.it/index.php?tpel=G` (last accessed 21 July 2016).

from the inauguration, the mayor has to officially present the team of Aldermen and take the oath on the constitution. Within 45 days from the proclamation, the mayor has to present the government programme and nominate the representatives of the municipal government in other local authorities and institutions.

3 How mafias influence politics

Overall, our knowledge of the strategies used by criminal organizations to influence politicians is rather limited. We created a database detailing violence against politicians in Italy from 2010–2014 to shed light on this phenomenon. The dataset includes victims' identities and the types of attacks, which allows us to detect patterns in the timing and spatial distribution of the attacks. Our database relies on four yearly reports published by Avviso Pubblico, an Italian non-governmental organization (NGO)[12] that systematically collects local news and primary sources on threats and attacks directed at Italian local politicians from 2010 on.[13] Avviso Pubblico was founded in 1996 with the aim of "connecting and organizing public administrators who are actively committed to promoting the notion of democratic lawfulness in politics, public administration and on the local territories they preside over."[14] On a daily basis, volunteers from AvvisoPubblico consult and register news of attacks on Italian politicians and public officers at all levels of government that appear in national or local newspapers or that are communicated to the NGO directly through first-hand sources. These data demonstrate that violence targeted at politicians

[12]Note that official data about violence against politicians are not available.

[13]For the year 2012, information was collected *expost* using internet searches only, rather than daily news consultation and first-hand information collection. As a result of this different methodology, only 47 attacks were recorded for this year – six times less than the yearly average. Due to the partiality of these data and the difficulty of making meaningful comparisons with the rest of the data, we decided to drop this year from the analysis.

[14]`http://www.avvisopubblico.it/home/associazione/chi-siamo/about-us/` (last accessed 21 July 2016).

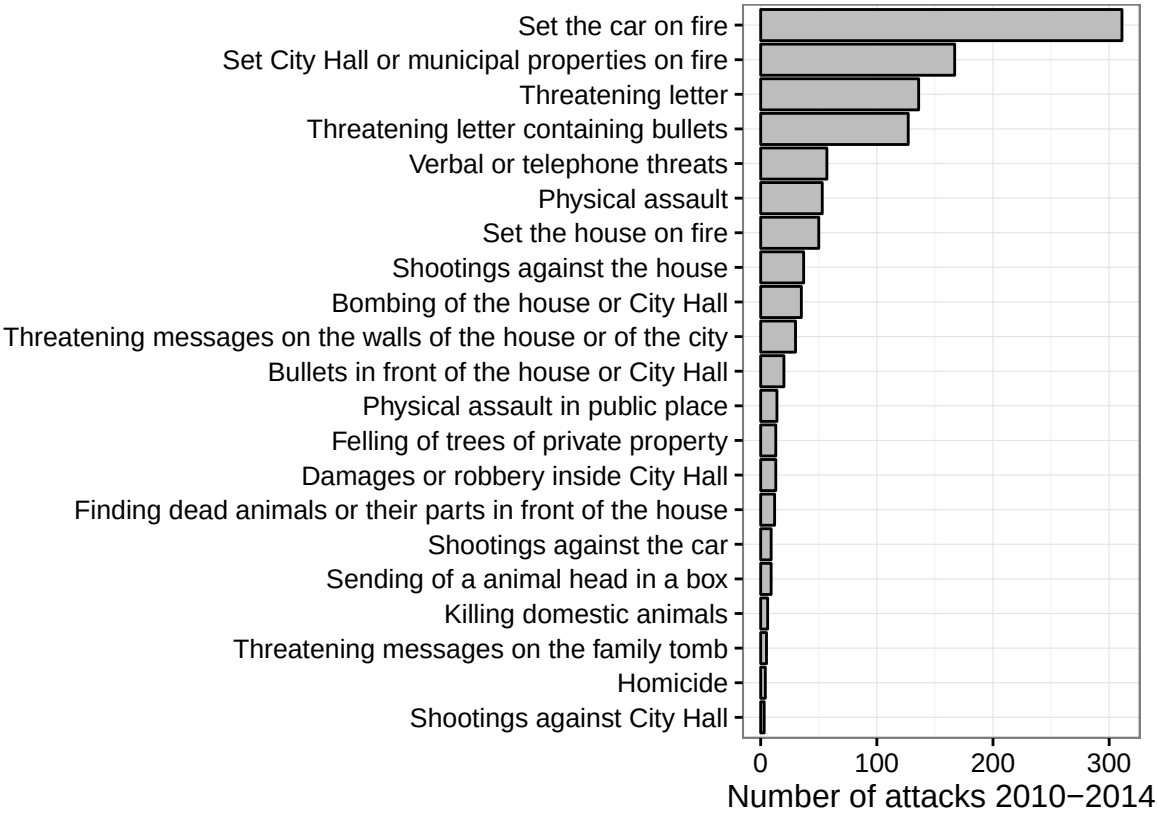
is not sporadic. From 2010 to 2014 there were, on average, 277 attacks against Italian politicians, ranging from a minimum of 220 in 2010 to a maximum of 328 in 2013. In the following section, we will discuss the specifics of these attacks.

3.1 Different types of violence: from threatening letters to homicides

From 2010–2014, the most common types of attacks were arson (targeting cars and the City Hall or its structures) and threatening letters, which together constituted two-thirds of the total. This pattern is similar across high and low organized crime areas, as well as across different categories of politicians. Physical attacks and arson of politicians' houses also happened in a relevant number of cases, 67 and 50 times, respectively, in our four years of observation. Other types of attacks happened less often, including bombings of politicians' houses and City Hall (34 cases) and homicides (two cases; see Figure 1 for the full list). The use of homicide to stop the activity of a particularly hostile politician, and to intimidate others like him, is likely to be particularly costly for criminal organizations due to the state's mobilization to persecute the instigators of the attack . From 1974 to 2016 criminal organizations were responsible for a total of 62 homicides (Lo Moro et al., 2015), an average of 1.5 per year, much less than any other category of attacks observed in our data. Therefore we test the hypothesis that a recurrent strategy is to escalate the use of violence. When the same victim is attacked more than once, attacks could escalate from less severe to more severe attacks.[15] This hypothesis is not supported in our database: out of 22 mayors who were targeted in more than one attack, a more violent act followed a less serious one in only four cases. In all other cases, the seriousness of the

[15]To test this hypothesis, we classified attacks as of low severity when they consisted of a threat such as letters or verbal menaces; as medium severity when they consisted of a symbolic attack involving damage such as killing domestic animals, damaging City Hall or sending animals' heads in boxes; and of high severity when they involved violence – e.g., bombings, shootings, arson, physical aggression and homicides.

Figure 1: Types of attacks against politicians, 2010–2014



Note: The histogram shows the number of attacks targeting Italian politicians from 2010–2014 in each category. The total number of attacks was 1,111.

attack remained the same or decreased.

3.2 Geographic distribution: more violence where crime is organized

As many as 80% of the attacks took place in the south of Italy, particularly in the regions most affected by organized crime. Of the 20 Italian regions, 57% of the attacks took place in the three in which mafias were born and have been historically more active, Sicily, Calabria and Campania. The other two regions that report above-average levels of political violence are Puglia, where a fourth, more recent criminal organization is active,

and Sardinia.[16] This pattern supports the idea that the attacks reported in this database were for the most part organized and executed by criminal organizations. Figure 2 plots the distribution of attacks by region.

Figure 2: Heatmap of attacks by Italian Region 2010–2014

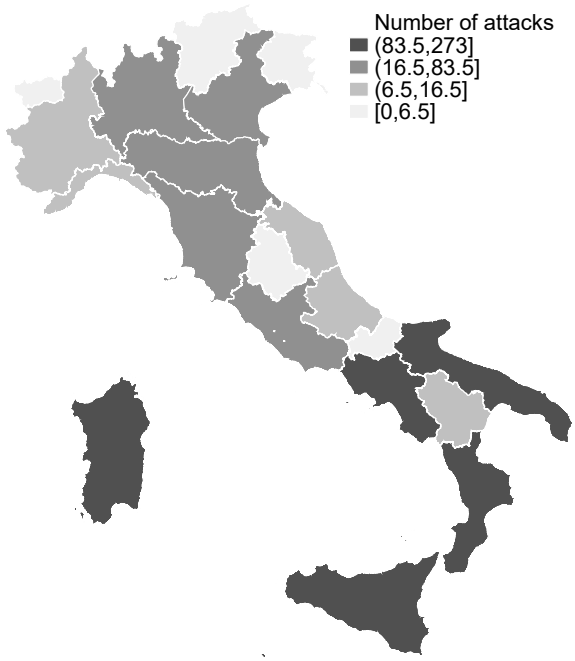
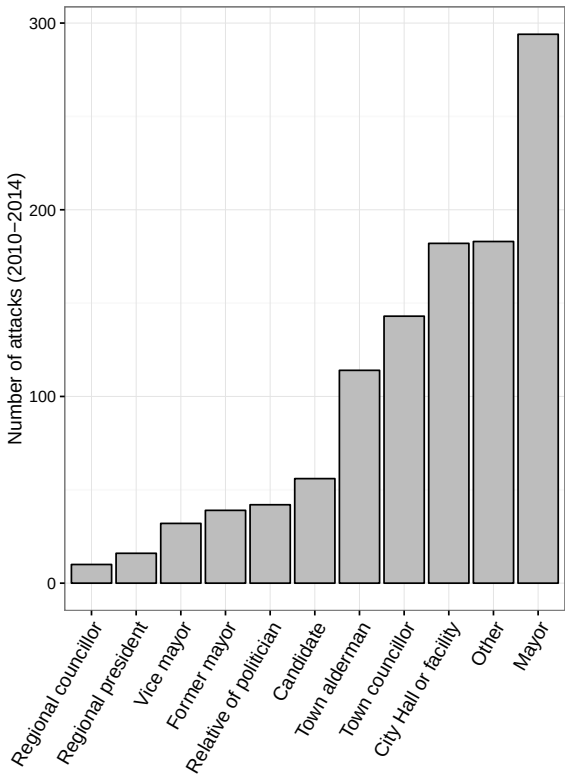


Figure 3: Victims of the attacks, 2010–2014



3.3 Targets of violence: municipal-level politicians

Mayors are the victims in 28% of the attacks in our dataset. Town councilors and aldermen are also at high risk: 13% and 10% of the attacks are directed at them, respectively. Policemen and managers of the Public Administration and other public facilities (in Fig-

[16]Lo Moro et al. (2015) explain the high levels of violence in Sardinia as "a phenomenon that should be placed in a larger context of 'archaic' behaviors, characterized by a culture of revenge and retaliation, which does not recognize in the state the capacity to properly and promptly administer justice" (Lo Moro et al., 2015, 96).

ure 3, they are grouped in the category *Other*) constitute another 16% of the attacks (See Figure 3 for full list). While the fact that most of the attacks are directed at mayors is consistent with targeting the most visible and prominent local politician, it is interesting that national politicians never appear in our data as targets of attacks, which seems to suggest that using violence against national politicians is not considered a cost-effective strategy. This might be due to the higher levels of protection offered to national politicians and their greater public exposure, which might entail more severe consequences in terms of state mobilization against mafias after an attack. While we cannot draw conclusions about the reasons why this happens, our data strongly suggest that violence is a strategy mostly used against municipal-level politicians.

