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evidence from EU funding to Southern Italy

by Ilaria De Angelis, Guido de Blasio and Lucia Rizzica

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ON THE UNINTENDED EFFECTS OF PUBLIC TRANSFERS: EVIDENCE FROM EU FUNDING TO SOUTHERN ITALY

by Ilaria De Angelis*, Guido de Blasio* and Lucia Rizzica*

Abstract

We study the relationship between the accrual of large financial transfers from a central level of government and the incidence of white collar crimes against public administration and public faith at the local level. We analyse the case of EU funding to Southern Italy and make use of within-municipality variation in the flow of funds between 2007 and 2014. We find a statistically significant effect of transfers on white collar crimes: our estimates suggest that in the absence of EU funding disbursements, the annual number of white collar crimes in Southern Italy would have been 4 per cent lower. We acknowledge that the evidence we provide cannot be taken as fully conclusive given the possible simultaneity of criminal activities and funding assignments and disbursements. Nevertheless, we provide evidence that the correlations we estimated between transfers and white collar crimes are unlikely to be spurious or due to confounding effects.

JEL Classification: D7, H3, H7.

Keywords: regional transfers, white collar crimes, EU funds.

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1 Introduction*

Large transfers of financial resources from higher levels of government to local administrations are used in most countries around the world and respond to a need for redistribution that arises in particular when local jurisdictions are characterized by significant socio-economic heterogeneity. Yet, their effectiveness in sustaining local development is believed to be hampered by political economy mechanisms that would exacerbate the political agency problem, lowering local politicians' accountability and thus increasing incentives for rent seeking and deteriorating the quality of candidates (Vicente, 2010; Brollo et al., 2013).

The EU cohesion policy represents the largest program of redistribution of resources across member states, it aims at reducing disparities across regions and at boosting economic growth in the least-favored ones. Yet, the policy design has been questioned on the grounds of its relatively weak effects on economic growth (Ciani and de Blasio, 2015) and of its possible adverse effects on social capital (Accetturo et al., 2014). Moreover, numerous cases of diversion of the EU resources have come to light in the most recent years, casting a further shadow on the effectiveness of the EU cohesion policy. Growing evidence, indeed, suggests that a non-negligible fraction of the EU budget is lost every year in fraud and corruption. According to the European Anti-Fraud Office (OLAF), for example, every year nearly 1 billion euro of EU funds is wasted in such illegal activities. While most cases of malfeasance in funds allocation would regard Central and Eastern European countries (OLAF, 2016), similar leakages were documented in Italy too, as often reported in policy debates (Rossi, 2006) and in the media.

The present paper investigates the relationship between the disbursement of large financial resources from a central unit of government, specifically the EU funds, and the incidence of white collar crimes in recipient local governments. While one may think that more money is simply a pre-requisite for corruption to spread, there are also more subtle political economy mechanisms at stake. In particular, the accrual of large financial resources may exacerbate the agency problem between the local politician and the population. Indeed, with a larger budget size which, moreover, is not collected locally, the incumbent politician would have more room to grab political and financial rents without disappointing rational but imperfectly informed voters. In other words, the expected

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electoral punishment of corruption is lower when the budget size increases, and this would induce the incumbent to misbehave more frequently. Moreover, the increased easiness of grabbing rents from the public budget would attract to the office less capable and more corruption prone individuals, thus further reinforcing the relationship between the amount of transfers and the incidence of corruption at the local level. The question we pose, therefore, is not simply one on the overall desirability of EU funds, but rather on the optimal level of decentralization to adopt when such amounts of money are at stake in order to reduce the agency problem and rent seeking.

Note that corruption is not the only type of loss that can be brought about by such large transfers, but represent what in the literature ([Bandiera et al., 2009](#)) has been labeled as “active waste”, i.e. the resources subtracted by politicians and public officials for private gain. On top of this there would be the “passive waste”, coming from inefficiencies in the administration of the resources, which is believed to account for the most part of the total amount of public resources wasted. Our estimates, therefore, should be considered a lower bound of the amount of waste potentially in place.

We analyze the case of EU funds to Southern Italy, because these funds offer a particularly suitable case to study the impact of extraordinary and large transfers from a central authority to local administrations and we focus on Southern Italy because this area has received particularly large amounts of EU financing. Our empirical analysis draws on detailed information about EU funds’ disbursements over the Italian territory between 2007 and 2014 and on a novel dataset collecting all criminal records at the local level. Exploiting within municipality over time variation, we estimate the impact of such large monetary transfers on the number of corruption (white collar) crimes.

Our estimates suggest that EU funds’ disbursements significantly increased the number of white collar crimes in the recipient municipality in a given year. In particular we find that the disbursement of EU funds to municipalities in southern Italy was associated with an increase of about 4% in the average number of white collar crimes per municipality and year. The result is mainly driven by funds targeting the realization of public works, rather than those devoted to transfers to firms and households and purchases of goods and services by public administrations. Interestingly, the estimated effect is homogeneous across dimensions that are commonly associated to varying propensity to malpractices (such as the efficiency of the local administration or social capital). On the other hand, we find some evidence that the recent application of an anti-corruption law partially offset the increase in white collar crimes.

A causal interpretation of the estimated relationship between EU funds disbursements and white collar crimes is potentially mined by two issues. First, omitted variables may simultaneously drive the assignment of funds and the incidence of corruption. For in-

stance, areas characterized by poorer socio-economic conditions generally display higher rates of criminal activity and also receive more funds. We account for this possibility by introducing a battery of time varying controls aimed at capturing differences in local socio-economic and political conditions that change from year to year while time invariant unobservable heterogeneity is absorbed by introducing municipality fixed effects. Moreover a falsification exercise shows that EU funds disbursements were not associated to any significant change in the incidence of other types of crimes (violent and property crimes), thus ruling out the possibility that some contemporaneous independent deterioration of the social and economic environment at the local level is the driver of the estimated relationship. Second, there may be a problem of reversed causality to the extent that more corrupt politicians manage to attract more resources to their municipality (Barone and Narciso, 2013). In this regard, the inclusion of municipality fixed effects should manage to capture any unobserved time invaring propensity to corrupt on the part of local politicians and thus, under the assumption that the propensity to illegal behavior remains constant over such a short period of time, rule out possible concerns about reversed causality. In the light of such evidence, therefore, we conclude that our estimates most likely reflect a causal relationship between EU funds disbursements and the emergence of white collar crimes in the recipient municipalities, and not just a spurious correlation between the two.

