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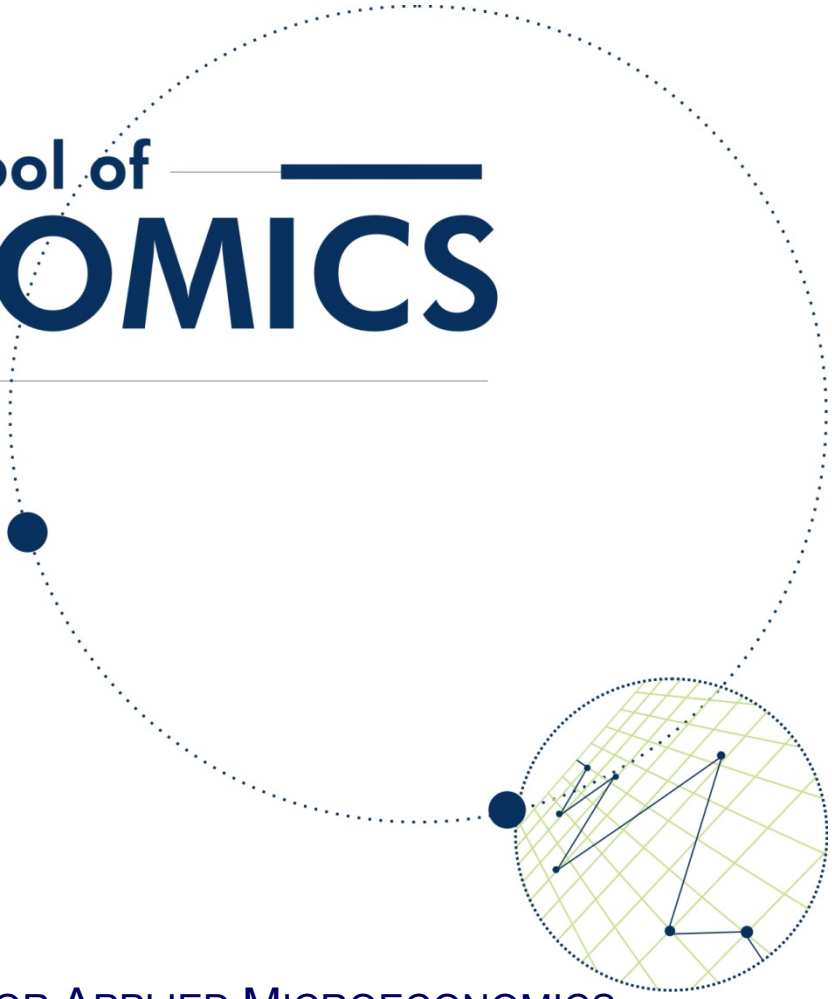

CENTER FOR APPLIED MICROECONOMICS

Corruption versus Mismanagement: Evidence from a Random Audit of Brazilian Municipalities

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Abstract

We use randomized audits of 411 Brazilian municipalities and code the occurrence of corruption and mismanagement events between the years 2003 and 2004. We estimate the joint impact of corruption and mismanagement on the cost of conducting public policy. Our results show two things. First, corruption has a positive impact on public expenditure but this effect is overestimated when mismanagement events are not considered. Second, the same effect is worse on public goods and is underestimated when mismanagement events are not considered.

Keywords: Corruption; Mismanagement; Random Audit; Local Government; Total Expenditure; Public Goods, Brazilian local governments.

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Highlights

1. We use randomly assigned municipal audit reports from an anticorruption program in Brazil to obtain indicators of corruption and mismanagement
2. Contrary to previous suggestions in the literature, we show that corruption is positively and significantly correlated with mismanagement;
3. Our results suggest that the effect of corruption without the effect of mismanagement on fiscal policy outcomes has been overestimated and underestimated on public goods.

1. Introduction

Corruption is a key issue affecting the cost of conducting public policy.[1] The degree to which an elected official is corruptible, namely, the degree to which the official's actions deviate from public aims in order to secure private benefits, has long been identified as a key institutional issue.[2] Another characteristic of public officials is competence, namely, their ability to manage resources effectively to attain desired public aims (Buchanan and Tullock, 1962). However, the economics literature has far largely failed to explore this distinction.

Caselli and Morelli (2001) suggest that both incompetent and corrupt individuals face greater incentives for running for office, as public office represents a lower opportunity cost and a chance of private gain. Bandiera et al. (2008) distinguish between active and passive waste as determinants of the cost of public services, with the latter being akin to mismanagement. Banerjee et al. (2012) develop a model of bureaucratic behavior that explicates the "multiple dimensions of malfeasance," as well as several forms of allocative inefficiency. This research highlights the relevance of considering corruption and mismanagement jointly.