3.4 Timing of the attacks: election period?

In the four years studied, the number of attacks directed at politicians has been growing. However, the succession of threats and violence did not follow a linear within-year trend. The highest peaks were usually reported in May, which is when most local elections take place. In Figure 4 we overlapped the timing of elections and the number of attacks per month, using different shades of grey for months with elections taking place in 1 to 10, 10 to 60, and 60 or more cities. From Figure 4 we can see that there seem to be peak around election periods, suggesting a correlation between municipal elections and attacks. However, there are two possible confounding factors. First, this figure does not allow us to disentangle whether attacks took place right before or right after elections, a difference that is meaningful for our analysis. Second, this correlation could be due to the seasonality of attacks that, for some other reason than elections, might peak during election periods.

So far we have provided descriptive evidence on which types of attacks are used against politicians, who are the victims, where and when they take place. The last (and most in-

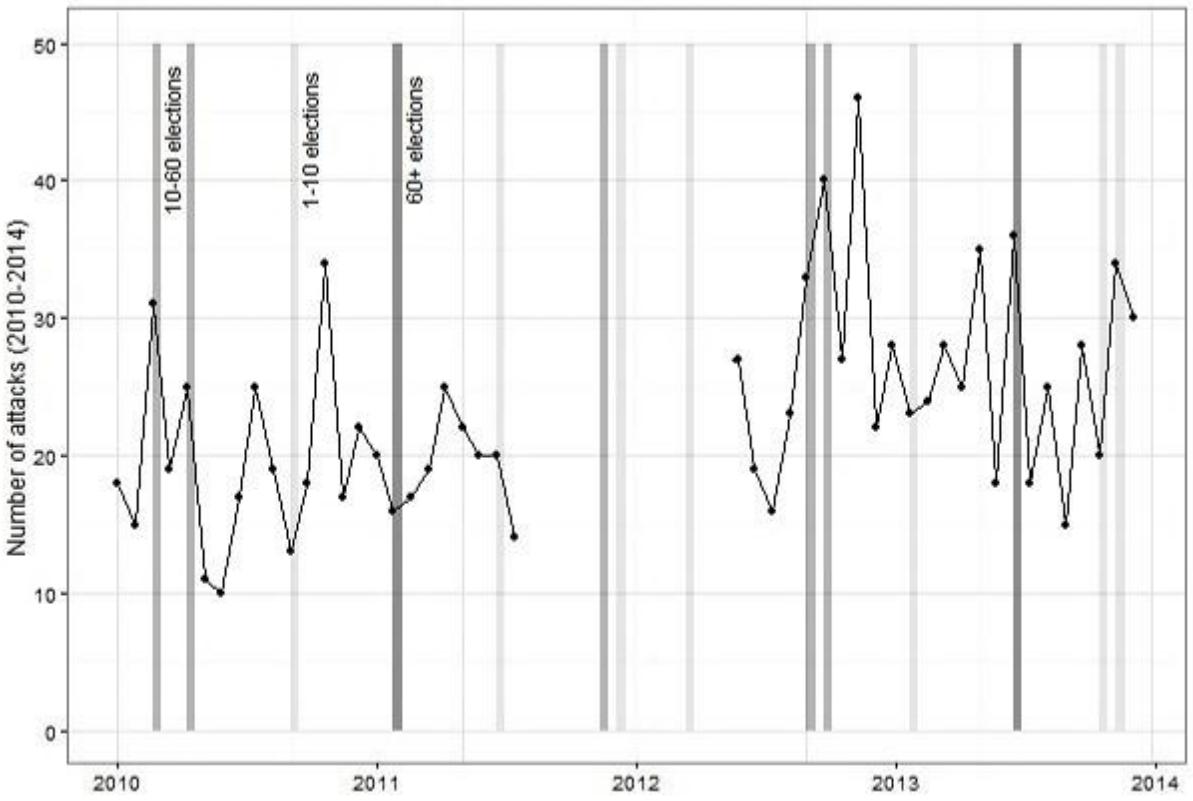
teresting) question is *why*. Our main analysis will provide a causal answer to this question, testing two different theories that link the strategic timing with the reasons underlying the attack. The first, advanced by Dal Bó and Di Tella (2003) and Dal Bó, Dal Bó, and Di Tella (2006) for criminal organizations and by Hodler and Rohner (2012) in the context of terrorism, suggests that violence is used after elections to discourage politicians from opposing illegal interest groups. The second, proposed by Pinotti (2012), Sberna and Olivieri (2014), and Alesina, Piccolo, and Pinotti (2016), suggests that criminal organizations use an escalation in violence before elections to influence the electoral outcome. In the next two sections, we will explain the empirical strategy of this test and show the results.

4 Empirical strategy

We create a 30-day-period panel of all the cities that experienced at least one attack at any point in time between 2010 and 2014 during the 12 months up to (or on) an election day. Each 30-day period is calculated starting from the day of the election, so that periods do not correspond precisely to months of the year. Note that restricting the period of observation to the 12 months before/after elections and considering only cities-cycle observations in which more than 50% of the periods are available [17], substantially reduces the number of valuable attacks for our analysis (N=421). This section discusses three different issues that we should be concerned about when using these data for the analyses.

[17]The reason why some periods might be unavailable is because they might fall into years for which we do not have crime observations. For example, for a city with elections in May 2010, the period $t-5$ (150 days before elections) corresponds to December 2009, for which we do not have data on attacks.

Figure 4: Timeline of attacks and elections, 2010–32014



Note: The figure shows the trend of attacks in relation to election periods. The dots indicate the number of attacks in each month and the vertical lines the occurrence of elections. Darker shades of grey indicate that more elections take place during that period (in order of darkness: 60 or more; 10–60; 10 or less).

4.1 Measurement error in the dependent variable

First, we might be concerned that our dependent variable is affected by measurement error. Indeed, we cannot be sure that all the attacks reported are carried out by organized crime groups, as these events are rarely brought to trial. Measurement error in the dependent variable does not introduce any bias into the estimates, but might inflate standard errors, thus reducing the power of our statistical test. Three facts are worth noting in this regard. First, even if we account for the possibility that random attacks are reducing our statistical power, if we still observe a systematic increase in attacks during the electoral period, this would constitute initial evidence that attacks on politicians are performed strategically, and not at random times due to private (i.e., non-political) motives. Second, if criminal organizations are indeed the perpetrators and sponsors of the intimidation, we should observe a greater increase in attacks in areas where criminal organizations are more active. We test this hypothesis using different measures of organized crime presence in an area.[18] Third, the parliamentary report mentioned above (Lo Moro et al., 2015), which documents the connection between attacks against politicians and organized crime using both public and restricted-access data, estimates that attacks driven by personal motives constitute a very small fraction of the total. In particular,

> "Data provided by the Prefectures show that less than 8% of the acts of intimidation to which a motivation could be attributed refers to personal motives, private disputes that fall outside of the political and administrative engagement of the victim and 3% have vandalistic nature" (Lo Moro et al., 2015,

[18] One might be concerned that attacks committed by mentally ill people might increase close to elections as a function of politicians' higher visibility during this period. The peak in violence that we observe in mafia-affected areas might also be interpreted as the product of a general culture of violence affecting these particular areas. Still, in this case we would expect attacks to mostly take place during the electoral campaign, in the period of politicians' higher visibility before elections. Instead, as shown in Section 5, we observe a peak in attacks in mafia-affected areas after elections have taken place.

178).

4.2 Addressing selection bias

An additional concern is that the media is our primary data source, which causes two potential problems. First, we might be capturing only the effect on the population of politicians who decide to denounce an attack. Second, and most importantly, we might be capturing an increase in attacks around elections only because the media talk about attacks on politicians during periods when politics is more salient. Media under-reporting is probably not a real concern, as attacks against politicians are uncommon events in most cities. However, we address both issues by performing a robustness test on a restricted sample containing only the most visible attacks –those that can be seen by people other than the victim and, thus, are likely not to be hidden. In this test we exclude all types of threatening letters and menaces and include, for example, arson against City Hall, shootings at politicians' houses, bombings and homicides.[19] Such attacks are visible, and thus the politician is not in the position of deciding whether or not to report them to the police, and the local media would cover the news even far from the election period. Finally, if media salience is driving the peak in attacks around elections, we should observe an increase right before elections take place. Instead, no significant variation in attacks happens before election day.

4.3 Identification strategy

To identify the effect of the electoral cycle, we exploit the specific design of Italian local elections, which are distributed on a rolling basis in a five-year cycle across cities (Figure

[19]Other visible attacks include arson of a politician's car or house, physical aggression, robberies of and damage to City Hall, and shootings of a politician's car. We define attacks as not necessarily visible when they consist of threatening letters, verbal or telephone threats, bullets left in front of a politician's house, felling trees on private property, sending dead animals to a politician, or killing his or her domestic animal.