The remainder of the paper is structured as follows: Section 2 discusses the most relevant related literature; Section 3 describes the institutional setting; Section 4 introduces the data and some descriptive statistics; Section 5 presents our results; Section 6 provides some robustness checks and extensions; finally, Section 7 concludes.

2 Related literature

The existing empirical contributions on the determinants of corruption have highlighted different potential channels that may lead to the emergence and rise of corruption.

First, some scholars highlighted the role of institutions and of social or cultural norms. Fisman and Gatti (2006), for example, proved that in the presence of a more stringent regulation firms are less likely to engage in the bribing of public officials because their expected benefit from this is limited. Fisman and Miguel (2007), instead, highlighted how, even when acting in the same institutional environment, agents from high-corruption countries (on the basis of existing survey-based indexes) turn out to be systematically more likely to engage in corruptive behaviors.

Several contributions, then, have dig into the mechanisms of political economy that may underlie the raise of corruption. Ferraz and Finan (2011), for example, studied

the relationship between corruption and the electoral cycle, documenting a lower probability of corruption in the Brazilian municipalities in which incumbent mayors could get reelected. This evidence would point at the importance of electoral accountability in conditioning the behavior of politicians. Indeed, in another contribution ([Ferraz and Finan, 2008](#)), the same authors have shown that public exposure of corrupt politicians lowered the probability of them committing other corruption crimes in the future. In the same spirit, [Campante and Do \(2014\)](#) found that, in the US, more isolated capital cities are robustly associated with greater levels of corruption across US states on the grounds that isolation reduces accountability, while [Fisman and Gatti \(2002\)](#) highlighted that fiscal decentralization in government spending is significantly associated with lower corruption.

While bottom-up monitoring on the part of voters indirectly reduces corruption, also top-down monitoring has proved effective. [Avis et al. \(2016\)](#), for example, structurally estimated a model of political agency and corruption in the context of the Brazilian anti-corruption program and concluded that top-down monitoring, i.e. audits, significantly lower the probability of corruption. Similarly, [Olken \(2007\)](#), in a randomized control trial conducted in Indonesia, found that increasing government audits largely reduced the amount of missing expenditures, as measured by the discrepancies between official project costs and an independent engineers' estimate of costs, a proxy of corruption incidence.

By investigating the relationship between the accruing of large economic resources and corruption, our paper is closest to the works by [Brollo et al. \(2013\)](#) and [Isaksson and Kotsadam \(2018\)](#). The first estimated, again for the case of Brazil, the effect of transfers of intergovernmental funds to federal administrations on the propensity of local politicians and public officials to commit corruption crimes and find a positive sizable effect. [Isaksson and Kotsadam \(2018\)](#), instead, considered the instance of large foreign (Chinese) investments in Africa and found more widespread local corruption around active Chinese project sites. In this case, though, the authors suggest that the main underlying mechanisms would be a change in norms rather than the availability of financial resources per se.

From a more specifically policy oriented point of view, we also speak to the recent literature that has pointed at the existence of inefficiencies, in Italy, in the allocation and use of public funds received from a central government. [Carozzi and Repetto \(2016\)](#), for instance, showed that Italian municipalities that are birth towns of politicians in the national Parliament tend to receive higher transfers from the national government. [Barone and Narciso \(2013\)](#), instead, highlighted how the presence of organized crime in an area would attract more transfers to the local administration. As for the use of the

public resources provided by the central authority, [Rossi \(2006\)](#) provided a descriptive overview of the corruption cases spurred by the transfers that the administrations of the South of Italy received in the recent past.

More broadly speaking, our study provides additional insights to the debate on the effectiveness of the EU cohesion policy. The impact of structural funds in terms of employment and GDP growth has been shown to be generally moderately positive ([Becker et al., 2010, 2013](#)) across all EU countries. For what regards Italy, though, the results on the effectiveness of the EU financing schemes are generally less supportive than those found for the other EU regions ([Ciani and de Blasio, 2015](#)). Most importantly for our work, is that some recent literature revealed that there may be undesirable side effects of the policy: [Accetturo et al. \(2014\)](#), for example, showed that the disbursement of EU funds negatively affected the degree of civicness and social cooperation in the receiving area.

3 Institutional setting

The European regional policy² is aimed at promoting growth and investments and reducing economic and social imbalances among European regions. The policy is implemented through the so called structural funds, which are allocated by the European Commission to the member states on a 7 year basis.

Once funds have been assigned to member states, a crucial decision becomes the level of decentralization at which to manage the funds: a more decentralized management may leave more room for discretion and hence misbehaviours on the part of local politicians ([Mauro, 1998; Tanzi and Davoodi, 2000](#)), whereas a fully centralized system would reduce the degree of accountability of the local politicians. As a matter of fact, more than 75% of the 2007-13 EU budget referring to Italy has been managed by local administrations (amounting to 46 billion euro, including the national co-financing for around 18 billion). At least in principle, EU funds represent are an extraordinary disbursement of financial resources to local administrations as they are meant to finance additional investments on top of the structural expenditure which is instead financed through local and national budgets.³

To improve the effectiveness of the funding mechanism and exert the maximum level

²Details on the functioning of the policy can be found on the [EC dedicated webpage](#).

³The EC Regional Policy refers to this as the principle of “additionality” of the EU funds, by which contributions from the Funds must not replace public or equivalent structural expenditure by a Member State in the regions concerned. Yet, concerns have been raised that the EU structural funds may have relaxed the local budget constraint partly substituting the resources collected at the local level ([Del Bo, 2016](#)).

of effort from local administrators, the European Commission has set a mechanism of automatic withdrawal of funds, that takes place whenever member states do not report and certify the total spending of the assigned funds by the end of the programming period. Moreover, member states are in charge of auditing the use of funds according to rules decided at the European level and of signaling any irregularity to the European Commission.⁴ The threat of withdrawal should push national authorities to impose heavier regulations and requirements over the administration of the EU funds, and this should make corruption more difficult and costly. Moreover, in order to make the national policy makers feel more responsible about the use of the EU funds, it is established that member states and regions have to guarantee an adequate share of co-financing of the projects implemented with EU funds as a condition to receive the funds.

