EU funds in places with corrupt local institutions

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Abstract

This study presents the first analysis of how the quality of local institutions affects the distribution of EU resources to private beneficiaries, public entities, and local governments. We use high-quality Italian administrative data on instances of city council dismissals due to collusion between local politicians and organised crime to assess whether the local level of corruption affects the amount of EU funds managed by local authorities. We apply a staggered difference-in-differences model in combination with event studies to uncover the impact of local corruption on the distribution of EU funds. The results show that corrupt local governments that are colluding with criminal groups are allocated fewer resources for their own use in comparison with their non-corrupt (or less corrupt) counterparts, particularly for projects dedicated to local transports and other essential public services. Corrupt local governments appear to avoid pursuing larger EU projects, which are subject to stricter regulations by Italian laws designed to fight organised crime. This distortive behaviour seems to depress local economic development.

Keywords: Quality of institution, EU Cohesion Policy, city council dismissals, organised crime

JEL code: H7, H11, H77

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1 Introduction

The significance of institutions within economics is now broadly acknowledged (e.g., Acemoglu and Dell, 2010; Rodríguez-Pose, 2013). A growing body of literature points to the critical role of efficient, impartial, and corruption-free institutions shapers of various economic dimensions such as innovation, infrastructure, regional competitiveness, and public sector efficiency (Crescenzi, Di Cataldo, and Rodríguez-Pose, 2016; Rodriguez-Pose and Di Cataldo, 2015; Annoni and Dijkstra, 2017; Marenzi et al., 2022). Consistent with these findings, the disparity in institutional quality across European regions contributes to determine variations in the effectiveness of the EU Cohesion Policy (Becker et al., 2013; Rodríguez-Pose, 2013; Rodríguez-Pose and Garcilazo, 2015; Barbero et al., 2022).

However, there is limited empirical evidence on the specific ways through which local institutions, and particularly corrupt administrations, impact the efficacy of EU funds. Addressing this gap in existing knowledge is crucial, in view of the considerable investment undertaken by the EU Cohesion policy — accounting for one-third of the European budget in the latest programming periods— and the policy's place-based approach. Since 2014, Cohesion Policy has pioneered the idea of considering local institutions as a factor influencing the outcomes of its investment. In this respect it has led the way among developing policies in the world in considering factors like the degree of corruption when allocating investment (Barca, 2009; Barca et al., 2012; Camagni & Capello, 2017).

This paper makes a novel contribution by examining, for the first time, how local corruption affects the amount of EU investment and its distribution among private beneficiaries, public entities, and local governments. To identify local councils plagued by corruption, this study uses high-quality Italian administrative data sourced from the Italian Ministry of Interior. We use the dismissals of Italian city councils[1] due to collusion between local politicians and organised crime, as prescribed by Law 164/1991 - one of the most robust anti-mafia policies ever implemented.

Italy serves as an ideal case for this type of research for several reasons. First, the granularity of Italian data on the European Cohesion Policy (*Opencoesione* dataset) provides detailed information on the thematic objectives, beneficiaries, and geographical location of all projects receiving partial funding from the European Cohesion Policy. Second, Italy is one of the main beneficiaries of the European Cohesion Policy. Third, this investment takes place in a context of significant economic disparity between its developed North and less developed South, a disparity that has persisted for decades. This extensive and enduring economic divide is also partly attributable to geographical variations in quality of institutions (Nifo, 2011; Aiello et al., 2012).

[1] City council dismissals are related to Italian municipalities, which are the most granular level of government in Italy. Italy has three level of governments, the State, the regions (20 units), and the municipalities (around 8.000 units).

Our investigation focuses on the local governments of Southern Italian regions for three reasons, all aimed at improving the comparability between the treated and control groups. The first reason is that we can compare local governments within the same EU investment framework as defined by the EU Cohesion Policy. The second reason is to prevent the marked disparities development between Italy's northern and southern regions from casting doubt on the validity of comparisons across such diverse areas. The third one is that southern Italian regions have long faced challenges related to institutional quality and the presence of organised crime. By limiting our analysis to the local governments in these areas, we establish a solid basis for assessing the effect of corrupt institutions on EU funding.

For our empirical strategy, we resort to the temporal discontinuity created by Italian municipal elections and city council dismissals. Following Di Cataldo and Mastrorocco (2022), within our municipal-year dataset we identify municipalities with weak institutional quality as those undergoing dissolution, from the year of the preceding election to the year of the city council's dismissal. This approach allows for a staggered analysis of institutional quality deterioration. The absence of pre-trends enables a comparison between municipalities with and without corrupt institutions, before and after the drastic decline in institutional quality. Specifically, we estimate the average effect of weak institutional quality on the total EU investment and its allocation across different beneficiaries using a staggered difference-in-differences and event study approach.

Our main findings reveal that corruption within local institutions significantly impacts the allocation of EU investments at the local level. Corrupt local governments receive, on average, 76% less funding than their less-corrupt counterparts. When examining the allocation of EU funds across different areas of investment, this gap is primarily driven by a substantial reduction in funding for essential public services and local transportation. Infiltrated local governments receive 67% less EU funding for this type of projects compared to their non-infiltrated counterparts. This discrepancy arises from the tendency of corrupt local governments to avoid pursuing EU projects which are subject to stricter Italian regulations on public tendering aimed at combating organised crime. This distortion appears to contribute to slower economic growth at the municipal level.

The remainder of the paper is structured as follows: Section 2 and Section 3 review relevant literature and describe the data used in our study. Section 4 discusses Italy's institutional landscape, detailing city council dismissals for criminal infiltration and the European Cohesion Policy framework. Sections 5 and 6 describe our research design and identification strategy. Section 7 presents our main findings, their consistency across a large bunch robustness check. Section 8 conducts additional tests on the exogeneity of the relationship between EU funds and colluded politicians. In Section 9, we explore potential explanatory mechanisms behind our findings and their economic consequences. The paper concludes in Section 10.

2 Quality of government and development funding

Our paper covers three areas of scholarly research. We first dwell on the differential impacts of EU funds on regional development, linking with scholarly literature that has established a link between such diversity and the quality of regional institutions (e.g., Rodríguez-Pose and Di Cataldo, 2015; Crescenzi et al., 2016; Di Caro and Fratesi, 2022). Rodríguez-Pose and Garcilazo (2015) show how regional government quality both determines and moderates the effectiveness of EU funds investment for economic growth. Their research has profound policy implications, underlining the necessity of improving regional government quality to achieve desired objectives and minimise the required investment. Barbero et al. (2022) employ a dynamic spatial computable general equilibrium (CGE) model to examine the effects of improvements in regional government quality, finding that a 5% improvement leads to a short-term increase of up to 7% in the impact of Cohesion Policy. By focusing on the place-based design of the EU Cohesion Policy, which emphasises the significance of local institutions in directing EU investment flow among various beneficiaries, our study sheds light on the mechanisms through which the inefficacy of EU funds is tied to institutional quality. To our knowledge, our research is the first to investigate how institutional quality – and especially corruption and collusion– shapes the distribution of EU funds across different beneficiaries.

This work also relates to the existing literature on EU funds and institutional corruption, an area attracting considerable attention from both the public and policymakers but on which academic research remains scarce. The few contributions include the work of Fazekas and Tóth (2016), employing single-bidding tenders to gauge corruption levels in public procurements and illustrating that EU funds exacerbate the risk of corruption across the 27 EU Member States. Mangiu-Pippidi (2019) focuses on Greece and reaches comparable findings. The European Commission endeavours to mitigate corruption issues associated with EU funds through two mechanisms: the "audit explosion" and conditionalities (Mendez and Bachtler, 2011). However, EU Member States often have numerous incentives to remain silent when corruption and fraud impact EU funds, as their primary objective is to absorb and secure these resources.

More generally, our study also engages with research assessing institutional quality.[2] Our research pushes forward the recent drive in measuring institutional quality by proposing a new measure of local institutional quality built on the transparency of local governments in Italy.

Finally, our research contributes to the analysis of organised crime's influence on public resource distribution. Barone and Narciso (2015) have highlighted that businesses in areas with a strong presence of organised crime are more likely to receive national subsidies. Pereira Dos Santos et al. (2021) have identified a link between the influx of EU funds and Sicilian municipalities experiencing higher levels of mafia activity. Furthermore, Arbolino and Boffardi (2023) document a positive and significant impact of corruption and organised crime on delays in the implementation of EU Cohesion Policy. Di Cataldo and Mastrorocco (2022) study the effects

[2] Charron et al. (2014) initiated the development of the sub-national Quality of Government (QoG) index, which is founded on the following pillars: control of corruption, government effectiveness and accountability, and rule of law at the regional level. Building on this groundwork, Charron et al. (2015) and Charron et al. (2019) further refined this index, producing a comprehensive sub-national dataset encompassing a broad geographic and temporal range, culminating in the European Quality of Government Index (EQI). This index builds on the World Bank Global Governance Indicators. Its components —rule of law, bureaucratic effectiveness, corruption, democracy, and the strength of electoral institutions— mirror the QoG index's pillars closely.

of local government collusion with organised crime on public spending, uncovering that the mafia's infiltration of local institutions skews the distribution of public resources towards sectors that offer strategic benefits to organised crime.

Our study links these strands by investigating the allocation patterns of colluding local governments towards public and private beneficiaries, including their own institutions. This angle is novel in that it specifically investigates the ultimate recipients of funds in scenarios where local institutions are complicit with organised crime. By doing so, we provide new insights into the dynamics of fund allocation under the shadow of corruption and crime, thereby extending the understanding of how organised crime influences economic development and governance.

3 Data

European Cohesion Policy

Our main data source on European funds is *Opencoesione*, which encompasses payments and allocations for all Italian projects at least partially funded by the European Cohesion Policy. This dataset offers highly detailed information, such as the projects' timelines (start date, end date, payment dates), locations, co-financing from national and local Italian authorities, contributions from the private sector, and, most crucially for our research, the specific beneficiaries of the EU investments. We have information on approximately 1.5 million projects across two Cohesion Policy programming cycles: 2007-2013 and 2014-2020. We have information about payment dates and project locations, which allow us to construct a municipal-year dataset for the Southern Italian regions considered in the analysis: Sicily, Calabria, Campania, Basilicata, and Puglia. This allows us to perform our analysis for the 2007-2020 period.

Local corruption

To assess the pervasiveness of institutional problems and specifically local corruption, we collect decrees implementing Law 164/1991, issued by the President of the Republic. These decrees mandate the dissolution of local governments linked to organised crime, providing not only records of city council dissolutions but also insights into the timing of collusion between local governments and organised crime and the reason for the dissolution (more information on Law 164/1991 in the next section). Through text-analysis, we use this additional information in our identification strategy.

Socioeconomics and demographic controls

We compile all available time-varying information at the municipal level, including population density, from the Italian Institute of Statistics (ISTAT).

Local, regional, and national policymakers characteristics

In addition, we gather individual-level data on all members of municipal and regional governments from the Registry of Local and Regional Administrators (*Anagrafe degli amministratori locali e regionali*) provided by the Italian Ministry of Interior. This dataset includes various details for each government member, such as educational level, birthplace, age, gender, and previous occupation. Furthermore, we employ web scraping to acquire additional information on individual-level data for Italian national policymakers, available exclusively on the website of the Italian parliament.[3]

4. Institutional setting

4.1 Local governments in Italy

Local governments in Italy consist of three principal entities: the mayor, the executive committee, and the city council. The mayor and the members of the executive committee wield executive power, while legislative authority resides with the city council. Mayors are highly influential within the Italian political landscape. They are directly elected to five-year terms under the provisions of law 81/1993. Their tenure is limited to two consecutive terms in office.

Mayors in Italy are granted substantial decision-making authority over areas such as public utilities (e.g., waste management, local roads, water supply), public housing, transportation, and local police services. This extensive range of responsibilities highlights the significance of mayoral characteristics as a proxy for local government attributes in our empirical research.

4.2 EU Cohesion Policy

The EU Cohesion Policy stands as the cornerstone regional investment strategy of the European Union. It is aimed at mitigating disparities across regions and fostering economic, social, and territorial cohesion throughout the EU. This is the largest EU policy in budgetary terms. For the period 2014-2020, the EU allocated approximately €351 billion for Cohesion Policy, representing one-third of its entire budget. The utility of this policy was particularly highlighted during the Covid-19 pandemic when its investments acted as a counter-cyclical tool in response to the significant economic challenges (Boffardi et al., 2022).

