Mafia in the ballot box[*]

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Abstract

We study the impact of organized crime on electoral results analyzing in detail the national parliamentary elections in Sicily for the period 1946-92. We document the significant support given by the Sicilian mafia to the Christian Democratic Party when the electoral competition by the Communist party strengthened. We also provide suggestive evidence that, in exchange for its electoral support, the mafia obtained economic advantages in the construction sector.

Keywords: electoral competition, mafia, electoral fraud

JEL Classification: D72, K42

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Politics and mafia are both powers which draw life from the control of the same territory; so they either wage war or come to some form of agreement.

Paolo Borsellino[1]

1 Introduction

Organized crime is detrimental to the functioning of a society. Its negative impact on growth and economic activity has been established in several recent studies (Dixit, 2004; Pinotti, 2012; Daniele and Marani, 2011; Albanese and Marinelli, 2013). The negative impact of organized crime is, however, not confined to the economy. One of the main features of mafias around the world is their relationship with the political power. The strong control of the territory achieved through the use of violence also challenges the functioning of democratic political institutions. For instance, criminal organizations can directly influence policymakers with bribes and violent threats so as to obtain policies favorable to their business or looser judicial prosecution. This was the case in Colombia during the period of the Medellin cartel and it is arguably occurring currently in Mexico and Brazil (Dal Bó, Dal Bó and Di Tella, 2006). The relationship between mafia and democracy is paradoxical because on one side its presence weakens the democratic institutions but on the other side it exploits democratic freedoms to strengthen its presence and weave a web of relationships with the political power (Allum and Siebert, 2003). The development of the mafia in transition economies exemplifies this nexus: organized crime exploits the gaps opened up by the lift of totalitarian control on political institutions, as well as the inability of the transition countries to put in place strong institutions and rule of law (Varese,

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[1]Judge Paolo Borsellino was on the front line in the fight against the mafia in the 1980s. He was killed in a car bomb attack in Palermo on 19 July 1992, a few months after his colleague Judge G. Falcone. This quotation is taken from Abbate and Gomez (2007, p.36).

2001).

This paper addresses a far-reaching impact of organized crime: its intrusion into the electoral process, the heart of democratic institutions. There are several reasons to believe that a criminal organization, with a network of members who have infiltrated the social and economic fabric of the territory, and using violence to affirm their power, may shift votes to the party it supports. In his seminal work on the Italian mafia, Gambetta (1993) points out how criminal organizations find themselves in an ideal position to sell their services to politicians. Indeed, their tight hold over the territory enables an effective control of many votes. The market for votes, with its problems of verification and trust on both the buyer and the seller side, is an ideal setting for mafia operations. In the words of Abadinsky (2012, p.116), "the Mafia is able to control votes because in the environment in which it operates there is always fear of reprisals. Intimidations, surveillance of polling places, and sometimes rigged elections guarantee an outcome favorable to the Mafia".

Beyond the rhetoric adopted by politicians, when elections approach there is a strong incentive for parties to negotiate with criminal organizations to secure their electoral support. A conversation between the President of the Parliamentary Committee on the Mafia and the former *mafioso* Leonardo Messina well exemplifies the behavior of politicians with respect to organized crime (CPM, 1992b, p.552):

> Mr. Messina. *Usually, in public speeches, every politician claims to be against the mafia; you need to see what he actually does and the part he has to play. In Sicily, anyone who gets on the stage in an electoral rally is against the mafia.*
>
> President. *Is this something that worries you?*
>
> Mr. Messina. *No, it doesn't. The whole thing is a farce!*

There is a large body of anecdotal evidence, court cases, political investigations and press inquiries about the alleged existence of such underground electoral deals. The existing material, however, falls short of empirical investigation.

This leads to the contribution of the present work. This is the first study which examines the impact of organized crime on electoral outcomes. We use post-WWII (1946-92) parliamentary elections in Sicily as a case, and document the support provided to the Christian Democratic Party (DC) by one of the most notorious criminal organizations, the Sicilian mafia.

To guide our empirical analysis we first develop a simple probabilistic model of policy competition which includes a criminal organization that can sell votes to the supported party. Adapting the theoretical framework developed by Acemoglu, Robinson and Santos (2013) to the case of an electoral system with proportional representation and a single national constituency, we analyze the equilibrium of a game in which parties competes not only for voters but also for the support of the mafia which is present in just one of the regions in which the country is divided. We show that the incumbent wins the competition for the mafia support and that the support from the mafia increases when the advantage of the incumbent shrinks in the regions without mafia. The latter results constitute the cornerstone of our empirical strategy.

The mechanism behind our identification strategy is relatively intuitive: the political rent generated by mafia-controlled votes becomes more valuable to the incumbent party when electoral competition strengthens. When the incumbent party loses ground with respect to its direct competitors, the mafia is therefore expected to engage more deeply in electoral matters.

Using the change in electoral competition in the rest of Italy as a source of exogenous

variation, we can then identify the impact of mafia on electoral outcomes. Our results provide clear evidence of the mafia involvement in electoral services: when electoral competition increased, DC (the incumbent party) systematically captured more votes in Sicilian municipalities in which the mafia was operating.

The magnitude of the impact is far from negligible: according to our most trustworthy estimate, in which we instrument recent mafia presence with its 1900 distribution, the DC gained on average about 13 additional percentage points in mafia-ridden Sicilian municipalities as a consequence of the strong increase in the competition by the second largest party, the Communist Party (PCI), during the period studied.

What has the mafia gained from its electoral services? We provide evidence that, in exchange for its support, the mafia received economic advantages for its activities in the construction industry, a sector in which the influence of public authorities and politicians is quite strong. When electoral competition strengthened, the share of construction workers increased significantly more in mafia-ridden municipalities than in the rest of Sicily.

This paper speaks to two broad strands of research. First, we contribute to the literature on electoral fraud and vote coercion by shedding new light on a specific sort of electoral fraud, relatively neglected so far: vote coercion by criminal organizations.[2] Two recent papers addressing vote coercion are close to ours in several aspects. First, Baland and Robinson (2008), in their work on mid-XX century Chilean elections, show how landlords are able to influence electoral outcomes by inducing their tenants to vote for one particular party. The second paper, by Acemoglu, Robinson and Santos (2013), explores the impact of the presence of non-state armed groups on electoral outcomes in Colombia

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[2]Recent contributions to this literature test the importance of monitoring technologies that enable vote buyers to control voters' actions (Larreguy 2013, Larreguy, Montiel and Querubin 2014). For a review see Lehoucq (2003).

for the years 1991-2006: in areas with a strong paramilitary presence there was, after 2001, a significant increase in the votes for candidates whose preferences were close to those of the armed groups.[3] With respect to the work of Acemoglu, Robinson and Santos (2013), we base our analysis on a much longer period including twelve elections, rely on a large set of time-varying controls, and implement an instrumental variable strategy to address the potential non-random distribution of the mafia.

Second, this work extends the recent literature on the economics of organized crime. Beside the studies assessing the cost of organized crime mentioned above, the economic literature has mainly investigated its origins. Dixit (2004) investigated the emergence of extralegal arrangements and organizations in the absence of formal institutions (or when they are weak) and when laws are difficult to enforce. The coordination problems arising in a lawless society can potentially be alleviated with the emergence of a third party that is able to enforce agreements. Sometimes, this role is taken on by criminal organizations that use violence as their main feature (Gambetta, 1993; Franchetti, 1877). Other recent studies have focused on the peculiar conditions that may have favored the emergence of the Sicilian mafia (Bandiera, 2003; Del Monte and Pennacchio, 2012; Buonanno et al., 2012; Dimico, Isopi and Olsson, 2012).

The rest of the paper is organized as follows. In the next section we develop our theoretical model, followed by a section providing the necessary background on Italian political competition and the interaction between politicians and the Sicilian mafia. We then describe the data and present the empirical results. We then offer some concluding remarks.

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[3]See Fergusson, Vargas and Vela (2013), who also study the impact of paramilitaries on Colombian elections and the unintended consequences of free press.