A clear distinction between corruption and mismanagement has obvious important policy implications. First, corruption and mismanagement may have very different impact on the cost of public policy. Bandiera et al. (2008) find that passive waste is a more important determinant of costs than previously considered. Second, the correlation between corruption and

[1] Recent research on the determinants and consequences of corruption includes Okada and Samreth (2012), Iwasaki and Suzuki (2012), and Swaleheen (2012).

[2] Similar definitions of corruption are used in the literature, as in Banerjee et al. (2012), Svensson (2005), and Shleifer and Vishny (1993).

mismanagement affects how we think of policies to increase government effectiveness. Caselli and Morelli (2001) show that voters choose policymakers from a constrained-optimum mix of competence and honesty, which may lead to a negative correlation between honesty and ability across political bodies.[3] By contrast, analyzing Italian municipalities' procurement of generic goods, Bandiera et al. (2008) find no strong correlation between reducing incompetence and elevated corruption. Third, given the above findings, combating corruption and mismanagement may involve contradictory policy actions. While corruption may thrive under excessive discretion and misalignment between policymakers' (the agent) and the voters' interests (the principal), mismanagement may result from excessive regulation, that is, too little discretion.[4] Along a similar line, Ferraz and Finan (2011) find that increased electoral accountability may be less effective against inefficiency and mismanagement than against corruption.

Banerjee et al. (2012) note that research has lagged behind policy in analyzing corruption because of two important obstacles: the difficulty of measuring corruption, which, by its very nature, secretive and difficult to quantify, and the lack of a theoretical mapping of different manifestations of corruption.[5] Our paper proposes to address both of these shortcomings in the corruption literature. First, we use randomly assigned municipal audit reports from an anticorruption program in Brazil to obtain quantifiable indicators for both corruption and mismanagement. The same primary database that Brollo, et al. (2010) and Ferraz and Finan

[3] In a paramount example of this trade-off, a notorious Brazilian politician of the 1950´s, Ademar de Barros run several successful campaigns under the public slogan of "I steal, but I do", "Roubo, mas faço". (Cotta, 2008)

[4] In an assessment of waste in the US government, Kelman (1990) finds that excessive regulation may encumber procurement and raise costs. See also the discussion in Bandiera et al. (2008).

[5] Bandiera et al. (2008) note that "economists have paid limited attention to the role of pure inefficiency in explaining poor policy outcomes."

(2011) used. Second, we estimate the joint impact of corruption and mismanagement on expenditure and some important public goods at the municipal level. In Section 2 we present the data, and Section 3 discusses the empirical results. We determine the individual impacts as well as the joint effect of corruption and incompetence on policy outcomes.

2. Data

Since 2003, the Brazilian government, under the auspices of its Federal Comptroller General's Office,[6] conducts regular random audits of the performance of these transfer agreements (using the Brazilian federal lottery).[7] In 2003 and 2004, 676 municipalities under 450,000 inhabitants were audited.[8] We thoroughly examined each specific audit report as far as the health sector is concerned, and classified the reported events as either corruption or mismanagement. Our classification of corruption and mismanagement events is reported in Table A.1. of Appendix 1. Mismanagement includes, for instance, the registry of instance, such as missed deadlines, failure to plan and control stocks, failure to meet budgeted targets, or lack of proper employee training. Corruption events involve, for instance, irregular invoices, phantom companies, and overbilling. Table A.2. of Appendix tabulates corruption and mismanagement events. There is a significant and positive

[6] The "*Controladoria Geral da União.*"

[7] An important point is that the audit is run by a single, uniform, country-wide procedure since, as Schelker (2012) has shown for US states, there is a relationship between auditor expertise and fiscal performance.

[8] The audits that we consider are those undertaken in the last two years of the municipal mandate, when mayors, elected for a four-year mandate, have enough discretion to establish their own public priorities. The same audit sample was used by Ferraz and Finan (2008, 2011) and Brollo, et al. (2010).

unconditional correlation between corruption and mismanagement of 0.2315, which is significant at the 1% level.[9]

We collect information on a number of control variables for the 411 of the municipalities with federal agreements covering the health sector: characteristics of mayor who may reflect competence like college or superior education, age as proxy of experience, and the existence or not of municipal plan of government; mayor´s gender, and right-wing mayor ideology; municipal characteristics as compulsory transfers from federal government, per capita income, and size of population. Descriptive statistics and sources for these variables are in Table A.3. of Appendix.

