Fiscal Decentralization in Weak Institutional Environments: Evidence from Southern Italy ♠

Sergio Beraldo

University of Napoli "Federico II" & ICER (s.beraldo@unina.it*)*

Massimiliano Piacenza

University of Torino (piacenza@econ.unito.it*)*

Gilberto Turati

University of Torino (turati@econ.unito.it*)*

Abstract. The quality of the institutional environment is a crucial issue in understanding the effective outcome of fiscal decentralization initiatives. However, there has been so far very little work on the subject. In this paper we contribute to fill this gap by considering the municipalities belonging to three provinces in Southern Italy and proxying the presence of a weak institutional environment with the capture of the local government by Mafia-type organizations. The analysis exploits an unforeseen change in fiscal policy by central government increasing Vertical Fiscal Imbalances and tests whether the effects of the lower tax decentralization on municipal spending are conditioned by the quality of the institutional environment. We find no sensible effects when the institutional environment is weak; on the contrary, a 4-6% increase in average spending per capita is estimated as a consequence of the lower tax autonomy in municipalities not captured by Mafia clans. The evidence is robust both to controls for potential confounding factors and sensitivity analyses. Overall, our findings suggest that some caution is needed before deciding to devolve more fiscal power to lower tiers of government.

JEL codes: D73, H40, H71

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1. Introduction

In line with the suggestions coming from a massive literature, and for reasons contingent on current historical circumstances, decentralization has become in recent years a seemingly non-controversial formula to foster the well-being of citizens, a prescription inspiring many reforms affecting the architecture of political power in both developing and developed countries (e.g., World Bank, 2000). According to the traditional view (the so-called First Generation Theory of Fiscal Federalism; e.g., Oates, 1972, 1999), by conferring decision-making authority to local governments (who, presumably, have better information with respect to citizens' preferences), decentralization is a straightforward way to achieve substantial welfare gains compared to centralization. More recent research (the Second Generation Theory of Fiscal Federalism; e.g., Oates, 2005; Weingast, 2009) equally emphasize the benefits of decentralization, by focusing however on the alignment between spending and funding responsibilities. Such benefits would be the result of increasing electoral accountability of incumbent local politicians, who - under decentralized taxing powers - would bear the responsibility of raising the revenues needed to finance public expenditures.

Despite both their rigorous theoretical foundations and the support received from empirical investigations, suggesting the importance of Vertical Fiscal Imbalance (VFI) in explaining an effective positive impact on accountability (e.g., Jin and Zou, 2002; Borge and Rattsø, 2008; Eyraud and Lusinyan, 2011; Boetti *et al.*, 2012, for the Italian case), the above arguments prove unsatisfactory in explaining the real outcomes of many decentralization initiatives, especially when these take place in developing countries (e.g., Bardhan, 2002). The main reason advanced by a recent strand of literature (e.g., Bardhan and Mookherjee, 2006a, 2006b) has to be found in their complete disregarding of a crucial element: the greater accountability deriving from decentralization – a key ingredient to support any initiative of this kind – might be actually offset by the capture of policy-makers by local interest groups. If this is the case, the potential advantages of having local governments more accountable towards citizens may be displaced by the former being more prone to the *desiderata* of local oligarchs. Wherever such a bias exists, reflecting control of the ruling elite over a decisive source of power (either material resources or ideology for example), decentralization may well lead to a reduction in social welfare.

Even though the extent of capture of local governments is another crucial element (besides the VFI) in understanding the likely impact of fiscal decentralization, there has

been little work on the subject. Scholars have traditionally focused on the reverse relationship, studying the effects of decentralization on corruption (e.g., Treisman, 2000; Fisman and Gatti, 2002; Fan *et al.*, 2008; Kotsogiannis and Schwager, 2008). On the contrary, the question of whether the outcome of decentralization is contingent on the features of the institutional environment (which – by establishing the incentive structure for the relevant agents at both the central and the local level – determines *de facto* also the degree of corruption) has been neglected so far in the literature. In this paper we contribute to fill this gap, by considering contexts where a particular type of local oligarchs rule using violence, and try to influence choices of local governments, in a country, like Italy, which has experienced an ongoing process of decentralization starting from the Nineties.

In particular, our empirical analysis is focused on the municipalities belonging to three provinces in Southern Italy – Naples, Caserta and Salerno – where mafia-type organizations (the *Camorra clans*) are remarkably active. We study whether the presence of such elites at the municipal level affects the outcome of tax decentralization in terms of spending performance, by exploiting a *quasi-natural experiment* involving municipalities: the unforeseen exemption of the main residence from the local property tax (the *Imposta Comunale sugli Immobili*, ICI) implemented by the central government in 2008. According to the Second Generation Theory of Fiscal Federalism, by increasing the VFI, such a policy change should have implied lower incentives to control spending because of a reduced accountability of local politicians towards citizens-voters. In order to test whether this conclusion holds true depending on the quality of the institutional environment (as suggested by, e.g., Bardhan and Mookherjee, 2006a, 2006b), we need to identify municipalities in which Camorra clans are able to severely affect the functioning of the local government. To do so, we take advantage of the Law 221/1991, which established that the municipal council can be dismissed whenever there are reasons to believe that Mafia-type organizations are able to influence (or control) a relevant part of council members, with sensible effects either on the functioning of the council itself or on the decisions it takes. This allows us to separate municipal governments *not captured* by Mafia-type organizations, which are potentially accountable toward citizens (the "strong" institutional environments), from those *captured* by Mafia-type organizations, which are expected not to be affected by the policy change (the "weak" institutional environments).

Taking a *Difference-in-Differences* (DiD) approach, we provide evidence supporting the view that the quality of the institutional environment matters in determining the outcome of fiscal decentralization. In particular, we show that lowering the degree of tax decentralization in *strong* institutional environments brings about a 4-6% increase in the average yearly value of municipal expenditure per capita. On the contrary, we find that the change in the degree of tax decentralization does not affect spending performance where the institutional environment is weak. In other words, municipalities not captured by the Mafia react in the expected way to the incentives weakening accountability towards citizens, whereas municipalities subject to capture by Camorra clans are not significantly affected by the policy change. This result is robust controlling for several social and political variables, as well as for unobserved heterogeneity across municipalities. A *placebo* test performed by making use of a *fake* treatment group – i.e., two populations both captured by the Mafia and thus expected not to differ in the reaction to the policy change – further confirms the robustness of our findings.