2 Theoretical framework

In the present section we model the effect on political competition of the presence of a criminal organization which can sell votes to the chosen party thanks to its control of the territory in one of the regions of a country.

We first set up a simple probabilistic model of electoral competition with a proportional representation electoral rule and a single national constituency, two regions and two parties, A, and B competing for the government. We standardize the total number of voters to 1 with the proportion n voting in region 1 and $(1-n)$ voting in region 2, where we assume the mafia is active. We adopt a modified version of the model in Acemoglu, Robinson and Santos (2013) and we adapt its multi-constituency structure to the present framework of a single national constituency with proportional representation.

2.1 The political competition

As in the standard Downsian models we assume that parties can commit to a policy while their ideological stand is fixed. So, denoting with $\tilde{\theta}^k$ the ideological stance of party $k = A, B$ and with q^k its (national) policy choice, as in Acemoglu, Robinson and Santos (2013, p.12-13) we will assume that the utility of a voter i in region j when party k is in government is

$$U_{ij}^k \left(q^k, \tilde{\theta}^k \right) = u_j \left(q^k \right) - \psi \left(\tilde{\theta}_j - \tilde{\theta}^k \right) + \epsilon_i^k.$$

The term $u_j \left(q^k \right)$ is the utility that the individual gains from the policy choice q^k, which we will interpret as a national public good provided to all the citizen by the government of party k. We denote by $\tilde{\theta}_j$ the ideological bliss point in region j and therefore the term $\psi \left(\tilde{\theta}_j - \tilde{\theta}^k \right)$ should be considered as the negative effect of the ideological distance

between all the voters in region j and party k. The term ϵ_i^k is the individual-specific utility term which smooths the ideological preferences on the party in the region and it is such that

$$\epsilon_i^A - \epsilon_i^B = \epsilon_i,$$

which is assumed to be uniformly distributed on the interval [-1/2,+1/2].

It is straightforward to see that the share of voters in region j voting for party A is:

$$s_j^A = \frac{1}{2} + u_j\left(q^A\right) - u_j\left(q^B\right) + \theta_j^A \tag{1}$$

where $\theta_j^A = \psi\left(\tilde{\theta}_j - \tilde{\theta}^B\right) - \psi\left(\tilde{\theta}_j - \tilde{\theta}^A\right)$ is the ideological advantage of party A in region j. We will assume throughout that party A is the incumbent and has an overall ideological advantage in the country.

In what follows we will make some simplifying assumptions which will help to identify a closed form solution to the policy competition game. In particular we will assume that $u_j(q^k) = q^k \ \ \forall j = 1,2$ and $k = A,B$. We will also assume that q^k is the cost of delivering the policy party k is committed to.

2.2 The policy competition game in the presence of the mafia

The effect of the mafia presence in the region 2 is to deliver a number of votes m to the party chosen.

The aim of both parties is to maximize their expected rent of being in power. Assuming for the time being that the mafia is supporting party A, the expected rents of party A

and B are given by:

$$\Pi^A = \left[ns_1^A + (1-n)\,s_2^A + m\right]\left(G - q^A\right) - mp^A$$

$$\Pi^B = \left[n\left(1 - s_1^A\right) + (1-n)\left(1 - s_2^A\right) - m\right]\left(G - q^B\right)$$

where the probability of the party forming the government is given by the share of votes gained in the elections ($\left[ns_1^A + (1-n)\,s_2^A + m\right]$ for party A).[4] Denoting by G the gross rent of being in office, the provision of public good q^k, $\forall k = A, B$ decreases the net rent of party k when in government. Finally, the party supported by the mafia pays a total amount mp^A for its service, whether or not the party forms the government.

We model the interaction between the political parties and this intermediary in the market for votes as a four-stage game of perfect information where, in the first stage, the two political parties compete for mafia services by offering a price per vote p^k. In the second stage, the criminal organization chooses the party to support by picking the most profitable offer. The third stage features the campaign competition where parties commit to a level of public good provision if elected, while in the fourth stage the mafia chooses the number of voters to divert in favor of the party it supports. This activity is costly for the mafia, which will choose the number of voters to divert optimally (i.e., maximizing its profits). We look for the subgame-perfect equilibrium and solve the game by backward induction.

Starting from the fourth stage, the mafia maximizes its profits by choosing the optimal quantity of votes to switch, given the price offered by the party winning the competition in the first stage. Assuming a quadratic cost function for the mafia, its profits are defined

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[4]See also Austen-Smith (2000); Baron and Diermeier (2001); Acemoglu, Robinson and Santos (2013).

as:

$$\Pi_M = p^k m - \frac{m^2}{2e},$$

where p^k is the price per vote offered by the party $k = A, B$ winning the competition for mafia support, m are the number of votes moved by the mafia to the advantage of party k, and e is a cost parameter (the higher e the lower the marginal cost). The optimal number of votes provided by the mafia is therefore $m^\star = ep^k$.

In the third stage, the two parties engage in the policy competition by simultaneously choosing the public good provision promises. However, one of the parties (party A) has the mafia on its side. Substituting the expressions for the share of votes of the two parties as in equation (1) and the equilibrium value of the votes provided by the mafia, the expected rents become:

$$\Pi^A = \left[\frac{1}{2} + q^A - q^B + n\theta_1^A + (1-n)\theta_2^A + ep^A\right](G - q^A) - e(p^A)^2$$

$$\Pi^B = \left[\frac{1}{2} + q^B - q^A - n\theta_1^A - (1-n)\theta_2^A - ep^A\right](G - q^B)$$

The equilibrium public good provision promises are given by:

$$q_M^{A\star} = G - \frac{1}{2} - \frac{n\theta_1^A + (1-n)\theta_2^A + ep^A}{3} \; ; \; q^{B\star} = G - \frac{1}{2} + \frac{n\theta_1^A + (1-n)\theta_2^A + ep^A}{3}$$

where the subscript M indicates the party supported by the mafia.

In the second stage, the mafia selects the best offer. The party offering the highest price per vote wins the mafia support.

Moving to the first stage, the parties simultaneously choose the price per vote to offer to the mafia. Substituting the equilibrium values of the campaign competition strategies

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and the optimizing behavior of the mafia into the expected rent of parties, if the mafia supports party A, we obtain:

$$V_M^A = \left(\frac{1}{2} + \frac{n\theta_1^A + (1-n)\theta_2^A + ep^A}{3}\right)^2 - e(p^A)^2 \tag{2}$$

$$V^B = \left(\frac{1}{2} - \frac{n\theta_1^A + (1-n)\theta_2^A + ep^A}{3}\right)^2 \tag{3}$$

where V_m^A and V^B are the expected rents gained by parties. If the competition for mafia support is instead won by party B offering the price p^B, the two expected rents are:

$$V^A = \left(\frac{1}{2} + \frac{n\theta_1^A + (1-n)\theta_2^A - ep^B}{3}\right)^2 \tag{4}$$

$$V_m^B = \left(\frac{1}{2} - \frac{n\theta_1^A + (1-n)\theta_2^A - ep^B}{3}\right)^2 - e(p^B)^2 \tag{5}$$

In stage 1, the parties compete à la Bertrand, trying to outbid the rival by offering a higher price. There is an upper bound, however, on the price offered by the parties. By comparing V_m^k and V^k, with $p^k = p^{-k} = p$, it is easy to show that:

$$V_m^A \geq V^A \quad \text{if} \quad p^A \in \left[0, \overline{p}^A\right] \quad \text{with} \quad \overline{p}^A = \frac{2}{3} + \frac{4}{9}\left(n\theta_1^A + (1-n)\theta_2^A\right) \tag{6}$$

$$V_m^B \geq V^B \quad \text{if} \quad p^B \in \left[0, \overline{p}^B\right] \quad \text{with} \quad \overline{p}^B = \frac{2}{3} - \frac{4}{9}\left(n\theta_1^A + (1-n)\theta_2^A\right) \tag{7}$$

When the price offered by the other party exceeds the upper bound, the party prefers to lose the backing of the mafia to its rival.