Despite these safeguard norms, the possibility of funds misuse should not be disregarded because the architecture of the EU funds allocation and spending is complex and involves many levels of government. This leads to major bureaucratic redundancies and to a high fractionalization of the expenditure which undermines the possibility of national authorities to adequately monitor the funds use (see, for instance, [Perotti and Teoldi, 2014](#)); moreover, although most projects are managed at the local level, more than 90 percent of co-financing comes from national resources and not from the local ones: this reduces the incentives for local authorities to monitor the spending of the funds and the implementation of the projects.

4 Data and descriptive statistics

Our dependent variable, the number of white collar crimes recorded for each municipality in each year between 2007 and 2014, is taken from SdI (Sistema d'Indagine), the archive of the Ministry of Interior that contains records of all the crimes committed in the national territory. This dataset, derived from the IT system used by the police for investigation activities, has two major advantages: first, because it reports all the open cases which are under investigation by the police, it provides an instantaneous picture of the criminal activity in the municipality, whereas most datasets on crimes only report arrests or convictions which are likely to occur with delay with respect to when the crime is committed. Secondly, our dataset is less subject to problems of underreporting of crimes because, on top of the reports filed by those who might be penalized by the offense, it also contains records of all the investigations opened by the police forces themselves. This is a particularly valuable aspect in the case of corruption crimes in that in such crimes neither

⁴Details on the functioning of the audit mechanism for the 2007-2013 programming period can be found in the [EC Regulation No 1828/2006](#).

the corrupter nor the corruptee have any interest in reporting the crime because they would both be guilty of a criminal offense. The classification of crimes available in the SdI is made directly by the Ministry of Interior on the basis of the respective applicable law. We thus identify as white collar crimes all crimes committed against articles 314-323 (crimes against public administration) and 479-481 (crimes against public faith) of the Italian penal code: these include corruption, bribery, embezzlement, abuse of authority and fraud.

To build our explanatory variable of interest, then, we use data on disbursements of EU structural funds published on Opencoesione, an on-line portal created in 2012 that contains geo-detailed information on the use of EU cohesion policy funds in Italy for the programming period 2007-2013. The available information includes type of financed project (public works, purchases of goods and services, subsidies for firms and workers etc.), localization (the receiving municipality), beneficiaries (public administrations or other subjects residing in the municipality), budgets and payments (inclusive of national co-financing) relative to all projects financed through structural funds. The data are reported bimonthly but, to link them with our crime data, we aggregate them on a yearly basis. In some cases a single project may involve more than one municipality so that it is not possible to recover the share of payment received by each single municipality. In these cases we imputed an equal share of payment to each municipality involved.⁵

We then merge this information with our crime data, that are currently only available for white collar crimes until 2014. We thus used data on payments made between 2007 and 2014 (because of the EU N+2 rule, payments referring to the 2007-2013 programming cycle could be made up to 2015).

Finally, we also use, as control variables, additional information at the municipality level referring to local population size, labor market participation, unemployment, educational attainment and political cycle, as well as regional GDP growth. Our control variables are taken from the Italian National Bureau of Statistics (ISTAT) and from the Italian registry of academic enrollments (MIUR).

The choice of considering only southern municipalities is mainly motivated by economic concerns due to the fact that in the Centre and North both the explanatory variable and the dependent one displayed very little variability. As a matter of facts, in the programming period 2007-2013, more than 70% of the total financing at the national level was allocated to the South. According to our data, EU funds disbursements amounted to about 64 euro per person per year in the South and only 10 euro in the Centre and the North. This implies that in the latter regions our explanatory variable

⁵We exclude projects that are managed at the national or regional level (which represent around 20 per cent of the EU funds addressed to Italian regions) and only split across municipalities those that are managed at the province level (about 5% of the remaining funds).

does not show enough variation to identify a meaningful empirical relation (Figure 1).

The same problem arises with regard to the dependent variable: Figure 2 shows the distribution of white collar crimes in the North and Center, in the left panel, and in the South, in the right panel. The graphs reveal that the number of white collar crimes recorded in the SdI dataset is generally very low, but also that these crimes are especially rare in the regions of central and northern Italy. Indeed, about 85% of the sample of municipalities in the Centre and North had no white collar crimes at all in any year. In the South this share was considerably lower, about 60%.⁶

Furthermore, excluding Northern and Central Italy reduces the degree of heterogeneity across municipalities in the sample in terms of their time varying characteristics, and in particular, of the different economic cycles experienced in the most recent years. Indeed, recent studies (Bank of Italy, 2014; SVIMEZ, 2015) have shown that the latest economic crises affected the South of Italy in a very different way from the rest of the country.

Table 1 reports the main descriptive statistics for the sample of interest, i.e. municipalities in southern Italy in the period 2007-2014. First, we report evidence on the frequency and size of EU funds disbursements. Transfers were limited in the first years of the programming period, in 2007 less than 30% of southern municipalities received money and the average amount was about 65,000 euro per municipality only. Such low level of funding in the first years mainly reflects the fact that the assignment of public tenders and other preparatory activities required time to be implemented. At the end of the programming period, indeed, over 90% of southern municipalities were receiving funds from the EU, with an average amount more than ten times bigger than at the beginning of the programming period, over 765,000 euro per municipality in 2014. We then provide evidence on the type of expenditures: around two thirds of the funds financed public works, the share being quite constant across years. Table 1 also shows the number of white collar crimes and all crimes per municipality by year. White collar crimes represent a minor fraction of the total criminal activity: in 2007 only 0.04% of total crimes. This share, nevertheless, increased over time up to more than doubling in 2011 when it reached 0.1% due to a simultaneous increase in the number of white collar crimes and a decrease in the number of total crimes. Figure 2 shows that the number of crimes is a highly discrete variable: in over 62% of the municipalities analysed there was never a white collar crime over the period of interest, and only in 6% of the municipalities there were more than ten crimes. These figures become even lower when we consider yearly

⁶The fact that most municipalities received no EU funds and that white collar crimes displayed such small variability implies that if we estimate our fixed effects model on the sub sample of municipalities in the Centre and North we lose about 90% of the observations, therefore remaining with a very selected sample. The correlation between EU funds and crimes that we estimate on that sample is a non significant -0.01, while it is a positive and significant 0.076** in the specification without municipality fixed effects, on a sample that maintains about 33% of the total number of observations.

variations: 87% of southern municipalities had no white collar crimes in one of the years considered, only 0.5% had more than ten in a single year.