The remainder of the paper is structured as follows. Section 2 is devoted to discuss the relevant literature. Institutional details on some key characteristics of the Italian local governments are illustrated in Section 3. The empirical analysis is presented in Section 4, together with a discussion of the results. Section 5 concludes.

2. Relevant background

According to the Second Generation Theory of Fiscal Federalism, the *centralisation vs. decentralisation* issue has to be seen as a problem of comparing the benefits from a greater coordination of policies under centralisation with the higher degree of electoral accountability of local politicians obtainable through fiscal decentralisation (e.g., Oates, 2005; Besley, 2006; Weingast, 2009). Hence, from a normative point of view, decentralisation should be pursued not only when there are differences in tastes for local services (as the First Generation Theory suggests), but also as an effective tool to achieve a better control of voters on politicians' performance. As Weingast (2009) puts it, «subnational governments that raise a substantial portion of their own revenues – i.e., *with a low degree of Vertical Fiscal Imbalance* – tend to be more accountable toward the citizens, to provide market-enhancing public goods, and to be less corrupt».

In point of fact, a recent strand of economic literature investigating the relationship between decentralization and corruption has provided less clear-cut results. According to

theoretical contributions by both Cooter (2003) and Kotsogiannis and Schwager (2008), we should expect a negative relationship between decentralization and corruption. This claim is confirmed by cross-country estimates carried out by Fisman and Gatti (2002): using a number of different indices to measure corruption, they show that fiscal decentralization is strongly and significantly associated with lower corruption. On the contrary, Treisman (2000) finds that federal states are on average more corrupt than unitary ones, suggesting that the competition between autonomous levels of government to extract bribes leads to "overgrazing of the commons". Similarly, Fan *et al.* (2009) by considering 80 countries at a different stage of development, have found more frequent bribery in countries with a larger number of governments or administrative tiers , basically suggesting the danger of uncoordinated rent-seeking as government structures become more complex. Even though their work recognizes that local officials might be more susceptible to corruption than their central counterparts – as interest groups may be more cohesive at the local level, leading to a greater government capture – this recognition is not properly explored. By limiting the analysis to test whether more numerous sub-national bureaucracies are associated with more frequent and costly bribery, the issue of whether the institutional quality has any influence on the level of corruption is basically sidestep.

It is worth emphasizing that scholars have so far mainly focused on the effects of decentralization on corruption, so neglecting the question of whether the outcome of decentralization is contingent on the features of the institutional environment. Indeed, as Lago-Penas *et al.* (2011) point out, the level of corruption and its dynamics may determine the balance between advantages and disadvantages of fiscal decentralization. While in the long-run the net gain will depend on the capacity of decentralization to stimulate citizens' participation to (and control of) the political process, thus reducing corruption, in the short run the weaker the institutional environment (as proxied, for instance, by greater corruption), the weaker the benefits of decentralization, since the elite capture of local governments may result in a decline of both economic efficiency and equity (Bardhan and Mookherje, 2006a, 2006b). There are therefore grounds to argue that, by defining the incentive structure at both the central and the local level, the institutional environment *de facto* determines the responsiveness of the relevant decision-maker towards citizens, hence the benefits accruing from any decentralization initiative. The present paper relies on this different perspective in analyzing whether the features of the institutional environment

affects the outcome of fiscal decentralization. To the best of our knowledge no attempts have been made before to address this issue from an empirical perspective.

3. Italian municipalities and the influence of Mafia-type organizations

Municipalities are the level of government closest to citizens in the Italian system of governments. They are in charge of a wide array of services, such as administrative services (including, for instance, the registry office), waste management and social services (like childcare and elderly care). According to aggregate national data, until 2008 about two thirds of municipal expenditures were funded with autonomous revenues. These own revenues accrued for the most part from a local property tax, the so-called *Imposta Comunale sugli Immobili* (ICI). This tax applies to both household and business properties, according to a set of general rules defined at the national level. Municipalities can however freely modify the tax rates, within a given range, as well as adjust tax credits for the main residence. Before being partially suppressed in 2008, ICI brought about almost one fourth of total municipal revenues[1].

Any municipality is governed by a mayor supported by an elected council holding office for five years. Elections take place before the natural end of the mandate in two cases: a) whenever the majority of the council members distrust the mayor; b) whenever the President of the Italian Republic, following the suggestion of the Ministry of Domestic Affairs, decide with a Decree to dismiss the municipal council. According to the Law 142/1990, this can happen only when the council either (1) is responsible of acts contrary to the Italian Constitution or persistently violates current Italian law; or (2) is unable to approve the budget or, more generally, is unable to fulfil its duties. Since the Law 221/1991 (modified with the Legislative Decree 267/2000) the municipal council can also be dismissed when (3) there are reasons to believe that Mafia-type organizations are able to influence (or control) a relevant part of council members with sensible effects either on the functioning of the council itself or on the nature of the decisions it takes. When the municipal council is dismissed for these reasons, a commission composed by three external members is appointed to rule the municipality for 18 months, until new elections are held. The aim pursued by the Italian legislator is to "clean out" the environment before

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[1] Other two important local taxes are represented by a surcharge on the Personal Income Tax (*Addizionale Comunale IRPEF*) and by a specific tax for waste collection and management (*TARSU*). As for the first, Municipalities can only slightly modify the tax rate. As for the second, it is computed relying on a vague proxy of waste production.

fair elections can take place: this would require getting rid of the circumstances which made it possible for Mafia-type organizations to influence the activity of the city council.