There is also a minimum price the parties are willing to pay to the mafia. Since the price offered also determines the quantity of votes switched by the mafia, each party has an optimal (minimum) price that maximizes its expected rent when it is unconstrained by
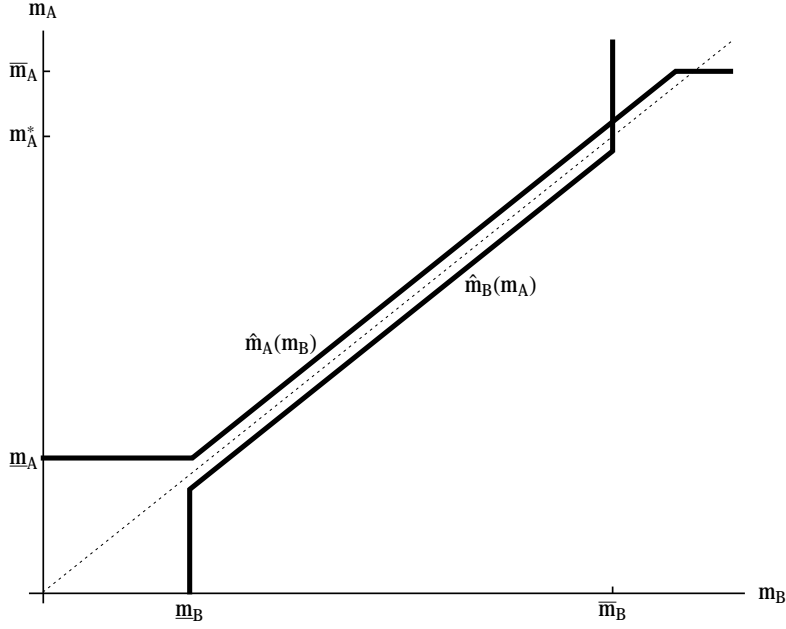
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Figure 1: Reaction functions of the two parties in the competition for mafia support.

the rival party. The minimum price for party i is given by

$$
\underline{p}^A = \frac{3}{2(9-e)} + \frac{n\theta_1^A + (1-n)\theta_2^A}{9-e} \tag{8}
$$

$$
\underline{p}^B = \frac{3}{2(9-e)} - \frac{n\theta_1^A + (1-n)\theta_2^A}{9-e} \tag{9}
$$

The reaction functions of the parties in the first stage are depicted in Figure 1.

The following Proposition summarizes the outcome of competition for mafia support.

Proposition 1. *The incumbent party always wins the competition to secure the backing of the mafia.*

The intuition behind the result is quite straightforward. Since the incumbent party with the ideological advantage chooses a lower electoral promise, its marginal rent $G - q^k$

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is larger than its rival's and it is therefore willing to pay a higher price to the mafia for each vote.

The equilibrium price offers to the mafia in the first stage can be defined as follows:[5]

$$p^{A\star} = \frac{2}{3} - \frac{4}{9} \left[n\theta_1^A + (1-n)\theta_2^A \right]; \tag{10}$$

$$p^{B\star} = \epsilon, \text{ with } \epsilon \in \left[0, \frac{2}{3} - \frac{4}{9} \left[n\theta_1^A + (1-n)\theta_2^A \right] \right) \tag{11}$$

The number of votes shifted by the mafia in region 2 is therefore:

$$m^{\star} = ep^A = \frac{2}{3}e - \frac{4}{9} \left[n\theta_1^A + (1-n)\theta_2^A \right] e \tag{12}$$

From equation (10) it is clear that the price paid by the winning party A is decreasing in its electoral advantage. In the following Proposition we derive from this simple intuition an empirically testable prediction which will guide our empirical analysis:

Proposition 2. *The number of votes shifted by the mafia in region* 2 *to the advantage of the incumbent and the price paid to the mafia for its electoral services increase when the difference between the vote share of the two parties decreases in region* 1.

A formal proof in provided in the appendix. The logic of the proof goes as follows. Holding the other variables constant, the closer the competition in the region 1 the higher the price the challenger is willing to pay to have mafia support in region 2, and thus the higher the price the incumbent has to pay to outbid the rival. As the price increases, the mafia will optimally choose to increase the number of votes shifted to the incumbent party

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[5]The proof is a straightforward application of the Bertrand competition solution. We also assume that the ideological advantage for party A is not too large and therefore the equilibrium price paid to the mafia is determined by the maximum price the weaker party is willing to offer.

in order to increase its own profits. The intuition is quite straightforward: the relative value of the mafia electoral services in region 2 increases when electoral competition strengthens in region 1. The amount of votes delivered by the mafia and mafia profits derived from its electoral services increase accordingly.

3 Italian politics from 1946-92 and the Sicilian mafia

3.1 Italian politics after World War II

The postwar Italian political system between 1946 and 1992 was characterized by the constant presence of the Christian Democratic Party (DC) as the leading party in the government.[6] With an average of almost 40% of the votes in the period considered, this party dominated the government first in coalition with other small centrist parties and, from 1963, also with the Socialist Party. The primacy of DC was never questioned and the expectation was for this party to rule indefinitely. At least, this was the general belief until the 1970s when the main opposition party, the Communist Party (PCI) became a much stronger competitor and the risk of a leftist government led by the PCI became more tangible. The difference between the support for these two parties in parliamentary elections decreased dramatically and during the 1970s and 1980s was on average below 5%. Interestingly, the reduction in the gap did not occur in Sicily. In the regional elections in 1970, the PCI won the right to govern major administrations in Italy for the first time.

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[6]During the period considered the electoral law established a proportional system with a single national constituency was uninterruptedly used from 1946 to 1992 in parliamentary elections for the lower chamber with the possibility for voters to vote for up to 4 candidates from the party lists. From 1994 the electoral rules changed, with 75% of MPs elected with a first-pass-the-post system in one of the 475 electoral districts, with the rest of the MPs elected using a corrected proportional system favouring the representation of minority parties.

In the regional and local elections in 1975, the PCI became the first party in 7 out of 15 regions and in all of the 10 largest Italian cities except for Palermo and Catania, the only two located in Sicily.

3.2   The relationship between the Sicilian mafia and politics

The relationship between organized crime and the political and administrative powers in Sicily dates back to the origins of the mafia and the Italian state, in the XIX century.[7]

At the beginning of the fascist dictatorship, the mafia's relationship with the political power was interrupted by a tough repression that was started in 1925 by the prefect Mori, but the mafia was not entirely eradicated. After WWII, many old mafiosi who had survived the fascist era supported the Sicilian separatist movement, which did not succeed in the end. Meanwhile, a new political force was emerging as the leading Italian governing party, the DC, and several mafia bosses decided to move their political preference towards that party.[8]

Supporting the incumbent party guaranteed several advantages to the mafia, which could directly access important leading figures at the government level to defend its economic interests (e.g., the allocation of public procurement contract in the areas of its activities) and lobby for a softer legislation on mafia-related crimes, the protection of mafia members at different levels in judicial trials, and lower investment in mafia-controlling activities (Gambetta, 1993).

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[7]See Dickie (2004, pp. 87-130) for an interesting account of Palermo high society and its relationship with the mafia. Also, see Salvemini (1910) for a crude account of the relationship between the national political establishment and the mafia in the two decades from 1890 to 1910.

[8]For instance, two mafia bosses, Calogero Vizzini and Giuseppe Genco Russo, previous mayors of Villalba and Mussumeli respectively, became members of the DC in 1947; see Romano (1966, pp. 316-7) and Lupo (1996, p.232).

Two important Sicilian DC politicians with established mafia connections, Salvo Lima and Vito Ciancimino, built their political careers in the city council of Palermo between the end of the 1950s and the beginning of the 1960s, the years of the so-called "Sack of Palermo", when thousands of instances of planning permission were released that benefited mafia families (CPM, 1976, pp. 230-4). Close connections between the mafia and local politicians were recorded in the final report of the first Parliamentary Committee on the Sicilian mafia, which noted that "the city council of Trapani numbered 15 relatives of identified mafia members, while there were 16 in the Caltanissetta council and 20 in the Agrigento council" (CPM, 1976, p.217).