We also present descriptive statistics on the set of covariates that we will employ as control variables in our main regressions. The rate of participation in the labor market, which averages 54% in the provinces of interest, the rate of unemployment, which spiked in the South from 10% in 2007 to 19% in 2014, the number of new college graduates per year in the municipality (only 5 new college graduates every 1,000 inhabitants) and the rate of GDP growth at the regional level, which fluctuated around zero over the years with the deepest negative peak in 2009. Moreover, we include in the table the statistics that refer to two features of the local political cycle: the number of years from the last local elections and the share of municipalities with a mayor who is at his second mandate (and thus cannot run for re-election).

Finally, in figure 3, we show that there exists a raw positive correlation between the incidence of white collar crimes and the amount of EU funds transferred to the municipality in the same year. Yet, this correlation is likely to be spurious for the reasons discussed in the introduction, and hence we propose below a more demanding empirical strategy with the aim of netting out possible confounding effects.

5 Empirical strategy

We aim to estimate the effect of EU funds on the insurgence of white collar crimes. If not efficiently assigned and sufficiently monitored, larger financial transfers from a centralized authority to local administrations may raise incentives for local public officers to seek rents out of them. As discussed in the introduction, the identification of a causal parameter is hampered by the possibility that there may be omitted variables that confound the relation between the amount of public funds received in a certain municipality and the incidence of white collar crimes and by the possibility that there may be reverse causality by which more corrupt politicians attract more funding from the EU.

To deal with omitted variables, our preferred specification will be one that exploits yearly variations in the amount of funds received by each municipality. The inclusion of municipality fixed effects will capture all the unobserved time invaring heterogeneity, while a set of time varying control variables is meant to account for changes over time in the socio-economic context. The EU funds represent a particularly suitable case study to analyze the effects of transfers from central to local governments in a regression with fixed effects because, as shown in table 1, the amount of funds that the EU disbursed to Southern Italy municipalities varied significantly from year to year. Indeed, unlike the transfers from the EU, the funding received from the national government for structural

expenditure, being based on previous disbursements and on the population size, exhibits very little yearly variation and its effect thus tends to be fully absorbed by the inclusion of municipality fixed effects in the regression.

As for reverse causation, we recognize that the possibility that money goes to the most corrupted administrations is a very real chance. This is indeed what was shown by [Barone and Narciso \(2013\)](#). Yet, in that paper, the authors establish a plausible long term relationship, while we focus on short time variations within municipalities. In other words, if we assume that the degree of corruptness of local politicians and officials is sufficiently persistent over time, the inclusion of municipality fixed effects will also rule out the possibility that the estimated coefficients actually capture a reverse causality relationship.

One critical aspect of our empirical strategy derives, then, from the nature of the distribution of our outcome variable: as shown in figure 2, the number of crimes is a highly discrete variable, ranging between 0, in most cases, and 78 (Naples in 2012). This implies that we cannot estimate the relation of interest by OLS, as the derived coefficients would be biased ([Cameron et al., 1988](#)). We thus choose to employ a specific regression model for count data so as to restrict the outcome variable $C_{m,t}$ to be nonnegative integer values. Specifically, we employ a Poisson regression model. With this empirical approach the parameter of interest b_1 will be interpretable as the elasticity of white collar crimes to EU funds.

Our main empirical specification, hence, is expressed as follows:

$$C_{m,t} = \exp \{b_0 + b_1 \log EU_{m,t} + b_2 X_{m,t} + \phi_t + \phi_m + u_{m,t}\} \quad (1)$$

where $C_{m,t}$ is the number of white collar crimes committed in municipality m in year t and $EU_{m,t}$ is the corresponding (log of) EU disbursements received by the same municipality in the same year. Such longitudinal specification allows us to absorb all the time-invariant unobservable differences across municipalities, ϕ_m , as well as any common time trend captured by the year fixed effects, ϕ_t . Therefore, the coefficient of interest, b_1 , will be estimated by exploiting only the variation in the outcome within municipality over time. It follows that only municipality and time varying unobservable characteristics can confound the estimates.

In this respect, a first concern is due to the fact that our estimation window covers the years of the economic crises whose consequences varied significantly across different areas. This may imply that corruption increased more in areas that were more severely hit by the crisis (as suggested by [Bai et al. \(2013\)](#) for the case of Vietnam), but also that more funds were transferred to those same municipalities to counterbalance the negative economic cycle. To address this concern, we control for the local economic conditions

by including in the vector of covariates $X_{m,t}$ the size of the municipality population, the rate of labour market participation and of unemployment, the level of educational attainment (incidence of new college graduates in the population), and a regional rate of GDP growth.

The second issue is then related to a possible direct effect of the local electoral cycle. Ferraz and Finan (2011), for example, find that in Brazil corruption cases are less likely to arise in municipalities where mayors can run for reelection. To control for the local electoral cycle, we also include in the vector of covariates $X_{m,t}$ the years from last elections and an indicator for second (and last) mandate mayors. Note, however, that white collar crimes as measured in the SDI archive include misconducts referring to both elected politicians and non-elected public officials. Therefore, the extent to which electoral aspects matter for our results is limited.