However, as it has been emphasized in many official reports (e.g. Parliamentary Commission, 2005), the available evidence shows that the dismissal of the municipal council never represents, by itself, a way to stop the influence of Mafia-type organizations. The reason must be found in the fact that these kind of organizations are not something put in a given context from outside. These organizations come into existence (and acquire extensive power) because, within a community, shared values and informal social norms are such as to allow the existence of a broad social support to (closed) elites whose primary objective is that of conditioning the allocation of resources – hence also the activity of the policy-maker – through the use (or the menace) of violence, which is what really distinguishes a Mafia-type organization from any other ruling elite[2]. Indeed as such norms and values persist over long periods of time, the decision to dismiss the council in order to stop the influence of Mafia-type elites on the policy-maker cannot be decisive. Note that it is not infrequent that the council of a given municipality is dismissed more than once.

Since the control of Mafia-type organizations is a structural characteristic of a given municipality, the dismissal of the city council at least once, up to 2009, is used in this work as a signal for a *weak institutional environment* in that municipality. By "weak" environment we therefore mean a context where the allocation of resources is crucially determined by a set of norms generating a social outcome different from any other which might be achieved through the combination of both generalized (non-personalistic) voluntary exchanges and (legal) codified procedures for policy making (on this see also Gambetta, 1996). The implications of such institutional weaknesses is that of distorting the fiscal exchange between local politicians and voters, so undermining the potential increase of electoral accountability that could be reached by enhancing tax decentralization.

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[2] According to the pluralist view of the ruling elite model (e.g., Dahl, 1958), in order to establish the existence of a ruling elite, it is sufficient that the following conditions are satisfied: the hypothetical ruling elite constitutes a well-defined group; there is a sample of cases involving key political decisions in which the preferences of the ruling elite run counter to those of any other likely group that might be suggested; the preferences of the elite regularly prevail.

4. Empirical strategy

This study relies on a *Difference-in-Differences* approach in the attempt to identify the impact of a reduction in tax decentralization on spending performance across different groups of municipalities. In particular, we exploit here a sort of *quasi-natural experiment* looking at the impact of an unexpected change in fiscal policy. Starting from year 2008, the central government totally exempted the citizens from the payment of ICI on their main residence, thus causing a significant decrease in the availability of own resources for the municipalities, that were mainly replaced by higher transfers from the central government. This (exogenous) reduction observed in the degree of fiscal autonomy of the municipalities in funding their own expenses corresponds to an increase in VFI, and – according to SGT of fiscal federalism discussed above – should imply lower fiscal incentives to be accountable towards the citizens/voters by controlling wastes in spending. As it is common in the literature investigating the effects of fiscal decentralization, we use the current per-capita municipal expenditure (*MEXP*) as a proxy for assessing government efficiency (e.g., Borge and Rattsø, 2008, for utility services provided by the municipalities in Norway; Bordignon and Turati, 2009, for healthcare services provided by the Italian regions).

Following the argument by Bardhan and Mookherjee (2006a) – i.e., that in weak institutional environments the accountability effect of tax decentralization may be displaced by the favour of local governments towards powerful local oligarchs, such as Mafias in Southern Italy – our aim here is to identify the role, if any, played by institutional quality in affecting the outcome of tax decentralization. To do so, we exploit Law 221/1991 and classify municipalities in two different groups according to the indicator variable *INSTQUAL*: those characterised by a "strong" institutional environment (*INSTQUAL* = 1) and those characterised by a "weak" institutional environment (*INSTQUAL* = 0). The former includes local governments whose council has *never been dismissed*, and which are likely *not to be captured* by the Camorra clans. Thus, these are municipalities potentially accountable toward citizens and sensible to the policy change. In this sense, they represent our "treatment group", the treatment being the increase in VFI following the exemption of the main residence from the municipal property tax in 2008. The latter group (*INSTQUAL* = 0) embraces municipalities whose council has been dismissed at least once, and which are likely to be *captured* by the Mafia elites. According

to theory, these local governments are likely not to be accountable towards their citizens but towards local oligarchs, hence they should not be responsive to the policy change. In this sense, they represent our "control group".

The identification of the treatment effect – here represented by the lower tax autonomy for municipalities – is based on the inter-temporal variation between the two groups, i.e., jumps observed in the trend of the current per-capita municipal expenditure that happen for municipalities with a "strong" institutional environment by not for those with a "weak" environment, when the treatment kicks in. Notice that, in comparing changes, we control for several observed characteristics that vary both across municipalities and time (i.e., demographic and socio-economic factors, spatial features, fiscal restraints, political and electoral variables) and might be correlated with tax decentralization as well as with the outcome variable. Time-invariant effects specific to each municipality are also included so as to control for residual unobserved heterogeneity across local governments. We also control for year fixed effects capturing all time-varying factors that are common to treatment and control groups. As a final sensitivity analysis, we perform a *placebo* DiD using a *fake* treatment group – i.e., two groups both *captured* by the Mafia elites and thus expected not to differ in the reaction to the policy change – which allows us to test possible biases in the original DiD.

4.1. Data and descriptive evidence

We collected information on expenditures, revenues, institutional quality and various socio-demographic, spatial, fiscal and political features for a panel of 348 municipalities belonging to the provinces of Naples, Caserta and Salerno, i.e., those provinces with the highest number of municipalities whose council has been dismissed because of the control by Mafia-type organizations. In particular, our sample includes 289 municipalities with a "strong" institutional environment (for a total of 1839 observations) and 59 municipalities characterised by a "weak" institutional environment (for 380 observations). The time span covers years from 2003 to 2009: the first five years (2003-2007) are characterised by a *higher degree of tax decentralization*, since also the main residence was included in the local property tax base; the last two years (2008-2009) are interested by the unexpected policy change implemented by the central government, which excludes the main residence from the ICI tax base, thus implying a *lower degree of tax decentralization*. We identify the two sub-periods with the dummy variable *DECENTR*, as a mnemonic for tax decentralization:

DECENTR = 1 indicates the period 2003-2007, while *DECENTR* = 0 is for the years 2008-2009.