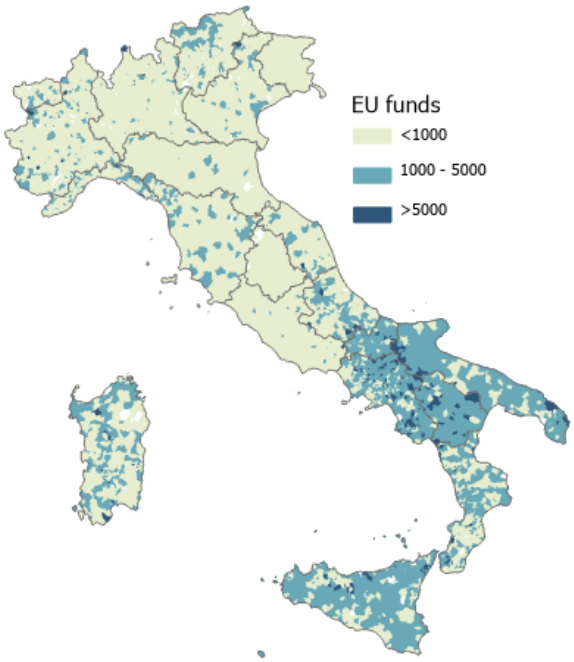
The distribution of resources under the EU Cohesion Policy is determined through a blend of discretionary approaches, taking into account political and institutional factors, and a formula-driven design. This formula

[3] Source: https://dati.camera.it/it/dati/.

categorises European regions into three tiers: more developed, transition, and less developed regions.[4] The latter group, the less developed regions, receives the majority of the funds, while transition regions and more developed regions are allocated considerably less funding (European Commission, 2014).

Consistent with this framework, in Italy, the majority of EU investment is allocated to southern municipalities, reflecting the enduring contrast between a developed North and a less developed South (Polverari, 2013). Figure 1 illustrates the total EU payments[5] received by municipalities from 2007 to 2020. The different shades of green demonstrate that the southern Italian regions (Calabria, Campania, Puglia, Sicilia, and Basilicata) were the main recipients of EU funds according to our data. In terms of per capita investment, Basilicata and Puglia were the main beneficiaries, with Basilicata receiving €2867 per capita and Puglia €1737 per capita over a 14-year period.

Figure 1: EU funds per capita across Italian municipalities



Note: The figure illustrates the per capita allocation of EU funds to each municipality over the period 2007-2020. It employs three shades of green to illustrate that the majority of EU funds are directed towards municipalities in the southern regions.

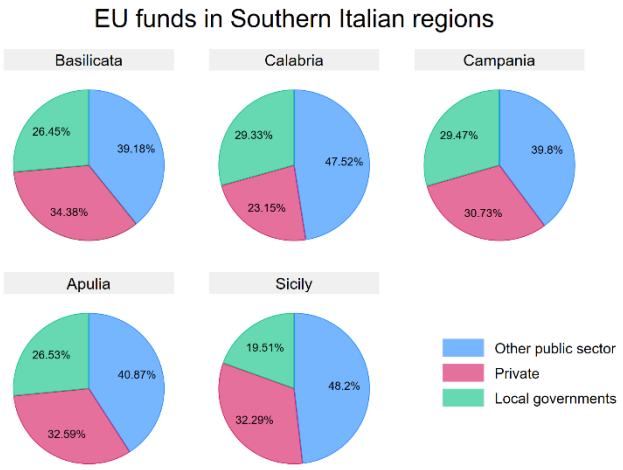
To explore the potential influence of low-quality institutions on the allocation of EU investment, we begin by identifying all EU projects aimed at private beneficiaries, including entrepreneurs, businesses, corporations,

[4] The less developed regions have a GDP per capita below the 75% of the EU average, while the transition and more developed ones have a GDP per capita between 75% and 90% and above 90% of the EU average, respectively.

[5] The Opencoesione dataset enables us to differentiate the flow of funds by months, thus allowing us to associate each EU payment with the corresponding year of the local legislature. It is important to note that the programming cycle does not stipulate the timing of EU payment inflows—only the project's commencement and conclusion—leaving them susceptible to political pressure and dynamics within the local government.

citizens, and societies. We then separately classify EU projects based on funds allocated to public beneficiaries, which encompass public authorities and entities such as Italian regions, Italian ministries, mountainous communities, public universities, and schools. Lastly, we focus on EU projects specifically designed for and managed by municipal governments. This implies segmenting the data to thoroughly investigate the distribution of EU funds across different beneficiary types.

Figure 2: EU funds distribution across beneficiaries in Southern Italian regions



Note: The figure presents the total per-capita amount of EU funds received by southern regions from 2007 to 2020. It distinguishes between EU funds allocated to private beneficiaries, public beneficiaries, and local governments.

Figure 2 offers additional insights into how EU funds are distributed among various beneficiaries within our sample. It indicates that the public sector received the bulk of EU resources, followed by the private sector and then local governments. Notably, the amounts allocated to the private sector and local governments are quite similar. Specifically, EU funds dedicated to private beneficiaries and to local governments amount to €341 and €325 per capita, respectively, in Calabria, while in Campania, these figures are €535 per capita for private beneficiaries and €496 per capita for local governments.

4.3 Local government dismissals for organised crime infiltration

To assess the extent of corruption within local governments, we examine cases where mafia-type organizations have formed connections with local authorities. The introduction of fiscal federalism in the 1970s, which decentralised spending powers to local authorities, reduced the opportunity cost for organised crime to infiltrate local governments. Also in response to that, Italy enacted Law 164/1991. This is a fundamental anti-mafia measure granting the national government authority to dissolve local governments if there are direct or indirect links between elected local officials and criminal organizations which impair the normal operation of local institutions. The effectiveness of this law marks a stark contrast to the pre-1991 era, where incriminating

evidence against an executive committee member would result in exclusion from office, as opposed to post-1991, which could lead to the entire municipal government's dissolution. Further details on Law 164/1991 are reported in Appendix A.

A potential limitation in using Law 164/1991 to measure corruption is the possibility of both false positives (type I errors) and false negatives (type II errors) due to its imperfect application. Type I errors could lead to the unwarranted dismissal of a city council without actual ties to organised crime. Type II errors may occur when anti-mafia measures fail to act against colluding local politicians. Nevertheless, the impact of these errors on our findings is minimal for several reasons. Firstly, Italian judicial authorities are renowned for their thoroughness, as reflected in the detailed decrees from the Ministry of Interior specifying grounds for city council dismissals. Secondly, the annulment of dismissals related to Law 164/1991 is extremely rare, with only ten cases noted from 2002 to 2020. In all cases, undetected collusion cases do not compromise the validity of our estimation strategy. They may, however, introduce an attenuation bias, as undissolved governments infiltrated by organised crime would be mistakenly included in our control group, while mistakenly dissolved local government would belong to the treatment group (Di Cataldo & Mastrorocco, 2022).

Table B3 in the Appendix lists the frequency of city council dismissals for collusion/corruption from 2002 to 2020. This type of dismissals is more frequent in southern regions, which are historically the stronghold of such criminal organisations. For this reason, we have chosen to focus on municipalities in Sicily, Campania, Calabria, Puglia, and Basilicata as our primary study areas. Figure B1 illustrates the temporal distribution of city council dismissals in southern Italian regions. A notable spike in dismissals for organised crime infiltration occurred in 2012, under a technocratic government in Italy,[6] indicating a concerted effort to combat organised crime's influence within local governments.

5. Research design

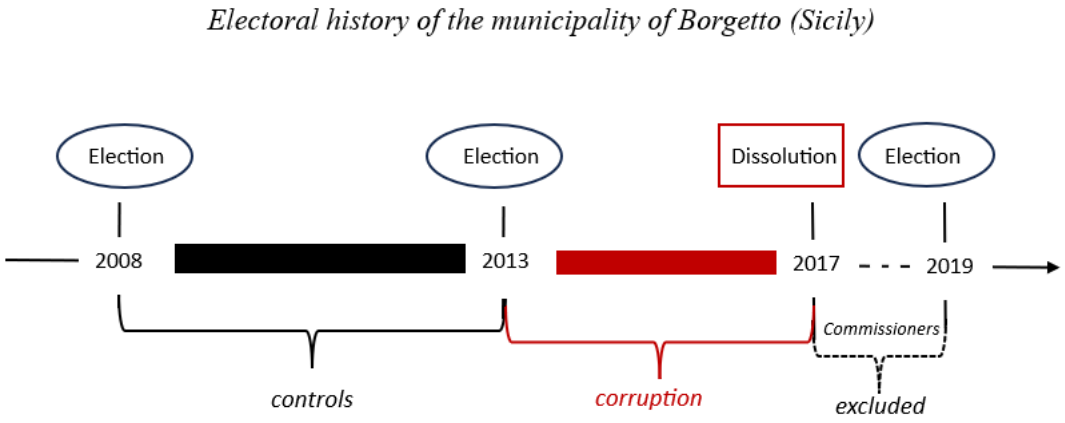
5.1 Definition of the treatment units

To analyse the evolution of local institutional quality over time, we use two temporal discontinuities: municipal elections and city council dismissals. Municipal elections in Italy occur in a staggered manner, with the electorate in different municipalities voting at varying times. Appendix B, Figure B2, offers more detail on the scheduling of these municipal elections. Conversely, the timing of city council dismissals tends to be random, given the policy's nature, leading to temporal variations in the dismissals of Italian city councils. Drawing on the methodology of Di Cataldo and Mastrorocco (2022), we leverage these discontinuities to pinpoint the

[6] From November 2011 until December 2012, Italy was under the governance of a technocratic government led by Mario Monti, which was established to address the consequences of the domestic sovereign debt crisis.

beginnings and ends of declines in institutional quality. We operate under the assumption that a municipality, upon having its government dissolved, is indicative of low-quality institutions from the year of the preceding election up to the point of dissolution. Figure 3 outlines our methodology through the case study of Borgetto, a municipality in the province of Palermo, Sicily. The local government was dissolved due to politician collusion with organised crime. The government in question was elected in 2013 and dissolved in 2017 pursuant to Law 164/1991, with national commissioners taking over the local government until the next election round in 2019. Hence, within our municipal-year dataset, Borgetto is categorised as 'treated' for the period from 2013 to 2017.

Figure 3: Timeline of the treatment definition



Note: This figure provides an example to illustrate how we define the treatment period. The treatment period spans from the election of Borgetto's local government in 2013 to its dissolution in 2017. During this period, organised crime was colluding with the local government.

A critical point is that the collusion between local institutions and organised crime can potentially occur at any stage post-election. To tackle this issue of identification, we conduct a text analysis of the decrees enforcing Law 164/1991, searching for decrees that contain keywords such as "*violence against voters*" or "*vote buying*."[7] This approach helps us isolate cases where organised crime directly influenced the outcome of local elections, thereby excluding dissolutions due to other forms of organised crime involvement.

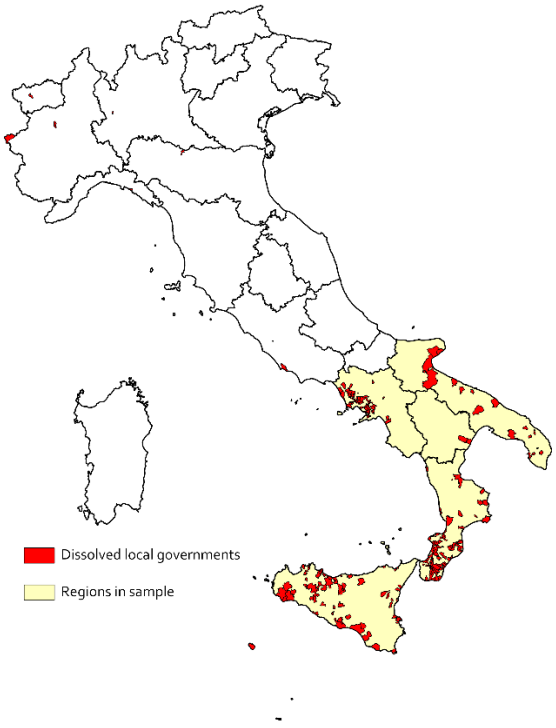
An additional point in our research design requiring further explanation is how we handle municipalities experiencing multiple city council dissolutions. To avoid our estimates being influenced by a history of poor local institutional quality, we limit our focus to municipalities that were dissolved for the first time post-2007. Although this narrows the scope of our treatment units, it significantly reduces the likelihood that our results are skewed by a historical bias in local institutional quality. Practically, this means that we remove from our

[7] "*Electoral support*", "*electoral campaign*", "*electoral propaganda*" and "*electoral competition*" are other keywords used to implement the text-analysis.

dataset any observations of city councils that were dissolved prior to 2007, ensuring no instances of multiple dissolutions are included in our sample.

Figure 4 illustrates the geographical distribution of city council dissolutions for organised crime across the southern regions of Italy.

Figure 4: Dismissals of municipal governments due to organised crime



Note: This figure depicts the geographical distribution of city council dismissals across our sample of municipalities during 2007-2020. Dismissals due to organised crime infiltration are shown in red.

