The politician, the party, and the president: How do political scandals propagate across the party network?

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CESifo/ifo Junior Workshop on Big Data

December 8, 2023

Motivation

- Political representation is the cornerstone of modern political systems: voters elect politicians to represent them
- Politicians may follow other interests (own, special interests) rather than those of their constituents (Grossman, 2001)
- Deviation from the original mission may undermine their own electoral outcomes and career prospects as well as those of the organization they represent (Tirole, 1996)
- A growing literature debates the existence of electoral spillovers: individual candidates affect party's outcomes in other election types

Research question

Does information disclosure about a corrupt local politician affects the party of the politician?

- Party is an organization with local and national representation

Main hypothesis: individual wrongdoing may not remain confined to the person or area they originate. Electoral spillovers, in neighboring areas and presidential candidates, might emerge

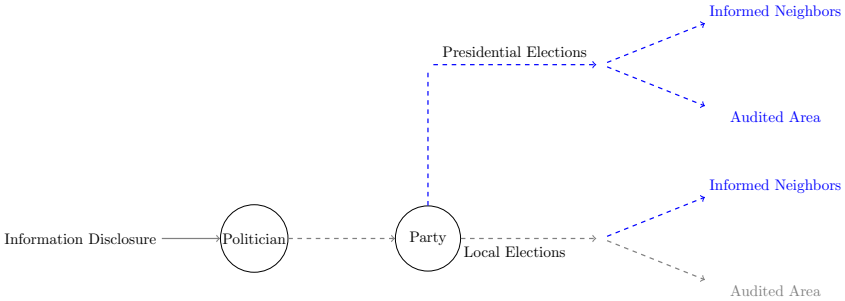
Testing ground

I use Brazil as a testing ground because of rich institutional setting

- Causality: Random Audits $->$ Information Disclosure $->$ Effect on the party
- Generalizability: Different strength of candidate-party link
  - Weak party labels at the local level. Mayors switch party, often during their mandate
  - Strong party-candidate association in national level politics

Contribution to the literature

- Ferraz and Finan (2008), Banerjee et al (2011), Costas et al (2012), and Bobonis et al (2019) focus on the effect of information about the politician on the electoral outcomes in the same area where information is discloses
- Larreguy, Marshall and Snyder (2014) focus on the effect of on the party of the politician in the same area where information is discloses



- Spillovers on the party are shown with dashed lines. In orange is depicted the previous literature and in blue the novel contributions of this paper

Electoral Spillovers

- Spillover effect on the party in the audited municipality and neighboring areas, in local and presidential election
  - Informed Neighboring areas are defined as those that share antenna coverage with the audited town
- To understand if the severity of corruption matters, I will use Natural Language Processing methods

Preview of the findings

Municipal elections

- The audit investigations do not affect the party's electoral support: in the audited municipalities and their informed neighbors
- The severity of disclosed corruption matters, in the audited municipalities and informed neighboring areas

Presidential elections

- Information disclosed before elections affect the party's vote share by 4 percentage points, in the audited municipalities and informed neighboring areas
- More corrupt municipalities face an 8 percentage points vote loss when compared to less corrupt areas

Audited and informed neighboring areas behave similarly in local and presidential elections

Institutional Background

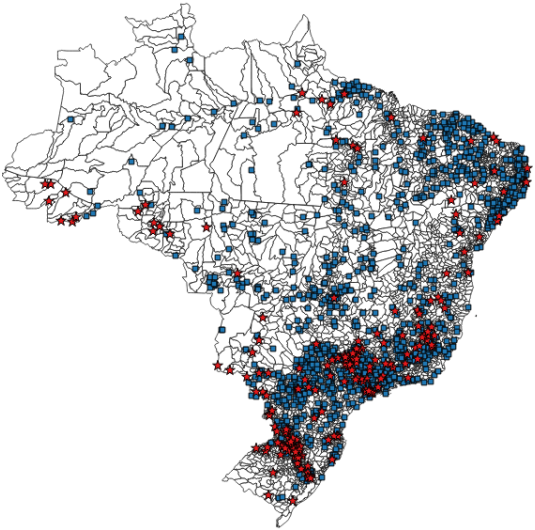
Brazilian Municipalities

- Brazil has 5570 municipalities, and 27 federal units comprising 26 states and the Federal District, where the national capital, Brasilia, is located
- Municipalities are the level of public administration in the country. Responsible for providing goods and services
- Municipal revenues are generated by taxes and transfers

Political System

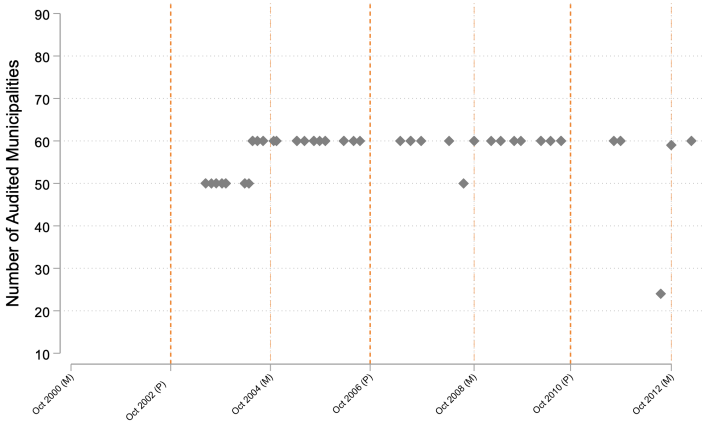
- Multi-party system at local and higher governments
- More than 30 parties participate in local elections
- Two main parties have dominated the race for president since the democratization of the country (PT and PSDB)