Controlling for potentially omitted variables is not our lonely line of defense. We also present the results we obtain from a placebo experiment, which uses as outcomes crimes different from corruption ones. The rationale of the placebo is very simple. Should the effect of EU funds on corruption be driven by a deterioration of the social and economic local environment - which will happen to be independent but concomitant with the receipt of EU funds, - then the results for corruption will likely be reflected in similar findings for the other crimes. If we are unable to find comparable results, then we can more safely trust that what we observe is truly the impact of EU financing.

6 Results

Table 2 reports the main results of the Poisson regression. First, note that the number of observations in this specification is lower than the total number of observations in the sample as reported in table 1 because some municipalities, about one quarter of the total, received no funds in some years and thus are dropped from the estimation sample. The sample further restricts significantly when we include municipality fixed effects because many municipalities had no white collar crimes records at all over the entire period of analysis.⁷

Column 1 shows the correlation between EU funds disbursements and the number of corruption crimes including only the population size as control to scale the variables of interest,⁸ together with year fixed effects to account for a common time trend. The

⁷The results in table 2, columns 1 and 2 are essentially unchanged when we employ the restricted set of observations, i.e. 6009.

⁸Our specification allows for a flexible relationship between population and the effect of funds. Yet, our results remain essentially unchanged if we impose linearity, i.e. if we consider funds per capita as explanatory variable.

estimated elasticity is 0.084 and it is highly significant. Column 2 adds indicators of socio-economic activity in the area, which vary over time. This leaves the coefficient essentially unchanged, equal to 0.073. Column 3, then, introduces municipality fixed effects, thus taking into account all the unobserved time invariant heterogeneity across municipalities (omitted variable bias) and, at least partly, the issues of possible reversed causation discussed in section 5. The inclusion of municipality fixed effects reduces the estimated coefficient by half, thus confirming that unobserved time invariant heterogeneity accounts for a large part of the relationship between the amount of EU funds received and the number of white collar crimes recorded. Yet, the coefficient of interest still remains positive and highly significant in statistical terms. The estimated elasticity is now 0.037. When we further include the time varying controls, in column 4, the coefficient is little affected and equal to 0.042.

According to our preferred and most conservative specification, therefore, the increase in the number of white collar crimes attributable to a 1% increase in disbursements is equal to 0.042%.⁹ This effect is about ten times smaller than the one found in [Brollo et al. \(2013\)](#) for the case of Brazil. Such discrepancy may be, at least partly, due to the fact that (i) the incidence of corruption is generally considerably larger in less advanced economies ([Transparency International, 2016](#)); (ii) the type of funds analyzed by [Brollo et al. \(2013\)](#) are presumably subject to less controls compared to the EU funds.

Some of the time varying characteristics included in the regression in column 4 enter with interesting impacts. We find that better economic perspectives, as signaled by a growing GDP and higher number of new college graduates, are associated to higher corruption. Interestingly, therefore, this correlation has opposite sign relative to that found by [Bai et al. \(2013\)](#) for Vietnam. We also find that municipalities with a mayor at her second mandate experience less corruption. Again this results is in contrast with the evidence on Brazil provided by [Ferraz and Finan \(2011\)](#), but is consistent with a setting in which mayors who cannot rerun for the same office run for higher political offices and moreover reflects the fact that our dependent variable includes not just corruption of politicians but of any public official in the municipality.

We then explore several dimensions of heterogeneity in our results in table 3. First, in columns 1 to 3, we distinguish between funds that were received by municipalities to finance public works and funds received for other purposes (mainly purchase of goods and services and subsidies to firms and households). We find that the effect of the EU funds on corruption passes through the former category of expenditures. This is

⁹In alternative specification, whose results we do not report for brevity, we estimate the same model of equation (1) using the standardized amount of the explanatory variable and find that a one standard deviation increase in the amount of funds generates an increase in the number of white collar crimes of about 11%.

an expected upshot: according to the last annual report of the Italian anti-corruption agency ([Autorita' Nazionale Anticorruzione, 2016](#)), indeed, corruption seems to be nested mainly in public works, whereas the procedure for the purchase of goods and services and those to channel the funds to private agents follow more standardized rules, that are less vulnerable to misconducts.

Second, we analyze the role of several mechanisms that might mitigate the increase in illegal practices. First (column 4) we consider the quality of the local administration. Recent empirical literature on the economic impact of structural funds has shown that differences in the quality of local institutions contribute to produce heterogeneous effects of the policy on GDP growth and on the local level of civicness ([Becker et al., 2013](#); [Accetturo et al., 2014](#)). We are thus interested in checking whether the effect of EU transfers on corruption changes depending on the degree of efficiency of the local administration in the provision of the public good. Indeed, more efficient municipalities generally show a higher level of administrative capacity and a lower degree of bureaucratic complexity that make corruption more costly ([Fisman and Gatti, 2006](#)). For instance, an entrepreneur wanting to build a EU-funded plant in a municipality that is relatively inefficient in the provision of public goods would face higher incentives to bribe local public officials rather than bearing the burden of red tape. As indicator for efficiency we use the number of days between the date of approval of a local tax¹⁰ that changes at the municipal level, and the deadline for the approval of the municipal budgetary plan, that is decided at the national level. Because in recent years the Italian law on real estate tax changed very frequently, we assume that the earlier a local administration was able to update the rules on local taxation the more it is efficient ([Messina and Savegnago, 2015](#)).¹¹ In our regressions a municipality is highly efficient if the number of days between the approval and the deadline is above the median value, this indicator is not time varying as data are only available for 2012. The coefficient associated to the interaction between the amount of funds received and the indicator of local administration efficiency, reported in column 4, is not significantly different from zero indicating that all municipalities, no matter their local level of efficiency, show the same elasticity between EU funds and corruption crimes.

A second aspect that may reduce the positive effect of funds on white collar crimes through the mechanisms of bottom-up monitoring discussed in section 2, is the vibrancy of the local civic life, as measured by the municipal rate of turnout at the 2011 referendum

¹⁰Specifically, we refer to the TASI, a locally collected real estate tax.