During the 1970s and the 1980s, partly as a result of the gradual increase in electoral competition at the national level, the relationship between the mafia and the DC became more solid (Arlacchi 2010, CPM 1993, Paoli 2003). Discussing the behavior of the mafia on electoral matters in the 1980s, Baldassarre di Maggio explains that "there was an 'obligation' for all men of honor to vote for the Christian Democrats. The unanimous conviction was that we could usefully influence, through politicians, the courts' action and, furthermore, that the function of Sicilian politicians was imperative for 'Roman politics' concerning Sicilian matters and, especially, involving Cosa Nostra" (Paoli, 2003, p. 202). Gaspare Mutolo provided an interesting account on the political role of the mafia in support of DC when the threat of a strong Communist party became more tangible: "[...] the DC was in trouble because the left parties were gaining strength and if we didn't make an effort to gain votes... In fact, had it not been for Sicily and Southern Italy, DC would have lost its majority." (CPM 1993, p. 1288).

There is considerable judicial evidence that the mafia was supporting the DC. For instance, it has been established in several trials that Salvo Lima, Vito Ciancimino and

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Ignazio Salvo, some of the most relevant Sicilian DC politicians, were closely associated with or even members of the most important mafia families (Dickie, 2004, pp. 227, 253, 283). According to a court ruling, even the late MP Giulio Andreotti, seven times Italian Prime Minister, "made himself available to mafiosi in an authentic, stable and friendly way until the spring of 1980" (Dickie, 2004, pp. 322-3).

4 Data

We gathered electoral data for all Sicilian municipalities from the Italian Ministry of Home Affairs.[9] The number of municipalities changed during the period considered, mainly because new municipalities were created. We aggregated the data back into the 370 municipalities existing in 1951. We focus on the 12 elections for the lower chamber from 1946 to 1992, the period referred to as the "First Republic". After 1992, a political earthquake took place in Italy, radically transforming both the spectrum of parties in the political arena and the electoral system. Therefore, any comparison between elections before and after 1992 would be extremely challenging and is beyond the scope of the present work.

Our dependent variable is the share of votes obtained by DC, the incumbent party throughout the period considered, computed for each election as the number of votes obtained in a given municipality, divided by the total number of valid votes expressed in that municipality.

The data on the distribution of the mafia across Sicily are taken from a report by the military police (*carabinieri*) submitted in 1987 to a parliamentary committee (CG Carabinieri, 1987). The report analyzes the activities of organized crime in Italy and lists

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[9]Available at: www.interno.gov.it.

the *main* mafia families, providing for each of them the name of the boss and the town in which it was based.[10] Gambetta (1993, p.82) uses the data provided by this report in a map to compare the mafia presence in the 19th and 20th centuries; however, these data have never been used in an empirical investigation. 80 Sicilian municipalities are identified in the report as mafia strongholds of the main families, with the vast majority in the provinces of Palermo, Agrigento and Trapani. We create the dummy variable $mafia1987$, which takes the value one when the municipality is listed in the report as a stronghold of a mafia family. In Figure 2 we display the mafia distribution according to this source.
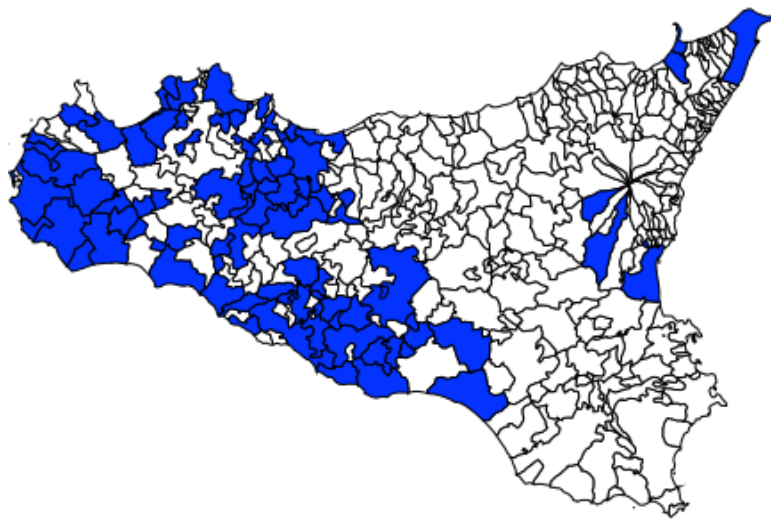
Figure 2: Mafia distribution in Sicily (CG Carabinieri, 1987).

We also use two alternative measures for the mafia presence. First, a news-based

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[10]In those years, the knowledge of the structure of *Cosa Nostra* was greatly enhanced by the testimony of several important *mafiosi* turned state's evidence. Their contribution was vital to the most important trial against the Sicilian mafia, the *maxiprocesso* (Maxi Trial), which started in 1986 and ended in December 1987 when 342 alleged *mafiosi* were sentenced to a total of 2665 years in addition to 19 life sentences. In January 1992 the Italian Supreme Court largely confirmed the verdict of the Maxi Trial. A few months later, two of the prosecutors, Judges G. Falcone and P. Borsellino, were murdered in two separate bomb attacks.

measure of the presence of the mafia that has been compiled by researchers of a research center on the mafia at the University of Messina (CSDCM, Università di Messina, 1994). They have produced a map with details of all the mafia families cited in the news, and the municipalities in which they have been reported to have had an influence. Based on this, we create a dummy variable, $mafia1994$, taking the value one for municipalities where the mafia operates. We use this measure as a robustness check of our preferred measure of the mafia.

Second, a measure of mafia prevalence in 1900, by municipality, is derived by Cutrera (1900), and it is used to instrument for more recent mafia distribution.[11] We create the variable $mafia1900$ with values ranging from 0 (no mafia), to 3 (strong mafia presence). Instrumenting recent mafia presence with a measure of the geographical distribution of mafia in 1900, at least 50 years away from the period considered in this study, addresses potential reversed causality concerns. It is rather unlikely that the relationship between mafia and politics in the period 1946-1992 may have affected the geographical distribution of the criminal organization at the start of the century.

In line with the historical pattern of Italian politics during the First Republic, our main measure of electoral competition is the difference between the votes gained by the DC and the PCI, the two largest parties across the period considered. We compute the difference between DC and PCI in parliamentary elections excluding the votes coming from Sicily to avoid endogeneity. This provides the most appropriate measure, as it captures the incentives for the DC to accept mafia electoral services, given the margin of advantage it expects to enjoy at the national level.

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[11]Police Inspector Antonino Cutrera analyzed the origins and the characteristics of the mafia, its role in Sicilian history, its initiation rituals and its structure. Based on his knowledge of the mafia both in Palermo and in the rest of the highland, he drew a map of the presence and intensity of the mafia in 289 municipalities and villages.

As an alternative measure, less directly linked to Italian politics, we compute an index of the strength of communism at the global level. For each election year in our sample we record the number of national states ruled by a communist regime. We then normalize this total dividing it by the maximal number of communist states recorded in the period considered. Even though the index is based on international politics, it clearly captures the relative strength of the major threat to the DC primacy on Italian politics: the diffusion of the communist ideology. Figure 3 clearly shows that the two measures of electoral competition are strongly correlated.
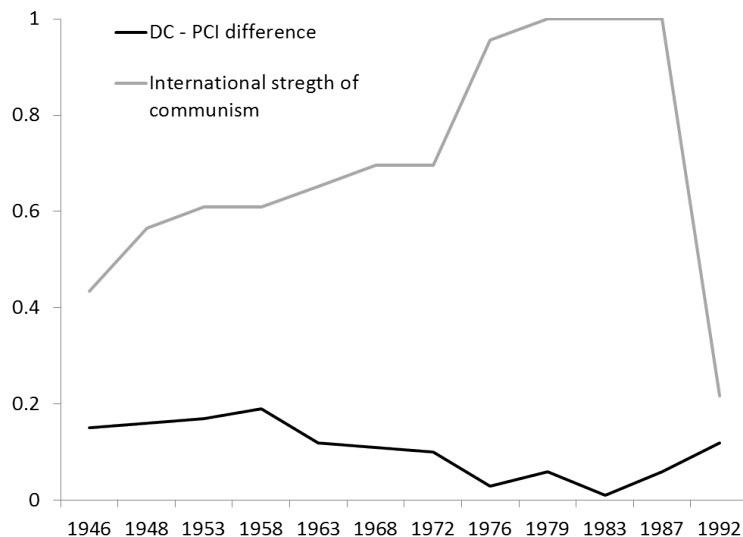
Figure 3: Electoral competition faced by DC in 1946-1992.

