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Organized crime and spillover effects in the construction sector[1]

Massimiliano Ferraresi[2], Leonzio Rizzo[3], Riccardo Secomandi[4]

Abstract

Literature has mainly focused on understanding whether organized crime impacts on economic growth, broadly intended. Yet, at the local level, little is known as to how crime may affect economic activities. Using a unique geo-localized dataset on Italian firms, we exploit the strengthening of policy enforcement against corruption to show that in municipalities where the city council is dissolved because of organized-crime infiltration, there is a reduction in the added value of firms located in neighboring municipalities, this effect being more marked for firms operating in the construction sector. We also find that the effect is larger the longer the commissioner is present in the municipal council. Taken together our findings suggest that criminal organizations bring about spillover effects in the construction sector.

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Introduction

In the last decade there has been a growing interest in the public debate towards anti-corruption policies, as corruption weakens the institutions, the values of democracy/justice and compromises the development and the principle of legality (ONU, 2003). And this is particularly salient in Italy, where – according to the Transparency International's Corruption Index[5] (Figure 1) - the perception of corruption is one of the highest among developed countries.

INSERT HERE FIGURE 1

The criminal organizations in Italy have drained many public resources by interfering in several public contracts (Caneppele and Martocchia, 2014). As a response, the central government promoted legislative actions[6], including the possibility to dissolve the municipal councils for mafia infiltration.

Together with this anecdotal evidence on the relevance of mafia infiltration, a large body of literature focuses on the role played by organized crime in shaping economic (Bologna and Ross, 2015; Fenizia, 2018; Méon and Sekkat, 2005; Montoya, 2016; Rozo, 2014) and political outputs (Hess, 1973; Pezzino, 1985; Acemoglu et al., 2009; Pinotti, 2012; Alesina et al., 2016; Buonanno et al., 2016; Daniele and Dipoppa, 2017; De Feo and De Luca, 2017, Daniele 2019). In particular, a large amount of literature has sought to identify the deterrent impact of sanctions (Drago et al., 2009; Kessler and Levitt, 1998) and the negative effect of police on crime (Corman and Mocan, 1999; Di Tella and Schargrodsky, 2004). Other studies emphasize the effect of mafia organization on the general government (Conti et al., 2021; Gennaioli et al., 2011; Acconcia et al., 2014; Barone and Narciso, 2015; Daniele and Geys, 2015; Di Cataldo and Mastrorocco, 2017) and the channels of diffusion of organized crime (Buonanno and Pazzona, 2014)

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[5] World Economic Forum, *Global competitiveness reports*, 2018.
[6] Legislation includes Law n. 575/1965, which first inserted special provisions against the mafia into Italian law; Law n. 646/1982, introducing criminal association as illegal act in the Italian penal code, and Law n. 356/1992, which introduced article 41 bis in the Italian prison system, known as the "hard prison for mafia".

While many contributions have focused on the direct effects of organized-crime, only very few works have analyzed the presence of mafia-related spatial spillover effects on public outcomes. Avis et al. (2016) find that measures of auditing have no effects on the level of corruption in neighboring municipalities. By way of contrast, Silva (2010), using information from an anti-corruption policy in Brazil that randomly assigns cities to be controlled, shows that anti-corruption policy takes time to materialize its effects in the neighboring cities. Yet, Galletta (2017) finds evidence of a reduction of public investments in municipalities close to those that have been dissolved due to the presence of mafia infiltration in southern Italy. Eventually, Jauregui et al., (2020) study the impact of corruption on firm births in the formal sector by using information on Mexican states. Intriguingly, they show not only that corruption is positively correlated with the formation of new formal-sector firms, but also they find a strong spatial component to new firm formation.

We complement the existing literature on the spatial effects of corruption by exploring the role of mafia-related spillover effects on local economic activities: a feature that has not yet been addressed in the empirical framework.

The aim of this paper is to fill this gap in the literature, by studying the effect of an anti-corruption policy on the level of economic activities of neighboring areas. In particular, we rely on the Orbis - Bureau van Dijk database to collect financial information concerning the budget of over 500,000 firms. Then, we match each firm to a specific municipality via geo-localization. We concentrate on 1,350 municipalities belonging to three Italian southern regions, the ones most affected by mafia infiltration (Sicily, Calabria and Campania). In order to induce variation in our spillover variable we exploit the law enforcement against corruption in local governments, that is the municipal council dissolution that occurred for mafia infiltration over the period 2010-2016. Once controlling for firms and years fixed effects, our results suggest that the dissolution of the municipal council is associated with a 7% reduction in the value added generated by firms in the construction sector belonging to neighboring municipalities. To provide a causal interpretation of our results, it is crucial to show that

the timing of the council dissolution in neighboring municipalities is random. To test for this hypothesis, we show that the unobservable – taken to be several combination of fixed effects – does not matter in the estimates. In addition – and to complement this analysis – we perform a series of placebo test that allows for anticipatory effects to be excluded. Yet, we provide evidence that council dissolution for mafia infiltration is likely to be the most plausible explanation for the observed reduction in the local economy, as other reasons for the council dissolution do not lead to any downsizing in the value added. Finally, we use alternative definitions of council dissolution, namely the average number of neighboring council dissolutions and the average number of days of council dissolution, which allow us to measure the intensity of the treatment. This analysis indicates that the decrease of the value added is larger the longer the presence of the organized crime is in the municipal council.

Taken together, our findings seem to suggest that the presence of anticorruption policies have a repercussion on the local economy, especially in the construction sector where the probability of mafia infiltration is very high (Sciarrone, 1998; Varese, 2011).

There is a huge amount of anecdotal evidence confirming this attitude[7]. To begin with, Salvatore Lima, the mayor of Palermo between 1958 and 1963, was considered responsible for the so-called "Sacco di Palermo", a dramatic urbanization of the territory, by explicitly favoring construction firms linked to Cosa Nostra. Yet, Tano Badalamenti, head of the Sicilian mafia, was arrested because he was able to corrupt politicians so as to participate in the bribe for the construction of the local airport using his own construction company.