Our primary data sources are the budgets of Italian municipalities published by the Ministry of Domestic Affairs (the so-called *Certificati di Conto Consuntivo*) and the statistics on the dismissed municipal councils because of Mafia influences published by the Anti-Mafia Commission of the Italian Parliament. Other complementary information about different characteristics of the municipalities has been obtained by both the regional datasets elaborated by the Italian National Institute for Statistics (Istat) and the Historical Archive of Elections published by the Ministry of Domestic Affairs.

Table 1. Own revenues from local property tax (ICI) by tax decentralization and institutional quality: average share on total current revenues and average value per capita [a]

| | DECENTR | | | |
| | 1 | | 0 | |
INSTQUAL	ICI share	ICI per capita (€)	ICI share	ICI per capita (€)
1	0.16	108	0.13	100
0	0.18	106	0.15	98
All groups	0.17	107	0.14	99

[a] *INSTQUAL* = 1 indicates municipalities characterised by a "strong" institutional environment, while *INSTQUAL* = 0 those with a "weak" institutional environment. *DECENTR* = 1 refers to the 2003-2007 sub-period, when the property tax applied also on the main residence; *DECENTR* = 0 refers to 2008-2009, when tax decentralisation has been reduced.

Table 2. Revenues from Central government transfers by tax decentralization and institutional quality: average share on total current revenues and average value per capita [a]
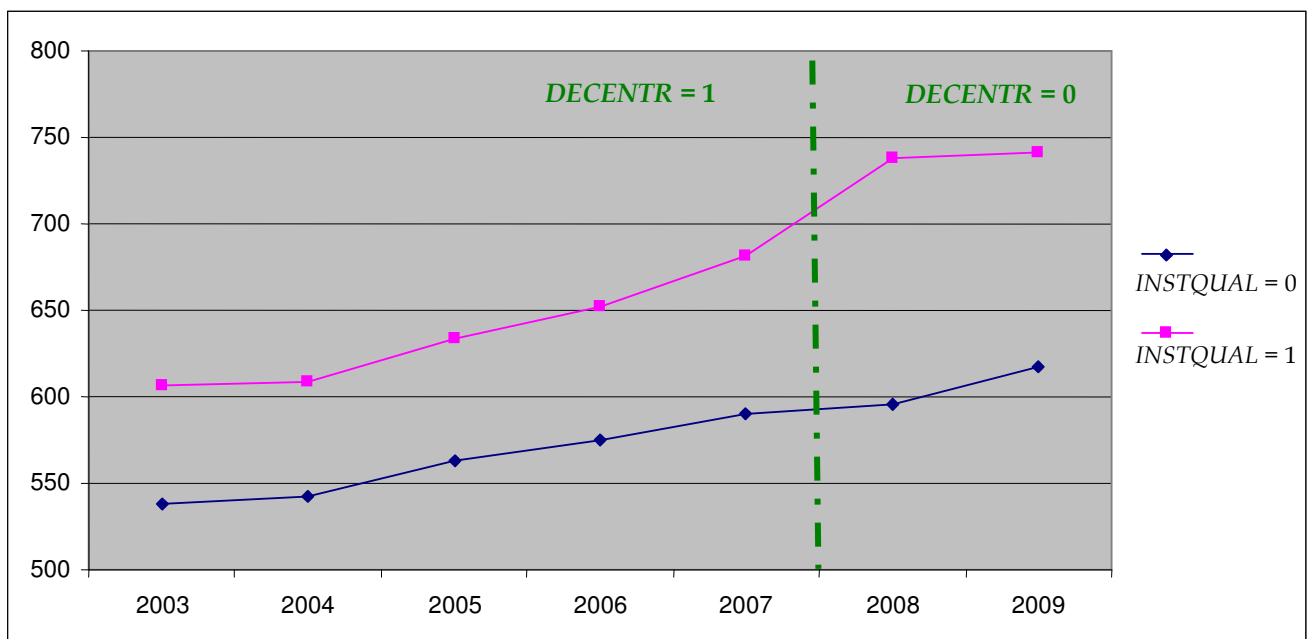
| | DECENTR | | | |
| | 1 | | 0 | |
INSTQUAL	Tranfers share	Transfers per capita (€)	Tranfers share	Transfers per capita (€)
1	0.40	296	0.46	346
0	0.42	263	0.43	287
All groups	0.41	290	0.45	336

[a] *INSTQUAL* = 1 indicates municipalities characterised by a "strong" institutional environment, while *INSTQUAL* = 0 those with a "weak" institutional environment. *DECENTR* = 1 refers to the 2003-2007 sub-period, when the property tax applied also on the main residence; *DECENTR* = 0 refers to 2008-2009, when tax decentralisation has been reduced.

Table 1 shows the average share of own revenues from ICI on total current revenues and the average ICI value per capita, distinguishing between the two periods before (2003-2007) and after (2008-2009) the reduction of the degree of tax decentralization, and the two types of municipalities according to the quality of the institutional

environment. The figures clearly point to a reduction of fiscal autonomy of local governments following the policy change, as reflected in the decrease of about 3 points in the ICI share and 8 Euro in the ICI per capita revenues, for both groups of municipalities. At the same time, table 2 highlights a significant increase of transfers from central government over the whole sample – around +4% on total current revenues and 46 Euro per capita – which, however, appears much more marked for those characterised by a "strong" institutional environment compared to those with a "weak" institutional environment (+6% and 50 Euro per capita vs. +1% and 24 Euro per capita). This asymmetry observed in the dynamics of central government transfers suggests that the reaction of the municipalities in terms of spending following an increase (decrease) in VFI implied by a lower (higher) tax decentralization, might differ across the two types of institutional environments, due to differences in the incentives to accountability towards citizens. Preliminary insights on this issue are provided both by figure 1 and table 3.

Figure 1. Average municipal expenditure per capita by year and institutional quality (2003-2009) [a]

[a] *INSTQUAL* = 1 indicates municipalities characterised by a "strong" institutional environment, while *INSTQUAL* = 0 those with a "weak" institutional environment. *DECENTR* = 1 refers to the 2003-2007 sub-period, when the property tax applied also on the main residence; *DECENTR* = 0 refers to 2008-2009, when tax decentralisation has been reduced.