We collect an extensive set of socio-demographic and economic controls at municipality level, computed by interpolation for elections years, from the official censuses for 1951, 1961, 1971, 1981, 1991, and 2001.

We use the share of civil servants in the labor force, available at the municipality level in the official censuses, as a proxy for the (per capita) current public expenditure. To cap-

ture the level of public investment, we also gather data on the net change in public capital stock divided by the population from Picci (2002) as a proxy for the (per capita) public investment, which is available only at the provincial level for the relevant period. We sum the public investment occurring in the electoral year and in the four years preceding each election to obtain a measure of total public investment.

We also control for the degree of remoteness and potential isolation of each municipality, using three geographic variables: the average slope (difference between maximum and minimum altitudes divided by area), the distance from the provincial capital, and the altitude of the main center of the municipality.

Finally, to control for the presence of the Catholic Church in Sicilian municipalities we add data on dioceses and parishes from the 1951 census. In particular, we compute the number of parishes for every 1000 inhabitants at the municipality level, and a dummy variable that takes the value of one if the municipality was one of the 20 episcopal sees of the Catholic Church in Sicily in 1951. These are particularly important variables as we want to control for any factors influencing the voting for a party that clearly identified itself as the political party representing the followers of the Catholic Church.

Both the church presence and geographic controls, which are time invariant, are interacted with a full set of year dummies to control for any time trends in political preferences related to these initial municipality characteristics. The full list of controls is described in Table 1.

TABLE 1 ABOUT HERE

5 Empirical strategy

In line with the results of our two-region model, we expect the electoral deal between
the mafia and the incumbent party to be more salient in the region with the mafia when
the competition by the second strongest party gets tougher in other region. In the context
considered, this generates two testable predictions: first, the incumbent party DC should
obtain more votes in mafia municipalities when electoral competition with PCI is closer;
second, as a results of its intensified electoral services, the mafia should derive higher
profits when electoral competition with PCI is closer.

To identify the first side of the deal, we compare the share of votes awarded to DC
($Share\ DC_{it}$) in Italian parliamentary elections across Sicilian municipalities with and
without mafia, using the closeness of elections in the rest of Italy as a source of exogenous
variation. We therefore interact the difference between DC and PCI in the rest of Italy
for each election in our database with our mafia measure. The empirical identification
strategy relies on the comparison between the relative electoral performance of the DC
across municipalities with and without mafia presence as a result of a change in political
competition.

Formally, our base empirical model can be written as follows:

$$Share\ DC_{it} = \gamma\ mafia1987_i * electoral\ competition_t + \alpha_i + \beta\ t + \delta_t + \epsilon_{it} \quad (13)$$

where α_i control for municipality fixed effects, t is a linear trend, δ_t is a set of year dum-
mies capturing the time-specific variance in electoral outcomes, and ϵ_{it} is the standardized
error term clustered at the municipality level. The coefficient of interest is γ, which cap-
tures the impact of the mafia on the electoral performance due to the change in electoral

competition faced by the DC in the rest of Italy.

A potential concern may affect our identification strategy. Increasing electoral competition is known to mobilize inactive voters, thereby increasing turnout. If mafia municipalities were on average more leaning towards DC for some pre-existent reasons (unrelated to mafia presence), then the rise in turnout would imply an increase in DC vote shares in mafia municipalities, unrelated to the mafia electoral services. The figures reported in Table 1, however, provide a solid base to dismiss this potential concern. Mafia municipalities feature on average lower DC vote shares across our sample. So, according to this mechanism, an increasing turnout resulting from electoral competition should penalize DC in mafia municipalities. In other words, our estimates provide a lower bound of the true impact of mafia on DC vote shares.

Identifying the second part of the electoral deal, and hence empirical evidence of a change in the "electoral" profits of the mafia, is much more challenging. There is a plethora of channels that may have been used by the DC to reward the mafia for its support: softer legislation on mafia-related crimes, direct intervention to protect mafia members at different levels in judicial trials, and lower investment in mafia-controlling activities are among the most relevant channels (Gambetta, 1993). Unfortunately, these channels do not easily lend themselves to quantitative analysis.

An admittedly partial test is to look at the magnitude of typical *legal* economic activities of the mafia that can either be fostered or constrained by the public authorities. We focus on the construction industry. The mafia is known to infiltrate and capture a substantial share of public procurement, and to regularly reinvest much of the revenue from its illicit activities in private construction. Public authorities may allow wilder urban expansion, overriding existing regulations, or obscurely award public contracts to mafia-related

entrepreneurs to reward mafia's electoral support.

Once more, it is interesting to consider what mafiosi turned state's evidence have to say on the issue. Leonardo Messina, talking about the control of votes his family exercised in Caltanissetta, claims that they did it in exchange for money or other favors but "[...] the ultimate goal is public procurement contracts".[12]

We do not have data on public procurement contracts by municipality, nor do we have data on direct urban expansion. Instead, we use the share of workers in construction over the total labor force as a proxy for the intensity of construction activities. It is reasonable to assume that if more construction works were allowed in the municipalities in which the mafia operated, then a larger labor force would be employed in this sector. Also, if public construction contracts were awarded to mafia-controlled enterprises, we would expect these firms to employ a disproportionate number of workers from mafia stronghold municipalities, as they would give preference to mafia members, their families and their friends.

We regress the share of workers in construction over the total labor force on the interaction term between the mafia proxy and our measures of electoral competition. Formally, we reestimate equation (13) by replacing the dependent variable with the share of workers in construction over the total labor force ($Share\ construction_{it}$).

We gradually augment our basic specification of the two models with the set of time-varying contemporaneous public expenditure, the sets of socio-demographic and economic controls, the time-invariant geographic controls and the church presence controls interacted with the full set of year dummies.

A significant correlation in equation (13), however, may not represent a causal re-

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[12]This is an extract from his testimony before a parliamentary committee (CPM, 1992b, p.553).

lationship. For instance, it may be explained by reverse causality: the mafia may have grown stronger as a result of blunt (DC-led) government repression policies adopted in exchange for the electoral support obtained. Moreover, our mafia variables are prone to measurement error since the mafia presence is captured with a dummy variable that only identifies mafia strongholds and not its areas of influence. To address these concerns, we turn to an instrumental variable (IV) strategy.

We instrument for our interaction term $mafia1987_i * electoral\ competition_t$ using the interaction of electoral competition with a measure of mafia presence ($mafia1900$) recorded by Cutrera (1900) 42 years before the DC was even founded.

To be a valid instrument, $mafia1900_i * electoral\ competition_t$ should not be correlated with the error term in equation (13) and therefore with any omitted variables correlated with the electoral outcome. We believe that the mafia presence in 1900 can affect the electoral outcome 50 years later only through the instrumented variable $mafia1987$. Even though the Sicilian mafia may have influenced politics in 1900, the political system then changed dramatically, and the one arising from the ruins of the Second World War was radically different.[13]

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[13]In 1900, Italy was a monarchy in which only 6.78% of the population (12% of the adult population) had the right to vote, and members of parliament were elected through a first-past-the-post system in which parties played little role. Furthermore, in 1922 Mussolini took power, initiating a 20-year fascist dictatorship that constituted a dramatic break in the Italian political system's evolution toward democracy. When the fascist dictatorship ended and Mussolini was executed, the monarchy was also abolished, and a Democratic Republic was established in 1946. The elections from 1946 to 1992 have all been characterized by universal suffrage and a purely proportional electoral rule with a single national constituency.

6 Empirical results

6.1 OLS results

Table 2 reports the results of estimating our equation (13).