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[7] A recent analysis conducted on the province of Crotone in the South Italy (Riccardi, Milani and Campedelli, 2016), has identified that the most infiltrated economic sectors include construction, transport and storage, services for enterprises, the supply of electricity (including renewable sources), as well as gambling. In addition, according to the Anti-mafia Investigative Direction (DIA) report, which analyzes firms sequestered by the Italian government for mafia activity over the period 1983-2012, it turns out that the majority of them were related to the trade and transport sectors, followed by construction and mining activities. These figures, have also been confirmed by a recent study conducted by the Bank of Italy, which registers firms operating in the construction sectors on top of activities managed by the mafia in 2016.

Furthermore, in 1982, the judge Giovanni Falcone wrote: "*the mafia organizations completely control the building sector in Palermo, from the quarries for the production of aggregates, the excavation firms and the concrete factories, to the iron deposits for building, ... entrepreneurs are either in the mafia or have to undergo the impositions of mafia organizations*".

Finally, based on Openregio[8], a dataset built by the Ministry of the Interior, it turns out that among the 712 firms confiscated from the mafia by the Italian Government, over 35% refers to the construction sector. Mafia interest was also found in the post-earthquake reconstruction works in L'Aquila, as well as during the realization of the universal exposition hosted by Milan in 2015 (Expo 2015) and in the modernization of the most important highway in the southern Italy: the Salerno-Reggio Calabria (see the report of the Parliamentary Commission of inquiry on the Mafia phenomena)[9].

The rest of the work is organized as follows. Section 2 describes the anti-corruption policy and describes the institutional framework. Section 3 illustrates the dataset. The empirical analysis, the results and the robustness checks are in Section 4. Section 5 concludes.

2. Institutional setting

In 1991, in order to combat corruption in local public administrations, the Italian parliament approved a Law (D.L. n. 164/1991)[10] which allows the Central Government to dissolve the municipal council if there are potential links with the mafia. As a consequence of this legislative act, the major of the city is replaced by a group of commissioners, who is in charge of the overall governance and functioning of the municipality in which they intervene. The dissolution of municipal councils can

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[8] Source: https://openregio.it/statistiche/visualizza/beni_destinati/aziende.

[9] The report is available here: http://www.senato.it/service/PDF/PDFServer/BGT/1066861.pdf.

[10] According to Art. 143 D. Lgs. n.267/2000 municipal councils are dissolved when: "concrete, univocal and significant elements emerge relating to direct or indirect links with organized crime, so as to determine an alteration of the process of formation of the willingness of the elective and administrative bodies and to expose the good performance or impartiality of the municipal administrations as well as the regular functioning of the services entrusted to them, or factors that cause serious and lasting prejudice to the state of public safety".

take place for other reasons than organized crime infiltration[11] and it usually follows a process which is slightly different from the one used for the mafia.

The commissioners are chosen from officials who already have experience in the management of municipalities and typically are from a different geographic area than ones of the municipality put under commissioner (Fenizia, 2018). Furthermore, the commissioners are empowered to revise the budgetary choices and the decisions of the municipal council. Such decisions often coincide with the resolution of public procurement contracts stipulated with firms associated with the criminal organization, regardless the state-of-the-play of the contract (Ministry of Interior, 2016).

Finally, there are special obligations foreseen by the mafia code (D.Lgs. n. 159/2011), which impose municipalities that have been dissolved for organized crime infiltration to acquire anti-mafia information for any contracts during the five years following the dissolution - a sort of internal communication within bodies of the Public Administration that certificates whether a firm can be procured or not. Once the period finishes for the commissioner, there are local elections and the commissioners are then replaced by the elected mayor and the elected municipal council.

3. Dataset

The empirical analysis is based on a dataset on both municipalities and firms in the regions of Campania, Calabria and Sicily, for the period 2010-2016[12]. These information are collected from a combination of different archives, available from the Italian Ministry of the Interior, the Italian Statistical Office (ISTAT), the National Association of Italian municipalities (ANCI) and Orbis - Bureau van Dijk.

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[11] The dissolution may take place for the accomplishment of acts contrary to the constitution or for serious and persistent violations of the law, as well as for serious reasons relating to public order or for the impossibility of ensuring the normal functioning of the organs and services, e.g. the resignation of the mayor or more than half of municipal councilors (TUEL).
[12] We also collect data for the years 2008 and 2009 and then proceed with the robustness check.

3.1 Municipal data

Municipal information on council dissolution, and its length, have been collected by complementing the data available at the Ministry of the Interior with the Ancitel database, from ANCI, which provides detailed information on the causes of municipal dissolution[13]. According to our sample, 730 councils were dissolved over the period 2010-2016, corresponding to approximately 16% of municipalities in the three considered regions. Among these, 186 municipalities were dissolved for mafia infiltration, with the yearly distribution being more pronounced in Calabria (Figure 2).

INSERT HERE FIGURE 2

In order to build our main variable of interest we use both the start and the end date of the commissioner. Thus, for each municipality, we build the variable *mafia council dissolution* that takes on the value of 1 if the municipality council has been put under the control of a commissioner for a mafia related issue, and zero otherwise. In the same way, the variable *council dissolution for another reason* accounts for any reason for a council dissolution other than mafia, and it is equal to 1 if the municipality has been put under the control of a commissioner for not mafia related issue, and zero otherwise.

These variables are then used to create neighboring values. In particular, we build the *neighboring council dissolution* variable, which equals to 1 when, in a given year, a commissioner for dissolution is appointed due to mafia infiltration in a nearby municipality and zero otherwise.[14] Figure 3 depicts the geographical distribution of both the *mafia council dissolution* and *neighboring council dissolution* variables, suggesting that it is quite uniform within each region, though less marked for Campania.

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[13] See the following link for detailed information concerning municipal dissolution http://www.interno.gov.it/sites/default/files/relazione_ministro_enti_sciolti_2015_2016t_0.pdf.