¹¹This indicator of local efficiency is available for all municipalities in 2012. For the overlapping sample of municipalities, the indicator correlates well with the measure of local efficiency calculated by [Barone and Mocetti \(2011\)](#) and with the index proposed by [Giacomelli and Tonello \(2015\)](#). When aggregated at the province level the indicator correlates well with the established proxies for public sector quality, such as [Giordano and Tommasino \(2011\)](#) and [Nifo and Vecchione \(2014\)](#).

(column 4). Referenda turnout is a long recognized measure of interest in the public good, which is exempt from particularistic interests and patronage motivations (Helliwell and Putnam, 1995). In the 2011 national referendum, citizens were asked to express their preferences on four relevant topics for the national political debate. Because the referendum contained four questions and people could respond to some of them only, we take the municipality average rate of response among the four questions and split the sample of municipalities into high and low civicness ones depending on whether they fall above or below the median. The interaction between the indicator of civicness and EU funds is not significant, thus suggesting that grassroots monitoring has no mitigating effect on corruption.

A complementary analysis that we perform focuses on the impact of the anti corruption law approved in 2012.¹² The law provided a number of restrictions in the possibility of assigning directive positions in public administrations to those who had held political responsibilities in the previous years. At the local level the law only applies to municipalities with more than 15 thousand inhabitants. This design allows us to implement a difference in differences estimation of the impact of the anti-corruption law at the local level and to identify whether this affected the estimated elasticity between EU funds and white collar crimes. Results are reported in table 4. In column 1 we show that the implementation of the law, in 2013 and 2014, generally decreased the number of white collar crimes in the municipalities where the law was applicable. The estimated impact is large enough to completely offset the one of the funds but not statistically significant. In columns 2 and 3, then, we estimated the differential effect of the EU funds depending on the application of the anti-corruption law. The coefficient of interest is thus the one associated to the triple interaction term. Interestingly, the coefficient is negative, suggesting that the implementation of the anti-corruption law did offset, to some extent, the effect of EU funds on corruption. Yet, the lack of statistical significance, does not allow us to make strong statements in this regard.

7 Robustness checks

As a robustness check we propose a falsification exercise that considers the impact of EU funds on other types of crimes that should not be associated with the accruing of financial resources to a given area. Specifically, we test the relationship between EU funds disbursements and all other crimes (column 1), property related crimes such as thefts and robberies (column 2) and violent crimes (column 3). The underlying intuition is that if we were to find an impact of EU funds on crimes like robberies or violent

¹²Law 190 of 2012, see ANAC for its [application to municipal governments](#).

crimes that would cast doubts on the credibility of our argument. For instance, to the extent that a declining economy makes the residents find it more acceptable to live on a criminal activity, an observed positive correlation between EU funds and corruption would be driven by a deterioration of the regulative and market environment rather than the receipt of transfers per se. The results show no effect at all on both variables.¹³

A second concern regards the possibility that the arrival of large transfers induces an increase in the supervision and thus in the rate of detection of criminal activity at the local level. To, at least partially, rule out this concern, we collected the data on the funds allocated to some municipalities (around 250 in Southern Italy between 2007 and 2014) through the EU-funded National Security Program (PON Sicurezza) and find little correlation (0.1) between these and the EU structural funds disbursements and no significant relationship between the funds for security and the number of white collar crimes.

8 Conclusions

Plans of large financial transfers from a central unit of government to lower levels of government are generally used to mitigate differences across regions within a country, federation of states or union of countries, as the EU. Yet, such transfers come with the risk of exacerbating the agency problem due to the fact that the funds are collected at a higher level and then managed locally with typically little transparency on the actual amount of resources received by each local area. This moral hazard problem may increase incentives for local administrators to extract rents from the funds received. While systems of safeguards and monitoring are generally put in place to contrast such risks, growing evidence suggests that illegal practices and rent seeking are still often associated with the receipt of transfers from a central government.

In this paper we investigate the relationship between financial transfers from a central level of government to local administrations and the coincident occurrence of white collar crimes at the same local level drawing from the case of EU funding to Southern Italy. The 1986 Single European Act defined the aim of the EU cohesion policy as that of reducing disparities between the various regions and the backwardness of the least-favored regions. It thus established that resources should be transferred to areas that were most lagging behind in terms of economic development. The South of Italy has been one of the largest recipients of EU funds: in the most recent programming period it received 25 billion euro out of the 35 billion total allocated to Italy and managed at the local level. The empirical analysis exploits a unique administrative dataset of criminal episodes in Italy and matches

¹³Note that the sample significantly shrinks because data on other crimes are only available until 2011.

them to the records of all the transfers from the EU to each single municipality over the period 2007-2014.

We find evidence of a significant positive relationship between EU funds and the occurrence of corruption and fraudulent behaviors in the recipient municipality in the same year. We acknowledge that the evidence we provide cannot be taken as fully conclusive, given the possible simultaneity of criminal activities and funds assignment and disbursements. Yet, the robustness analysis we performed provided evidence that the correlation between transfers and corruption that we estimate is likely not just spurious or due to confounding effects.

In terms of external validity of our exercise, an important aspect to take into account is that EU projects are heavily controlled and processed (see, for instance, the [European Commission portal on cohesion policy](#)). This consideration suggests that the effect we estimate might represent a lower bound of the impact of extraordinary transfers on corruption relative to what would happen in the absence of such controls. Indeed, similar evidence from other countries and transfers schemes has produced significantly larger estimates.

In regard to the EU cohesion policy, our results, in turn, add to a growing body of previous literature suggesting that, while their final effectiveness in fostering growth appears to be limited, transfers might also have unintended negative consequences on local institutional quality and social capital endowments. In particular, our study documents - for the first time in a systematic way - that EU funding has entailed some waste of resources, “lost in corruption”. Yet, such effects may be offset with more careful procedures of assignment, disbursement and management of the funds that increase the accountability of local administrators and thus mitigate the underlying agency problem.

Figures and tables

Figure 1: EU funds disbursements per municipality, total over the period 2007-2014 (hundreds of thousands).