The coefficient of interest, capturing the impact of electoral competition in mafia municipalities, is negative but statistically not significant in the first column, where we control only for municipality and elections fixed effects, and a time trend. With the inclusion of public investment controls in column (2), however, the coefficient increases in size and becomes statistically significant. This remain true in the further four columns in which socio-demographic, economic, geographic and Church controls, respectively, are included in the model. When the difference between DC and PCI decreases in the rest of Italy, the vote share of DC increases in Sicilian municipalities plagued by mafia. The magnitude of the impact is considerable: based on the results reported in column (6), where we control for our full set of controls, a decrease of the gap between DC and PCI by one percentage point translates into an average increase of DC vote share by 0.2 percentage points in mafia municipalities. The largest drop in the DC - PCI difference witnessed within the period considered (about 17 percentage points between the 1958 and the 1983 elections), would then lead to an increase of DC vote shares in mafia municipality by about 3.5 percentage points. This provides a first piece of empirical evidence on the impact of mafia on electoral outcomes.

TABLE 2 ABOUT HERE

Turning to the other side of the electoral deal, in Table 3 we report the results of estimating our model with the share of labor force employed in construction as dependent

variable. Again, the model in the first column includes municipality and elections fixed effects and a time trend along with the interaction term of interest. We then gradually augment our model with the different sets of controls. The coefficient of interest is negative throughout the different specifications, and becomes significant after the inclusion of economic controls. When the difference between DC and PCI decreases in the rest of Italy, the share of the labor force employed in construction (and therefore construction activities themselves) increases in Sicilian municipalities where the mafia operates. As for the magnitude of the impact, based on the results reported in column (6), where we control for our full set of controls, a decrease of the gap between DC and PCI by one percentage point translates into an average increase of the share of the labor force employed in construction by 0.08 percentage points in mafia municipalities. To help appreciate the magnitude of the impact, the largest drop in the DC - PCI difference witnessed within the period considered (about 17 percentage points) implies an increase of the share of the labor force employed in construction in mafia municipality by about 1.4 percentage points. Since the average share of construction workers over the labor force in our full sample is 12%, this represents a substantial effect.

TABLE 3 ABOUT HERE

Despite the comprehensive set of control included in our complete models, the results in Tables 2 and 3, may still be prone to endogeneity bias. To address these concerns, in the next section we turn to our instrumental variable to establish the causality of the relationship uncovered.

6.2 IV results

In Table 4 we show our IV results of the impact of the mafia on DC vote shares.[14] As for the OLS results, we report in the first column the results of the estimation of the most parsimonious model, in which only municipality and elections fixed effects, and a time trend are controlled for. In the further columns we gradually include the various sets of controls. The first stage F statistics confirm that the instrument is clearly relevant in all specifications.

The IV estimates confirm the pattern of OLS findings: when the gap between DC and PCI shrinks, DC systematically obtains a larger share of the vote in municipalities where the mafia operates. The coefficient of interest is negative and significant across all specifications of the model. The estimates also substantiate our concerns about the potential endogeneity of the location of the mafia. Indeed, the magnitude of the effect is larger than that found using OLS. According to the results reported in column (6), where we include our full set of controls, a drop of the gap between DC and PCI in the rest of Italy by one percentage point implies an average increase of DC vote share by almost 0.8 percentage points. Put it differently, the presence of the mafia increased the share of the votes gained by the DC by about 13 percentage points on average, as a consequence of the largest 17 percentage points drop in the DC - PCI difference witnessed within the period considered.

TABLE 4 ABOUT HERE

Interestingly, our estimation of the impact that mafia had on electoral results lies in the same order of magnitude of the accounts of ex-mafia members. For instance, Antonino

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[14]First-stage results are reported in Table A1 in the Appendix.

Calderone, a mafioso turned state's evidence, reported, "in the province of Palermo alone," the mafia can count on "75,000-100,000 votes in favor of political parties and friendly politicians" (Arlacchi, 2010, p.183). The electorate of the province of Palermo, an area with a high mafia presence, slightly exceeds one million voters. The 13 additional percentage points awarded on average to the DC in mafia-ridden municipalities, as a result of the largest change in electoral competition faced by the DC in our sample, would imply that the mafia was able to move about 130,000 votes in that province!

The results presented so far document a dramatic increase in the electoral manipulation conducted by the mafia in favor of the DC in response to increases in electoral competition. A full investigation of the mechanisms through which the mafia was able to deliver votes lies outside of the scope of the present work. It is, however, interesting to question where the extra votes delivered to the DC were originating. In particular, referring to the common political spectrum, was the mafia "reorienting" votes from parties lying on the left or on the right of the DC? In the Appendix (Table A2) we show that there is some evidence that votes were moved from the left parties, which confirms that the development of strong leftist parties was perceived by the DC as the actual danger to its hegemony.[15] This further reinforce our identification strategy relying on the change of the DC - PCI difference.

Let us now revisit the second part of the electoral deal within the context of our IV strategy. Table 5 reports the results of our IV models investigating the effects of the electoral services of mafia on (its) construction activities. As usual, we report in the first column the results of the estimation of the most parsimonious model, in which only municipality and elections fixed effects, and a time trend are included. In the further

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[15]Table A2 also shows that turnout does not change differently across mafia and other municipalities in response to changes in electoral competition.

columns, we gradually include the other sets of controls. Again, the first stage F statistics confirm that the instrument is clearly relevant in all specifications. The patterns found in our OLS results are confirmed: the coefficient of interest is negative and significant across all specifications of the model, meaning that reducing the gap between DC and PCI in the rest of Italy leads to an increase of the construction activities in mafia municipalities. The magnitude of the impact increases with respect to our OLS results. According to the figures in column (6), a decrease in the DC - PCI difference by one percentage point translate into an increase of the share of labor force employed in construction in mafia municipalities by 0.27 percentage points. Looking at the impact of the largest drop in the DC - PCI difference witnessed within the period considered (about 17 percentage points), we obtain a stunning increase of the share of the labor force employed in construction in mafia municipality by about 4.5 percentage points.

TABLE 5 ABOUT HERE

The effect on construction activities may, however, capture a general trend in economic activities in mafia municipalities and have little to do with the electoral deal we are studying. To address this concern and highlight the peculiarity of the construction sector, characterized by a high degree of mafia activities, in the Appendix (Table A3) we report the results of a falsification test in which we test whether the share of workers in the manufacturing, banking and communications industries are similarly affected by the mafia presence in response to changes in electoral competition. No similar positive effect is found. Therefore, we can be fairly confident that the increase in construction activities in municipalities in which the mafia operated was at least partially the byproduct of the electoral deal linking the DC, which was constantly in government in the period considered, and the Sicilian mafia.

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Overall our IV results confirm and strengthen the results of the previous section. During the period considered, DC electoral dominance was supported by the Sicilian mafia. The extent of the involvement of mafia in electoral matter is strongly associated with increases in construction activities in mafia municipalities, which is consistent with the mafia receiving preferential treatment in the construction sector by the public authorities as a tacit reward for its electoral services.

6.3 Further robustness checks

We run two sets of robustness checks. In the first exercise, we replicate the estimation of our models adopting an alternative measure of mafia presence, collected by the University of Messina in 1994. The second one tests the robustness of our findings to the adoption of an alternative measure of electoral competition.

Table 6 reports the results of estimating our model with the alternative measure of mafia, $mafia1994$. Columns (1) and (2) show the result of the model investigating the impact of mafia on DC vote shares. In both models we include the full set of controls. Column (1) shows OLS results, whereas column (2) reports our IV results. Similarly, columns (3) and (4) report the OLS and IV results for the full models on construction workers, respectively. Overall, the adoption of an alternative measure of mafia does not disrupt our main results and even the magnitude of the impacts are relatively similar.