Figure 1 shows the average yearly municipal expenditure per capita (*MEXP*) for the two groups of municipalities in the two periods: a parallel trend across groups emerges until 2007 (when *DECENTR* = 1), while a marked jump only in the trend of the treatment group is observed since 2008, i.e., the year when the policy change that reduces

municipalities' tax power is implemented by Central government. Table 3 confirms this evidence looking at the average value of *MEXP*, our outcome variable for testing the differential impact of tax decentralization on spending performances of local governments with different institutional quality. Although a decrease in the mean of *MEXP* is observed for both groups of municipalities moving from lower to higher tax decentralization (or an increase considering the inverse transition), the reported figures point to a much larger difference between *DECENTR* = 1 and *DECENTR* = 0 when *INSTQUAL* = 1 (-99) compared to *INSTQUAL* = 0 (-45), i.e., a difference in the differences (DiD) of -54 Euro per capita: this reduction is assumed to reflect a greater care in controlling spending wastes and – according to our reference theoretical framework – it can be interpreted as the result of stronger incentives to fiscal accountability towards citizens generated by higher tax decentralization in local governments *not captured* by powerful local oligarchs like the Camorra clans.

Table 3. Average municipal expenditure per capita (*MEXP*) by tax decentralization and institutional quality [a]

Outcome = *MEXP*		DECENTR		
		1	0	Difference
INSTQUAL	1	635 (192)	734 (353)	-99
	0	563 (153)	608 (167)	-45
	Difference	72	126	DiD = -54

[a] Standard deviations in round brackets. *INSTQUAL* = 1 indicates municipalities characterised by a "strong" institutional environment, while *INSTQUAL* = 0 those with a "weak" institutional environment. *DECENTR* = 1 refers to the 2003-2007 sub-period, when the property tax applied also on the main residence; *DECENTR* = 0 refers to 2008-2009, when tax decentralisation has been reduced.

Before moving to a rigorous test of the statistical significance of this DiD effect using regression analysis, it is worthwhile to notice that the higher average expenditure levels reported in figure 1 and table 3 for municipalities characterised by a "strong" institutional environment might be reasonably justified by the provision of higher quality services, as suggested by some studies comparing municipalities characterized by different levels of corruption (e.g., Dal Bó and Rossi, 2007; Estache *et al.*, 2009). Unfortunately, information on either the quantity or the quality of different types of municipal services is not available at the moment for Italian municipalities, thus a direct check of the relationship between institutional quality of local governments and their

general performance in public service provision is not feasible. However, at least for the sector of waste management – which represents, on average, a share of about 20% of municipal current spending in our sample and, most importantly, a typical context strongly plagued by widespread corruption and entrenched presence of Mafia clans (e.g., D'Amato et al., 2011) – the data available for the period 2007-2009 confirm the worse performance in garbage collection for municipalise captured by Mafia clans: as can be seen from table 4, the average tons of collected waste per capita when *INSTQUAL* = 1 are 6 times higher than that observed when *INSTQUAL* = 0, with a variability in the ratio across Provinces that ranges from about 5 times in the case of Naples to almost 25 times in the case of Salerno. Similar gaps are likely to characterize also the provision of other local services and help understand the higher values of *MEXP* observed for municipalities *not captured* by the Mafia.

Table 4. Tons of collected waste per capita by Province and institutional quality (average values over the period 2007-2009) [a]

	PROVINCE			
INSTQUAL	Naples	Caserta	Salerno	All Provinces
1	3.82	4.91	3.63	4.06
0	0.72	0.71	0.15	0.66

[a] *INSTQUAL* = 1 indicates municipalities characterised by a "strong" institutional environment, while *INSTQUAL* = 0 those with a "weak" institutional environment.

4.2. *Specification of the econometric model*

The general specification of the model used to estimate the impact of tax decentralization on our outcome variable (*MEXP*) is the following spending equation:

$$MEXP_{it} = \alpha + \beta_1 INSTQUAL_i + \beta_2 DECENTR_t + \beta_3 (DECENTR_t \times INSTQUAL_i) + \gamma X_{it} + u_i + \varepsilon_{it} \quad [1]$$

where:

- $INSTQUAL_i$ and $DECENTR_t$ are the indicator variables defined above that allow to distinguish the municipalities *not captured* by the Mafia and the years in the period before the policy change (higher tax decentralization), respectively;

- $INSTQUAL_i \times DECENTR_t$ is the variable of our main interest and takes on the value 1 if local government *i* can apply ICI also on the main residence (*t* = 2003, …, 2007) and is potentially accountable towards the citizens for its fiscal decisions (*i* belongs to

municipalities not captured by Mafia clans). The estimate of the associated parameter β_3 measures the treatment effect (DiD): a statistically significant coefficient means that decentralization impacts differently between local governments characterised by different quality of the institutional environments;

- X_{it} is a vector of control variables that can vary both across municipalities and time and might be correlated with tax decentralization, as well as with our outcome variable. More specifically, this vector includes:

  - *socio-demographic* and *spatial* variables. These basically represent structural factors (such as population size, municipal income per capita, distance from the provincial chief town) affecting public service provision, with a null or very low time variation[3];

  - a variable for the presence of some *fiscal restraint* imposed by Central government[4];

  - a set of *electoral* and *political* factors that, according to the political economy literature can play an important role in government budget decisions (e.g., Besley and Case, 2003; Bordignon and Tabellini, 2009; Chattopadhyay and Duflo, 2004).

- u_i is a time-invariant effect specific to municipality i, which allows to account for residual unobserved heterogeneity across local governments and is modelled alternatively either as a random or as a fixed term, according to the estimated specification of spending equation [1] (see the description of different models below), while ε_{it} is the standard stochastic disturbance.

Variable definition and summary statistics are reported in table 5.