4). Elections happen in March, April, May, June, October and November each year.[20] This particular feature gives us two advantages. First, even though our database consists of only four years, we observe 18 electoral-period observations, which allows us to draw meaningful conclusions about attacks' recurrence within electoral cycles. Second, and most importantly, the panel structure of our data combined with the exogenous variation in the electoral periods allows us to isolate the effect of the electoral period from any time-specific effect – trends and seasonality of the attacks – which might be the actual driver of the results. Additionally, using municipal-level fixed effects accounts for any city-specific factor. In other words, our identification strategy resembles a difference-in-differences framework in which we observe each city's outcome before and after the treatment (i.e., a municipal election), where the assignment to the treatment (i.e., the timing of elections) is independent of both attacks and the actors involved. The baseline specification is a regression of the following form:

$$\begin{aligned} Y_{it} =& \alpha + \sum_{t=-n}^{+n} \beta_{it} X_{it} + \sum_{t=-n}^{+n} \gamma_{it} X_{it} * Mafia_i \\ &+ \theta_i + \sum_{m=1}^{12} 1\{Month = m\} + \sum_{z=2010}^{2014} 1\{Year = z\} + \epsilon_{it} \end{aligned} \tag{1}$$

Our dependent variable is the number of attacks in municipality i and period t. However, as there are very few cases of more than one attack in the same month within the same city (less than 1%, with a maximum number of five attacks), we transform this variable into a dummy taking a value of 1 (0 otherwise) if (at least) one attack takes place. In our main results, we use all reported attacks as the dependent variable. In a robustness test, we report our results using *visible* attacks as the dependent variable, as they are less likely to be affected by measurement error (see Section 4.2). The number of

[20] For cities above 15000 inhabitants, we consider - if available - the date of the second round of elections (see Section 2.2).

attacks in municipality i and period t is a function of a vector of dummies X – one for each 30-day period before ($X_{t<0}$) and after ($X_{t>0}$) election day. For example, if in city i elections take place on 5 May 2013, the dummy $X_{it=-1}$ takes a value of 1 from 4 April 2013 to 4 May 2013 and 0 otherwise, the dummy $X_{it=-2}$ takes a value of 1 from 4 March to 4 April and 0 otherwise, and so on until $t = n$.

This methodology represents a significant improvement in the correct identification of the effect of the electoral cycle. Several studies (Akhmedov and Zhuravskaya, 2004; Brender and Drazen, 2005; Shi and Svensson, 2006) pointed to the problems of poor identification resulting from not disentangling pre- and post-electoral periods properly. If elections occur on 2 February, for example, most of the election month represents the post-electoral period. However, many studies consider the entire month – or even the entire year – as the pre-electoral period. In an attempt to overcome this issue, Shi and Svensson (2006) propose to run robustness tests to check that the results are not driven by early or late elections. Franzese and Robert (2000) suggest to weight the yearly dummy for pre- or post-election by the share of the year that occurs before or after elections. Cazals and Sauquet (2015) estimate a Cox proportional hazard model. By calculating dummies that correspond to 30-day periods before and after the election in each municipality and year, we overcome poor identification issues and precisely define periods in the electoral cycle.

For each election in each city, we consider a time window of 24 periods of 30 days around the electoral date, 12 "months" before and 12 after election day. We chose a window of 12 months because we want to consider a period long enough to test whether (1) there are multiple, random peaks at different points in time or (2) there is significant

variation only around elections, as we hypothesize.[21][22] Using a shorter or longer window, however, does not affect our results. In the Appendix we replicate our main analysis using a time window of six months (see Figure A.2).[23] The set of period dummies allows us to capture the effect of each election period on the probability that an attack will take place. Note that in all specifications, the base omitted category is the first period, i.e., $X_{it=-12}$, but changing the reference category to the period right before elections ($X_{it=-1}$) confirms our result (see Table A2).[24]

The second term in the equation is the interaction of each of the period dummies with the dummy $Mafia$, which takes a value of 1 in areas particularly affected by organized crime. This term allows us to consider the differential effect of each period in cities affected by high levels of organized crime. We assess the presence of criminal organizations considering cities in regions that have historically been affected by this phenomenon, i.e. Calabria, Campania and Sicilia. However, in Section 5, we also take into account other

[21]In the Appendix (Figure A.1), we show the distribution of attacks based on this timing definition, where we can exactly measure the distance of each attack from the last local election. In line with Figure 4, we observe a peak during the electoral period. However, this figure shows that the peak - at least for high crime areas - is reached immediately after the elections (t+1). Such descriptive evidence will be confirmed by our findings in Section 5.

[22]Note that in order to observe up to 12 months before and after elections, we had to drop all electoral cycles happening less than 720 days of distance from the other within the same city. As a result, we drop 15 electoral cycles (our results are unaffected by the inclusion of such observations). We consider only 24 periods because in many cities, elections happen more often than every 720 days, and we would have to drop more observations in order to observe slightly longer periods. However, when replicating the analysis using a longer period of observation, our main results hold. Moreover, a simpler specification would rely on periods corresponding to actual months. For example, if elections in city i happen in May, we would consider the effect of April, March, February, etc. on the probability of being a target of violence. Yet this specification does not allow us to properly distinguish between pre- and post-electoral attacks that take place during the month of the election, which is why we did not adopt it as our preferred option. However, the results are very similar using this alternative strategy, both in size and significance (results available upon request).

[23]Even though potentially we could recover the 15 city-cycle observations that we dropped due to overlap, in practice the number of observations we consider remains the same. This is because, when we consider only 6 months from election, all the observations that we dropped fall in a time period for which we do not have attack data (i.e. 2009 or 2012).

[24]Note also that our results are unchanged if we drop all cities having earlier elections (See section 2.2). This is important as in the case of earlier elections the electoral timing is not exogenously determined.

three measures: i) cities where at least one firm was seized to organized crime;[25] ii) city councils dissolved for mafia infiltration;[26] ii) an index for mafia presence (scored from 0 to 100) at the provincial level (Calderoni, 2011). The index takes four measures of mafia presence into account: the number of mafia homicides, the number of active criminal organizations, the number of firms and houses seized by criminal organizations, the number of city councils dissolved due to mafia presence in the council (for more details, see Calderoni (2011)). The remaining terms in Equation 1 represent city, month and year fixed effects. Due to the nature of our data, in which cities in the period taken into account in the regression rarely experience more than one attack, serial correlation of errors is not a concern. Finally, all standard errors are clustered at the city level.

5 Results

Figure 5 and Table 1 show the coefficients from estimating Equation 1, focusing on attacks around a window of two periods from and to elections. In the top(bottom) of the figure, we present the results from the estimation of Equation 1 where the dummy $Mafia$ in the interaction equals 0 (1). In other words, the top panel represents the effect of each period on the probability that an attack will take place in a region with a low presence of organized crime. The bottom panel represents the differential effects in areas with a high presence of organized crime. Here the areas with high organized crime are defined as regions in which the three main Italian criminal organizations originated and are highly active (Sicily, Campania and Calabria, e.g., Pinotti (2015)). Overall, we observe that the coefficient for the period immediately following elections is the only one that is significantly different from zero, and only in regions affected by high levels of organized crime (the only

[25]Firms can be seized to criminal groups since 1982 due to the Law Rognoni-La Torre N. 646, 1982.

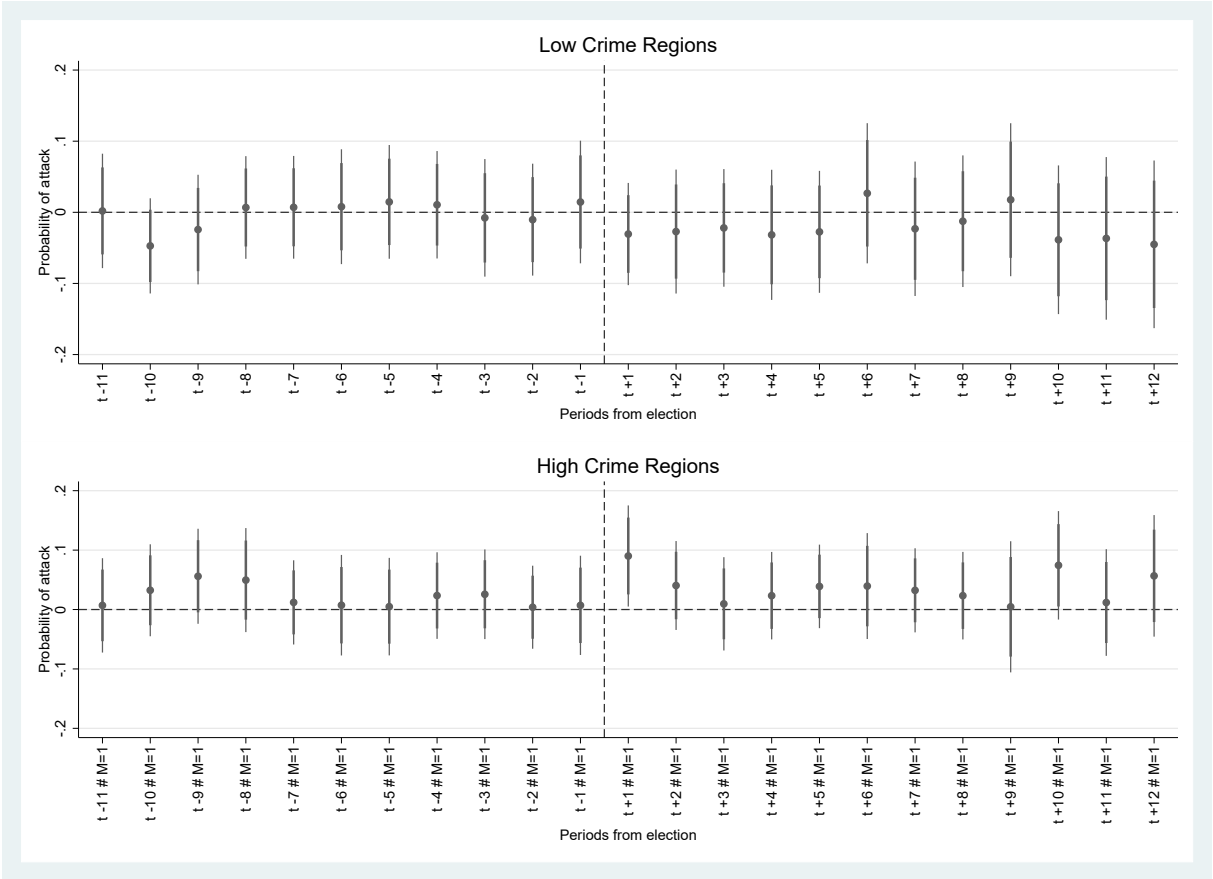
[26]City councils can be dissolved for mafia infiltration since 1991 as regulated by Art. 143 of the Testo Unico degli Enti Locali (D.Lgs. 267/2000).

exception is $t + 10$ in the bottom panel, which is significant at the 5% level). The peak in the bottom panel of Figure 5 represents a 9-percentage-point relative surge in the probability of attacks (Column 1 of Table 1), which is a sizable effect. This coecient is also statistically dierent from the same coecient in areas with a low organized crime presence (Column 1 of Table 1). The probability of being a target of violence remains higher than average in the second period after elections, and slowly goes back to normal after period $t + 3$. Note that in all tables, in order to preserve space, we report only the coefficient of $X_{it=+1}$ (simply $t + 1$ from now on) and its interacted terms.