TABLE 6 ABOUT HERE

The second robustness check addresses a more subtle issue regarding our main measure of electoral competition. To minimize potential reversed causality bias we compute the difference between DC and PCI vote shares in the rest Italy excluding Sicily. We

cannot exclude, however, that the presence of mafia in *one* region affects the parties' optimal electoral strategy in both regions. The impact of the presence of mafia in Sicily on parties' electoral effort, and therefore electoral competition, in the rest of Italy is likely to be negligible, given the relative size of the two regions with Sicily representing less than 8% of the Italian electorate. Nevertheless, a concern about the presence of some residual endogeneity in the results presented in the previous section may remain. To address this potential concern, we adopt an alternative measure of electoral competition faced by the DC, which is less directly linked with Italian politics: an index of the strength of communism at the global level, computed as the number of national states ruled by a communist regime, normalized by the maximal number of communist states recorded in the period considered. Since the main electoral concern for DC was the growth of PCI, the measure clearly captures the intensity of the threat to DC political hegemony.

Table 7 reports the results of this exercise. Again, while columns (1) and (2) show the result of the OLS and IV full models investigating the impact of mafia on DC vote shares, columns (3) and (4) report the OLS and IV results for the full models on construction workers, respectively.

TABLE 7 ABOUT HERE

The positive and significant coefficients for the presence of mafia interacted with the international strength of communism in the first two columns confirm the pattern found in Tables 2 and 4: the DC gained more votes in mafia municipalities when the communism was relatively stronger internationally. Overall, this confirms that the growth of communism was indeed representing a capital concern for DC leadership. According to the IV results reported in column (2), one additional communist country would lead to an average increase of DC vote shares in mafia municipalities by about 0.5 percentage points. To

enable a direct comparison of the results obtained across the two sets of estimations, we recover the impact of the change in the international strength of communism on the DC vote shares in the same time span considered above. While the difference between DC and PCI decreased by 17 percentage points between 1958 and 1983, the number of communist countries raised from 14 to 23 (which maps into an increase of the normalized index by 0.4). This change predicts an increase of the DC vote share in mafia municipalities by about 5 percentage points.

In line with our previous findings, column (3) and (4) confirm that when communism was internationally stronger, the share of labor force employed in construction activities was higher in mafia municipalities. According to the IV results reported in column (4), one additional communist country would increase the share of labor force working in construction by almost 0.2 percentage points in mafia municipalities. Working out the average impact due to the change in international strength of communism between 1958 and 1983, we obtain an increase of the share of labor force in construction by about 2 percentage points.

Overall, despite the somewhat smaller magnitude, not surprising given the indirect proxy for electoral competition adopted here, the results of this exercise strongly confirm the previous patterns.

7   Conclusions

In this paper we study the impact of organized crime on electoral outcomes. Using a two-region theoretical model we identify electoral competition as a key determinant affecting the incentives for an incumbent party to engage in electoral deals with a criminal organi-

zation present in one of the regions: deals with organized crime become more salient and more decisive in the presence of strong electoral competition. Guided by the predictions of the model and using Sicily as a case study, we document the impact of the Sicilian mafia on parliamentary elections in the period 1946-92. We find evidence consistent with the existence of an electoral deal between the mafia and the Christian Democrats (DC): increases in the electoral competition faced by the DC (mainly due to the dynamics of the Italian Communist Party, PCI) consistently increased its share of the vote in municipalities in which the mafia operated, as compared to the other Sicilian municipalities. The results are robust to a variety of specifications including an instrumental variable strategy in which recent mafia presence is instrumented with its distribution in 1900, and to the adoption of alternative measures of mafia and electoral competition, one of which entirely external to Italian politics. The magnitude of the impact is substantial: according to our preferred specification the largest drop in the DC - PCI difference witnessed within the period considered (about 17 percentage points between the 1958 and the 1983 elections), would lead to an increase of DC vote shares in mafia municipality by about 13 percentage points.

What did the mafia get in exchange for its support? This side of the electoral deal is more difficult to disentangle as the channels through which politicians may have paid the mafia back are multiple. We provide suggestive evidence that one channel has been through construction activities, either through the facilitation of private (legal and illegal) developments, or the awarding of public construction contracts to companies with close ties to the mafia.

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Tables

Table 1: Descriptive statistics

Variable	Obs	Mean	SD	Min	Max
Dependent variables:					
Votes Share of Christian Democrats in Sicily	4440	0.445	0.129	0.039	0.938
in Mafia1987 municipalities	936	0.427	0.120	0.079	0.938
in other municipalities	3504	0.450	0.131	0.039	0.873
Construction workers over labor force	4440	0.123	0.070	0.000	0.436
Mafia measure:					
Mafia1987	370	0.211	0.408	0.000	1.000
Mafia1994	370	0.278	0.448	0.000	1.000
Mafia1900	308	1.396	1.145	0.000	3.000
Electoral competition measures:					
DC - PCI vote shares	4440	0.1133	0.539	0.019	0.196
International strength of communism	4440	0.703	0.237	0.217	1
Public expenditure controls:					
Public servants over labor force	4440	0.067	0.039	0.007	0.308
Public investments per capita in the last 5 years	108	0.265	0.435	0.001	7.294
Socio-demographic controls:					
Log(population)	4440	8.685	1.055	5.579	13.460
Density	4440	2.647	4.107	0.044	52.973
Share of population under 25	4440	0.415	0.060	0.216	0.592
Share of population over 60	4440	0.170	0.054	0.042	0.407
Share of homemaker over population	4440	0.237	0.094	0.013	0.510
Houses without basic services per capita	4440	0.034	0.065	0.000	0.460
Share of illiterate population	4440	0.132	0.078	0.008	0.448
Share of population with university degree	4440	0.010	0.009	0.000	0.098
Share of female population with university degree	4440	0.004	0.004	0.000	0.043
Economic controls:					
Share of labor force employed in agriculture	4440	0.471	0.218	0.022	1.000
Share of female labor force	4440	0.215	0.128	0.000	0.505
Males in search of first occupation over labor force	4440	0.071	0.057	0.000	0.536
Geographic variables:					
Slope (max height – min height divided by area)	370	0.283	0.336	0.007	3.711
Distance from the province capital	370	36.394	25.298	0.000	219.503
Altitude of the main center	370	0.399	0.275	0.001	1.275
Church presence:					
Number of parishes per 1000 inhabitants in 1951	370	0.416	0.379	0.055	3.851
Diocese seat dummy in 1951	370	0.051	0.221	0.000	1.000

Table 2: The impact of mafia on DC electoral outcome - OLS results

Dependent variable: Votes Share of Christian Democrats

	(1)	(2)	(3)	(4)	(5)	(6)
Mafia1987 × DC-PCI shares	-0.146	-0.188**	-0.204**	-0.189**	-0.226**	-0.219**
	(0.0936)	(0.0916)	(0.0888)	(0.0876)	(0.0941)	(0.0952)
Public expenditure controls		✓	✓	✓	✓	✓
Socio-demographic controls			✓	✓	✓	✓
Economic controls				✓	✓	✓
Geographic controls					✓	✓
Church controls						✓
Linear trend	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓
Observations	4,440	4,440	4,440	4,440	4,440	4,440
Municipalities	370	370	370	370	370	370
R-squared	0.147	0.160	0.184	0.185	0.199	0.204

Notes: Robust standard errors clustered at municipality level in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 3: The impact of mafia on construction activities - OLS results

Dependent variable: Share of construction workers over labor force

	(1)	(2)	(3)	(4)	(5)	(6)
Mafia1987 $\times$ DC-PCI shares	-0.0324	-0.0405	-0.0221	-0.0816**	-0.0983**	-0.0859**
	(0.0527)	(0.0521)	(0.0479)	(0.0390)	(0.0405)	(0.0400)
Public expenditure controls		$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Socio-demographic controls			$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Economic controls				$\checkmark$	$\checkmark$	$\checkmark$
Geographic controls					$\checkmark$	$\checkmark$
Church controls						$\checkmark$
Linear trend	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Year FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Municipality FE	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$	$\checkmark$
Observations	4,440	4,440	4,440	4,440	4,440	4,440
Municipalities	370	370	370	370	370	370
R-squared	0.568	0.570	0.644	0.763	0.771	0.778

Notes: Robust standard errors clustered at municipality level in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 4: The impact of mafia on DC electoral outcome - IV results