5.2 Definition of the control units

Our control group comprises Southern Italian municipalities that have never been dissolved, as well as those that experienced dissolution enforcement actions prior to actual dissolution (e.g., before 2013, as depicted in Figure 3 with the Sicilian municipality of Borgetto). We exclude years following dissolution from our control group for two main reasons. First, we omit the commissioning period, acknowledging the extensive literature indicating the economic impacts of dissolution policy enforcement. This research suggests that the commissioning period has unique characteristics compared to regular legislative terms, warranting its exclusion (Acconcia, Corsetti, and Simonelli, 2014; Daniele and Dipoppa, 2023; Daniele and Geys, 2015). Secondly, we also exclude observations after the commissioning period from our control group to minimise the potential effects of path dependence on our estimates. Policymakers in terms following the commissioning

period may exhibit different characteristics and objectives from those in our other control units, thus their removal.

5.3 Threats to identification

Our identification strategy must address several potential endogeneity concerns, given that local corruption cases are not randomly assigned. The first concern arises from the potential correlation between the quality of local institutions and EU funds. Di Cataldo and Renzullo (2024) and Banaszewska et al. (2021) argue that EU funds may influence not only national but also local elections, potentially impacting the local institutions through the selection of policymakers. Additionally, criminal groups may have more significant economic motives to infiltrate municipalities receiving larger inflows of EU funds. De Angelis et al. (2020) estimate that without EU fund disbursements, the annual rate of white-collar crimes in Southern Italy would decrease by 4%. These points highlight the risk of reverse causality. To mitigate this endogeneity issue, Section 8.2 demonstrates that treated and control units followed parallel trends regarding EU investments before the decline in institutional quality.

Another empirical challenge involves treating corrupt local institutions as a binary variable, activated during elections and deactivated upon the dissolution of local government. While applicable to many municipalities, this characterisation does not universally hold. In some instances, corruption may be a continuous presence, existing to some degree before elections, potentially affecting the control group's purity. We employ event studies to investigate whether effects of city council dismissals manifest in the years leading up to the dissolution election. To further address this issue, we undertake two key tests. In the first, we remove observations from our control group related to municipalities where the same mayor led the preceding legislature before the one that was dissolved (Table C4 in Appendix C). Given the mayor's critical role in Italian local governance, a decline in institutional quality is unlikely to start with the election if the government's composition remains largely unchanged. In the second test, we conduct a placebo analysis, randomly selecting treated units to verify the absence of significant impacts on EU fund allocation.

6 Identification strategy

The main goal of this research is to explore the link between cases of local corruption and collusion and the distribution of EU funds among different beneficiaries. We exploit the staggered nature of municipal elections across Italy as a quasi-natural experiment.

At the heart of our approach is the comparison of EU funding received by municipalities identified with most corrupt institutions to those without, both before and after any observed decline in institutional quality. This methodology enables us to isolate the effect of criminal infiltration on EU fund allocation by controlling for

both time-invariant differences between municipalities and common trends affecting all municipalities over time.

Our identification strategy employs a two-way fixed effects (TWFE) model. This enables us to account for unobserved heterogeneity at the municipality level that could influence the allocation of EU funds, as well as year-specific effects that could impact all municipalities in a similar way. By doing so, we analyse how variations in local institutional quality influence the distribution of EU investments across different beneficiaries. The model adopts the following form:

$$EU\_funds_{it} = \theta_1 + \beta_1 corrupt_{it} + (X_{it}\gamma`) + (P_{it}\theta`) + \alpha_i + \eta_t + \varepsilon_i \qquad (1)$$

where EU_funds_{it} represents EU Cohesion Policy investments in municipality *i* in year *t*. In detail, EU_funds_{it} stands for the four measurements of EU funds - including the total amount of funding, the funds allocated to local governments, and those assigned to private and public beneficiaries - in our various specifications. These measurements are all presented in a logarithmic form on a per capita basis to account for the present of outliers and the dimension of Italian municipalities.

The main explanatory variable in the analysis is $corrupt_{it}$, defined as a binary indicator that takes a value of one for all years a municipality is ruled by a government dissolved for collusion with criminal organisations. This period spans from the year following the previous election up to and including the year of dissolution.

The coefficient of interest, β_1 , identifies the average treatment effect on the treated municipalities (ATT) of the degradation of local institutional quality due to infiltration of organised crime on EU fund allocation, assuming two conditions are met. The first condition is the parallel trends assumption, which posits that, in the absence of a city council dissolution, municipalities —whether exposed to local corruption or not— would have exhibited similar EU funding trends. The second condition necessitates uniformity in treatment effects across different groups of treated municipalities and over time.

The vector X_{it} encompasses all available time-varying characteristics of Italian municipalities, including municipal pre-taxable income, a reliable indicator of economic activity, and population density. In addition, the vector P_{it}includes political time-varying characteristics such as the average level of education and age of policymakers, as well as the proportion of female policymakers.[8] To mitigate the influence of unobserved factors specific to each municipality and to adjust for year-specific shocks, we incorporate municipality (α_i) and year (η_t) fixed effects into our model. The error terms are clustered at the municipal level, consistent with the application level of our treatment.

[8] Our main results remain consistent even when the specification excludes time-varying controls

Recent studies caution that TWFE models yields reliable estimates only under the condition of uniform treatment effects (Athey and Imbens, 2018; Sun and Abraham, 2020).[9] To address potential concerns about TWFE validity, we also perform our analysis using robust estimators introduced by Callaway and Sant'Anna (CSA) (2021). This methodology ensures consistent results even when treatment effects vary among treated units and over time by eliminating "forbidden comparisons" between groups that received treatment at different times.

7 Results

7.1 Main results

Table 1 evaluates the effect of corruption within local governments on the distribution of EU funds among various beneficiaries. It compares EU fund allocations between municipalities affected by collusion between local politicians and organised crime, leading to city council dismissals, and those with no history of dismissals. The results are reported both with TWFE and Callaway-Sant'Anna (CSA) estimates

Column 1 reports the impact of corrupt local governments on total funds allocation. The results indicate that, in municipalities where local institutions are deemed to be corrupt, the total amount of EU funds received does not significantly differ from that of municipalities without corruption. In the following columns (2-4) we subdivide total EU funds into different categories: EU funds to private beneficiaries, to public beneficiaries different from local governments, and to local governments. A significant discrepancy is noted in how EU funds are effectively allocated, with local governments involved in collusion receiving considerably less funding for the city council compared to those without identified collusion (column 4). This pattern persists across both the Callaway and Sant'Anna (2021) method and the TWFE model.

Quantitatively, colluding local governments receive 50% less funding according to the TWFE model and an even more pronounced 76% less in the CSA model compared to their non-colluding counterparts. There is no significant difference in the allocation of EU funds to public or private beneficiaries between colluded and non-colluded local governments (columns 2-3).

Therefore, our key finding indicates that while the overall influx of EU funds is not significantly impacted by the quality of local institutions, this quality crucially influences how EU resources are distributed. In particular, the resources directly managed by local governments colluding with criminal organisations is significantly lower than the EU funds assigned to local governments not experiencing dissolution for mafia infiltration.

[9] Specifically, the ATT derived from TWFE represents a weighted average of all possible 2X2 before-and-after comparisons among groups treated at different times. If treatment effects are uniform across treated groups and over time, the TWFE estimator accurately reflects the ATT. If not, it produces biased, inconsistent estimates (Athey and Imbens, 2018).

Table 1: Corrupt local governments and EU funds

	Total EU funds	*EU funds to:*		
		Private beneficiaries	Public beneficiaries	Local governments
	(1)	(2)	(3)	(4)
Panel A: CSA				
Corrupt	-0.025	0.179	0.011	-0.762**
	(0.195)	(0.332)	(0.235)	(0.312)
Observations	18,725	18,725	18,725	18,725
Panel B: TWFE				
Corrupt	-0.133	0.192	0.141	-0.499*
	(0.163)	(0.265)	(0.156)	(0.285)
Observations	18,819	18,819	18,819	18,819
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

Note: The table analyses the impact of weak local institutional quality on the allocation of EU funds, examining the total allocation of funds (column 1), funds allocated to private beneficiaries (column 2), funds allocated to public beneficiaries different from local governments (column 3), and funds directed to local governments themselves (column 4). EU funds always expressed as logarithm of per capita. CSA: Callaway & Sant-Anna (2021) estimator; TWFE: Two-Way-Fixed-Effects model. Corrupt: dummy variable taking value 1 during years of cases involving local governments colluding with organised crime, from the election year until the dissolution year. Controls: population density, municipal income.

A thorough set of robustness checks validates these findings. Initially, we re-estimate the model using the Callaway and Sant'Anna (2021) method but applying an alternative control group. For our primary estimations, we incorporate "not-yet-treated" units as controls, to align more closely with the sample used in the TWFE analysis. Adopting an alternative definition for the control group is also justified, considering the non-negligible number of "never-treated" municipalities that share similar socioeconomic and demographic profiles with the treated ones in our dataset. The results based on this different control group setup are documented in Appendix C (Table C1). They confirm the significant negative impact of local government corruption on the allocation of EU funds to city councils.

Furthermore, we acknowledge that municipal governments under financial distress, experiencing serious law violation or those with city council dismissals for political reasons can differ significantly from our other control units.[10] As a result, we remove legislatures impacted by other types of city council dismissals from our

[10] The Italian legislative framework (*Testo unico degli enti locali*) identifies reasons beyond collusion with organised crime for the dismissal of local governments. These reasons, detailed in Appendix A, can be grouped into three main categories: financial

control group.[11] This adjustment narrows the treated group but ensures a more distinct control group. The outcomes of these adjustments are detailed in Tables C2 and C3 of the Appendix. Specifically, Table C2 excludes dismissals for financial distress and serious law violation, while Table C3 omits also instances of political distress. The analysis confirms that municipalities affected by collusion between organised crime and local politicians consistently receive substantially less EU funding for local government operations compared to their non (or less)-colluding counterparts. These two alternative specifications are not our preferred ones due to the smaller number of treated observations they include. Establishing a control group unaffected by other types of dismissals limits the available data, making it more challenging to test the parallel trends assumption for colluded governments, especially in cases where different types of dismissals occur subsequently.

The third robustness check deals with the critical concern of a potential pre-election decline in institutional quality that might affect the purity of our control group. By employing detailed data from the Ministry of Interior on local politicians, we exclude municipalities that retained the same mayor from the previous legislature to the one dissolved. This approach ensures an analysis free from changes in local government composition over time. Consistently, we find a significant negative correlation between corruption in local government and the allocation of EU funds to the local government itself across all tested models (Table C4 in Appendix C).

Then, we exclude cases of dissolution from 2012 to isolate the effect of the national technocratic government's influence and the spike in dismissals that year. The insights from Table C5 in Appendix C highlight the critical role of collusion between local policymakers and organised crime in determining the distribution of EU resources, reinforcing the robustness of our primary conclusions.

Finally, we assess the robustness of our results controlling for the political alignment of the local winning coalition with the national and regional governments. Political alignment might affect the inflow of EU funds (Dotti, 2016; Bodenstein and Kemmerling, 2011; Bouvet and Dall'Erba, 2010) as well as city councils' dismissals. Table C6 and Table C7 show – once again – that local governments with colluding politicians obtain fewer EU funds for their municipalities compared to their counterparts.

7.2 Heterogeneity in investment allocation

This section examines whether colluding local governments differ significantly from non-colluding counterparts in the allocation of EU Cohesion Policy funds across various investment areas. In this way, we investigate the types of investment projects most affected by the generalised decrease in EU funding visible

mismanagement, serious legal violations, and political factors. Data from the Italian Ministry of Interior highlights the nature and frequency of such city council dismissals between 2002 and 2020. Descriptive statistics are provided in Appendix B.

[11] Before, we excluded from our control group only instances of weak local institutions relevant to the infiltration of organised crime

during episodes of local government corruption. We also explore whether, in distorting the allocation of EU funds, collusion between local governments and organised crime may undermine local development. Existing research emphasises that the positive impact of EU Cohesion Policy on economic growth is strongest when development projects are in greater synergy with the needs of the local environment and ecosystem (Rodríguez-Pose and Fratesi, 2004; Di Cataldo and Monastiriotis, 2020; Scotti et al., 2022).

Table 2: Investment categories and local corruption

	Social services	Public services and transports	Construction and waste management	Innovation and R&D
	(1)	(2)	(3)	(4)
Panel A: CSA				
Corrupt	-0.226	-0.615**	-0.021	0.010
	(0.249)	(0.287)	(0.257)	(0.029)
Observations	18,725	18,725	18,725	18,725
Panel B: TWFE				
Corrupt	-0.233	-0.360*	0.064	-0.0004
	(0.221)	(0.199)	(0.196)	(0.023)
Observations	18,819	18,819	18,819	18,819
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

Note: The table analyses the impact of weak local institutional quality on the allocation of EU funds devoted to the local government across different investment areas. All the EU funds always expressed as logarithm of per capita. CSA: Callaway & Sant-Anna (2021) estimator; TWFE: Two-Way-Fixed-Effects model. Corrupt: dummy variable taking value 1 during years of cases involving local governments colluding with organised crime, from the election year until the dissolution year. Controls: population density, municipal income.