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[3] Notice, in particular, that population size (*POP*) is included in model [1] also in squared value (*POP*2), in order to control for possible variations in scale economies over the sample (i.e., a ∪-shaped *MEXP* function). An analysis of returns to scale in the production of municipal services in Italy is in Boetti *et al.* (2012).
[4] In particular, we consider the so-called Domestic Stability Pact (*DSP*), a fiscal rule introduced by the Italian central government since 1999 that imposes restraints either on expenditure growth or on deficit size of municipalities. Notice, however, that starting from 2001 the municipalities with less than 5000 inhabitants have been excluded from the application of the *DSP*. For more details on this issue see Gastaldi and Giurato (2009).

Table 5. Summary statistics of the variables used in the spending equation [1] [a]

VARIABLE DESCRIPTION	NAME	Mean	Std. Dev.	Min	Max
Outcome variable					
Municipal current expenditure per capita (Euro)	MEXP	648	240	11	5679
Treatment variables					
Local property tax (ICI) applies also on the main residence (years 2003-2007)	DECENTR	0.72	0.45	0	1
The municipality belongs to the group of local governments *not captured* by the Mafia	INSTQUAL	0.83	0.38	0	1
Local property tax applies also on the main residence & the municipality belongs to the group of municipalities *not captured* by the Mafia	DECENTR× INSTQUAL	0.59	0.49	0	1
Control variables					
(1) SOCIO-DEMOGRAPHIC FACTORS					
Population size	POP	11,348	15,724	344	115,484
Number of old people (age > 75)	OLD	671	836	44	7881
Number of young people (age < 15)	BOY	2236	3306	26	26,575
Municipal income per capita	INCOME	16,555	2449	11,119	25,309
(2) SPATIAL FACTORS					
Distance from the province chief town	DIST	47	33	1	151
Inhabitants per squared km of municipal area	DENS	1151	1940	9	12,941
Dummy for the Province of Caserta	PROV_CE	0.28	0.45	0	1
Dummy for the Province of Naples	PROV_NA	0.27	0.44	0	1
Dummy for the Province of Salerno	PROV_SA	0.45	0.50	0	1
(3) FISCAL RESTRAINTS					
Domestic Stability Pact (nr. of inhabitants > 5,000)	DSP	0.53	0.50		
(4) ELECTORAL AND POLITICAL FACTORS					
Deadline of the mandate (years before new elections)	YGOV	3.13	1.45	1	5
Mayor at the second mandate (term limit)	GOV2	0.02	0.14	0	1
Presence of runoff voting (nr. of inhabitants > 15,000)	RUNOFF	0.22	0.42	0	1
Governing coalition parties belonging to a civic list	CIVIC	0.71	0.45	0	1
Government controlled by an external commissary	COMM	0.03	0.16	0	1
Alignment with provincial government	ALIG_PROV	0.18	0.38	0	1
Alignment with regional government	ALIG_REG	0.15	0.36	0	1
Alignment with national government	ALIG_ITA	0.13	0.34	0	1
Mayor is a female	MAYORSEX	0.03	0.16	0	1

[a] The values refer to an unbalanced panel of 348 municipalities observed from 2003 to 2009, for a total of 2219 observations.

Table 6. The impact of tax decentralization and institutional quality on muncipal expenditure per capita - random effects GLS estimates [a]

Regressors	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Constant	6.35 (0.04) ***	6.50 (0.89) ***	6.25 (0.04) ***	6.38 (1.19) ***
INSTQUAL	0.16 (0.04) ***	0.06 (0.04)	0.15 (0.04) ***	0.06 (0.04)
DECENTR	-0.05 (0.03) **	0.04 (0.03)		
DECENTR×INSTQUAL	-0.04 (0.03) *	-0.06 (0.03) **	-0.04 (0.03) *	-0.05 (0.03) *
POP		-0.91 (0.15) ***		-0.92 (0.15) ***
POP2		0.05 (0.01) ***		0.05 (0.01) ***
OLD		0.16 (0.03) ***		0.14 (0.03) ***
BOY		-0.11 (0.03) ***		-0.09 (0.03) ***
INCOME		0.39 (0.07) ***		0.41 (0.11) ***
DIST		0.02 (0.02)		0.02 (0.02)
DENS		0.02 (0.02)		0.02 (0.02)
PROV_CE		0.00 (0.03)		0.00 (0.03)
PROV_NA		0.02 (0.04)		0.02 (0.04)
DSP		-0.03 (0.04)		-0.04 (0.04)
YGOV		0.00 (0.00)		0.00 (0.00)
GOV2		0.03 (0.04)		0.01 (0.04)
RUNOFF		0.02 (0.06)		0.02 (0.06)
CIVIC		-0.02 (0.04)		-0.02 (0.04)
COMM		-0.01 (0.04)		-0.02 (0.04)
ALIG_PROV		0.00 (0.03)		-0.03 (0.03)
ALIG_REG		0.01 (0.04)		0.03 (0.04)
ALIG_ITA		0.00 (0.02)		0.00 (0.02)
MAYORSEX		0.01 (0.04)		0.00 (0.04)
Year fixed effects	No	No	Yes	Yes
Number of municipalities	348	348	348	348
Number of observations	2219	2219	2219	2219
Wald statistic	84.72 ***	342.85 ***	166.67 ***	368.89 ***
$\rho = \sigma_u^2/\mathrm{var}[u_i+\varepsilon_{it}]$	0.57	0.44	0.58	0.45

[a] Standard errors in round brackets; *** statistically significant at 1%; ** statistically significant at 5%; * statistically significant at 10%. Both the dependent variable (*MEXP*) and the continuous regressors are in logarithm.

4.3. Estimation results

Table 6 shows the estimated impact of tax decentralization on *MEXP* conditional to institutional quality, using a random effect GLS estimator and alternative specifications of equation [1]. The first column (MODEL 1) refers to a basic model specification where only treatment variables (*INSTQUAL*, *DECENTR* and *INSTQUAL×DECENTR*) are considered,

without any control for possible confounding factors. The potential role played by the variables included in vector *X* is taken into account in MODEL 2, which augment the basic specification by adding all types of controls listed above. Finally, in order to disentangle the impact of tax decentralization from the effects of other possible time-varying factors common both to the treatment and the control group, we also estimate a model including year fixed effects (omitting the variable *DECENTR* due to collinearity), using the basic specification (MODEL 3) as well as its extension to the set of control *X* (MODEL 4).