Such results are in line with criminals exhibiting the strategic behavior of targeting politicians during the electoral period – especially in the weeks immediately after the election – in order to influence policy making from the start of their political term (Dal Bó and Di Tella, 2003; Dal Bó, Dal Bó, and Di Tella, 2006). Following this reasoning, we should also expect such strategic behavior to be more likely when a new incumbent is elected, as this represents a potential new target for criminals. In Figure 6 and Table 1 (Columns 2–4), we present the results of our test of this prediction. Specifically, we estimate Equation 1 in two different sub-samples: elections that do not bring a new local government to power (left-hand panels of Figure 6, Column 3), and those in which the incumbent is re-elected (right-hand panels: Column 2; in Column 4, we report the estimation of the entire sample). Since Italian mayors have a two-term limit, new governments come to power regularly in all types of cities. First, we observe no clear trends in areas with a low mafia presence (bottom panels), except for a weakly significant decrease in the period t+1.[27] Second, cities in mafia-affected areas with a change in government experience an increase in attacks on politicians around elections; this trend is clearly vis-

[27]A decrease in violence in low-crime areas when a new government is appointed is consistent with our theory. Attacks unaffiliated with organized crime tend to be a response to government institutions' performance – which at this point would be unknown – and not, as in the case of organized crime, a signal to the institutions intended to condition their future behavior.

Figure 5: Probability of being a target of violence



Note: The figure shows plotted coefficients from panel estimates where the dependent variable is a dummy equal to 1 (0 otherwise) if there is at least one attack in city i in period t. We consider 30-day periods from -12 to + 12 (12 months before and after the elections). Each variable is a dummy equal to 1 in the respective period. *High(Low) Organized Crime* (here referred to as M) is a dummy equal to 1 only for regions with high(low) criminal organization involvement in politics. The base category is the period -12 to election. The lines report 5% confidence intervals.

ible and has a stronger effect compared with previous results. Therefore, previous results seem to be driven by attacks following changes in government in regions where criminal organizations are politically active: criminals' strategic behavior is also determined by the electoral outcome, as a new incumbent seems to be a more likely target of attacks. The same conclusions can be drawn from Table 1 (Columns 2–4).[28][29]

5.1 Robustness tests

In this section, we present several robustness tests to provide additional evidence in favor of our main findings.

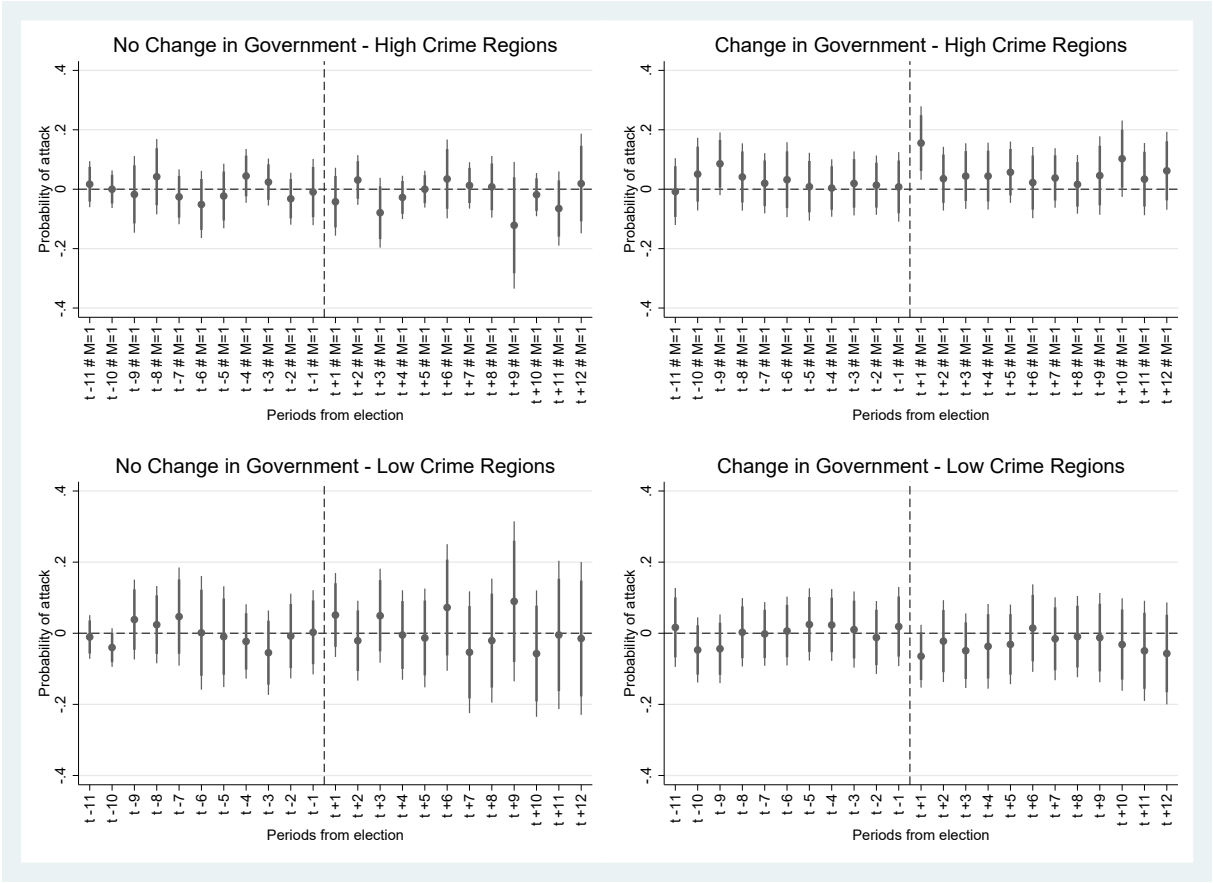
5.1.1 Visible attacks

As explained in Section 4.2, we perform a robustness test on the group of *visible* attacks, dropping those (e.g., threatening messages; see section 4.2 for the complete list) that can be easily hidden and therefore under-reported. In Table A3 and Figure A.3, we report such estimates. Using this subset, our previous findings are substantially confirmed as we observe an approximately 12% higher probability of attacks in the month after an election in areas with a high mafia presence, which is driven by cities changing their local governments (Columns 2 to 4). Moreover, we also observe quite volatile coefficients in the panels without governmental change. This is due to the small number of attacks within such groups, especially in the case of low-crime areas – without a change in government – which only experienced 49 attacks over the 24 observed periods. A similar pattern is also found in robustness tests in which the sub-sample of attacks, in low-crime areas without elections leading to a change in government, is very small.

[28]Note that attacks in the first weeks of the electoral term might still have a valence for political selection, as they might lead to the resignation of the new elected government. Lo Moro et al. (2015) document some cases of politicians resigning after being attacked. However, such resignations never take place in the first months after the elections (we thank an anonymous referee for this suggestion).

[29]Results are substantially unchanged using a logistic model and are available upon request.

Figure 6: Probability of being a target of violence, cities with and without change in government



Note: The figure shows plotted coefficients from panel estimates where the dependent variable is a dummy equal to 1 (0 otherwise) if there is at least one attack in city i in period t. We consider 30-dayperiods from -12 to + 12(12 months before and after the elections). Each variable is a dummy equal to 1 in the respective period. *High(Low) Organized Crime* (here referred to as M) is a dummy equal to 1 only for regions with high(low) criminal organization involvement in politics. The dummy change, for which we subset the regression, takes a value of 1 only when the election led to the appointment of a new government in city i. The base category is the period -12 to election. The lines report 5% confidence intervals.

Table 1: Main Results

	(1) Entire Sample	(2) Gov Change	(3) No Gov Change	(4) Entire Sample
t+1	-0.0305	-0.0645	0.0513	0.0506
	(0.0278)	(0.0340)	(0.0452)	(0.0373)
t+1*Mafia	0.0901***	0.155***	-0.0421	-0.0376
	(0.0329)	(0.0477)	(0.0438)	(0.0434)
Gov.Change				0.110***
				(0.0382)
t+1*Gov.Change				-0.115***
				(0.0400)
Mafia*Change				-0.0115
				(0.0456)
t+1*Mafia*Change				0.190***
				(0.0640)
City FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	7,965	5,184	2,781	7,965
R-squared	0.011	0.015	0.031	0.019
Number of cities-cycle	421	276	149	421

Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is an attack in city i at time t. t+1 is a dummy equal to 1 (0 otherwise) in the 30 days after the election day. Gov.Change equal to 1 (0 otherwise) if a new mayor is elected. Mafia is a dummy equal to 1 (0 otherwise) for cities in Sicilia, Campania and Calabria. Robust standard errors clustered at the municipality level (in brackets).
*** p<0.01, ** p<0.05, * p<0.1.

5.1.2 Salient attacks

As outlined in Section 4, a limitation of our analysis is the fact that not all types of attacks might be reported to the police and then published by the media. A possible concern is that in regions with a relatively high mafia presence, news about attacks on politicians might only be reported in the media during the electoral period. Therefore the worry is that a peak in attacks observed before local elections may be simply due to increased media scrutiny during this period. However, our results point to the presence of a peak *after* elections. In Table A4 and Figure A.4, we replicate previous findings excluding attacks that might be relatively less appealing for the media, i.e.,(i) attacks on buildings[30],(ii) attacks directed at city council members, which are less likely to be newsworthy than attacks on the mayor and iii) attacks on politicians' relatives, which might be due to reasons unrelated to politics. Again, our results remain similar: we observe a peak in attacks only in the month following the elections, driven by cities experiencing a governmental change in high-mafia regions.