[14] The measure of proximity between municipalities was constructed using data from the ISTAT (http://www.istat.it/it/archivio/157423).

In a similar vein, we define the variable *neighboring council dissolution for another reason* as being equal to 1 when in a nearby municipality, in a given year, the commissioner is in charge as a consequence of council dissolution for reasons other than mafia.

In order to analyze possible heterogeneous effects we have built two different variables. The *average number of days of council dissolution* variable is equal to the ratio between the number of days of council dissolution in neighboring municipalities due to mafia infiltration and the number of neighboring municipalities. To ease the interpretation of the result this variable has been normalized to one, such that 0 implies that neighboring municipalities have experienced zero days of a commissioner over a year and 1 implies that on average, neighboring municipalities have been put under the control of a commissioner for the entire year (365 days). It follows that a value of this variable equals 0.30 is associated with 110 days of a commissioner.[15]

The variable *average number of neighboring council dissolution* is equal to the ratio between the number of neighboring municipalities dissolved as a result of mafia infiltration and the number of neighboring municipalities. These two variables are equal to 0 when the municipality is not close to a municipality that has been dissolved as a result of mafia infiltration.

<div align="center">INSERT HERE FIGURE 3</div>

3.2 Firms data

Information concerning firms was taken from the Bureau van Dijk database (Orbis). This database contains financial and commercial information on over 500,000 equity companies operating in Italy. As our main variable of interest we used the *value added,* calculated by subtracting the total costs from the total revenues[16]. The definition of total costs include costs for gross purchases, costs for several services/changes in inventories of materials, goods purchased without transformation and

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[15] 365 days $\times$ 0.30 = 110 days.
[16] While in principle it is possible to rely on a definition of the valued added per employees, in practice this solution turns out to be not feasible as the number of employees (full time equivalent) for 25% of the firms is equal to 0.

other operating costs. On the revenue side, we included the value of gross sales, the change in inventories of finished products, semi-finished goods and work in progress, increases in fixed effects for internal work and the revenues of management accessories are items included for calculating revenues.

In addition, we collected information on the number of years since the founding of the firm (*firm aging*) and the class of revenue (*revenue class*): these variables serve to proxy the degree of maturity of the firm and the size of the company in financial terms, respectively[17].

The variable *number of years* of the firm represents the maturity of the firm measured by the number of years that have passed since its foundation. The *revenue class* variable captures the size of the company in financial terms. Furthermore, we gather information on the activity of the firm by relying on its economic sector (ATECO[18]). Finally, we use the address and the zip code (CAP) to geo-localize each firm so as to assign them into a specific municipality. Summary statistics of all variables used in the analysis are reported in Table 1.

INSERT HERE TABLE 1

Figure 4 plots the distribution of firms, valued added and revenue for all economic sectors. Accordingly, in Panel A, it emerges that almost 60% of firms are distributed across three sectors: wholesale trade (26%), construction (18%) and manufacturing (12%). A similar picture is depicted in Panel B, where the sectorial distribution of value added and revenue is shown. Indeed, the lion's part of the value added and revenue generated by companies is concentrated among the manufacturing, wholesale, construction and transport sectors. What this simply suggests is that construction is among one of the more relevant sectors the local economy of the three regions (Figure 4).

INSERT HERE FIGURE 4

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[17] Following the definition provided by ISTAT, we grouped firms in 9 revenue classes (see Table A1).
[18] The ATECO codes used in the analysis are reported in the Appendix, Table A2.

4. Empirical analysis

4.1 Econometric specification

Our analysis focuses on the effects of the commissioner for mafia infiltration on the value added of firms in bordering municipalities. In particular, we are interested in analyzing the impact of spillover effects, due to the anti-corruption policy, on the local economy.

To begin with, we use the following model:

$$Y_{ict} = \alpha + \beta neighboring\ mafia\ council\ dissolution_{ct} + \gamma mafia\ council\ dissolution_{ct} +$$
$$\delta council\ dissolution_{ct} + \rho X_{it} + \tau_i + \mu_t + \varphi_{pt} + \epsilon_{ict} \qquad (1)$$

where *i* denotes the firm, *c* the municipality where the firm is located and *t* the year. Y_{ict} is the logarithm of the value added, opportunely deflated[19]. The *neighboring mafia council dissolution$_{ct}$* variable is a dichotomous variable that is equal to 1 when the firm is located in a municipality bordering a municipality which is dissolved for mafia infiltration and 0 otherwise. We also include two indicators accounting for the presence of commissioners in the municipal administration: *mafia council dissolution$_{ct}$* and *council dissolution$_{ct}$,* with the former capturing the presence of mafia-related commissioners and the latter accounting for the presence of other commissioners for reasons other than mafia. X_{it} is a set of time-varying variables at the level of the firm, such as *number of years* and *revenue class*. τ_i denotes the firm's fixed effects, μ_t is the year's fixed effects and φ_{pt} is a set of province-by-year fixed effects, the aim of which is that of capturing any pattern of unobserved economic shock within the same province. Finally, ϵ_{ict} is the idiosyncratic error term, clustered at the municipal level.

While the coefficients γ and δ account for the direct effect of the council dissolution (for mafia related reasons and reasons not related to mafia) on the value added of firms, β captures the

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[19] Data deflated by the national consumer price index for the entire community, excluding energy (ISTAT).

spillover effect on the local economic activity due to the dissolution of the council in relation to the mafia of neighboring municipalities.

To investigate whether there is a heterogeneous response in relation to the construction sector, we interact the neighbors' mafia council dissolution with a dummy variable accounting for it. In particular, we have estimated a modified version of equation (1) where we allow the spillover effect in the construction sector to be separated:

$$Y_{ict} = \alpha + (\beta + \lambda construction_i) \times neighboring\ mafia\ council\ dissolution_{ct} + \gamma mafia\ council\ dissolution_{ct} + \delta council\ dissolution_{ct} + \rho X_{it} + \tau_i + \mu_t + \varphi_{pt} + \epsilon_{ict}\ (2)$$

In a way that differs from equation (1), equation (2) includes an additional term: $neighboring\ mafia\ council\ dissolution_{ct} \times construction_i$. This identifies the specific impact of the neighbors' mafia council dissolution on the construction sector. In fact, $construction_i$ is a dummy variable that is equal to one when firm *i* belongs to the construction sector and zero otherwise. The impact of being a firm belonging to a neighbors' mafia council dissolution on its own value added can be calculated as $\beta + \lambda construction_i$, where λ provides the differential impact on value added of a construction firm.