3. Results

In Table 1, we present OLS estimates of the impact of corruption on municipal spending, controlling for mismanagement and the interaction between corruption and mismanagement. We use two indicators to examine the impact of corruption on spending, that is, total municipal expenditure and total municipal social expenditure. Corruption has a significant and positive effect on both total and social expenditure, and larger for the former, when corruption is considered in isolation. However, when mismanagement is included as a control variable, corruption remains significant but its effect on total expenditure diminishes, and becomes non-significant for social expenditure. Interestingly, it is the interaction between corruption and management that seems to matter as far as total and social expenditure are concerned: it is the presence of both corruption and mismanagement that raises the amount of public expenditure.

[9] This is in contrast to previous work, including Caselli and Morelli's (2001) suggestion and Bandiera et al.'s (2008) results.

Thus, when mismanagement is ignored, the effect of corruption is overestimated. When considering the interaction variable, given the standard deviation of corruption and mismanagement of, respectively, 3.37 and 4.47, an average change leads to almost 1 percent increase in municipal spending as a share of GDP, or about a 5% increase in municipal spending. This is a sizable effect, that needs to be taken into account.

The effect on public expenditure can stem from price or quantity effects, possibly both. Access to meaningful prices of procurement items is not available.

Table 2 shows the supply of education and health, the two most important publicly supplied goods, suffer a reduction as a consequence of corruption, through more students per teacher and higher per capita infant mortality, and this effect is underestimated when mismanagement is omitted.

4. Conclusions

We use a set of randomized audits of Brazilian municipalities and code the occurrence of corruption and mismanagement events to advance three contributions to the literature on the effects of corruption. First, and contrary to previous suggestions in the literature, we show that corruption is positively and significantly correlated with mismanagement. That is, corruption and mismanagement seem to coincide in the same municipal cabinets. Second, we show that an absence of control for mismanagement leads to omitted variable bias. Third, given the generally positive impact of both corruption and incompetence on public expenditure, this result suggests that the effects obtained on expenditure can be coming from prices and not from supply of public goods.

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Table 1. Corruption, Mismanagement, and Municipal Government Spending

	Dependent Variables as a Share of Municipal GDP					
Variables	**Total Municipal Expenditure**			**Total Municipal Social Expenditure**		
Corruption Events	**0.003[b]**	**0.002[c]**	-0.003	**0.002[c]**	0.002	-0.003
	(0.002)	**(0.001)**	(0.003)	**(0.001)**	(0.001)	(0.002)
Mismanagement Events	-	0.001	-0.0006	-	0.001	-0.0006
	-	(0.001)	(0.001)	-	(0.001)	(0.001)
(Corruption Events)*	-	-	**0.0006[c]**	-	-	**0.0005[c]**
(Mismanagement Events)	-	-	**(0.0003)**	-	-	**(0.0003)**
Control Variables	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***
Observations	407	407	407	407	407	407
R^2	0.225	0.227	0.234	0.221	0.223	0.23

Note: [a] Significant at 1%; [b] Significant at 5%; [c] Significant at 10%. Robust standard deviation in parenthesis.

Table 2. Corruption, Mismanagement, and Public Goods

	Dependent Variables					
Variables	**Student by Teacher**			**Per capita Infant Mortality**		
Corruption Events	**0.280[b]**	**0.213 [b]**	0.272	**8.10e-06[b]**	**4.18e-06[c]**	-0.00001
	(0.110)	**(0.108)**	(0.228)	**(0.000)**	**(0.000)**	(0.000)
Mismanagement Events	-	**0.151 [b]**	**0.172 [b]**	-	**8.86e-06[a]**	3.75E-06
	-	**(0.063)**	**(0.085)**	-	**(0.000)**	(0.000)
(Corruption Events)*	-	-	-0.006	-	-	0.000
(Mismanagement Events)	-	-	(0.017)	-	-	(0.000)
Control Variables	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***	***Yes***
Observations	404	404	404	405	405	405
R^2	0.095	0.104	0.104	0.069	0.102	0.118

Note: [a] Significant at 1%; [b] Significant at 5%; [c] Significant at 10%. Robust standard deviation in parenthesis.