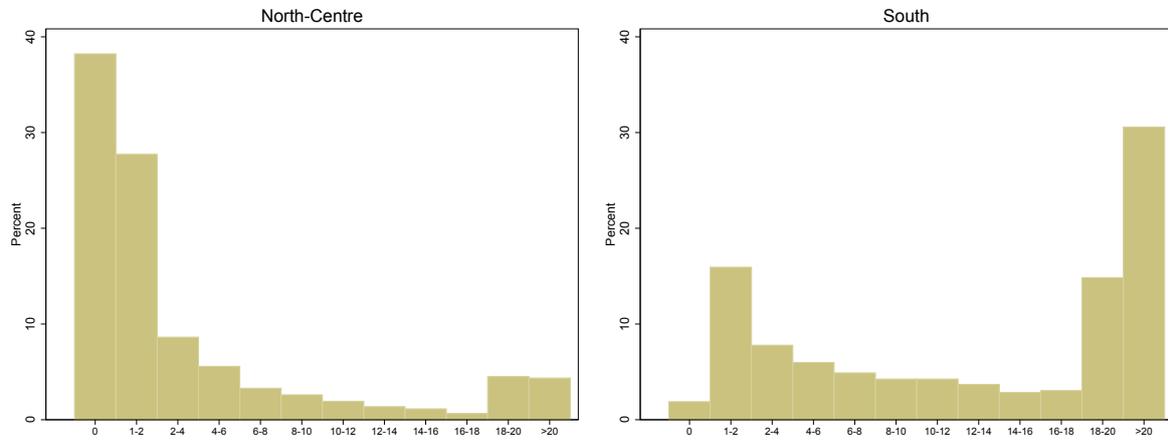


Figure 2: Number of white collar crimes per municipality, total over the period 2007-2014.

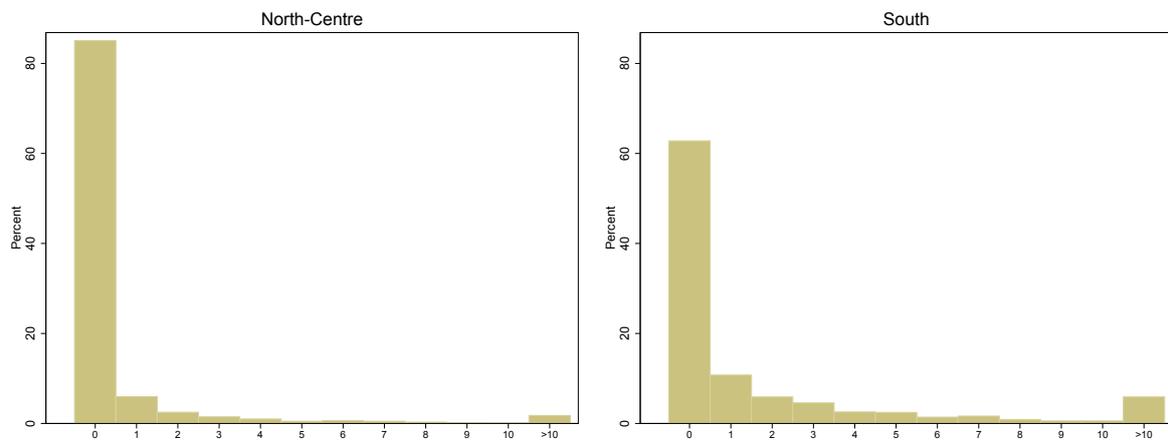
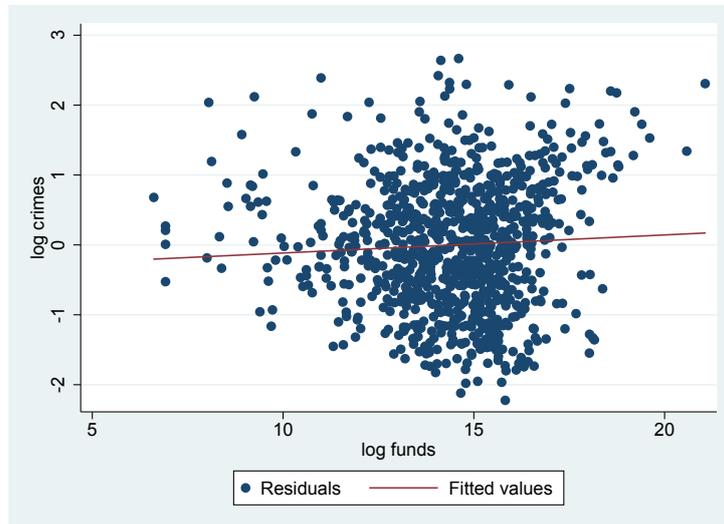


Figure 3: White collar crimes and EU funds



Notes: Variable on the y axis is the residuals from OLS regression $\log Crimes_{m,07-14} = b_0 + b_1 \log pop_{m,07-14} + e_{m,07-14}$; variable on x axis is $\log Funds_{m,07-14}$.

Table 1: Descriptive statistics by year, Southern regions only.