4.2 Baseline results

In Table 2 we show our estimates. In particular, we first estimate equation (1), without including controls variable (col. 1) and then in column (2) we replicate the analysis including the firm's controls. Results indicate that the neighboring council dissolution for mafia triggered a reduction of the level of value added; nevertheless, the estimated effects are not statistically different from zero in both specifications. While these results seem to suggest that, on average, there is no effect associated with the anti-corruption policy, it might be the case that some sectors, such as construction, have been strongly affected.

To explore whether construction firms are affected by the policy, we estimate model (2). Results of this analysis are shown in column 3 and indicate that the value added of firms in the construction sector reduces by approximately, 6.5% = (0.5 – 7.1), as the coefficient of the interaction term, $neighbors\ mafia\ council\ dismissal_{ct} \times construction_i$, turns out to be negative and statistically significant at 1%. A very similar effect is obtained when we repeat the analysis with the inclusion of control variables (col. 4). It is also worth noting that the direct effect of the policy is associated with a reduction of the value added, i.e. the coefficient of *mafia council dissolution* is always negative, albeit this is not statistically significant at the conventional level.

Finally, in columns (5), (6), (7) and (8) we replicate the previous regressions by adopting a different definition of the council dissolution variable. In detail, we create a measure for the intensity of a commissioner, which is given by the number of days over a year in which neighboring municipalities are put under the control of a commissioner for mafia infiltration[20]. In this case too, we observe a negative and statistically significant effect of the neighbors council dissolution on the value added of firms in the construction sector, both in the case when control variables are excluded (Table 2, col 7), and in the case when, instead, controls are included (Table 2, col 8). To see the magnitude of the effect, take a low level of intensity, say the one corresponding to the 25th percentile of its distribution (0.09, corresponding to approximately 33 days). The effect of neighboring council experiencing a dissolution then implies a decrease in the value added of firms in the construction sectors of - 0.007×0.09 – 0.248×0.09 = - 2.29% (statistically significant at 1%). If one now takes a high level of commissioner intensity, say the one corresponding to the 75th percentile of its distribution (0.19, corresponding to approximately 69 days). In this case, neighboring council dissolution leads to a decrease in the value added of firms operating in the construction sectors of -0.007×0.19 – 0.248×0.19 = -4.84 % (statistically significant at 1% level). Note that the difference of these two effects is

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[20] To test for the robustness of our results we also use a third definition of neighboring council dissolution. In particular, we define neighboring council dissolution as the ratio between the number of neighboring municipalities put under the control of a commissioner and the total number of municipalities. Results do not change and are available in Appendix, Table A3.

statistically significant (-4.84 + 2.29 = 2.55%; p-value = 0.006), implying that the effects are larger the longer the commissioner is present in the municipal council.

Finally, it can be noticed that neither the inclusion of control variables, nor the adoption of different measures of council dissolution change the magnitude of the assets, implying that firms may not appear to significantly different in terms of observables and that the effect is not driven by the definition of the neighboring council dissolution variable.

Taken together, these results suggest that the presence of an anti-corruption policy leads to a reduction of the value added of firms in the construction sector, suggesting that there are crime-related links between private firms and local officials (with such an effect being more pronounced the longer the commissioner is present).

<div align="center">INSERT HERE TABLE 2</div>

4.3 Robustness test

In this section, we assess the validity of the previous results by performing a set of robustness tests.

First of all, we run checks to detect anticipatory behaviour by including leads, up to two years, for the $neighboring\ mafia\ council\ dissolution_{ct}$ and $neighboring\ mafia\ council\ dissolution_{ct} \times construction_i$ variables with regard to the fully controlled regressions. Results of this analysis are reported in Table 3 and indicate that there is no evidence of anticipatory effects on the value added associated with the city council dissolution for mafia infiltrations.

<div align="center">INSERT HERE TABLE 3</div>

Second, there might be some unobservable characteristics linked to council dissolution which bias our results. To tackle this issue, we compare point estimates, and confidence intervals relating to our main variable of interest, $neighboring\ mafia\ council\ dissolution_{ct} \times construction_i$ using three

<div align="center">13</div>

different combinations of fixed effects: *i)* model with controls, firms and years of fixed effects*; ii)* model with controls, firms and years of fixed effects as well as province by years of specific time trend; *iii)* model with controls, firms and years of fixed effects and municipality by years of specific time trend. Our results, shown in Table 4, suggest that point estimates are consistent among the three models and thus we find no plausible explanation that stand up as an argument against a causal interpretation of the identified relationship.

<center>INSERT HERE TABLE 4</center>

Third, in order to better strengthen the evidence pointed out so far and in the spirit of a placebo exercise, we investigate whether using the council dissolution for reasons other than mafia leads to the same conclusion. Indeed, were it the case, it would imply that the effects detected for firms operating in the construction sector are not due to mafia, but – more generally – to the status of commissioner, thereby undermining the crime-related links between private firms and local officials. The results of this analysis are reported in Table 5 and suggest that being surrounded by municipalities dissolved for reasons that are not mafia related brings no effects on the added value of firms, as the interaction term *neighboring council dissolution for another reason$_{ct}$ × construction$_i$* is not statistically significant in any specification.

<center>INSERT HERE TABLE 5</center>

5. Conclusion

In this paper we examined the impact of organized crime on economic activity at a local level. In particular we focused on the effects of a strong anti-corruption policy, namely the introduction of a municipal commissioner for mafia infiltration.