Dependent variable: Votes Share of Christian Democrats

	(1)	(2)	(3)	(4)	(5)	(6)
Mafia1987 $\times$ DC-PCI shares	-0.455*	-0.471**	-0.505**	-0.538**	-0.651***	-0.787***
	(0.242)	(0.236)	(0.237)	(0.242)	(0.245)	(0.265)
Public expenditure controls		✓	✓	✓	✓	✓
Socio-demographic controls			✓	✓	✓	✓
Economic controls				✓	✓	✓
Geographic controls					✓	✓
Church controls						✓
Linear trend	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓
Observations	3,696	3,696	3,696	3,696	3,696	3,696
Municipalities	308	308	308	308	308	308
R-squared	-0.008	0.186	0.200	0.202	0.214	0.221
First Stage F statistic	70.36	71.70	71.33	65.46	70.17	61.86

Notes: Robust standard errors clustered at municipality level in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 5: The impact of mafia on construction activities - IV results

Dependent variable: Share of construction workers over labor force						
	(1)	(2)	(3)	(4)	(5)	(6)
Mafia1987 × DC-PCI shares	-0.267**	-0.265**	-0.295**	-0.293***	-0.302***	-0.262**
	(0.129)	(0.126)	(0.122)	(0.109)	(0.107)	(0.113)
Public expenditure controls		✓	✓	✓	✓	✓
Socio-demographic controls			✓	✓	✓	✓
Economic controls				✓	✓	✓
Geographic controls					✓	✓
Church controls						✓
Linear trend	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓
Observations	3,696	3,696	3,696	3,696	3,696	3,696
Municipalities	308	308	308	308	308	308
R-squared	-0.034	0.611	0.632	0.763	0.775	0.786
First Stage F statistic	70.36	71.70	71.33	65.46	70.17	61.86

Notes: Robust standard errors clustered at municipality level in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 6: Alternative measure of mafia presence

Dependent variable:	DC Votes Share		Share of construction workers	
	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)
Mafia1994 $\times$ DC-PCI shares	-0.152*	-0.983***	-0.0647*	-0.327**
	(0.0845)	(0.331)	(0.0358)	(0.148)
Public expenditure controls	✓	✓	✓	✓
Socio-demographic controls	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓
Geographic controls	✓	✓	✓	✓
Church controls	✓	✓	✓	✓
Linear trend	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓
Observations	4,440	3,696	4,440	3,696
Municipalities	370	308	370	308
R-squared	0.203	0.196	0.777	0.777
First stage F statistic		32.80		32.80

Notes: Robust standard errors clustered at municipality level in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 7: Alternative measure of electoral competition

Dependent variable:	DC Votes Share		Share of construction workers	
	OLS	IV	OLS	IV
	(1)	(2)	(3)	(4)
Mafia1987 × International strength of communism	0.0208 (0.0168)	0.130*** (0.0453)	0.0161** (0.00630)	0.0527*** (0.0183)
Public expenditure controls	✓	✓	✓	✓
Socio-demographic controls	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓
Geographic controls	✓	✓	✓	✓
Church controls	✓	✓	✓	✓
Linear trend	✓	✓	✓	✓
Year FE	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓
Observations	4,440	3,696	4,440	3,696
Municipalities	370	308	370	308
R-squared	0.202	0.224	0.777	0.786
First stage F statistic		63.66		63.66

Notes: Robust standard errors clustered at municipality level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.

Appendix

Proof of Proposition 2

Proof. The share of votes earned by the two parties at equilibrium in region 1 are

$$
\begin{aligned}
s_1^A &= \frac{1}{2} + \frac{4}{9}e + \theta_1^A - \frac{2\,(9-4e)}{27}\left[n\theta_1^A + (1-n)\theta_2^A\right] \\
s_1^B &= \frac{1}{2} - \frac{4}{9}e - \theta_1^A + \frac{2\,(9-4e)}{27}\left[n\theta_1^A + (1-n)\theta_2^A\right] \\
\Delta_1 = s_1^A - s_1^B &= \frac{54 - 4\,(9-4e)\,n}{27}\theta_1^A - \frac{4\,(9-4e)\,(1-n)}{27}\theta_2^A - \frac{8}{9}e
\end{aligned}
$$

Rearranging the equation in terms of θ_1^A:

$$
\theta_1^A = \frac{24e}{54 - 4\,(9-4e)\,n} + \frac{4\,(9-4e)\,(1-n)}{54 - 4\,(9-4e)\,n}\theta_2^A - \frac{27\Delta_1}{54 - 4\,(9-4e)\,n}
$$

Substituting the latter expression in the equilibrium value of $m^\star$ as defined in equation (12), we get:

$$
p^{A\star} = \frac{6(3-n)}{27 - 2n\,(9-4e)} - \frac{12\,(1-n)\,\theta_2^A}{27 - 2n\,(9-4e)} - \frac{12n\Delta_1}{27 - 2n\,(9-4e)}
$$

Since the number of votes shifted by the mafia is $ep^{A\star}$,

$$
\frac{\partial ep^{A\star}}{\partial \Delta_1} = -\frac{12en}{27 - 2n\,(9-4e)} < 0
$$

which completes the proof. $\qquad\square$

Table A1: First stage results

Dependent variable: Mafia1987 × DC-PCI shares

	(1)	(2)	(3)	(4)	(5)	(6)
Mafia1900 × DC-PCI shares	0.161***	0.161***	0.160***	0.157***	0.160***	0.153***
	(0.0192)	(0.0190)	(0.0189)	(0.0194)	(0.0191)	(0.0195)
Public expenditure controls		✓	✓	✓	✓	✓
Socio-demographic controls			✓	✓	✓	✓
Economic controls				✓	✓	✓
Geographic controls					✓	✓
Church controls						✓
Linear trend	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓
Observations	3,696	3,696	3,696	3,696	3,696	3,696
Municipalities	308	308	308	308	308	308
R-squared	0.182	0.391	0.400	0.405	0.463	0.467

Notes: Robust standard errors clustered at municipality level in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A2: The origin of extra votes

Dependent variable:	Votes Share *Left*		Votes Share *Right*		Turnout	
	OLS (1)	IV (2)	OLS (3)	IV (4)	OLS (5)	IV (6)
Mafia1987 × DC-PCI shares	0.124	0.529**	0.0227	0.0483	0.0335	0.105
	(0.0930)	(0.225)	(0.0723)	(0.180)	(0.0650)	(0.165)
Public expenditure controls	✓	✓	✓	✓	✓	✓
Socio-demographic controls	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓
Geographic controls	✓	✓	✓	✓	✓	✓
Church controls	✓	✓	✓	✓	✓	✓
Linear trend	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓
Observations	4,440	3,696	4,440	3,696	4,440	3,696
Municipalities	370	308	370	308	370	308
R-squared	0.477	0.466	0.328	0.337	0.672	0.710
First stage F statistic		61.86		61.86		61.86

Notes: Robust standard errors clustered at municipality level in parentheses; *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A3: Falsification exercise - The impact of mafia on other sectors

| Dependent variable: | Share of labor force employed in: | | | | | |
| | Industry | | Banking | | Transportation | |
	OLS (1)	IV (2)	OLS (3)	IV (4)	OLS (5)	IV (6)
Mafia1987 × DC-PCI shares	0.0979**	0.187	-0.0111	-0.0454	-0.00477	-0.00138
	(0.0461)	(0.121)	(0.0194)	(0.0434)	(0.00366)	(0.00724)
Public expenditure controls	✓	✓	✓	✓	✓	✓
Socio-demographic controls	✓	✓	✓	✓	✓	✓
Economic controls	✓	✓	✓	✓	✓	✓
Geographic controls	✓	✓	✓	✓	✓	✓
Church controls	✓	✓	✓	✓	✓	✓
Linear trend	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Municipality FE	✓	✓	✓	✓	✓	✓
Observations	4,440	3,696	4,440	3,696	4,440	3,696
Municipalities	370	308	370	308	370	308
R-squared	0.475	0.480	0.468	0.477	0.633	0.624
First stage F statistic		61.86		61.86		61.86

Notes: Robust standard errors clustered at municipality level in parentheses; *** p<0.01, ** p<0.05, * p<0.1.