Table 7. The impact of tax decentralization and institutional quality on muncipal expenditure per capita - fixed effects estimates [a]

Regressors	MODEL 5	MODEL 6	MODEL 7	MODEL 8
Constant	6.48 (0.01) ***	6.47 (0.04) ***	6.39 (0.03) ***	6.40 (0.05) ***
DECENTR	-0.05 (0.03) *	-0.05 (0.03) *		
DECENTR×INSTQUAL	-0.05 (0.03) *	-0.05 (0.03) *	-0.05 (0.03) *	-0.04 (0.03) *
YGOV		0.00 (0.00)		0.00 (0.00)
GOV2		0.04 (0.04)		0.01 (0.04)
CIVIC		0.00 (0.05)		-0.02 (0.05)
COMM		0.01 (0.05)		-0.03 (0.05)
ALIG_PROV		0.01 (0.03)		-0.02 (0.03)
ALIG_REG		0.02 (0.05)		0.02 (0.05)
ALIG_ITA		0.01 (0.02)		0.00 (0.02)
MAYORSEX		0.01 (0.05)		-0.01 (0.05)
Year fixed effects	No	No	Yes	Yes
Number of municipalities	348	348	348	348
Number of observations	2219	2219	2219	2219
F statistic	37.12 ***	7.63 ***	22.11 ***	10.43 ***
$\rho = \sigma_u^2/\mathrm{var}[u_i+\varepsilon_{it}]$	0.61	0.61	0.61	0.61

[a] Standard errors in round brackets; *** statistically significant at 1%; ** statistically significant at 5%; * statistically significant at 10%. Both the dependent variable (*MEXP*) and the continuous regressors are in logarithm.

The results provide a consistent picture across the different models: the coefficient for the DiD effect is negative and statistically significant in all specifications, with a magnitude ranging from -0.04 to -0.06 (meaning a 4-6% increase in *MEXP* as a reaction to a lower tax decentralization in "strong" institutional environments), thus confirming the preliminary evidence emerged from the comparison of average spending levels in table 3. As for the control variables, all the socio-demographic factors exert a significant impact on *MEXP* and have the expected sign – in particular, the expenditure increases with municipal income per capita, reflecting, to some extent, the demand for public services of

higher quality[5] (e.g., Bergstrom and Goodman, 1973; Reiter and Weichenrieder, 1997) – while none of the other variables included in the vector *X* appears to play a statistically significant effect.

The advantages of random effects estimates in terms of higher efficiency and the possibility to include also time-invariant regressors in the model (e.g., *INSTQUAL* and the structural factors) are obtained at the cost of assuming that individual effects are uncorrelated with the other regressors; this might introduce a severe bias in the estimate of the parameter of interest β_3 (e.g., Wooldridge, 2002). To overcome such a problem and to check the robustness of our findings, table 7 presents the estimates of the spending equation [1] specifying u_i as an individual *fixed* effect instead of a *random* effect to control for possible unobservable characteristics of local governments. Notice that only the electoral and political control variables (except *RUNOFF*, which is a fixed indicator for the presence of a runoff voting mechanism) are retained in equation [1] – since the other explicative factors have a null or very low within variation – and the estimated alternative specifications (from MODEL 5 to MODEL 8) are analogous to those used in the random effect approach. The new set of results confirms the presence of a significant DiD effect of tax decentralization of similar magnitude, while political and voting factors do not show again any relevant impact on *MEXP*.

4.4. Sensitivity analysis

As a sensitivity analysis, we perform a *placebo* DiD in order to test possible biases in our estimates of tax decentralization impact. This approach is based on the use of a *fake* treatment group (e.g, Duflo, 2001): here we refer to two populations of municipalities both characterised by a low institutional quality and expected to be not accountable towards the citizens (thus expected not to differ in their reaction to the policy change), compute the DiD effect and check whether it is different from zero. If the estimate of parameter β_3 is statistically different from zero, then the trends of treated and control groups are not parallel, and our original DiD is likely to be biased. Specifically, we take the two subsamples of municipalities in the provinces of Naples and Caserta operating in a "weak" institutional context (i.e., *INSTQUAL* = 0) and define a dummy *PROV_NA*, which

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[5] Notice that taking into account differences in local communities' income also allows us to control for other potentially relevant issues, such as the heterogeneity in tax bases and the different incentives of citizens to monitor municipal expenditure, which in turn should ensure a more precise assessment of the impact of a lower VFI on spending per capita.

equals 1 for local governments *captured* by the Mafia belonging to the Province of Naples (36, for a total of 240 observations) and 0 for local governments *captured* by the Mafia belonging to the Province of Caserta (18, for a total of 106 observations).

Table 8. Average municipal expenditure per capita (*MEXP*) by tax decentralization and institutional quality with a *fake* treatment group [a]

Outcome = *MEXP*		*DECENTR*		
		1	0	Difference
PROV_NA	1	584 (158)	648 (154)	-64
	0	496 (117)	541 (122)	-45
	Difference	88	107	DiD = -19

[a] Standard deviations in round brackets. *PROV_NA* = 1 indicates municipalities characterised by a "weak" institutional environment belonging to the Province of Naples, while *PROV_NA* = 0 those with a "weak" institutional environment belonging to the Province of Caserta. *DECENTR* = 1 refers to the 2003-2007 sub-period, when the property tax applied also on the main residence; *DECENTR* = 0 refers to 2008-2009, when tax decentralisation has been reduced.