Following the theoretical reasoning of Sah (1991), a strong anti-corruption policy affects the activities of criminal organizations, even in neighboring municipalities and loosens control by the mafia on the activities of the municipal administration. While all firms are potentially subject to a link to organized

crime, some of them are in practice, more vulnerable to criminal infiltration than others (Rose-Ackerman, 1999), e.g. the ones operating in the construction sectors.

Indeed, we showed that in the construction sector the effect of having had a municipality dissolved for mafia infiltration close to the headquarters of the firm decreases the value added by 7%. The effect that is found is sensitive to the intensity of treatment, defined by the number of days the commissioner is present. Not surprisingly, the effect is driven by the construction sector as this sector is heavily dependent on local procurement as such, it is "more" likely to be involved in mafia-related crime (Gambetta and Reuter, 1995).

One main concern of the analysis is that it focuses on a single country, and as such, limits the external validity of our results. As a matter of fact, the Italian mafia can be considered as the "prototype" for other criminal organization around the world, such as drug cartels in South America and the Yakuza in Japan (Pinotti, 2015). More broadly, it follows that the evidence pointed out in this work might eventually shed light on the effects of the presence of criminal organizations in public administration and local firms.

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Figures and tables

Figure 1 - Corruption Perception Index in the world, year 2017.
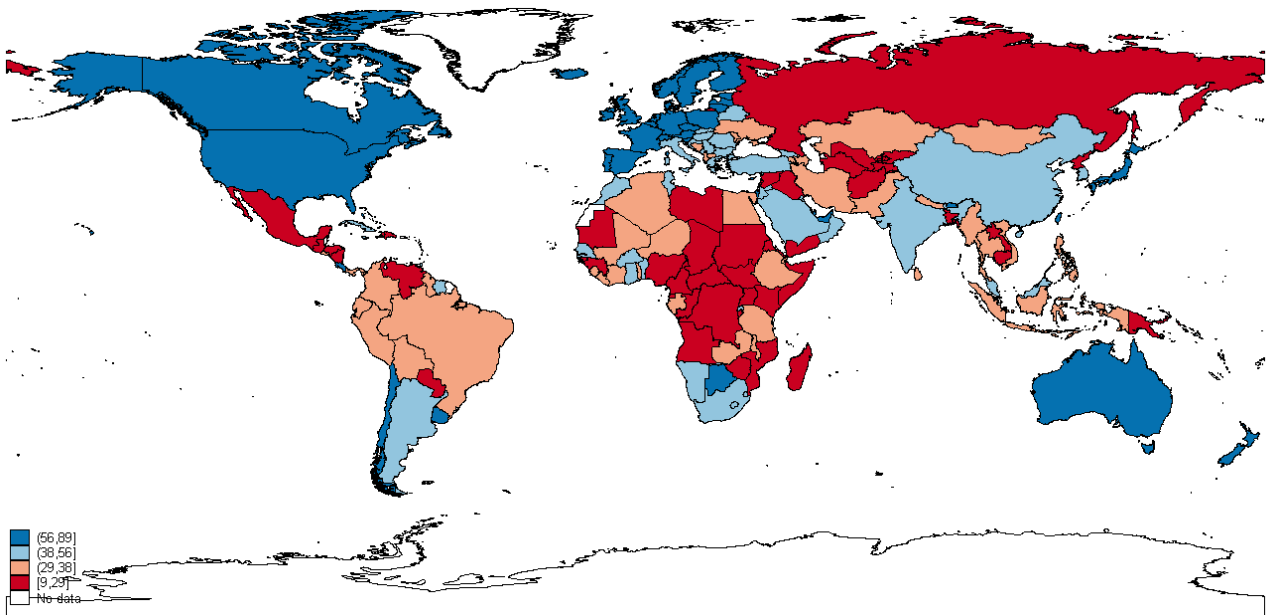
Figure 2 – Distribution of council dissolution for mafia infiltration and for another reason, by region and year.
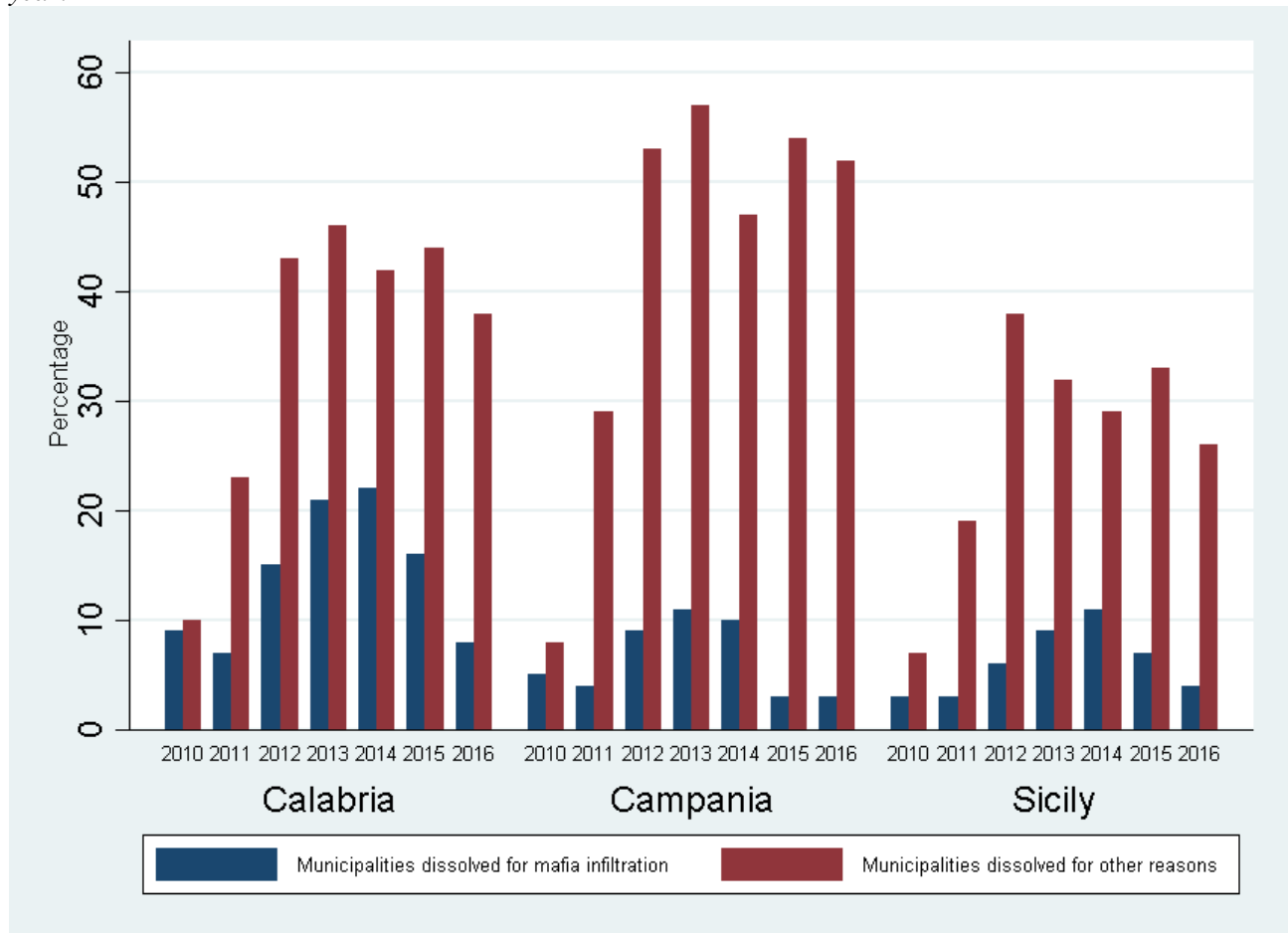
Figure 3 – Municipalities dissolved for mafia infiltration and relative neighbors (2010-2016).
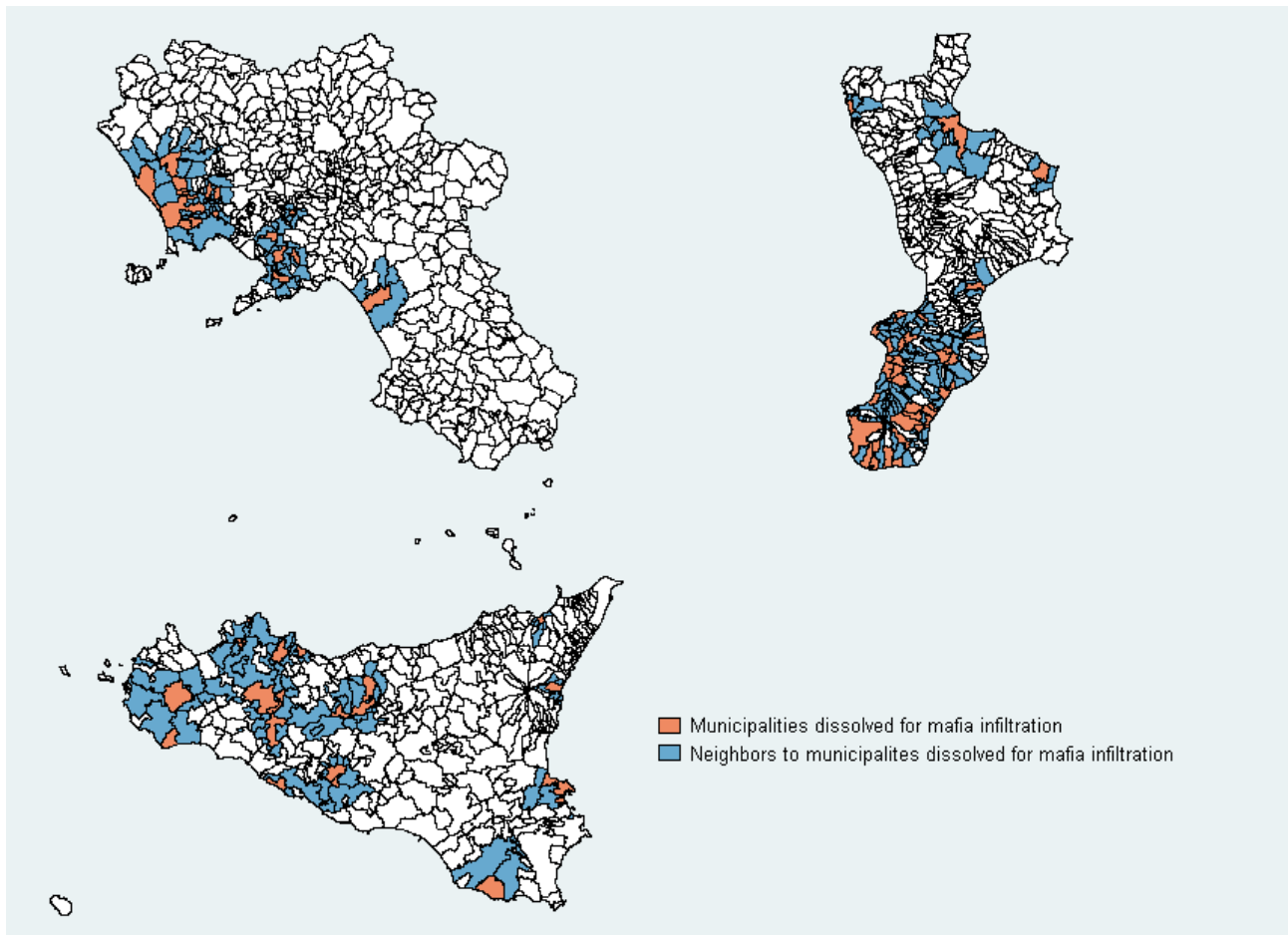
Figure 4 – Distribution of firms, value added and revenue by economic sectors.
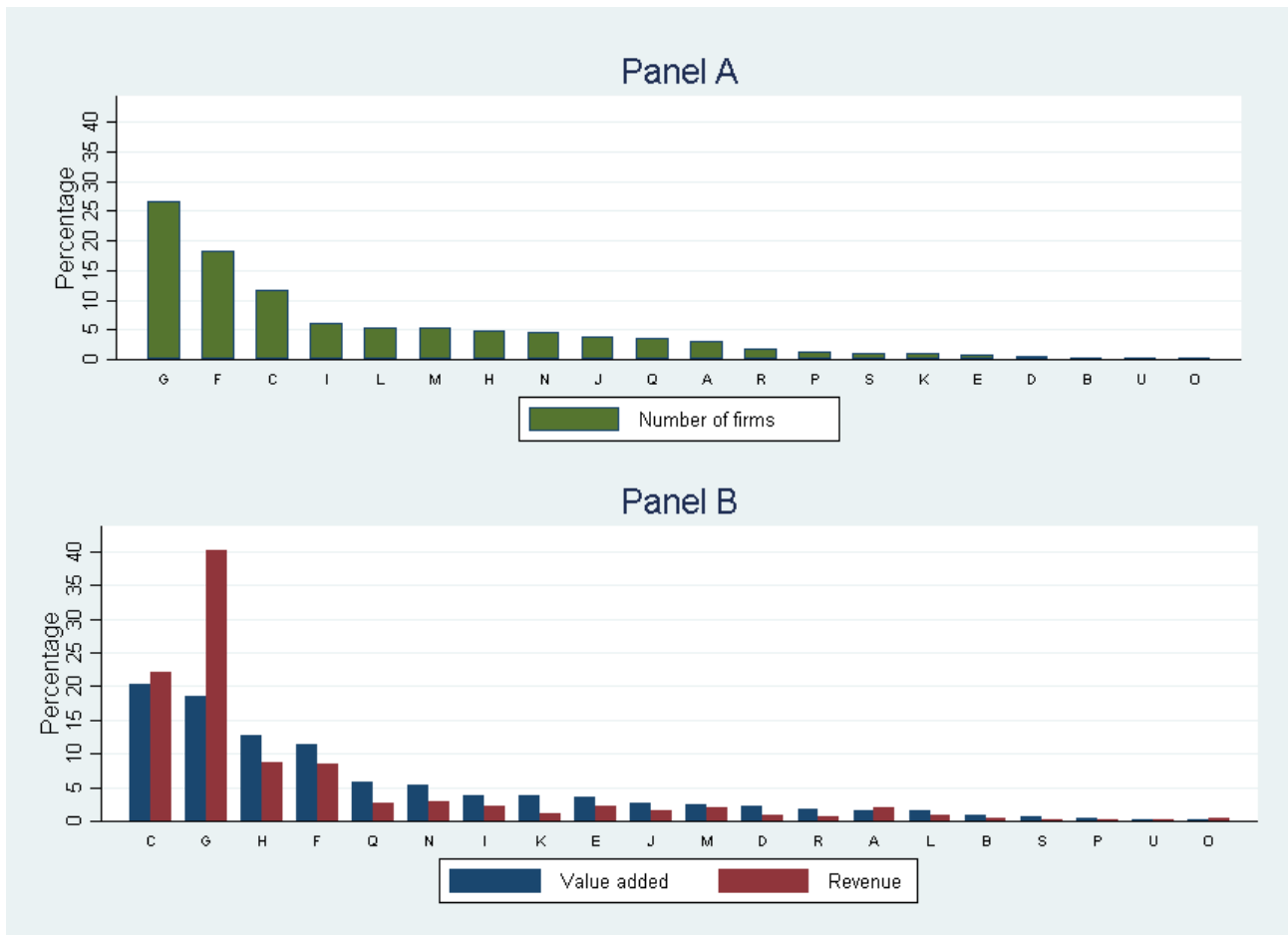
Note: Panel A: percentage distribution of the firms (green) by ATECO code (see Table A2); Panel B: percentage distribuition of valued added (blue) and revenue (red) by ATECO code.