We investigate the investment areas where colluding local governments receive fewer EU funds than their non-colluding counterparts. Using detailed data, we classify projects into four investment categories: social services, public services and transports, construction and waste management, innovation and R&D. The different typologies of projects falling within each of these categories are listed in Table B4.[12] As illustrated in

[12] Table B4 in the appendix lists the keywords from the Opencoesione dataset used to classify EU funds across various categories based on project descriptions and titles. Using this approach, we classify 77.5% of the EU projects in the dataset. Of these, 48.8% fall into a single category, while 21.5% are associated with two categories.

Figure B3, most EU investments for local governments are allocated to construction and waste management, followed by social services, and public services and transport.

We estimate Model 1, applying a logarithmic transformation of EU funds per capita for each investment area as the outcome variable. Table 2 illustrates the results and shows that colluding local governments receive substantially less funding for projects dedicated to local public services and transportation, compared to non-colluding counterparts. Specifically, they secure 36% less funding in this category as estimated with the TWFE model and an even greater 62% reduction as estimated with the CSA model. This type of EU projects includes all spending dedicated to public transport services and the improvement of local transport infrastructure (e.g. roads, bridges, railway), public security, and other essential services such as management of public water, sewage, and lighting. In other words, corrupt local governments appear willing to compromise on the provision of fundamental public services to citizens, while all other categories of spending are practically unaffected.

8 Local corruption and EU funds – exogeneity checks

8.1 Parallel trends

The baseline findings of this study reveal a negative correlation between local governments with politicians engaged in collusion with organised crime and the allocation of EU resources to those local governments, driven by a reduction of investment in public services projects.

Central to our staggered differences-in-differences analysis is the assumption that the flow of EU investments follows a parallel trend in municipalities before any decline in institutional quality, regardless of whether their local institutions are initially considered high or low quality. This means that before any intervention, the trajectory of EU investment into municipalities should not differ significantly based on the quality of local governance. The phased nature of municipal elections across regions allows to validate this assumption and examine the temporal dynamics of the treatment effect. Through an event study, we test for any disparity in EU fund inflows between municipalities characterised by more/less corrupt local institutions. The event study specification is:

$$EU\_funds_{it} = \theta_1 + \sum_{\lambda=1}^{p} \beta_{-\lambda}\, c_{i,t-\lambda} + \sum_{\lambda=0}^{q} \beta_{+\lambda}\, c_{i,t-\lambda} + \alpha_i + \eta_t + \varepsilon_i \qquad (2)$$

where c_{it} is a dummy variable equal to one if municipality *i* has corrupt institutions, i.e. the local governments is infiltrated by criminal organisations. p represents pre-treatment effects (before the deterioration of local institutional quality), while q stands for the post-treatment periods (after the deterioration of institutional quality). In line with the institutional context of Italian local governments, we employ the legislative terms

preceding city council dismissals as pre-treatment period. The reference category is the year before the election of the local government that will be dismissed for mafia infiltration. The parallel trend assumption holds if the coefficients referring to the pre-deterioration period are not statistically significant. We perform the event study estimates controlling for heterogeneity in the treatment effects relying on the Callaway and Sant'Anna (2021) estimator. Following common practice in the literature (e.g. Braghieri et al., 2022), we combine these event studies with other staggered differences-in-differences estimators: OLS TWFE, Sun and Abraham (2021), de Chaisemartin and D'Haultfoeuille (2020).

Figure 5 presents the event studies, organised into two panels. Panel A displays the event study results for the total amount of EU funds allocated to local governments, with estimates from Callaway and Sant'Anna (2021) shown on the left and those from other estimators on the right. Panel B shows the results for the portion of local government investments allocated to public services projects, again comparing results from the main estimator with those from alternative methods.

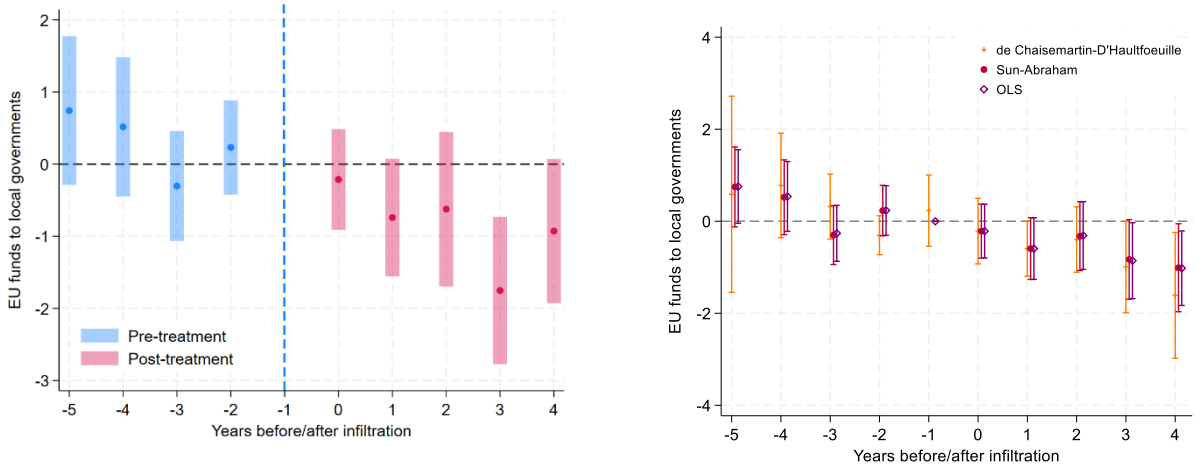
The graphical analysis across these panels shows that before collusion started, the pattern of EU fund inflows to local governments remained remarkably consistent between colluded and non-colluded municipalities. In the period leading up to the treatment, the difference in EU funds allocated to city councils between colluded and non-colluded groups is statistically insignificant. This indicates that there was no significant discrepancy in funding allocation before the collusion took place. The comprehensive series of event studies conducted do not show any signs of an anticipation effect.

However, after the collusion starts, the post-treatment estimates reveal a statistically significant negative difference in EU fund allocations to municipalities involved in collusion. This finding suggests that collusion with organised crime results in a substantial reduction of EU resources allocated to the local government. The consistency of this negative impact across different scenarios and after adjusting for political reasons and financial distress supports the conclusion that collusion with organised crime reduces EU fund allocation to local governments.[13]

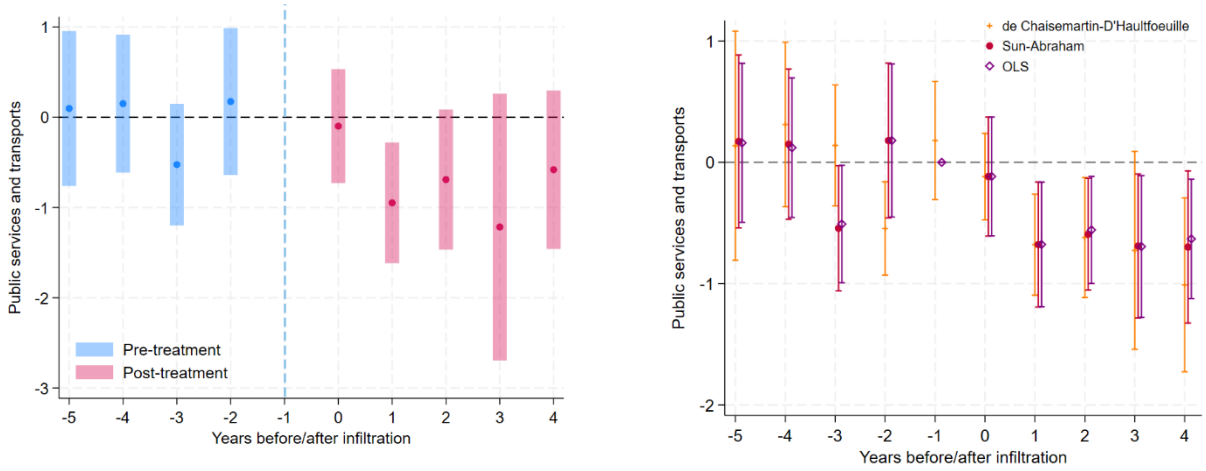
[13] Other event study estimates, which exclude other types of dissolutions, are reported in Figure D1 and corroborate this evidence.

Figure 5: Event study estimates

Panel A: EU funds managed by the local government



Panel B: EU funds managed by the local government for public services and transports projects



Note: The figure presents the outcomes of event studies (dynamic panel estimations) with 95% confidence interval. t-1: pre-election year, reference category; 0: year of election of municipal governments dissolved for mafia infiltration. Panel A displays the event study results for the total amount of EU funds allocated to local governments, with estimates from Callaway and Sant'Anna (2021) shown on the left and those from other estimators on the right. Similarly, Panel B shows the results for the portion of local government investments allocated to infrastructure projects, again comparing results from the main estimator with those from alternative methods.

8.2 Placebo test

To further enhance the reliability of our main results, we undertake a placebo test. Initially, we remove legislatures from our dataset that are affected by institutional bottlenecks. Following this, we generate new fictitious treatment units. Specifically, we randomly select 30 municipalities from our sample and assign a year for these simulated city council dismissals to take place within these local governments. These municipalities are then classified as "treated" from the beginning of the legislature preceding the simulated dismissals. Subsequently, we apply model (1) to analyse the EU funds allocation based on these fictitious treatment units. This process is repeated 300 times for each our outcomes.

These placebo tests are valuable in demonstrating that our results are not influenced by a type II error. If unobserved instances of collusion between local politicians and organised crime were to systematically appear in our control groups, the estimates should consistently show a significant relationship between the EU funds allocated to local governments and the randomly selected treated units.

Figure D2 in the Appendix presents the results of these exercises, displaying the coefficients alongside their respective confidence intervals for each iteration. Non-significant estimates are shown in blue, while significant ones are shown in red. In the vast majority of cases, the graph indicates no statistical significance between our artificially created treatment units and the distribution of EU funds. Specifically, the proportion of significant cases is approximately 5% when analysing EU funds allocated to local governments and around 10% for EU funds dedicated to public services and transports, reinforcing the validity of the analysis.

9 Mechanisms and consequences of local collusion and EU funds

9.1 Explaining mechanisms

In line with the discretionary framework of the European Cohesion Policy, our core findings underscore the critical role of local institutional quality in shaping the distribution of EU funds across beneficiaries and investment areas. The infiltration of organised crime into local governments emerges as a significant factor reducing the inflow of EU funds to city councils, primarily through decreased investments in infrastructure projects.

Two mechanisms could explain these observations. The first involves the competence and capabilities of colluding politicians, while the second pertains to the Italian regulatory framework aimed at preventing organised crime from appropriating public resources. We examine each in turn.

Politicians involved in collusion might possess lower levels of competence compared to their less- or non-colluding counterparts. Daniele and Geys (2015) have shown that the enforcement of city council dismissals due to collusion leads to an improvement in the quality of local politicians. If colluding politicians are indeed less competent, this could introduce a bias into our estimation strategy, making it difficult to determine whether the observed effects are due to collusion or the inherent abilities of the politicians.

To assess whether our findings are influenced by the competence and abilities of local politicians, we examine whether there is a significant difference in the educational attainment of local government members between colluding and non-colluding governments, before and after collusion begins. We use education as a proxy for competence and ability, following Besley et al. (2011). Our baseline model uses the educational attainment of mayors, city councillors, and executive committee members as the dependent variable, employing both TWFE and CSA estimation methods. The results, presented in Table D1, show no significant educational shortfall among politicians from colluding local governments compared to those never involved in collusion or their non- (or less-) colluding predecessors.

Turning to the second potential mechanism, a growing body of research highlights the efficiency of organised crime in various economic sectors.[14] Consistent with these findings, the observed negative relationship between colluding local governments and the allocation of EU funds to city councils may stem from colluding politicians favouring EU projects subject to less scrutiny, thereby minimizing the risk of detection. This reduced risk arises from variations in the Italian regulatory framework, particularly the Antimafia Information Law, which aims to prevent organised crime from exploiting public subsidies. This law mandates that public resources exceeding the €150,000 threshold directed to private entities require an anti-mafia certification.[15]

Daniele and Dipoppa (2023) point out the importance of this policy in addressing the appropriation of EU investments by mafia-controlled firms. These firms strategically keep their subsidy requests below the threshold to avoid the stringent checks associated with higher-valued projects. Building on this evidence, we investigate for the first time whether infiltrated local governments exhibit similar behaviour, by deliberately proposing projects through EU public calls that are less likely to attract anti-mafia regulatory scrutiny. While local governments are not directly subject to the Antimafia Information Law when applying for EU funds, they must later issue public procurement tenders in accordance with Italian regulations to fulfil their objectives.

[14] Mirenda et al. (2022) have shown that organised crime can enhance the revenues of companies it has infiltrated, albeit at the cost of their financial stability, to maximise its economic benefits. Similarly, Le Moglie and Sorrenti (2022) found that economic activities demonstrate greater resilience to shocks, such as financial crises, in areas with a significant presence of organised crime. Moreover, Castelluccio and Rizzica (2023) observed that organised crime acts as a rational entity, exploiting the COVID-19 pandemic crisis to infiltrate firms more easily.