Table 8 shows the average value of *MEXP* using the *fake* treatment group to assess the DiD effect of tax decentralization. In contrast to table 3, we now observe a quite small difference in the difference between *DECENTR* = 1 and *DECENTR* = 0 when *PROV_NA* = 1 (-64) compared to *PROV_NA* = 0 (-45), i.e., a DiD of only -19 Euro per capita. Again, we use regression analysis to test the statistical significance of this treatment effect by estimating the same specifications of spending equation [1] discussed above (MODEL 1 – MODEL 8), with the only difference that the group effect *INSTQUAL* here is substituted by *PROV_NA* and the political variable *MAYORSEX* is excluded, since we do not observe municipalities governed by a female mayor in both groups. The results are presented in tables 9 and 10 and provide further support to our original approach, showing a DiD effect not statistically different from 0 in all the estimated models.

Table 9. Sensitivity analysis of the impact of tax decentralization on municipal expenditure per capita using a *placebo* DiD - random effects GLS estimates [a]

Regressors	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Constant	6.29 (0.06) ***	8.13 (3.57) **	6.17 (0.06) ***	8.10 (3.85) **
PROV_NA	0.15 (0.07) **	0.09 (0.07)	0.15 (0.07) **	0.09 (0.07)
DECENTR	-0.09 (0.02) ***	-0.03 (0.02)		
DECENTR×PROV_NA	-0.01 (0.02)	0.01 (0.02)	-0.01 (0.02)	0.00 (0.02)
POP		-0.34 (0.80)		-0.33 (0.76)
POP2		0.02 (0.04)		0.03 (0.04)
OLD		0.36 (0.08) ***		0.32 (0.08) ***
BOY		-0.37 (0.18) **		-0.39 (0.19) **
INCOME		0.03 (0.08)		0.03 (0.22)
DIST		-0.03 (0.07)		-0.02 (0.07)
DENS		-0.04 (0.03)		-0.04 (0.03)
DSP		-0.13 (0.17)		-0.15 (0.16)
YGOV		0.00 (0.00)		0.00 (0.00)
GOV2		-0.10 (0.09)		-0.10 (0.09)
RUNOFF		-0.01 (0.07)		-0.01 (0.07)
CIVIC		-0.02 (0.03)		-0.01 (0.03)
COMM		-0.01 (0.02)		-0.01 (0.02)
ALIG_PROV		0.01 (0.02)		0.01 (0.02)
ALIG_REG		-0.03 (0.03)		-0.03 (0.03)
ALIG_ITA		0.00 (0.01)		0.00 (0.01)
Year fixed effects	No	No	Yes	Yes
Number of municipalities	54	54	54	54
Number of observations	346	346	346	346
Wald statistic	78.96 ***	209.93 ***	121.15 ***	217.41 ***
$\rho = \sigma_u^2/\mathrm{var}[u_i + \varepsilon_{it}]$	0.87	0.80	0.88	0.77

[a] Standard errors in round brackets; *** statistically significant at 1%; ** statistically significant at 5%; * statistically significant at 10%. Both the dependent variable (*MEXP*) and the continuous regressors are in logarithm.

Table 10. Sensitivity analysis of the impact of tax decentralization on municipal expenditure per capita using a *placebo* DiD - fixed effects estimates [a]

Regressors	MODEL 5	MODEL 6	MODEL 7	MODEL 8
Constant	6.39 (0.01) ***	6.38 (0.02) ***	6.27 (0.02) ***	6.29 (0.03) ***
DECENTR	-0.09 (0.02) ***	-0.08 (0.02) ***		
DECENTR×PROV_NA	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)	-0.01 (0.02)
YGOV		0.00 (0.00)		0.00 (0.00)
GOV2		-0.03 (0.10)		-0.03 (0.09)
CIVIC		-0.01 (0.03)		-0.02 (0.03)
COMM		0.01 (0.02)		-0.02 (0.02)
ALIG_PROV		0.02 (0.02)		0.01 (0.02)
ALIG_REG		-0.03 (0.03)		-0.04 (0.03)
ALIG_ITA		0.01 (0.01)		0.00 (0.01)
Year fixed effects	No	No	Yes	Yes
Number of municipalities	54	54	54	54
Number of observations	346	346	346	346
F statistic	37.23 ***	8.71 ***	16.79 ***	8.56 ***
$\rho = \sigma_u^2/\mathrm{var}[u_i+\varepsilon_{it}]$	0.88	0.88	0.89	0.89

[a] Standard errors in round brackets; *** statistically significant at 1%; ** statistically significant at 5%; * statistically significant at 10%. Both the dependent variable (*MEXP*) and the continuous regressors are in logarithm.

5. Concluding remarks

A recent strand of literature (e.g., Bardhan and Mookherjee, 2006a, 2006b) suggests that the potentially greater accountability deriving from decentralization might be actually offset by the capture of policy-makers by local interest groups, in constituencies where the quality of institutions is poor. In this paper we provide a first test of whether the expected positive outcome of decentralization (in terms of increased accountability of local politicians) is conditional not only to the degree of Vertical Fiscal Imbalance, but also to the quality of the institutional environment. To this end, we consider an area encompassing the three provinces of Naples, Caserta and Salerno in Southern Italy, which is characterised by large differences across municipalities as for the quality of institutions. In order to separate municipalities operating in "strong" institutional environments from those operating in "weak" ones, we use Law 221/1991, that allows the dismissal of municipal councils when they are controlled by Mafia-type organizations, like the Camorra clans. To study whether the presence of these local oligarchs at the municipal level affects the outcome of fiscal decentralization, we exploit a *quasi-natural experiment*

taking place as a consequence of an unforeseen change in fiscal policy implying the exemption of the main residence from the local property tax.

Our results support the view that the quality of institutional environment does matter in determining the outcome of decentralization. In particular, our results point to a 4-6% increase in current expenditure per capita in "strong" institutional environments as a reaction to a lower tax decentralization, as opposed to the absence of any reactions in "weak" institutional environments. These results prove to be robust to several controls and sensitivity analyses. This evidence suggests that decentralization is socially desirable only when the institutional features at the local level make politicians accountable towards citizens. This requires both that citizens pay a high enough share of local expenditures with local taxes, and that the quality of institutions is sufficiently strong to preserve local politicians from the capture of elites. More caution is therefore needed before deciding to devolve more fiscal power to lower tiers of government.

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