Table 1 – Summary statistics

|	N. of observation	Average	Std. Dev	Min	Max
Value added	701,288	337.36	3,499.08	0.001	1,181,223
Neighboring council dissolution	701,288	0.225	0.418	0	1
Neighboring council dissolution for another reason	701,288	0.321	0.467	0	1
Average number of neighboring council dissolution	698,960	0.034	0.08	0	1
Average number of days of council dissolution	698,960	0.035	0.077	0	0.904
Mafia council dissolution	701,288	0.03	0.172	0	1
Council dissolution for another reason	701,288	0.123	0.329	0	1
Firm aging	701,288	11.25	10.364	1	155
Revenue class	680,822	0,697	1,25	0	9

Table 2 - Value added and neighbors council dissolution for mafia infiltration.

Dependent variable: Value added	Dummy neighbors council dissolution				Average number of days of council dissolution			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Neighboring mafia council dissolution	-0.008	-0.005	0.005	0.006	-0.085***	-0.062**	-0.017	-0.007
	(0.005)	(0.005)	(0.005)	(0.005)	(0.028)	(0.027)	(0.028)	(0.029)
Neighboring mafia council dissolution ×construction			-0.071***	-0.060***			-0.316**	-0.248**
			(0.018)	(0.016)			(0.125)	(0.102)
Mafia council dissolution	-0.025	-0.015	-0.023	-0.013	-0.021	-0.012	-0.019	-0.011
	(0.015)	(0.013)	(0.015)	(0.013)	(0.015)	(0.013)	(0.015)	(0.013)
Council dissolution for another reason	-0.001	-0.003	-0.001	-0.003	-0.001	-0.002	-0.001	-0.002
	(0.006)	(0.005)	(0.006)	(0.005)	(0.005)	(0.005)	(0.006)	(0.005)
Firm fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Province × year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES
Other firm controls	NO	YES	NO	YES	NO	YES	NO	YES
Observations	676,728	653,777	676,728	653,777	674,473	651,564	674,473	651,564
R-squared	0.833	0.849	0.833	0.849	0.833	0.850	0.833	0.850

Notes: Robust standard errors, clustered at the municipal level, are shown in parentheses. *** significant at 1%; ** significant at 5%, * significant at 10%. Other firms' controls include the number of years of the firm and revenue class.