	2007	2008	2009	2010	2011	2012	2013	2014	Total
EU funds recipient	0.288 (0.453)	0.495 (0.500)	0.693 (0.461)	0.803 (0.398)	0.860 (0.347)	0.921 (0.269)	0.911 (0.285)	0.922 (0.268)	0.737 (0.440)
EU funds received, thousands	65.32 (422.3)	211.1 (1365.6)	433.0 (2608.6)	608.2 (6248.5)	735.0 (6896.2)	854.0 (6697.7)	962.6 (8094.0)	765.3 (5238.3)	579.3 (5407.0)
EU funds public works, thousands	40.37 (362.6)	155.4 (1129.5)	275.6 (1854.6)	446.8 (5419.8)	517.8 (5698.1)	498.6 (4370.0)	548.1 (5114.3)	489.4 (3555.8)	371.5 (3949.6)
EU funds other, thousands	24.97 (164.7)	55.73 (392.9)	157.4 (940.3)	162.0 (1020.0)	217.6 (1484.4)	355.9 (2608.3)	416.0 (3238.0)	276.1 (1997.8)	208.2 (1792.7)
White collar crimes	0.192 (1.412)	0.275 (1.723)	0.299 (1.885)	0.295 (1.916)	0.449 (1.943)	0.488 (2.455)	0.450 (1.840)	0.463 (2.252)	0.364 (1.953)
Total crimes	461.4 (2808.3)	430.6 (2621.0)	401.9 (2344.7)	402.7 (2321.0)	434.7 (2492.2)	.	.	.	426.3 (2523.6)
Labor market participation	54.19 (4.745)	54.47 (5.456)	53.11 (5.374)	52.84 (5.548)	53.10 (5.734)	55.04 (5.634)	54.01 (4.906)	54.54 (5.063)	53.91 (5.373)
Unemployment	10.40 (2.549)	11.49 (2.689)	11.84 (2.912)	12.60 (2.969)	12.71 (2.532)	16.11 (3.606)	18.28 (4.204)	19.48 (4.533)	14.14 (4.596)
New college graduates per 1,000 population	4.240 (2.032)	4.408 (2.083)	4.852 (2.205)	5.027 (2.237)	5.167 (2.273)	5.252 (2.252)	5.117 (2.232)	1.079 (0.962)	4.393 (2.448)
Yearly regional GDP growth	3.166 (0.683)	1.097 (1.400)	-2.755 (0.745)	0.123 (1.152)	1.087 (1.483)	-0.851 (0.774)	-1.273 (0.766)	-0.381 (0.894)	0.0266 (1.968)
Years from elections	1.920 (1.418)	2.266 (1.519)	2.102 (1.688)	2.254 (1.769)	2.324 (1.940)	2.572 (2.066)	3.004 (2.258)	2.937 (2.567)	2.427 (1.976)
Second mandate mayor	0.0558 (0.230)	0.0959 (0.295)	0.175 (0.380)	0.228 (0.420)	0.291 (0.454)	0.318 (0.466)	0.331 (0.471)	0.354 (0.478)	0.231 (0.422)
Observations	2492	2492	2492	2492	2492	2492	2492	2492	19936

Notes: mean coefficients; sd in parentheses. Data on non white collar crimes not available for 2012, 2013, 2014. Labor market participation and unemployment are at the province level.

Table 2: Baseline results. Panel 2007-2014.

	(1)	(2)	(3)	(4)
White collar crimes				
log disbursements	0.084*** (0.020)	0.073*** (0.018)	0.037** (0.016)	0.042** (0.017)
log population	0.948*** (0.034)	0.964*** (0.033)	1.510 (1.804)	1.170 (1.853)
Labor market participation		-0.011 (0.007)		0.008 (0.016)
Unemployment		-0.033*** (0.011)		-0.027* (0.015)
Years from elections		0.003 (0.014)		-0.009 (0.016)
Second mandate mayor		-0.104 (0.073)		-0.174* (0.101)
New college graduates per 1,000 population		0.100*** (0.026)		0.047* (0.026)
Yearly regional GDP growth		0.004 (0.028)		0.046** (0.022)
Observations	14687	14462	6123	6009
Year FE	y	y	y	y
Controls	n	y	n	y
Municipality FE	n	n	y	y
Number of municipalities			895	891

Notes: Poisson regression, dependent variable is the number of white collar crimes in municipality i in year t . Labor market participation and unemployment rate at the province level. Standard errors clustered at municipality level in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Heterogeneous results.

	(1)	(2)	(3)	(4)	(5)
	Type of funds			Efficiency	Civicsness
log disbursements				0.054** (0.022)	0.032* (0.019)
log funds for public works	0.027* (0.015)		0.017 (0.015)		
log other funds		-0.007 (0.019)	-0.016 (0.021)		
log disbursement*interaction				-0.017 (0.035)	0.033 (0.029)
log population	2.588 (1.895)	-0.034 (2.151)	1.268 (2.323)	2.917 (2.152)	1.202 (1.859)
Observations	4691	5111	3807	4570	6009
Number of municipalities	761	829	695	677	891
Year FE	y	y	y	y	y
Controls	y	y	y	y	y
Municipality FE			y	y	y

Notes: Poisson regression, dependent variable is the number of white collar crimes in municipality i in year t . Controls are rate of labor market participation and unemployment rate at province level, number of new college graduates per 1,000 inhabitants, yearly regional GDP growth. Interaction indicates being highly efficient (column 4) and having high social capital (column 5). Standard errors clustered at municipality level in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 4: Impact of anti-corruption law.

	(1)	(2)	(3)
	White collar crimes		
log disbursements	0.042** (0.017)	0.070*** (0.021)	0.067*** (0.021)
population >15,000 × post 2013	-0.066 (0.111)	0.283 (0.614)	0.514 (0.650)
population >15,000 × log disbursements × post 2013		-0.024 (0.045)	-0.040 (0.048)
population >15,000 × log disbursements		-0.071*** (0.023)	-0.060** (0.024)
post 2013 × log disbursements		0.009 (0.037)	0.026 (0.039)
log population	1.288 (1.883)	1.584 (1.867)	1.134 (1.919)
Observations	6009	6123	6009
Number of municipalities	891	895	891
Year FE	y	y	y
Controls	n	n	n
Municipality FE	y	y	y

Notes: Poisson regression, dependent variable is the number of white collar crimes in municipality i in year t . Controls are rate of labor market participation and unemployment rate at province level, number of new college graduates per 1,000 inhabitants, yearly regional GDP growth. Standard errors clustered at municipality level in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 5: Robustness checks: placebo.

	(1)	(2)	(3)
	Other crimes	Property crimes	Violent crimes
log disbursements	0.001 (0.003)	0.003 (0.003)	-0.007 (0.005)
log population	1.149*** (0.431)	1.011** (0.457)	1.461* (0.749)
Observations	3342	3342	3335
Number of id_comune	831	831	828
Year FE	y	y	y
Controls	y	y	y
Province FE	n	n	n
Municipality FE	y	y	y

Notes: Poisson regression, dependent variable is the number of white collar crimes in municipality i in year t . Sample is restricted to years 2007-2011 as data on non white collar crimes are not available for other years. Controls are rate of labor market participation and unemployment rate at province level, number of new college graduates per 1,000 inhabitants, yearly regional GDP growth. Interaction indicates being highly efficient (column 4) and having high social capital (column 5). Standard errors clustered at municipality level in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

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