5.1.3 Alternative mafia measure

Although we define high organized crime areas as the three Italian regions where organized crime has traditionally been politically active, mafia presence is very heterogeneous within these regions. Therefore, we use three alternative measures that provide more granular information on organized crime's presence. The first is the presence in a city of firms that have been seized from Mafias, presented in Table A5. Specifically, we code a dummy, *Seized Firms*, equal to one (otherwise 0) if at least one firm was seized to the mafia in the city. The second is whether the municipal government has ever been dissolved due to Mafia infiltrations, tested in Table A6. In this case, we code a dummy, *Dissolved*, equal

[30]Indeed, excluding attacks towards buildings test the robustness to using only the attacks that can be linked beyond doubt to a specific politician.

to one (otherwise 0) if a local city council was dissolved by the central government for ties between local politicians and organized crime. The third is a test based on the index developed by Calderoni (2011), which measures mafia infiltration across Italian provinces (Italy has 110 provinces, see Section 4.3 for more details about this index). In this test, we replicate previous models considering the top five provinces in terms of presence of organized crime (Figure A.5 and Table A7).[31] Our previous findings are confirmed using all these alternative measures of mafia presence. Note that when replicating the test based on the Calderoni Index with different groups of provinces, e.g., top 10, top 15 and top 20 in terms of organized crime presence, we do not find similar results, i.e., the peak in the post-electoral period disappears (results available upon request). This suggests that our findings are driven by the areas most affected by organized crime. Consistent with our expectations, criminal organizations pursue their objectives and have the tools to influence politicians only in areas where they are most powerful.

5.1.4 Political conflict

An alternative mechanism to explain our results might be that attacks are driven by conflicts and rivalries among politicians.[32] According to this logic, attacks might increase after an election in retaliation for a particularly harsh electoral campaign.[33] However, this mechanism is highly unlikely related to our findings. First, for attacks to be unrelated to organized crime, this effect should apply to both regions with and without organized

[31]According to Calderoni (2011), the top five provinces for mafia infiltration are: Napoli, Reggio Calabria, Vibo Valentia, Palermo and Caltanisetta. They are all located in three above mentioned regions (Calabria, Campania and Sicilia).

[32]Rivalries might emerge also among mafia groups, which in turn might signal their strength to the competing groups attacking local politicians. Although this might be plausible, it is highly unlikely linked to our results. In fact, such rivalries - in order to partially explain our findings - should systematically increase immediately after local elections, and especially after the election of a new local government.

[33]This idea is suggested by Villarreal (2002), who shows how homicides increase during highly competitive elections in Mexican cities. In this light, Moro, Petrella, and Sberna (2016) find a higher homicide rate in Italian cities characterized by political fragmentation.

crime involvement in politics, and with and without a change in government. Second, political conflicts should be more likely in highly contested elections. Yet when testing whether highly competitive electoral rounds lead to more attacks, we do not observe any significant difference between highly contested and weakly contested elections (defined by small margins of victory of one candidate over another). We report these findings in Table A8, where we replicate previous models distinguishing between elections based on the level of electoral competition. Here we define electoral competitiveness as the difference in vote share between the winning mayoral candidate and the runner-up. We distinguish elections in quartiles from the most contested (in the first quartile) to the least contested (in the fourth quartile). Specifically, the increase in violence in the period $t+1$ seems mostly driven by the 3rd quartile of cities in terms of electoral competition.[34]

5.1.5 Endogeneity of the change in government

We might be concerned that the change in government is in some way endogenous to the number of attacks received by the municipality. For example, successful municipal governments might be re-elected more (less change) and be less likely to be a target for mafias (less attacks). While there is no theoretical reason to expect such a relation to exist, - we would rather expect governments acting against mafias' interests to be more popular - we present a test which excludes this possibility. In Table A9, we run our analysis on the subset of cities in which a change in government was mandatory due to the rule establishing a maximum of two-terms for each mayor. By restricting the sample to cities with compulsory change only, we drastically drop observations from 5,184 (276 cities) to 1,812 (97 cities). However, even in this restricted sample our results are confirmed as the coefficient $t+1{*}Mafia$ is statistically significant at the 10% level (column 2). As

[34]In this case the sample is smaller due to 80 missing observations on electoral results from the website of the Italian Ministry of Interior.

in previous tables, in column 5, we test the triple interacted term. In this case, the lack of significance is due to the inclusion in the control group of cities that did not have a compulsory change but that still had a change in government. Therefore, in column 6, we directly compare cities with compulsory change and cities without governmental change. In this case, the triple interacted term is statistically significant, showing that our results are robust even dropping all cases of not-compulsory governmental changes.

5.1.6 Other robustness tests

We ran a series of additional robustness tests to check the validity of our findings. First, we want to assess whether the timing of the attacks is affected by the characteristics of the attacked politicians (i.e. gender, age, education). We did not find any significant variation based of such variables. Instead, we do not run tests to consider variation by party affiliation of the victim because in municipal elections candidates often run in *civic lists* which are not, at least officially, direct expressions of a national party. Party identification of local politicians is therefore difficult and very often arbitrary. Second, to rule out the possibility that our results are driven by an upward trend in violence in Southern high-crime regions, we estimate a model including region-month fixed effects and our results are unaffected by this additional control.[35] We cannot run a placebo test using the general level of violence because those data are not available at the municipal level in Italy. Finally, we test the hypothesis that there is an effect beyond the first 30 days of government. In Table A10, we run our analysis considering periods of 60 days from elections and find that, indeed, the coefficient of interest is still positive and statistically significant, even if of smaller size. When extending the period considered to 90 days after elections, the effect is still significant but the size is strongly reduced. The effect

[35]Results available upon request.

disappears when considering longer time periods. These results are consistent with idea that criminal organizations have incentive to attack in the very first weeks after election, when some crucial decisions are taken by the new government.

6 Conclusions

Criminal organizations aim to influence politics in several countries around the world. In Italy, according to our data, there were 312 attacks against politicians in 2014, a trend that has been increasing since we started measuring it in 2010. Why do criminal organizations attack politicians, and which strategies do they use to influence politics? Two theories have been advanced. For Pinotti (2012), Sberna and Olivieri (2014) and Alesina, Piccolo, and Pinotti (2016), criminal organizations try to discourage honest politicians from running for office, and therefore tend to strike in the period before elections. Dal Bó and Di Tella (2003) and Dal Bó, Dal Bó, and Di Tella (2006) instead predict violence *after* elections, in order to condition the government's activities.

Exploiting the specific design of Italian municipal elections as a source of exogeneity, we causally identify the effect of the electoral period in triggering violence targeted at politicians. The probability of an attack substantially increases in the month immediately following elections, a result that is statistically significant and applies only to regions in which criminal organizations are very politically active. This result does not seem to be driven by the harshness of electoral rivalry. Instead, in line with the model proposed by Dal Bó and Di Tella (2003) and Dal Bó, Dal Bó, and Di Tella (2006), we show that mafias attack at the start of a political term to prove they are influential from the very beginning. Important decisions made right after elections, such as political and managerial appointments, can be conditioned if organized crime intimidates the politician from the very start, a strategy that could also be optimal in terms of maximizing habit formation

and minimizing reputation costs by preventing the new government from acting against the interests of the criminal group. Consistent with this explanation, we show that the increase in attacks observed after election day is largely driven by cities that elect a new government; there is no effect in cities where the mayor is re-elected. Our results are robust to a different set of specifications for mafia-affected areas and to different definitions of the dependent variable, accounting for potential sources of selection bias.

These findings contribute to our understanding of how election outcomes affect the strategies organized crime groups use to influence politics (Becker, 1968; Dal Bó and Di Tella, 2003; Dal Bó, Dal Bó, and Di Tella, 2006; Draca and Machin, 2015). Differently from previous studies, this paper models electoral pressure as a product of violence directed at politicians rather than relying on general measures of violence, as in Pinotti (2012) and Sberna and Olivieri (2014) – a feature that is also likely to explain the differences in findings from these studies. Our findings are also different from those in Alesina, Piccolo, and Pinotti (2016), who focus on national elections, on a different period (1887–2013) and on homicides only, a typology of violence that is quite different from intimidatory attacks and which is thus likely to be adopted along with a different set of strategies than the ones suggested in this study. Finally, while we provide evidence of mafia-driven post-electoral violence in local elections, we do not deny the existence of other, non-violent pre-electoral strategies –e.g., vote buying and other forms of pressure – which are not the object of this study.