[15] The Antimafia Information Law, initially introduced in 1965, was the first of its kind aimed at preventing firms connected to organised crime from exploiting government subsidies and public resources. The law required authorities to screen firms applying for subsidies to identify links with organised crime. It underwent significant updates in 1994 and 1998 and was further strengthened in 2013 to address the evolving practices of organised crime. This last change rounded the threshold of application from 154,937 to 150,000 Euros.

This requirement, combined with the staggered nature of public calls for EU projects - varying across years and regions during the programming cycle - creates opportunities for strategic behaviour.

To formally test this mechanism, we investigate differences in engagement with projects above the anti-mafia threshold among local governments implicated in organised crime, comparing periods before and after the infiltration of mafia with those of non-infiltrated municipalities. Specifically, we estimate Model 1 using as outcome variables the number of projects above the €150,000 threshold.

Table 3 reveals that colluding local governments are significantly less likely to secure EU projects exceeding €150,000, which are subject to stricter scrutiny. On average, they receive 13% fewer projects above this threshold in the TWFE model and 14% fewer in the CSA model. These findings are robust not only across different estimation methods (Panel A vs. Panel B) but also across various measures of the outcome variables (columns 1 vs. 2). This pattern persists when focusing specifically on funds allocated to projects dedicated to public services and transports. Colluding local governments secure fewer EU funds for this type of projects by avoiding those above the anti-mafia regulation threshold. This gap is estimated at 6.1% in the TWFE model and 6.4% in the CSA model.

Table 3: EU projects below public tenders' threshold and growth of income

	Log projects per capita above €150,000	Projects above €150,000	Log public services projects per capita above €150,000	Public services projects above €150,000
	(1)	(2)	(3)	(4)
Panel A: CSA				
Corrupt	-0.145***	-0.989***	-0.063***	-0.285**
	(0.043)	(0.259)	(0.018)	(0.110)
Observations	18,725	18,725	18,725	18,725
Panel B: TWFE				
Corrupt	-0.133***	-0.710**	-0.061***	-0.162
	(0.029)	(0.283)	(0.017)	(0.120)
Observations	18,819	18,819	18,819	18,819
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

Note: This table examines whether governments colluding with the mafia are less likely to select projects exceeding €150,000, which are subject to stricter scrutiny. CSA: Callaway & Sant-Anna (2021) estimator; TWFE: Two-Way-Fixed-Effects model. Corrupt: dummy variable taking value 1 during years of cases involving local governments colluding with organised crime, from the election year until the dissolution year. Controls: population density, municipal income.

These results are supported by event study estimates and two placebo tests. The event study validates the parallel trend assumption. As shown in Figure C1 in the Appendix, the trends in the total number of projects

exceeding €150,000 and those allocated to public services and local transportation significantly decline following the onset of infiltration.

As a first placebo exercise, we analyse whether treated and control units differ in their engagement with EU projects across alternative thresholds. If the gap in EU project engagement between colluding and non-colluding local governments is solely due to strategic behaviour to avoid anti-mafia regulations, there should be no significant difference in the number of projects below this threshold. Table C8 in the Appendix confirms the absence of any significant gap in the number of EU projects allocated to local governments that are not subject to anti-mafia regulations.

The final placebo test examines dismissals due to financial mismanagement and serious legal violations.[16] In these cases, comparisons between dismissed and non-dismissed local governments should reveal no significant differences in the amount of EU funds allocated toward themselves, as dismissed politicians lack incentives to avoid projects subject to anti-mafia certification. To formally test this, we estimate Model 1 by replacing the corruption dummy variable with two dummy variables taking value one for all years a municipality is governed by a council dissolved for either reason. In both cases, the period spans from the year following the previous election to the year of dissolution. As shown in Table C9 in the Appendix, no significant gap in EU funds is observed either before or after dismissals due to financial mismanagement or city council dissolutions resulting from serious legal violations.[17]

9.2 Economic consequences

Provided that the evidence illustrated so far has shown that local governments colluding with criminal organisations receive lower proportions of European funds – particularly for projects dedicated to public services and transports – due to a strategic behaviour of colluded politicians to avoid anti-mafia regulation, an interesting question is whether this has any impact on the growth prospects of the municipality.

[16] Dismissals due to financial mismanagement occur not only in cases of severe financial difficulty but also for non-compliance with legal requirements related to municipal budget management. In contrast, dismissals due to serious legal violations arise when a mayor is indicted for a significant crime (Legislative Decree 235/2012), rendering them ineligible to hold office even if the conviction is not yet final. Data on both types of dismissals are provided by the Italian Ministry of Interior. The dataset spans 2002 to 2020 and covers most Italian regions, excluding Valle d'Aosta, Friuli Venezia Giulia, and Sardinia. It includes the reasons for city council dismissals, allowing us to distinguish between cases of financial mismanagement and serious legal violations. A comprehensive overview of dismissal cases is presented in Appendix A, while descriptive statistics are provided in Appendix B.

[17] A critical caveat of these findings is the exclusion of dissolutions related to the anticipated career progression of Italian mayors towards other government positions. This exclusion raises the possibility that our categorisation of dissolutions as serious law violations might inadvertently include cases linked to the career advancements of local mayors, thereby potentially influencing the analysis. Currently, our dataset excludes instances where a mayor leaves office to be elected to regional or national government, but we were unable to account for other public appointments.

A substantial body of literature highlights the pivotal role of infrastructure development, and especially local transports, in driving regional economic growth (Trew, 2020; Bronzini and Piselli, 2009; Crescenzi and Rodriguez-Pose, 2012). However, this relationship is mediated by various factors, including regional comparative advantage (Di Cataldo and Monastiriotis, 2020), the quality of local institutions (Crescenzi et al., 2016), and personal political incentives (Fajgelbaum and Schaal, 2020).

Despite not being the main goal of this work, we provide some preliminary evidence studying if the strategic behaviour of local politicians colluded with organised crime can depress economic wellbeing at the detriment of the local community. To this end, we construct an indicator of local annual growth in pre-taxable income per inhabitant. While this is admittedly an imperfect proxy for local economic growth, it is the only available indicator that allows us to capture the economic trajectory of municipalities while preserving the panel structure of the data.

We replicate the model using this growth indicator as the dependent variable. The results, presented in Table D2, reveal a significant reduction in the local growth rate during periods of governance by infiltrated administrations. The evolution of the local growth rate, illustrated in Figure D3 in the Appendix, confirms the absence of pre-trends. This finding suggests that the substantial reduction in EU funds management - driven by the selection of less ambitious projects to evade anti-mafia scrutiny - has implications for the economic development of the local area. In other words, this strategic behaviour by colluding politicians is possibly depressing local growth rates. While our evidence is not exhaustive, it aligns with extensive findings in the literature on the detrimental effects of mafia presence on economic growth (Pinotti, 2015; Mocetti and Rizzica, 2023).

10 Conclusions

This research significantly contributes to the existing literature on the quality of institutions and European Cohesion Policy. For the first time, we investigate the impact of local corruption - measured by instances of local governments colluding with criminal groups - on the allocation of EU funds across different beneficiaries, distinguishing between public and private entities and the local government itself. With the EU Commission allocating a considerable portion of its budget (equivalent to one-third for the 2014-2020 period) to Cohesion Policy, our work contributes to ascertain whether any of these funds are misdirected, potentially benefiting organised crime within Italy.

Our study adopts a dynamic measure of local corruption, based on administrative data on city council dismissals under an anti-mafia policy aimed at eliminating the influence of organised crime on local authorities. We employ a staggered differences-in-differences model and mitigate endogeneity with a wide array of alternative and complementary estimations.

Our analysis reveals that the level of corruption within local governments is fundamental in determining the allocation of EU funds. Municipalities with politicians colluding with organised crime receive significantly less funding, particularly for EU projects dedicated to local transports and all other essential public services, as compared to those with higher-quality institutions. Such colluding local governments tend to avoid EU projects above a given amount, likely to evade scrutiny by Italian investigators enforcing laws designed to prevent organised crime's infiltration into public procurement. This behaviour appears to depress local economic performance.

These findings carry significant policy implications, indicating that Italian public procurement regulations indeed work. They act as a deterrent, preventing EU resources from being diverted to local governments colluding with organised crime. Moreover, they underscore the efficiency and competence of organised crime in strategically positioning themselves below regulatory thresholds, aligning with existing literature on the effectiveness of organised crime in various economic activities (Mirenda et al., 2022; Le Moglie and Sorrenti, 2022). On the other hand, they also illustrate a dangerous strategic behaviour from the part of corrupt local authorities that collude with criminal organisations. Crucially, the results indicate that corrupt politicians appear to distort entrepreneurial competition by selecting and awarding projects based on the interests of criminal firms, without considering the common welfare of local communities they are responsible for. This type of distortion seems to have implications for the trajectories of local areas, which suffer from slower growth when corrupt politicians are in power.

In conclusion, we have brought to the fore the importance of local institutional quality not only in enhancing the effectiveness of the EU Cohesion Policy but also in resource allocation. The main finding provides valuable insights for EU policymakers. They emphasise the need for a more robust monitoring system to protect European investment. A stronger monitoring system can prevent EU investment falling prey to corruption. A stronger monitoring system is needed in regions which, like the South of Italy, EU resources are key for promoting economic development and reducing regional inequality.

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Appendix A: City council dismissals

Collusion of local politicians with organised crime (Law 164/1991)

In the 1970s, Italy embarked on a path towards fiscal federalism, transferring several spending powers from the central government to local authorities. This significant shift aimed to decentralise financial responsibilities, inadvertently reducing the opportunity cost for mafia-type organizations to infiltrate local governments. However, the 1980s and early 1990s saw a marked increase in organised crime's penetration into the local economy, accompanied by a spike in mafia-related killings. These developments prompted the Italian national government to implement a series of anti-Mafia measures to counteract this trend.

Among these initiatives, Law 164/1991 stands out as one of the most stringent policies introduced to combat the infiltration of organised crime within municipal governments. This law grants the national government the authority to dissolve a local government if there is evidence of direct or indirect connections between criminal organizations and elected local politicians, which compromise the normal functioning of local institutions. A notable aspect of this policy is that, unlike before 1991 when evidence against a member of the executive committee would result in their arrest, incriminating evidence now leads to the dissolution of the entire municipal government.

The enforcement of this policy follows a structured and meticulous procedure. Initially, the police or magistrates notify the provincial prefect of potential risks of infiltration within a municipal government, often based on investigations that may not be directly related to the mafia. The prefect then forms a commission, consisting of officials from various enforcement agencies (the *Polizia di Stato*, the *Carabinieri*, and the *Guardia di Finanza*) and the vice-prefect, to conduct an investigation. This commission is given a maximum of three months to carry out its inquiry and compile a report.

Upon the conclusion of this investigation period, the provincial prefect has 45 days to forward the report to the Minister of Interior, who assesses whether the evidence presented justifies the dismissal of the city council. Should the Minister of Interior decide in favour of dissolution, the process is formalized through a decree issued by the President of the Republic. This decree requires the approval of both the president and the Cabinet (*Consiglio dei Ministri*), ensuring a high level of scrutiny and legal oversight in the dissolution of local governments suspected of mafia infiltration. This legislative framework underscores Italy's commitment to preserving the integrity of its local institutions by rigorously combating the influence of organised crime.

Other types of dissolutions

Death or serious impediment of the mayor: According to Article 141 of the Italian Legislative Decree (Tuel), local government tenures in Italy can be curtailed under certain circumstances, such as the death of the mayor or significant impediments like illnesses, which prevent the mayor from fulfilling their duties.

Forfeiture of the mayor (*Decadenza del sindaco*): Mayoral forfeiture can occur for both legal and political reasons. Legally, a mayor can be removed from office if convicted of a serious crime or if under preventive measures related to mafia associations, as outlined in Article 10 et seq. of Legislative Decree no. 235/2012. Politically, forfeiture can result from the mayor being elected to another elective or governmental position, accepting a candidacy for the Italian parliament, or assuming other roles deemed incompatible with their mayoral duties.

Ineligibility of the mayor (*Incandidabilità del sindaco*): A mayor's ineligibility is declared in instances where they are convicted of serious crimes or are subjected to preventive measures for mafia association that predates their election, rendering them legally unfit to hold office.

Removal of the mayor (*Rimozione del sindaco*): Mayors can be removed from office for violations of the Constitution, persistent law violations, significant public order concerns, and non-compliance with obligations regarding urban waste management.

Impossibility of removal (*Impossibilità di surroga*): Local government is subject to dismissal following the resignation of city council members if these resignations prevent the replacement of vacant seats, hindering the council's functional integrity.

Mayor’s resignation (*Dimissioni del sindaco*): The resignation of a mayor directly leads to the dismissal of the local government.

Motion of mistrust against the mayor (*Mozione di sfiducia*): A motion of mistrust, if passed by an absolute majority of city council members through a roll call, results in the dissolution of the local government, reflecting a loss of confidence in the mayor's leadership.