Appendix

Table A.1. Corruption and Mismanagement Events

0	No irregularity
1	Municipal Health Council: composition
2	Municipal Health Council: activities
3	Municipal Health Council: structure
4	Procurement: no disclosure
5	***Procurement: irregular invoices***
6	***Procurement: "phantom company"***
7	Procurement: documents with different dates
8	***Procurement: unsigned contracts/incomplete documents***
9	***Procurement: bidding directed for a company***
10	Procurement: other problems
11	***Overbilling***
12	***Falsified invoices***
13	***Unsubstantiated payment***
14	***Funds diverted to be used for other irregular purposes***
15	Funds diverted for health objectives
16	Funds diverted for other, intraprogram purposes
17	***Noninvestment of funds***
18	***Budgeted targets not met***
19	***Building work and projects unfinished***
20	***Precarious installations***
21	***Shortage of medication***
22	***Medication stock control***
23	***Poor service for users***
24	***Professionals not working appropriate number of hours***
25	Incomplete or inadequate documentation
26	Signs, logos, and the like not duly displayed
27	***Lack of Employee training***
28	***Lack of Team composition***
29	***Lack of Maintenance of medication and/or the like***
99	Others

Note: We classify items **5, 6, 8, 9,** and **11** through **14** as corruption events. Our measure of "narrow corruption" is close to that used by Brollo, et al. (2010), and almost perfectly in line with the definition of corruption in Ferraz and Finan (2011). Items **17** through **24** and **27** to **29** are classified as mismanagement events. These are also consistent with Ferraz and Finan's (2011) definition of mismanagement, except for **24** and **27**, which are related to the mismanagement of public employees. We test other definitions excluding one variable or other but the results do not change. These results can be requested for the authors.

Source: *Controladoria Geral da União (CGU).*

Table A.2. Distribution of Mismanagement and Corruption Events

		Mismanagement Events					
		0	**1**	**Between 2 and 5**	**Between 6 and 10**	**Higher than 11**	**Total**
Corruption Events	**0**	17	9	47	21	11	**105**
	1	4	8	46	35	20	**113**
	Between 2 and 5	5	5	52	62	30	**154**
	Between 6 and 10	0	0	16	7	12	**35**
	Higher 11	0	0	0	2	2	**4**
	Total	**26**	**22**	**161**	**127**	**75**	**411**

Table A.3. Descriptive Statistics

Variables	Observations	Mean	Standard Deviation
Corruption Events	411	2.31	3.37
Mismanagement Events	411	6.52	4.77
Total Municipal Expenditure	411	0.19	0.13
Total Social Expenditure	411	0.17	0.11
Students by teacher (elementary municipal school)	408	22.38	7.29
Per capita Infant Mortality (municipal)	411	1.00	0.27
Control Variables			
Mayors			
Female Mayors	411	0.04	0.21
Mayor Has a College Education or Higher	411	0.44	0.49
Right-wing Party Mayor	409	0.39	0.49
Age at which the Mayor began the Term	409	48.77	9.31
Program for Government	411	0.46	0.49
Municipalities			
Per Capita Constitutional Transfers	411	365.82	622.50
P*er capita* GDP	411	5.19	10.54
Population	411	29350.84	45031.82
Elections			
Effective Number of Mayoral Candidates	411	2.19	0.55

Note: Note: Fiscal variables are built from National Treasury (published by Instituto de Pesquisa Econômica Aplicadaa (IPEA), as an average between 2000 and 2004. Total Municipal Current expenditure is the sum of all municipal expenditure classified as a function of government. Total government expenditure is the sum of current expenditure and public investment. Educational data are the responsibility of the Ministry of Education (National Institute for Research in Education - *INEP*). Health data are the responsibility of the Ministry of Health (Department of Information of the Unified Health System – *Sistema Unico de Saude*). Mayor's characteristics are the age at which the mayors begin her term, a dummy with equal to one if the mayor has a college education or higher (and zero otherwise), and a dummy for the mayor´s gender (source TSE). Municipal characteristics are per capita municipal GDP (2000, source IBGE), per capita average constitutional transfers (federal and state) received by the municipality between 2001 and 2004(source, National Treasury published by IPEA), the municipal population (2000, source IBGE), and the fitted municipal GDP (published by IPEA and build by IBGE). The effective number of mayoral candidates (2000, using as source TSE), a dummy with a value equal to one if a right-wing or center right-wing mayor and zero otherwise (using as source the classification of Latin America Parties established by Coopedge, 1997), and a dummy with a value equal to one if the elected mayor has a program for government, and zero otherwise (source IBGE -MUNIC, 1999).

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