A Appendix

Figure A.1: Number of attacks by month from election

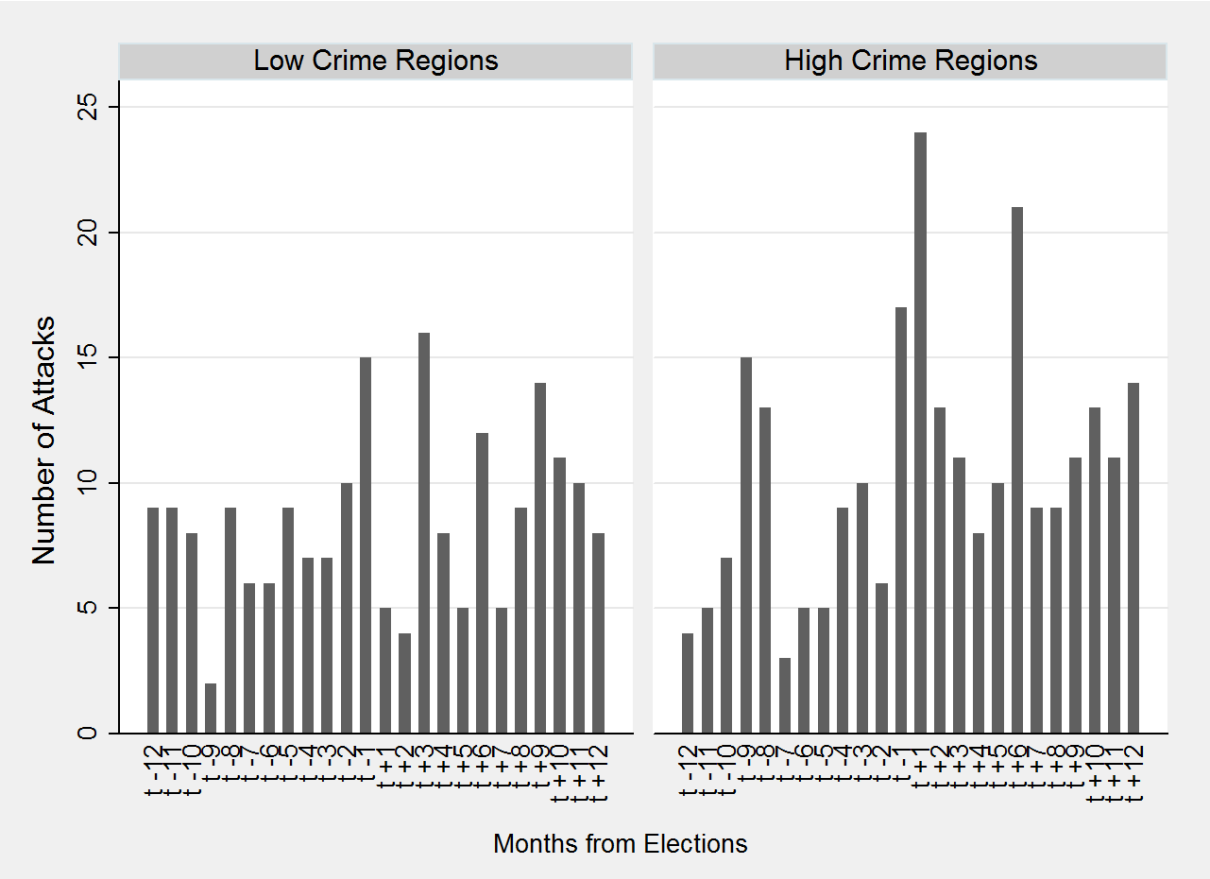
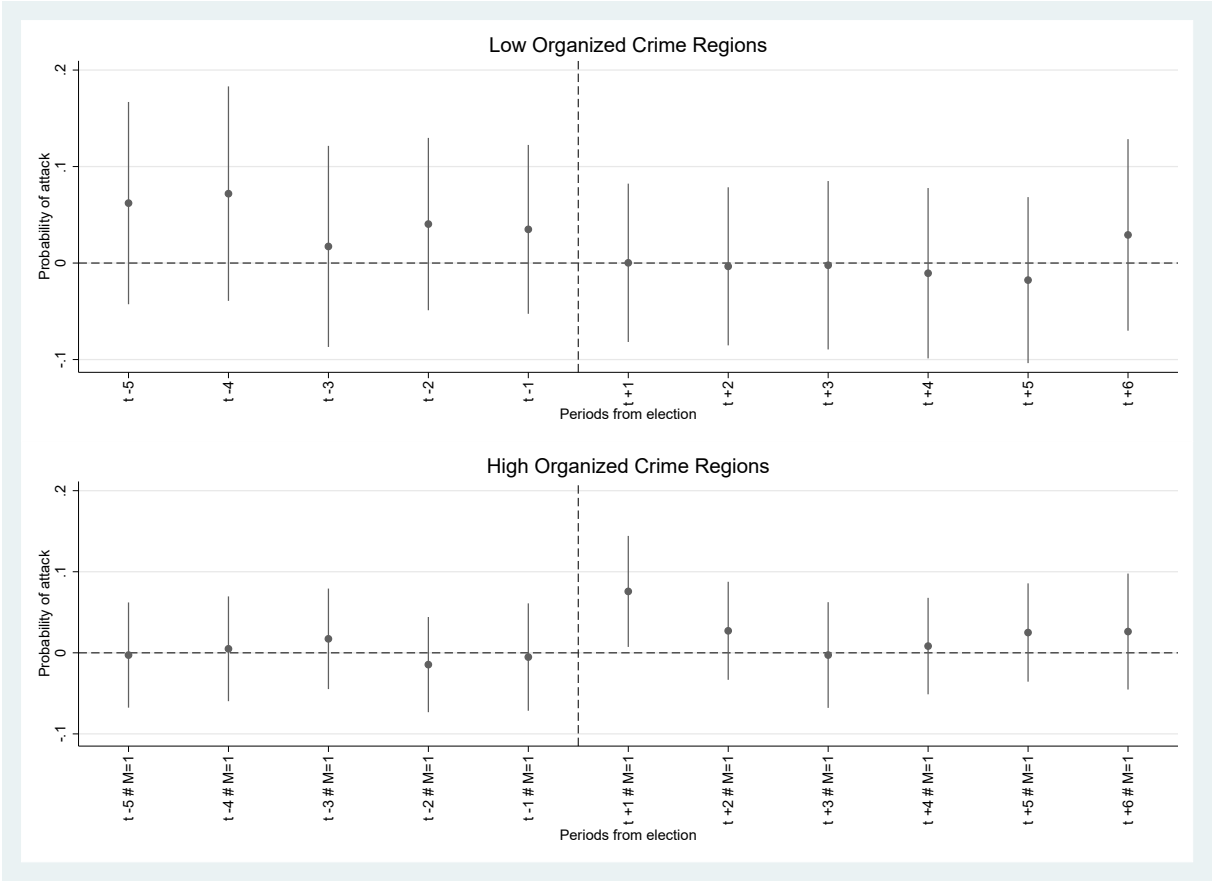


Figure A.2: Probability of being a target of violence, 6 months window



Note: The figure shows plotted coefficients from panel estimates where the dependent variable is a dummy equal to one (0 otherwise) if there is at least one attack in city i in period t. We consider 30 days periods going from -6 to +6 (six months before and after the elections). Each variable is a dummy equal to one in the respective period. High(Low) Organized Crime (here referred as M) is a dummy equal to one only for regions with high(low) involvement of criminal organizations in politics. The base category is the period -6 to election. The lines report 5% confidence intervals.

Table A1: Test on 6 months window

	(1) Entire Sample	(2) Gov Change	(3) No Gov Change	(4) Entire Sample
t+1	0.000255	-0.0440	0.509	0.367**
	(0.0417)	(0.0404)	(0.320)	(0.161)
t+1*Mafia	0.0758**	0.117**	0.00551	0.0292
	(0.0348)	(0.0519)	(0.0580)	(0.113)
Gov. Change				0.0310
				(0.117)
t+1*Gov. Change				-0.106
				(0.111)
t+1*Mafia*Gov. Change				0.201
				(0.149)
Constant	-0.0411	-0.0138	-0.695	-0.539***
	(0.0497)	(0.0491)	(0.519)	(0.111)
City FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	4,857	3,166	1,691	2,026
R-squared	0.011	0.016	0.032	0.045
Number of cities-cycle	421	276	149	172

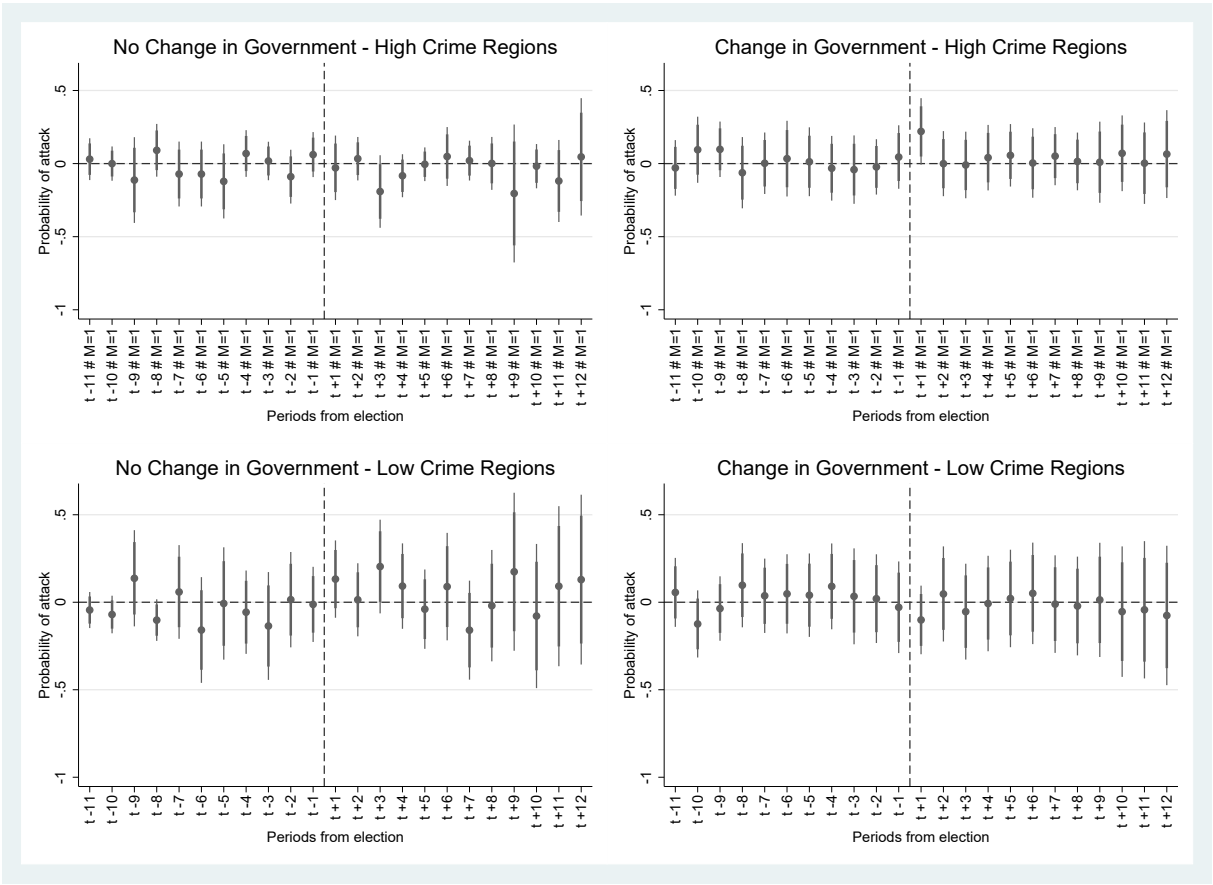
Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is an attack in city i at time t. t+1 is a dummy equal to 1 (0 otherwise) in the 30 days after the election day. Gov.Change equal to 1 (0 otherwise) if a new mayor is elected. Mafia is a dummy equal to 1 (0 otherwise) for cities in Sicilia, Campania and Calabria. The reference category is period $t-6$. In this specification, we restrict the window of observation to 6 months before and after elections. Robust standard errors clustered at the municipality level (in brackets). *** p<0.01, ** p<0.05, * p<0.1.

Table A2: Reference period t-1

	(1) Entire Sample	(2) Gov Change	(3) No Gov Change	(4) Entire Sample
t+1	-0.0450*	-0.0834***	0.0486	-0.00232
	(0.0255)	(0.0318)	(0.0384)	(0.0374)
t+1*Mafia	0.0831**	0.148***	-0.0326	-0.0132
	(0.0322)	(0.0424)	(0.0510)	(0.0449)
Gov.Change				0.0526*
				(0.0295)
Mafia*Gov.Change				0.0373
				(0.0244)
t+1*Gov.Change				-0.0635**
				(0.0321)
t+1*Mafia*Gov.Change				0.151***
				(0.0502)
City FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	7,965	5,184	2,781	7,965
R-squared	0.011	0.015	0.031	0.013
Number of cities-cycle	421	276	149	421

Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is an attack in city i at time t. t+1 is a dummy equal to 1 (0 otherwise) in the 30 days after the election day. In this table, we use the dummy for $t-1$ as reference category instead of $t-12$ as in the other tables. Gov.Change equal to 1 (0 otherwise) if a new mayor is elected. Mafia is a dummy equal to 1 (0 otherwise) for cities in Sicilia, Campania and Calabria. Robust standard errors clustered at the municipality level (in brackets). *** p<0.01, ** p<0.05, * p<0.1.