Contextual resignation of the majority of municipal councillors (*Dimissioni contestuali della maggioranza dei consiglieri*): This scenario, akin to a motion of no confidence against the mayor, occurs when the majority of municipal councillors resign simultaneously, signaling a collective withdrawal of support and leading to the dissolution of the city council.

Situation of financial crisis (*Situazioni di crisi finanziaria*): Failure to adhere to financial regulations, including the approval of municipal financial statements and the implementation of financial rebalancing measures, triggers the dismissal of the local government due to financial instability.

Appendix B: Descriptive statistics

Table B1: Variables definition and source

Variable	Description	Source
Panel A: EU funds variables		
All EU funds	Logarithm of the total amount of EU investment in per capita terms	Opencoesione
Private beneficiaries	Logarithm of EU investment allocated to private beneficiaries	Opencoesione
Public beneficiaries	Logarithm of EU investment allocated to public beneficiaries	Opencoesione
Local governments as beneficiaries	Logarithm of EU investment allocated to local governments	Opencoesione
Social services	Logarithm of EU investment allocated to local governments for social services	Opencoesione
Public services and transports	Logarithm of EU investment allocated to local governments for public services and transports	Opencoesione
Construction and waste management	Logarithm of EU investment allocated to local governments for construction and waste management	Opencoesione
Innovation and R&D	Logarithm of EU investment allocated to local governments for research and development	Opencoesione
Panel B: Quality of institutions		
Collusion with organised crime	Dummy variable equal to one from the year of the previous election until the one of the city council dissolution due to the enforcement of Law 164/1991	Ministry of Interior
Panel C: Othe type of dismissals		
Financial mismanagement	Dummy variable equal to one from the year of the previous election until the one of the city council dissolution due to financial mismanagement	Ministry of Interior
Serious law violation	Dummy variable equal to one from the year of the previous election until the one of the city council dissolution due to serious violation of the law	Ministry of Interior
Political dismissals	Dummy variable equal to one from the year of the previous election until the one of the city council dissolution due to political reasons	Ministry of Interior
Panel D: Economic and demographic variables		
Population density	Logarithm of population density	National Institute of Statistics
Municipal pre taxable income	Logarithm of municipal pre-taxable income per capita	Ministry of Economy and Finance
Growth	Annual growth of municipal pre-taxable income per capita	Ministry of Economy and Finance

Note: The table provides a description of the main variables used in this work, their explanations, and their respective sources. Column 1 lists the variable names, Column 2 provides detailed explanations of each variable, and Column 3 identifies the data source for each variable.

Table B2 – Descriptive statistics

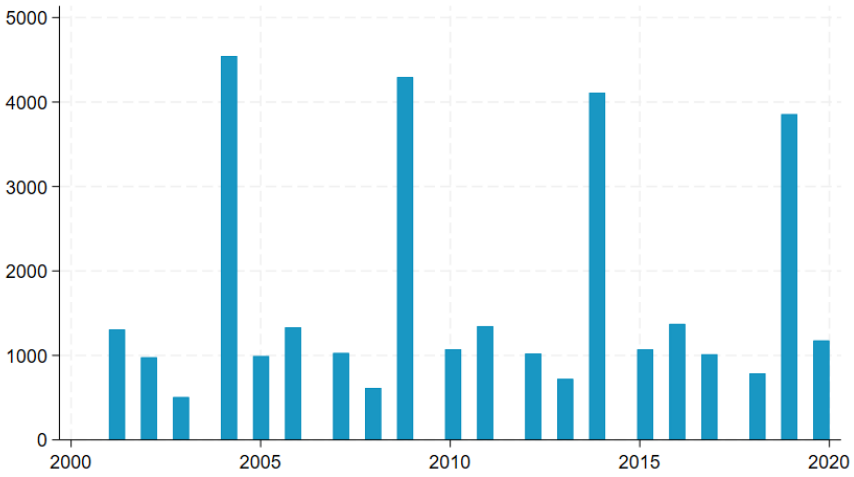
Variable	Observations	Mean	Std. Dev.	Minimum	Maximum
EU funds variables					
All EU funds	20631	3.499	2.114	0	9.833
Private beneficiaries	20631	1.323	1.794	0	9.500
Public beneficiaries	20631	2.279	1.923	0	9.497
Local governments as beneficiaries	20631	2.063	2.197	0	9.418
Social services	20631	0.858	1.601	0	8.572
Public services and transports	20631	0.599	1.447	0	8.614
Construction and waste management	20631	0.763	1.593	0	8.888
Innovation and R&D	20631	0.025	0.257	0	7.467
Institutional quality					
Collusion with organised crime	20610	0.006	0.079	0	1
Socio-economic and demographic controls					
Population density	20548	4.874	1.199	1.386	9.425
Municipal pre taxable income	19081	9.486	0.174	8.883	10.247
Growth	17605	0.016	0.024	-0.178	0.238
Other types of dismissals					
Financial distress	20931	0.007	0.083	0	1
Serious law violation	20643	0.003	0.054	0	1

Table B3: City council's dismissals across Italy for poor institutional quality

	Corruption (Law 164/1991)	Rule of law	Bureaucracy
Italian regions			
Abruzzo	0	11	6
Basilicata	1	6	5
Calabria	88	21	23
Campania	52	42	44
Emilia Romagna	0	16	1
Lazio	2	20	20
Liguria	1	13	1
Lombardy	1	42	13
Marche	0	9	3
Molise	0	15	8
Piedmont	1	17	5
Apulia	11	7	22
Sicily	53	0	0
Tuscany	0	12	3
Trentino Alto Adige	0	0	0
Umbria	0	6	4
Valle D'Aosta	1	0	0
Veneto	0	15	2
Italy	211	252	160
Southern Italy	205	76	94

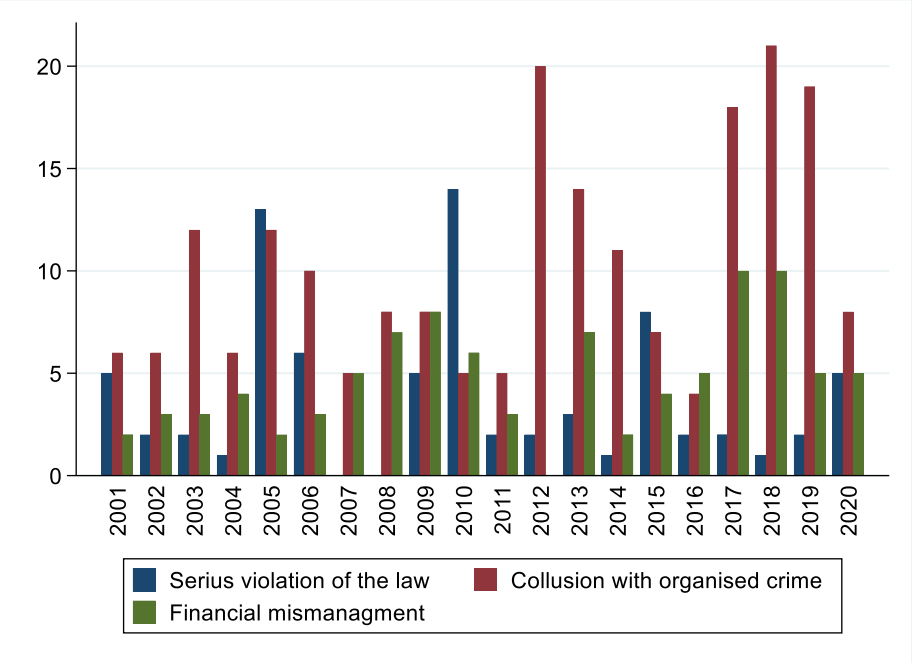
Note: The table reports the total number of city council dismissals across Italian regions during the period of our analysis. A clear geographical pattern emerges regarding dismissals due to organised crime collusion with local government members. Most of the city council dismissals enforced under Law 164/1991 are concentrated in the southern regions of Italy (sample regions), specifically Calabria, Campania, Puglia, Basilicata, and Sicily (in italics).

Figure B1: Local elections staggered adoption



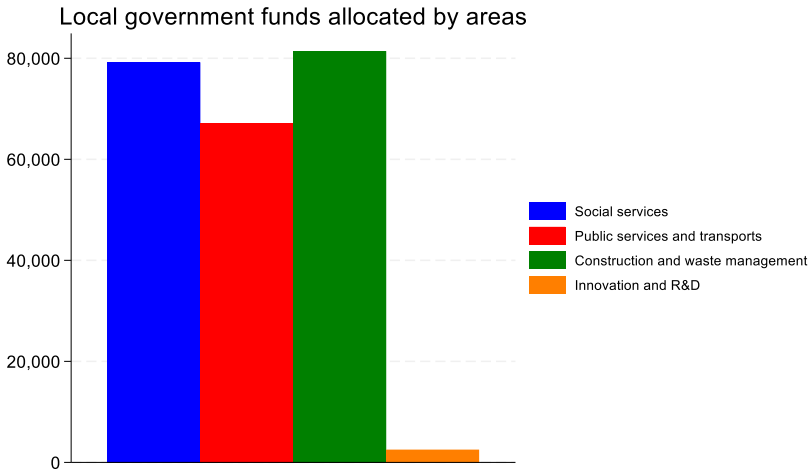
Note: The graph displays the frequency of Italian municipal elections over time. Local governments are called to the ballot box every five years, although these elections do not occur simultaneously in different municipalities.

Figure B2: City councils' dismissals over time



Note: The figure displays the annual distribution of three types of city council dismissals: implementation of anti-mafia measures in red, serious violations of the law in blue, and cases of financial mismanagement in green. It focuses on our main sample of interest, the southern regions of Italy, including Calabria, Campania, Puglia, Basilicata, and Sicily.

Figure B3: EU funds allocated to local governments across various investment categories.



Note: The figure shows the logarithm of EU funds allocated to local governments across various investment categories.

Table B4: Definition of keywords for EU investments areas

Categories	Keywords
	Panel A: Original language of the keywords in Italian
Social Services	centro medico, ospedale, sanità, servizio di assistenza domiciliare, persone in condizione di, natura assistenziale, clinica, assistenza, sanitario, servizi sociali, strutture di accoglienza, sanitari, assistenziale, disabilità, erogazione, servizio civile, servizio per minori, sociale, disabili, vittime di violenza, senza fissa dimora, degrado socio-economico, sostegno al reddito, prima accoglienza, donne maltrattate, educativa, scolastici, educazione, casa di riposo, anziani, persone anziane, scuola, biblioteca, istruzione, infanzia, istituto comprensivo, scolastico, tirocinio, orientamento specialistico, asilo, asili, nidi, nido, patrimonio, restauro, cultura, museo, turismo, attrazione, località, storico, eventi culturali, festival, arte pubblica, spettacoli, teatro, itinerari, turismo culturale, ospitalità, manifestazioni, sport, archeologia, torre, castello, turistica, culture, arte, acque pluviali, acque meteoriche, acque piovane, isola ecologica, energia rinnovabile, sostenibile, parco, spazi pubblici, zone pedonali, percorso pedonale, ciclabile
Public services and transports	rete idrica, fogna bianca, fognari, ferrovie, porti, porto, ponti, ponte, reti di distribuzione, pubblica illuminazione, infrastruttura, infrastrutture, acquedotto, rete fog, mobilità, trasporto pubblico, autobus, bus, veicoli, mobilità sostenibile, sicurezza, messa in sicurezza, protezione, antincendio, elisuperficie, prevenzione, disastri, riqualificazione urbana, urbanizzazione, piani regolatori, centri urbani, sviluppo urbano, arredo urbano, infrastrutture urbane, politiche urbane, urbana, urbano, opere di urbanizzazione, aree urbane, marciapiedi, strada, pavimentazione
Construction and waste management	edilizia, edilizia residenziale, alloggi, riqualificazione abitativa, riqualificazione, abbattimento, manutenzione, lavori di adeguamento, realizzazione, completamento, sistemazione, rifacimento, rifiuti, raccolta differenziata, discarica, gestione rifiuti, isola ecologica, impianti di trattamento, smaltimento, compostaggio, riciclaggio, riduzione rifiuti, economia circolare, impianto di incenerimento
Innovation and R&D	ricerca, innovazione, digitale, piattaforma, tecnologia, servizi online, smart city, ict, big data, cybersecurity, AI, machine learning, automazione, innovative, digitali
Panel B: Description of categories	
Social Services	All projects dedicated to social services such as support to disadvantaged citizens (unemployed and inactive, underage, migrants), elder care, education and health care, tourism and culture
Public services and transports	All projects dedicated to improvement of local transport infrastructure (e.g. public transportation), emergency prevention, public security, public lighting.
Construction and waste management	All projects dedicated to residential construction and housing redevelopment, management of public waste and recycling.
Innovation and R&D	All projects dedicated to research, innovation, digital economy.

Note This table lists the keywords from the *Opencoesione* dataset used to classify EU funds across various categories based on project descriptions and titles. Panel A presents the keywords in the original language (Italian), while Panel B provides their English translations.