Table 3 - Value added and neighbors council dissolution for mafia infiltration, falsifying the commissioner's entry to 1 year or 2 years before.

Dependent variable: Value added	(1)	(2)	(3)	(4)
Neighboring mafia council dissolution$_{t+1}$	-0.006	-0.003		
	(0.006)	(0.005)		
Neighboring mafia council dissolution$_{t+1}$ × construction	-0.025	-0.011		
	(0.025)	(0.018)		
Neighboring mafia council dissolution$_{t+2}$			-0.009	-0.008
			(0.007)	(0.006)
Neighboring mafia council dissolution$_{t+2}$ × construction			0.007	0.021
			(0.020)	(0.016)
Mafia council dissolution	-0.022	-0.013	0.010	0.016
	(0.016)	(0.012)	(0.018)	(0.014)
Council dissolution for another reason	-0.002	-0.000	-0.007	-0.003
	(0.005)	(0.005)	(0.006)	(0.006)
Firm fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Province × year fixed effects	YES	YES	YES	YES
Other firm controls	NO	YES	NO	YES
Observations	554,137	535,261	465,616	450,197
R-squared	0.852	0.868	0.859	0.875

Notes: Robust standard errors, clustered at the municipal level, are shown in parentheses. *** significant at 1%; ** significant at 5%, * significant at 10%. Other firms' controls include the number of years of the firm and revenue class.

Table 4 - Value added and neighbors council dissolution for mafia infiltration, with different fixed effects.

Dependent variable: Value added	(1)	(2)	(3)
Neighboring mafia council dissolution	0.013***	0.006	-195,057
	(0.005)	(0.005)	(466,281)
Neighboring mafia council dissolution × construction	-0.060***	-0.060***	-0.061***
	(0.017)	(0.016)	(0.016)
Mafia council dissolution	-0.012	-0.013	-160,268
	(0.012)	(0.013)	(411,873)
Council dissolution for another reason	-0.001	-0.003	-132,481
	(0.005)	(0.005)	(159,284)
Firm fixed effects	YES	YES	YES
Year fixed effects	YES	YES	YES
Province × year fixed effects	NO	YES	NO
Municipal × year fixed effects	NO	NO	YES
Other firm controls	YES	YES	YES
95% Conf. Interval			
Neighboring council dissolution × construction	[-0.0928;-0.0263]	[-0.0921;-0.0285]	[-0.0933;-0.0288]
Observations	653,777	653,777	653,159
R-squared	0.849	0.849	0.852

Notes: Robust standard errors, clustered at the municipal level, are shown in parentheses. *** significant at 1%; ** significant at 5%, * significant at 10%. Other firms' controls include the number of years of the firm and revenue class.

Table 5 - Value added and neighbors council dissolution for another reason.

Dependent variable: Value added	(1)	(2)	(3)	(4)
Neighboring council dissolution for another reason	-0.000	-0.002	0.004	0.001
	(0.004)	(0.004)	(0.004)	(0.004)
Neighboring council dissolution for another reason × construction			-0.023	-0.017
			(0.023)	(0.019)
Mafia council dissolution	-0.025	-0.015	-0.025*	-0.015
	(0.015)	(0.013)	(0.015)	(0.013)
Council dissolution for another reason	-0.001	-0.003	-0.001	-0.003
	(0.006)	(0.005)	(0.006)	(0.005)
Firm fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Province × year fixed effects	YES	YES	YES	YES
Other firm controls	NO	YES	NO	YES
Observations	676,728	653,777	676,728	653,777
R-squared	0.833	0.849	0.833	0.849

Notes: Robust standard errors, clustered at the municipal level, are shown in parentheses. *** significant at 1%; ** significant at 5%, * significant at 10%. Other firms' controls include the number of years of the firm and revenue class.

Appendix

Table A1 - Revenue classes, euros.

Revenue class	Revenue
0	0-0.499 million
1	0.5-0.999 million
2	1-1.999 million
3	2-4.999 million
4	5-9.999 million
5	10-24.999 million
6	25-49.999 million
7	50-99.999 million
8	100-249.999 million
9	>= 250 million

Table A2 – Description of ATECO macro-sector.

ATECO macro-sector	Description
A	Agriculture
B	Cave
C	Manufacturing
D	Electricity and gas
E	Water supply
F	Construction
G	Wholesale trade
H	Transport
I	Accommodation, catering
J	Communication
K	Finance and insurance
L	Real Estate
M	Professionals
N	Rentals and trips
O	Public Administration
P	Instruction
Q	Health
R	Art, sport and entertainment
S	Other services
U	International organizations

Table A3 - Value added and neighbors council dissolution for mafia infiltration, average number of neighboring council dismissal.

Dependent variable: Value added	(1)	(2)	(3)	(4)
Neighboring mafia council dissolution	-0.059**	-0.047	-0.001	-0.000
	(0.029)	(0.029)	(0.028)	(0.028)
Neighboring mafia council dissolution × construction			-0.257***	-0.201***
			(0.073)	(0.065)
Mafia council dissolution	-0.022	-0.013	-0.020	-0.011
	(0.015)	(0.013)	(0.015)	(0.013)
Council dissolution for another reason	-0.001	-0.002	-0.001	-0.002
	(0.006)	(0.005)	(0.006)	(0.005)
Firm fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES
Province × year fixed effects	YES	YES	YES	YES
Other firm controls	NO	YES	NO	YES
Observations	674,473	651,564	674,473	651,564
R-squared	0.833	0.850	0.833	0.850

Notes: Robust standard errors, clustered at the municipal level, are shown in parentheses. *** significant at 1%; ** significant at 5%, * significant at 10%. Other firms' controls include the number of years of the firm and revenue class.