Figure A.3: Probability of being a target of violence, visible attacks, change in government



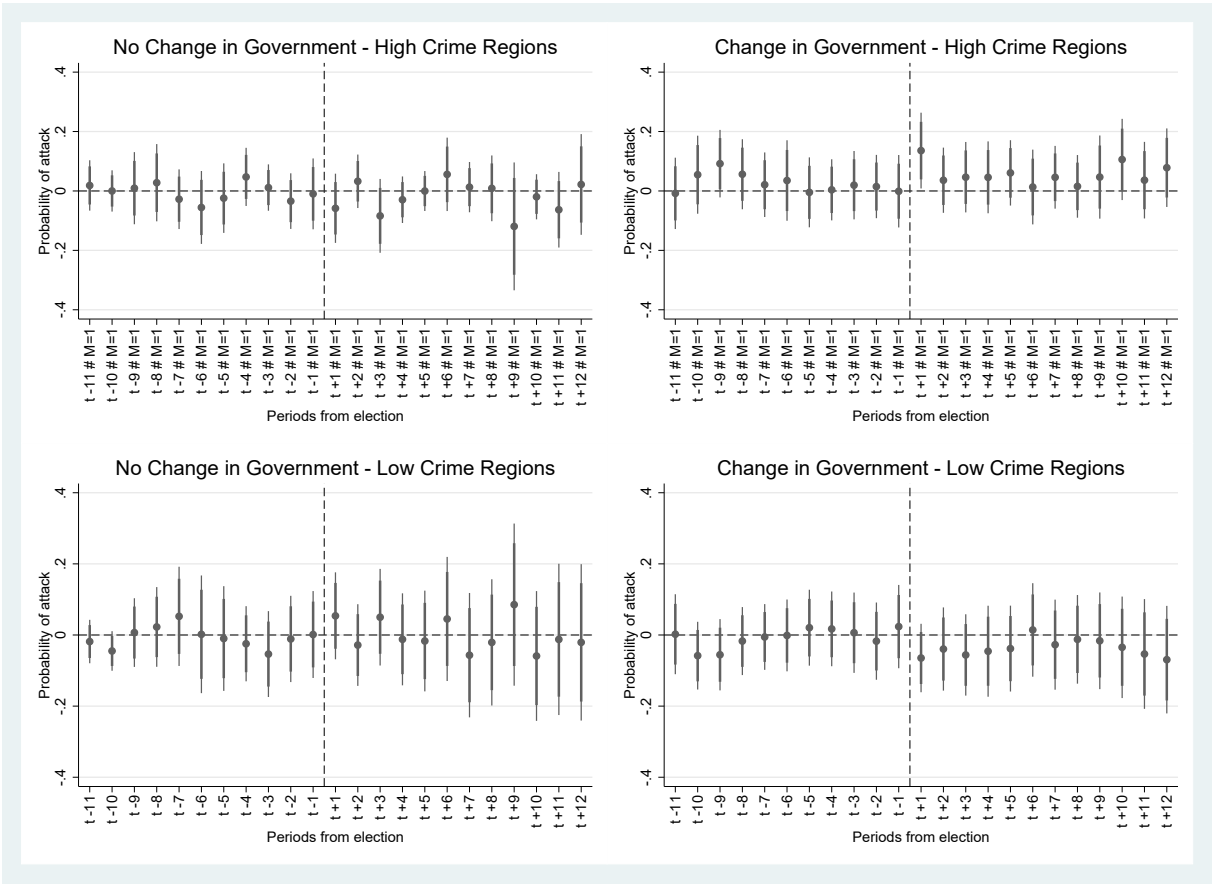
Note: The figure shows plotted coefficients from panel estimates where the dependent variable is a dummy equal to 1 (0 otherwise) if there is at least one *visible* attack in city i in period t. We consider 30-day periods from -12 to + 12 (12 months before and after the elections). Each variable is a dummy equal to 1 in the respective period. *High(Low) Organized Crime* (here referred to as M) is a dummy equal to 1 only for regions with high(low) criminal organization involvement in politics. The dummy change, for which we subset the regression, takes a value of 1 only when the election led to the appointment of a new government in city i. The base category is the period -12 to election. The lines report 5% confidence intervals.

Table A3: Visible Attacks

	(1) Entire Sample	(2) Gov Change	(3) No Gov Change	(4) Entire Sample
t+1	-0.0540	-0.101	0.132	0.0793
	(0.0547)	(0.0747)	(0.0833)	(0.0749)
t+1*Mafia	0.128**	0.220**	-0.0290	-0.0227
	(0.0603)	(0.0866)	(0.0832)	(0.0812)
Gov.Change				0.160**
				(0.0716)
t+1*Gov.Change				-0.161**
				(0.0755)
t+1*Mafia*Gov.Change				0.229
				(0.118)
City FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	3,318	2,057	1,261	3,318
R-squared	0.019	0.027	0.062	0.034
Number of cities-cycle	172	107	67	172

Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is a "visible" attack in city i at time t. t+1 is a dummy equal to 1 (0 otherwise) in the 30 days after the election day. Gov.Change equal to 1(0 otherwise) if a new mayor is elected. Mafia is a dummy equal to 1 (0 otherwise) for cities in Sicilia, Campania and Calabria. Robust standard errors clustered at the municipality level (in brackets). *** p<0.01, ** p<0.05, * p<0.1.

Figure A.4: Probability of being a target of violence, salient attacks, change in government



Note: The figure shows plotted coefficients from panel estimates where the dependent variable is a dummy equal to 1 (0 otherwise) if there is at least one *salient* attack in city i in period t. We consider 30-day periods from -12 to + 12(12 months before and after the elections). Each variable is a dummy equal to 1 in the respective period. *High(Low) Organized Crime* (here referred to as M) is a dummy equal to 1 only for regions with high(low) criminal organization involvement in politics. The dummy change, for which we subset the regression, takes a value of 1 only when the election led to the appointment of a new government in city i. The base category is the period -12 to election. The lines report 5% confidence intervals.

Table A4: Salient Attacks

	(1) Entire Sample	(2) Gov Change	(3) No Gov Change	(4) Entire Sample
t+1	-0.0572	-0.126	0.0997	0.109
	(0.0547)	(0.0691)	(0.0895)	(0.0768)
t+1*Mafia	0.108	0.230***	-0.129	-0.119
	(0.0586)	(0.0872)	(0.0792)	(0.0784)
Gov.Change				0.194***
				(0.0663)
t+1*Gov.Change				-0.232***
				(0.0792)
Mafia*Gov.Change				-0.0866
				(0.0845)
t+1*Mafia*Gov.Change				0.341***
				(0.117)
City FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	4,031	2,543	1,488	4,031
R-squared	0.017	0.024	0.057	0.032
Number of cities-cycle	209	133	79	209

Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is a "salient" attack in city i at time t. t+1 is a dummy equal to 1 (0 otherwise) in the 30 days after the election day. Gov.Change equal to 1 (0 otherwise) if a new mayor is elected. Mafia is a dummy equal to 1 (0 otherwise) for cities in Sicilia, Campania and Calabria. Robust standard errors clustered at the municipality level (in brackets). *** p<0.01, ** p<0.05, * p<0.1.

Table A5: Test on seized firms

	(1) Entire Sample	(2) Gov Change	(3) No Gov Change	(4) Entire Sample
t+1	-0.00671	-0.0309	0.0368	0.0377
	(0.0251)	(0.0326)	(0.0391)	(0.0285)
t+1*Seized Firms	0.0752	0.142**	-0.0430	-0.0398
	(0.0496)	(0.0688)	(0.0678)	(0.0676)
Change				0.105***
				(0.0387)
t+1*Change				-0.0644**
				(0.0311)
Seized Firms*Change				-0.0605
				(0.0698)
t+1*Seized Firms*Change				0.180*
				(0.0966)
Constant	0.0174	0.0324	0.0287	-0.0352
	(0.0231)	(0.0306)	(0.0411)	(0.0264)
City FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	7,965	5,184	2,781	7,965
R-squared	0.012	0.012	0.036	0.019
Number of cities-cycle	421	276	149	421