Appendix C: Robustness checks

Table C1: CSA estimates with never-treated as only control group

	All funds	Private Beneficiaries	Public Beneficiaries	Local governments
	(1)	(2)	(3)	(4)
Estimation method: CSA				
Corrupt	0.057	0.187	0.033	-0.705**
	(0.207)	(0.315)	(0.214)	(0.304)
Observations	18,901	18,901	18,901	18,901
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

Note: the table reports the impact of poor local institutional quality on the total amount of EU funds (column 1), EU funds allocated to private beneficiaries (column 2), those allocated to public beneficiaries (column 3), and the funds allocated to local governments themselves (column 4). The estimates rely on Callaway and Sant`Anna (2021) but in this case the control group is composed only by never-treated municipalities.

Table C2: Exclusion of city council dismissal due to financial distress and serious law violation

	All funds	Private Beneficiaries	Public Beneficiaries	Local governments
	(1)	(2)	(3)	(4)
Panel A: CSA				
Corrupt	-0.192	0.370	-0.521	-0.925**
	(0.295)	(0.459)	(0.392)	(0.374)
Observations	15,534	15,534	15,534	15,534
Panel B: TWFE				
Corrupt	-0.246	0.379	-0.015	-0.667*
	(0.201)	(0.402)	(0.216)	(0.333)
Observations	15,613	15,613	15,613	15,613
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

Note: the table reports the impact of poor local institutional quality on the total amount of EU funds (column 1), EU funds allocated to private beneficiaries (column 2), those allocated to public beneficiaries (column 3), and the funds allocated to local governments themselves (column 4). The table presents the results obtained through the application of our two estimation methods, considering potential variations in treatment effects across different time periods and cohorts. In this sample, we exclude the city council dismissal due to financial distress and serious law violation from our control groups.

Table C3: Exclusion of all legislatures with city council dismissals

	All funds	Private Beneficiaries	Public Beneficiaries	Local governments
	(1)	(2)	(3)	(4)
Panel A: CSA				
Corrupt	-0.193	0.402	-0.515	-0.945**
	(0.298)	(0.458)	(0.396)	(0.373)
Observations	14,998	14,998	14,998	14,998
Panel B: TWFE				
Corrupt	-0.242	0.384	-0.010	-0.657*
	(0.202)	(0.404)	(0.215)	(0.333)
Observations	15,085	15,085	15,085	15,085
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

Note: the table reports the impact of poor local institutional quality on the total amount of EU funds (column 1), EU funds allocated to private beneficiaries (column 2), those allocated to public beneficiaries (column 3), and the funds allocated to local governments themselves (column 4). The table presents the results obtained through the application of our two estimation methods, considering potential variations in treatment effects across different time periods and cohorts. In this sample, we exclude the legislatures affected by financial distress, serious law violation, and political dismissals from our control groups.

Table C4: Exclusion of re-elected mayors

	All funds	Private Beneficiaries	Public Beneficiaries	Local governments
	(1)	(2)	(3)	(4)
Panel A: CSA				
Corrupt	-0.195	-0.034	-0.118	-0.837**
	(0.226)	(0.407)	(0.331)	(0.338)
Observations	16,353	16,353	16,353	16,353
Panel B: TWFE				
Corrupt	-0.100	0.158	0.124	-0.417
	(0.200)	(0.318)	(0.194)	(0.342)
Observations	16,426	16,426	16,426	16,426
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

Note: the table reports the impact of poor local institutional quality on the total amount of EU funds (column 1), EU funds allocated to private beneficiaries (column 2), those allocated to public beneficiaries (column 3), and the funds allocated to local governments themselves (column 4). The table presents the results obtained through the application of our two estimation methods, considering potential variations in treatment effects across different time periods and cohorts. In this sample, we excluded observations from our control group that pertained to municipalities with the same mayor in the previous legislature prior to the dissolved one.

Table C5: Exclusion of 2012 dissolutions

	All funds	Private Beneficiaries	Public Beneficiaries	Local governments
	(1)	(2)	(3)	(4)
Panel A: CSA				
Corrupt	0.064	0.134	0.063	-0.815**
	(0.205)	(0.351)	(0.249)	(0.329)
Observations	18,710	18,710	18,710	18,710
Panel B: TWFE				
Corrupt	-0.194	0.171	0.072	-0.587*
	(0.169)	(0.289)	(0.157)	(0.291)
Observations	18,783	18,783	18,783	18,783
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

Note: the table reports the impact of poor local institutional quality on the total amount of EU funds (column 1), EU funds allocated to private beneficiaries (column 2), those allocated to public beneficiaries (column 3), and the funds allocated to local governments themselves (column 4). The table presents the results obtained through the application of our two estimation methods, considering potential variations in treatment effects across different time periods and cohorts. In this sample, we excluded observations from our control group that pertained to municipalities with the same mayor in the previous legislature prior to the dissolved one.

Table C6: Political alignment with the national government

	All funds	Private Beneficiaries	Public Beneficiaries	Local governments
	(1)	(2)	(3)	(4)
Panel A: CSA				
Corrupt	0.299	1.079	1.297	-2.410*
	(0.376)	(1.035)	(1.375)	(1.347)
Observations	14,856	14,856	14,856	14,856
Panel B: TWFE				
Corrupt	-0.261	0.079	0.121	-0.829**
	(0.207)	(0.307)	(0.199)	(0.354)
Observations	15,419	15,419	15,419	15,419
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

Note: the table reports the impact of poor local institutional quality on the total amount of EU funds (column 1), EU funds allocated to private beneficiaries (column 2), those allocated to public beneficiaries (column 3), and the funds allocated to local governments themselves (column 4). In all specifications (columns 1-4), EU funds are measured in the logarithm of per capita. The table reports all the results obtained through the application of our two estimation methods to account for potential variations in treatment effects across different time periods and cohorts.

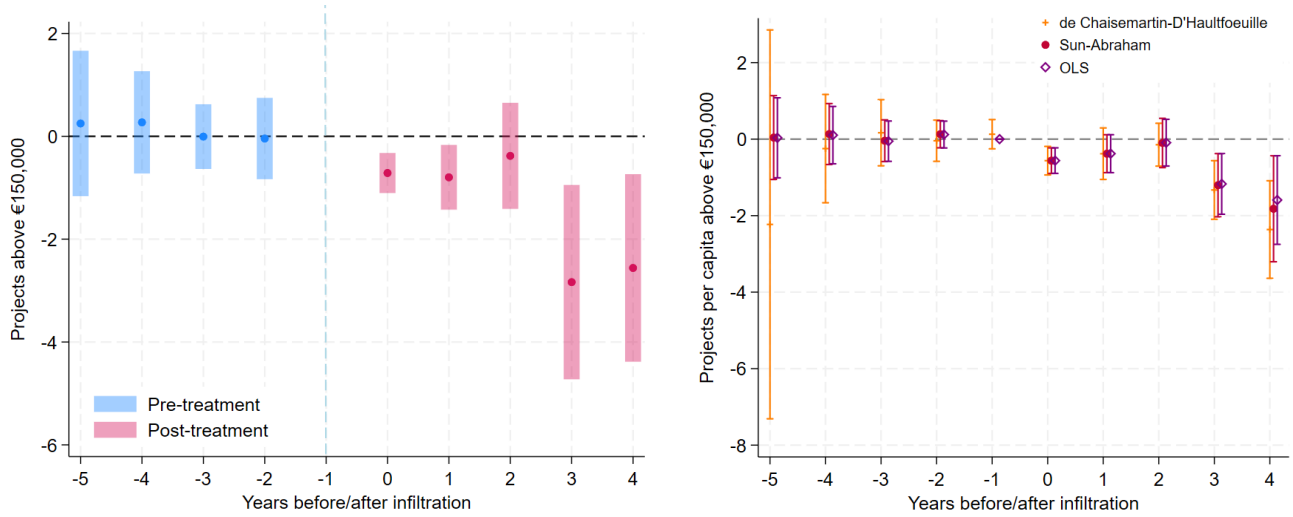
Table C7: Political alignment with the regional government

	All funds	Private Beneficiaries	Public Beneficiaries	Local governments
	(1)	(2)	(3)	(4)
Panel A: CSA				
Corrupt	0.004	0.346	-0.055	-1.341***
	(0.268)	(0.446)	(0.310)	(0.365)
Observations	15,168	15,168	15,168	15,168
Panel B: TWFE				
Corrupt	-0.237	0.146	0.122	-0.788**
	(0.198)	(0.314)	(0.191)	(0.336)
Observations	15,738	15,738	15,738	15,738
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

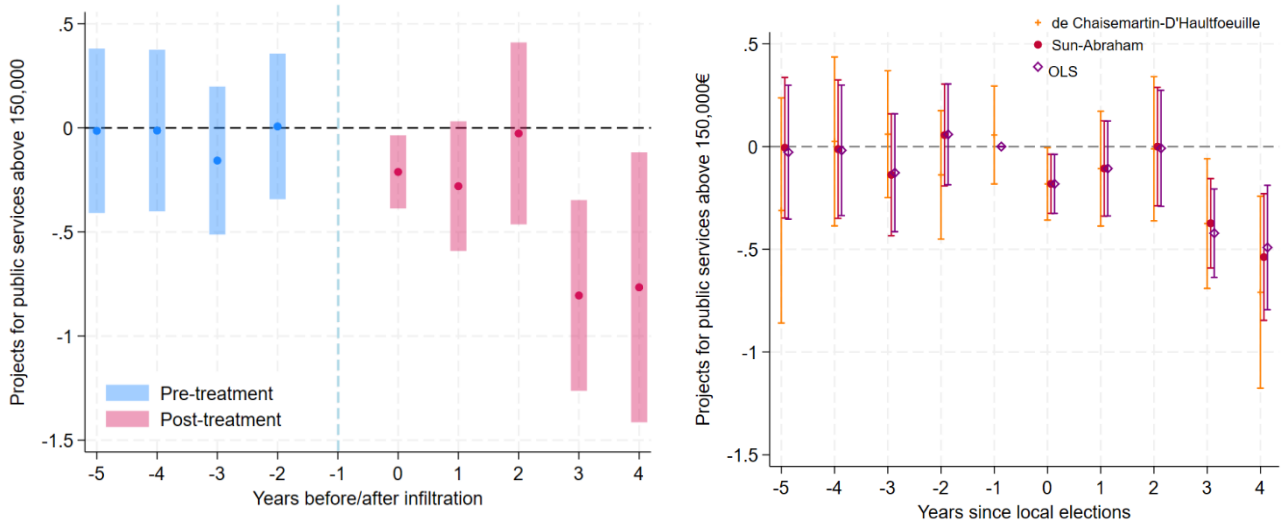
Note: the table reports the impact of poor local institutional quality on the total amount of EU funds (column 1), EU funds allocated to private beneficiaries (column 2), those allocated to public beneficiaries (column 3), and the funds allocated to local governments themselves (column 4). In all specifications (columns 1-4), EU funds are measured in the logarithm of per capita. The table reports all the results obtained through the application of our two estimation methods to account for potential variations in treatment effects across different time periods and cohorts.

Figure C1 Event study estimates of project engagement above the anti-mafia threshold

Panel A: Projects managed by the local government



Panel B: Projects managed by the local government for public services and transports



Note: The figure presents the outcomes of event studies (dynamic panel estimations) with 95% confidence intervals. t-1: Pre-election year (reference category); 0: Year of election of municipal governments dissolved for mafia infiltration. Panel A presents the event study estimates for numbers of EU projects allocated to local governments subject to the anti-mafia regulation. Estimates based on Callaway and Sant'Anna (2021) are shown on the left, while those from alternative estimators are shown on the right. Panel B shows the same estimates focusing on the numbers of EU projects allocated to local governments for infrastructure investments.

Table C8: Placebo test on alternative threshold

	Log projects per capita below €150,000	Log projects per capita between €50,001 - €100,000	Log projects per capita between €100,001 - €150,000
	(1)	(2)	(3)
Panel A: CSA			
Corrupt	-0.041	0.023	-0.020
	(0.030)	(0.024)	(0.023)
Observations	18,725	18,725	18,725
Panel B: TWFE			
Corrupt	0.033	0.016	0.016
	(0.024)	(0.019)	(0.013)
Observations	18,819	18,819	18,819
Controls	✓	✓	✓
Year fixed effects	✓	✓	✓
Municipal fixed effects	✓	✓	✓

Note: This table examines whether governments colluding with the mafia are also less likely to select projects below €150,000, where anti-mafia regulations are not enforced. Column 1 considers the logarithmic transformation of the total number of projects per capita below €150,000. Column 2 focuses on the logarithmic transformation of projects valued between €50,001 and €100,000, while Column 3 examines projects valued between €100,001 and €150,000.. CSA: Callaway & Sant-Anna (2021) estimator; TWFE: Two-Way-Fixed-Effects model. Corrupt: dummy variable taking value 1 during years of cases involving local governments colluding with organised crime, from the election year until the dissolution year. Controls: population density, municipal income

Table C9: Other types of dismissals and EU funds to local governments

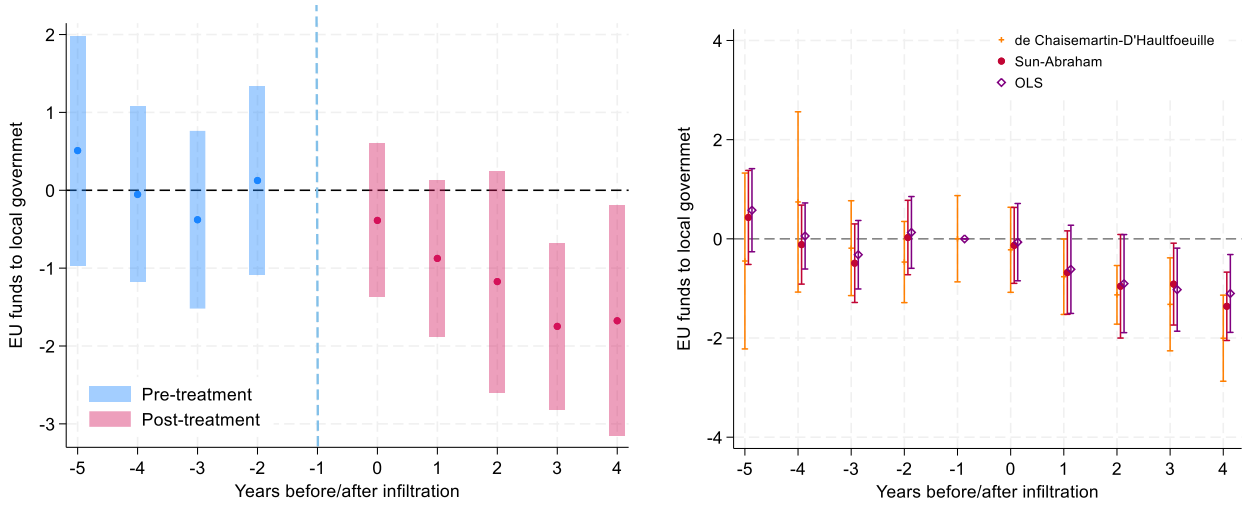
	EU funds to Local governments			
	Financial mismanagement		Violations of law	
	(1)	(2)	(3)	(4)
	CSA	TWFE	CSA	TWFE
Panel A: Bureaucracy				
Dismissed governments	-0.190	-0.296	-0.132	-0.435
	(0.224)	(0.210)	(0.274)	(0.277)
Controls	✓	✓	✓	✓
Year fixed effects	✓	✓	✓	✓
Municipal fixed effects	✓	✓	✓	✓

Note: The table analyses the impact of city council dismissals on the allocation of EU funds to local governments. Columns 1 and 2 present results for dismissals due to financial mismanagement, while Columns 3 and 4 report dismissals resulting from serious legal violations. CSA: Callaway & Sant-Anna (2021) estimator; TWFE: Two-Way-Fixed-Effects model. Controls: population density, municipal income. Controls: Population density and municipal income.

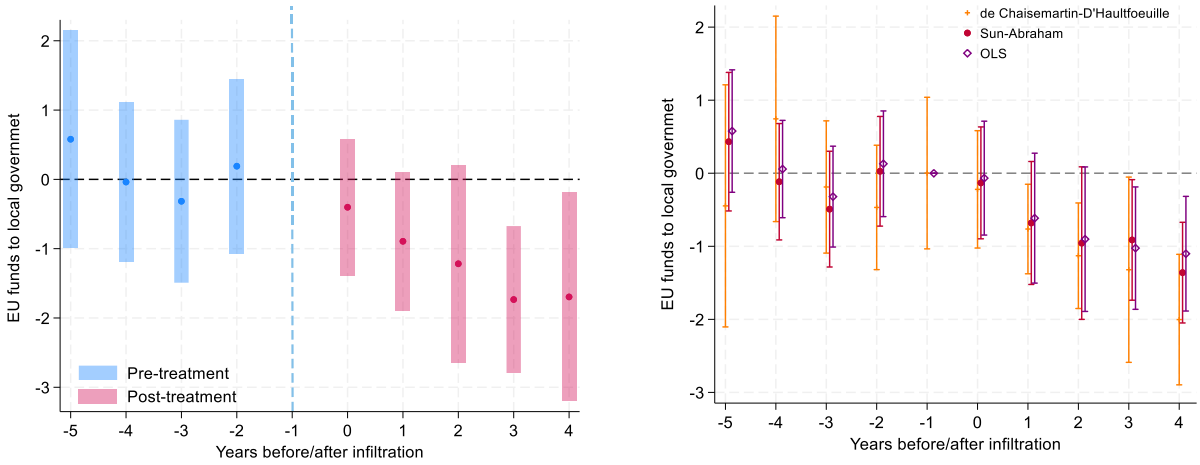
Appendix D: Alternative estimates

Figure D1: CSA event studies, exclusion of other types of dissolutions

Panel A: Exclusion of financial distress and serious law violation

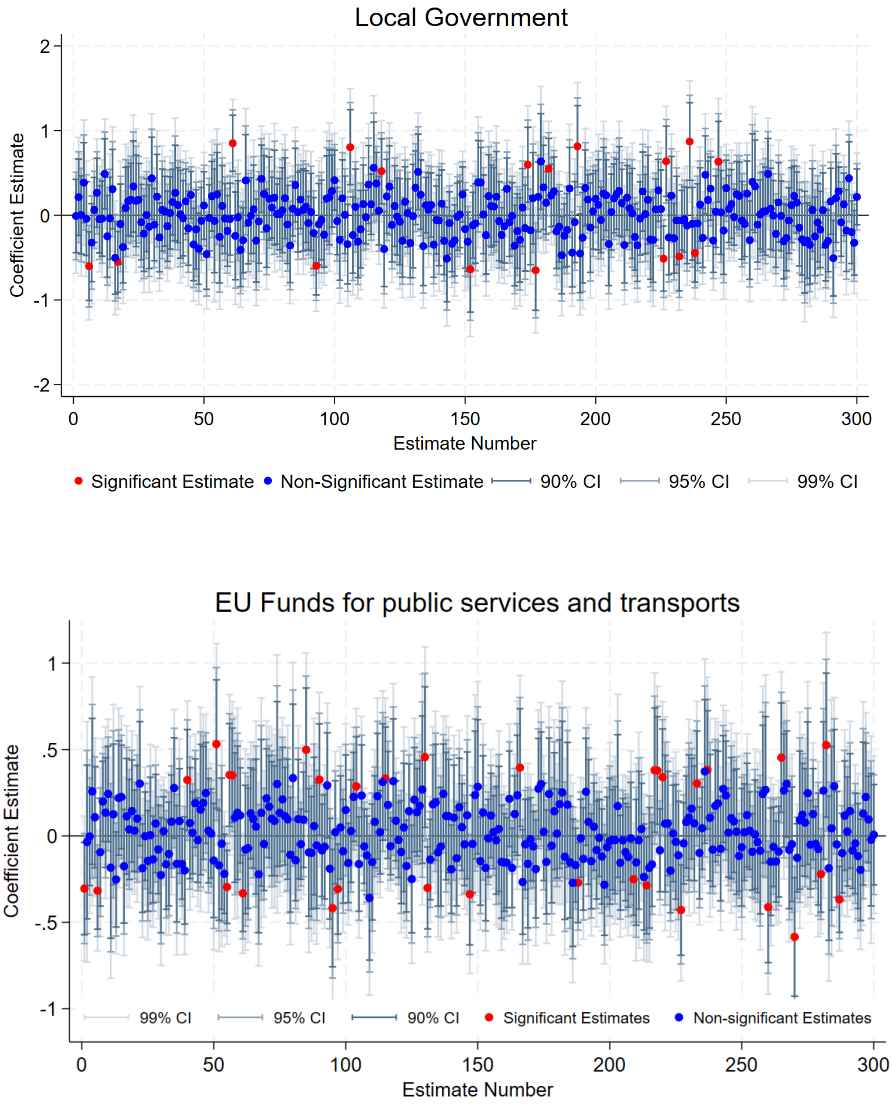


Panel B: Esclusion of political distress



Note: The figure presents the outcomes of event studies (dynamic panel estimations) with 95% confidence intervals**.** t-1: Pre-election year (reference category); 0: Year of election of municipal governments dissolved for mafia infiltration. Panel A shows event study results for the total amount of EU funds allocated to local governments, excluding dismissals due to financial mismanagement and serious legal violations from the control group, with estimates from Callaway and Sant'Anna (2021) on the left and those from other estimators on the right. Similarly, Panel B also excludes dismissals due to political reasons**.**

Figure D2: CSA event studies, exclusion of other types of dissolutions



Note: The figure displays 300 treatment effects, each corresponding to 300 treatment units randomly selected for analysis, along with their respective confidence intervals. Predominantly, the estimates reveal no statistical significance, as indicated by the coefficients which largely do not deviate significantly from zero.

Table D1: Collusions and quality of local politicians

	Mayors' education	Councilors' education	Executive committee` education
	(1)		
Panel A: CSA			
Corrupt	-0.061	0.069	0.163
	(0.082)	(0.064)	(0.112)
Observations	17,987	18,102	18,760
Panel B: TWFE			
Corrupt	-0.027	-0.091	-0.035
	(0.088)	(0.128)	(0.069)
Observations	17,987	18,102	18,760
Controls	✓	✓	✓
Year fixed effects	✓	✓	✓
Municipal fixed effects	✓	✓	✓

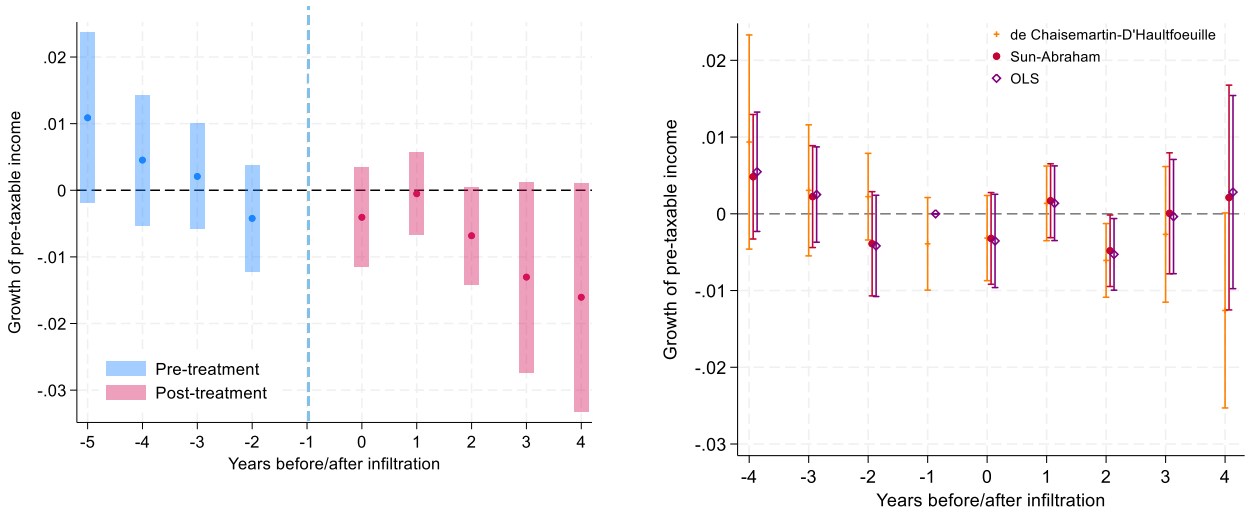
Note: The table assesses whether poor institutional quality resulting from collusion between local politicians and organised crime affects the educational attainment of local government members. All estimates indicate that such collusion does not lead to a decline in the educational qualifications of mayors, city councillors, or executive committee members. CSA: Callaway & Sant-Anna (2021) estimator; TWFE: Two-Way-Fixed-Effects model. Controls: population density, municipal income. Controls: Population density and municipal income.

Table D2: Collusions and economic growth

	Economic growth	
	(1)	(2)
	CSA	TWFE
Corrupt	-0.0049*	-0.0036***
	(0.003)	(0.001)
Observations	17,379	17,481
Year fixed effects	✓	✓
Municipal fixed effects	✓	✓

Note: his table shows the correlation between municipal pre-taxable income and local governments colluding with organised crime. The findings highlight a negative and statistically significant relationship across various estimation models. CSA: Callaway & Sant'Anna (2021) estimator; TWFE: Two-Way Fixed Effects model.

Figure D3: Event study on economic growth



Note: The figure presents event study outcomes (dynamic panel estimations) with 95% confidence intervals. t-1: Pre-election year (reference category); 0: Year of election of municipal governments dissolved for mafia infiltration. The left-hand graph displays event study results for the total amount of EU funds allocated to local governments, estimated using Callaway and Sant'Anna (2021), while the right-hand graph shows results from alternative estimators.