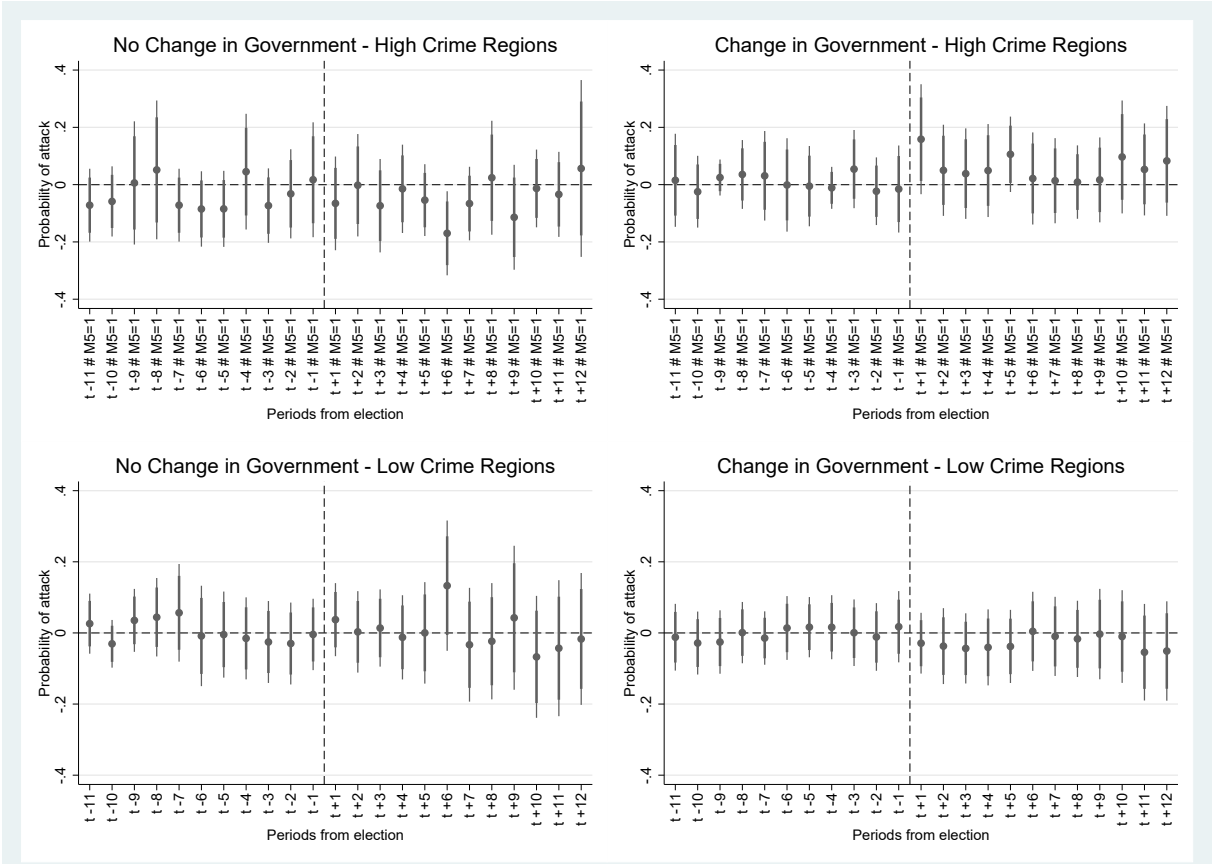
Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is an attack in city i at time t. t+1 and t+2 is a dummy equal to 1 (0 otherwise) in the 60 days after the election day. Change equal to 1 (0 otherwise) if a new mayor is elected. Seizured Firms is a dummy equal to 1 (0 otherwise) for cities in which there was at least one seizured firm from mafias. Robust standard errors clustered at the municipality level (in brackets). *** p<0.01, ** p<0.05, * p<0.1.

Table A6: Test on cities dissolved for Mafia infiltrations

	(1) Entire Sample	(2) Gov Change	(3) No Gov Change	(4) Entire Sample
t+1	0.000811	-0.0230	0.0432	0.0476*
	(0.0244)	(0.0317)	(0.0407)	(0.0288)
t+1*Dissolved	0.0653	0.169*	-0.108	-0.103
	(0.0630)	(0.0862)	(0.0829)	(0.0833)
Change				0.112***
				(0.0364)
t+1*Change				-0.0689**
				(0.0310)
t+1*Dissolved*Change				0.273**
				(0.120)
Constant	0.0115	0.0290	0.0275	-0.0505**
	(0.0229)	(0.0307)	(0.0405)	(0.0246)
City FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	7,965	5,184	2,781	7,965
R-squared	0.010	0.014	0.028	0.018
Number of cities-cycle	421	276	149	421

Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is an attack in city i at time t. t+1 and t+2 is a dummy equal to 1 (0 otherwise) in the 60 days after the election day. Change equal to 1 (0 otherwise) if a new mayor is elected. Dissolved is a dummy equal to 1 (0 otherwise) for cities whose municipal government was dissolved due to Mafia infiltrations. Robust standard errors clustered at the municipality level (in brackets). *** p<0.01, ** p<0.05, * p<0.1.

Figure A.5: Probability of being a target of violence: alternative mafia measure (top five provinces)



Note: The figure shows plotted coefficients from panel estimates where the dependent variable is a dummy equal to 1 (0 otherwise) if there is at least one attack in city i in period t. We consider 30-day periods from -12 to + 12(12 months before and after the elections). Each variable is a dummy equal to 1 in the respective period. *High(Low) Organized Crime* (here referred to as M) is a dummy equal to 1 only for provinces with high(low) criminal organization involvement in politics according to Calderoni (2011). The dummy change, for which we subset the regression, takes a value of 1 only when the election led to the appointment of a new government in city i. The lines report 5% confidence intervals.

Table A7: Alternative Mafia Measure

	(1) Entire Sample	(2) Gov Change	(3) No Gov Change	(4) Entire Sample
t+1	-0.00337	-0.0288	0.0374	0.0435
	(0.0252)	(0.0329)	(0.0394)	(0.0295)
t+1*Mafia(Top5)	0.0729	0.159**	-0.0655	-0.0653
	(0.0514)	(0.0740)	(0.0627)	(0.0616)
Gov.Change				0.108***
				(0.0368)
t+1*Gov.Change				-0.0699**
				(0.0319)
t+1*Mafia(Top5)*Gov.Change				0.223**
				(0.0962)
City FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	7,965	5,184	2,781	7,965
R-squared	0.011	0.014	0.036	0.020
Number of cities-cycle	421	276	149	421

Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is a "salient" attack in city i at time t. t+1 is a dummy equal to 1 (0 otherwise) in the 30 days after the election day. Gov.Change equal to 1 (0 otherwise) if a new mayor is elected. Mafia(Top5) is a dummy equal to 1 (0 otherwise) for provinces which, according to Calderoni (2011), rank as the top 5 for mafia presence mafia presence. Robust standard errors clustered at the municipality level (in brackets). *** p<0.01, ** p<0.05, * p<0.1.

Table A8: Electoral Competitiveness

	(1) 1^{st} Q.	(2) 2^{nd} Q.	(3) $3^{rd}Q.$	(4) $4^{th}Q.$
t+1	0.0870	-0.0165	-0.138	0.0379
	(0.0561)	(0.0145)	(0.1000)	(0.0307)
t+1*Mafia	0.155	0.0239	0.292***	-0.106
	(0.0968)	(0.0316)	(0.0961)	(0.0655)
City FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	1,595	1,585	1,585	1,624
R-squared	0.052	0.042	0.055	0.039
Number of cities-cycle	85	87	86	85

Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is an attack in city i at time t. t+1 is a dummy equal to 1 (0 otherwise) in the 30 days after the election day. Gov.Change equal to 1 (0 otherwise) if a new mayor is elected. Mafia is a dummy equal to 1 (0 otherwise) for cities in Sicilia, Campania and Calabria. The four categories of electoral competitiveness are defined as the share of the votes' differences between the winner and the second most voted candidate for the mayoral office. Specifically, we compute four quartiles, where the 1st quartile corresponds to the highest level of competitiveness and the 4th to the lowest level. Robust standard errors clustered at the municipality level (in brackets). *** p<0.01, ** p<0.05, * p<0.1.

Table A9: Test on term limit

	(1) Entire Sample	(2) Compulsory Change	(3) No compulsory Change	(4) No Change	(5) Entire Sample	(6) No Change Vs compulsory
t+1	-0.0305	-0.0165	-0.0500	0.0513	-0.00740	0.0644*
	(0.0278)	(0.0639)	(0.0335)	(0.0452)	(0.0250)	(0.0381)
t+1*Mafia	0.0901***	0.149*	0.130**	-0.0421	0.0640**	-0.0279
	(0.0329)	(0.0876)	(0.0519)	(0.0438)	(0.0324)	(0.0438)
Change Comp					0.109**	0.127***
					(0.0524)	(0.0479)
t+1*Change Comp					-0.0694	-0.117*
					(0.0571)	(0.0631)
t+1*Mafia*Change Comp					0.0876	0.177*
					(0.0918)	(0.0971)
Constant	0.0111	0.0783	-0.0147	0.0237	-0.0152	-0.00995
	(0.0230)	(0.0513)	(0.0347)	(0.0381)	(0.0225)	(0.0299)
City FE	YES	YES	YES	YES	YES	YES
Month FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	7,965	1,812	3,560	2,781	7,965	4,405
R-squared	0.011	0.038	0.020	0.031	0.017	0.033
Number of cities-cycle	421	97	189	149	421	234

Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is an attack in city i at time t. t+1 is a dummy equal to 1 (0 otherwise) in the 30 days after the election day. Change equal to 1 (0 otherwise) if a new mayor is elected. Compulsory Change equal to 1 (0 otherwise) if a new mayor *has* to be elected. Mafia is a dummy equal to 1 (0 otherwise) for cities in Sicilia, Campania and Calabria. Robust standard errors clustered at the municipality level (in brackets). *** p<0.01, ** p<0.05, * p<0.1.

Table A10: Test on 60 days periods

	(1) Entire Sample	(2) Gov Change	(3) No Gov Change	(4) Entire Sample
t+1 an t+2	-0.0288	-0.0525*	0.0335	0.0210
	(0.0225)	(0.0282)	(0.0364)	(0.0251)
t+1 an t+2*Mafia	0.0631***	0.101***	-0.0127	-0.0109
	(0.0205)	(0.0272)	(0.0286)	(0.0285)
Change				0.105***
				(0.0343)
t+1 an t+2*Change				-0.0691***
				(0.0239)
Mafia*Change				-0.0269
				(0.0352)
t+1 an t+2*Mafia*Change				0.111***
				(0.0394)
Constant	0.0163	0.0228	0.0415	-0.0375*
	(0.0201)	(0.0259)	(0.0304)	(0.0201)
City FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	7,965	5,184	2,781	7,965
R-squared	0.006	0.010	0.014	0.010
Number of cities-cycle	421	276	149	421

Note: The table shows the results from a panel analysis where the dependent variable is a dummy equal to one (0 otherwise) if there is an attack in city i at time t. t+1 and t+2 is a dummy equal to 1 (0 otherwise) in the 60 days after the election day. Change equal to 1 (0 otherwise) if a new mayor is elected. Mafia is a dummy equal to 1 (0 otherwise) for cities in Sicilia, Campania and Calabria. Robust standard errors clustered at the municipality level (in brackets). *** p<0.01, ** p<0.05, * p<0.1.

Table A11: Descriptive Statistics

	N	Mean	Std. Dev.	Min	Max
Attack	7,965	0.046955	0.255143	0	5
Attack, dummy	7,965	0.040427	0.196971	0	1
Visible	7,965	0.029755	0.197914	0	5
Visible, dummy	7,965	0.02624	0.159858	0	1
Salient	7,965	0.041557	0.241179	0	5
Election	7,965	0.054488	0.226993	0	1
Gov.Change	7,965	0.650848	0.476732	0	1
Mafia	7,965	0.483239	0.49975	0	1
Mafia (Calderoni, 2011)	7,965	0.186943	0.38989	0	1
Seized firms, dummy	7,965	0.2100439	0.4073651	0	1
Dissolved councils, dummy	7,965	0.1530446	0.3600531	0	1

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