PT (red) and PSDB (blue) municipalities



The audit program

Timeline


Number of Audited Municipalities
90
80
70
60
50
40
30
20
10
Oct 2000 (M)
Oct 2002 (P)
Oct 2004 (M)
Oct 2006 (P)
Oct 2008 (M)
Oct 2010 (P)
Oct 2012 (M)

Corruption Index

The text of the audit report

- Provides detailed summaries of wrongdoings
- Extract information and classify each instance as severe versus non-severe irregularity

Text Classifier

Consists of a list of rules to distinguish more severe versus less severe cases. The rules are based on words and combination of words

- **Words:** fraud, collusion, fake
- **Combination of Words:** procurement simulation
- Recognized and used in the machine learning literature
- Accuracy of these models can be high

Severe irregularities are related to:

- Procurement Process
- Over-invoicing
- Diversion of Resources

Toy example of a report summary

- Indication of fraud in procurement process
- Payments for non executed services
- Non-actualization of pupils' cadastral information

Toy example of a report summary [classification]

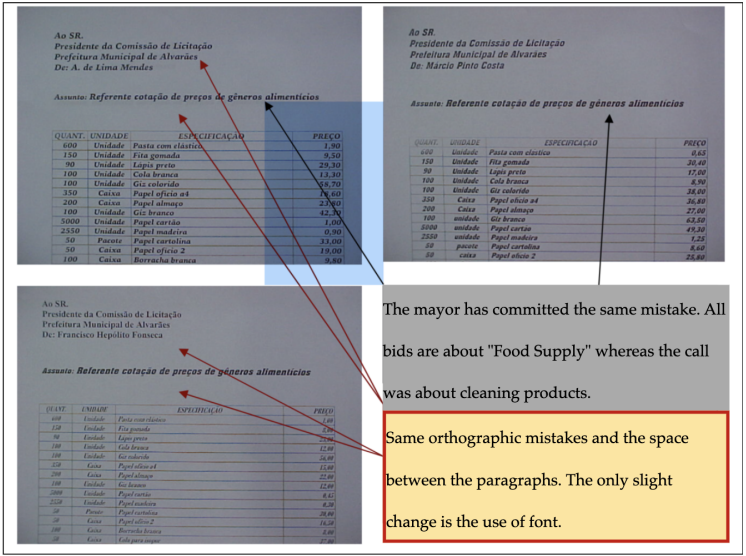
- Indication of fraud in procurement process **[Severe]**
- Payments for non executed services **[Severe]**
- Non-actualization of pupils' cadastral information **[Not Severe]**

Corruption measure

I take the principal component of a series of variables

- The number of severe irregularities, number of irregularities, the number of pages, the number of lines, the number of images
- The latent component captures the underlying corruption in the municipality

Simulation Procurement



Ao SR.
Presidente da Comissão de Licitação
Prefeitura Municipal de Alvarães
De: A. de Lima Menezes

Assunto: Referente cotação de preços de gêneros alimentícios

QUANT.	UNIDADE	ESPECIFICAÇÃO	PREÇO
600	Unidade	Pasta com elástico	1,90
150	Unidade	Fita gomada	9,50
90	Unidade	Lapis preto	29,30
100	Unidade	Cola branca	13,30
100	Unidade	Giz colorido	28,70
350	Caixa	Papel oficio a4	36,60
200	Caixa	Papel almaço	23,00
100	Unidade	Giz branco	42,30
5000	Unidade	Papel cartão	1,00
2550	Unidade	Papel madeira	0,90
50	Pacote	Papel cartolina	33,00
50	Caixa	Papel oficio 2	19,00
100	Caixa	Borracha branca	9,80

Ao SR.
Presidente da Comissão de Licitação
Prefeitura Municipal de Alvarães
De: Marcio Pinto Costa

Assunto: Referente cotação de preços de gêneros alimentícios

QUANT.	UNIDADE	ESPECIFICAÇÃO	PREÇO
600	Unidade	Pasta com elastico	0,65
150	Unidade	Fita gomada	30,40
90	Unidade	Lapis preto	17,00
100	Unidade	Cola branca	8,90
100	Unidade	Giz colorido	38,00
350	Caixa	Papel oficio a4	36,80
200	Caixa	Papel almaço	27,00
100	unidade	Giz branco	63,50
5000	unidade	Papel cartão	49,30
2550	unidade	Papel madeira	1,25
50	pacote	Papel cartolina	6,40
50	caixa	Papel oficio 2	26,80

Ao SR.
Presidente da Comissão de Licitação
Prefeitura Municipal de Alvarães
De: Francisco Hepolito Fonseca

Assunto: Referente cotação de preços de gêneros alimentícios

QUANT.	UNIDADE	ESPECIFICAÇÃO	PREÇO
600	Unidade	Pasta com elástico	1,40
150	Unidade	Fita gomada	25,00
90	Unidade	Lapis preto	27,00
100	Unidade	Cola branca	12,40
100	Unidade	Giz colorido	24,40
350	Caixa	Papel oficio a4	15,40
200	Caixa	Papel almaço	22,40
100	Unidade	Giz branco	12,40
5000	Unidade	Papel cartão	8,65
2550	Unidade	Papel madeira	0,30
50	Pacote	Papel cartolina	28,40
50	Caixa	Papel oficio 2	16,50
100	Caixa	Borracha branca	8,40
50	Caixa	Cola para isopor	27,40

The mayor has committed the same mistake. All bids are about "Food Supply" whereas the call was about cleaning products.

Same orthographic mistakes and the space between the paragraphs. The only slight change is the use of font.

Fake Firms

Estrada que dá acesso ao endereço informado como sendo da licitante de CNPJ nº 07.981.189/0001-90.

Fim da estrada onde deveria estar instalada a sede da licitante de CNPJ nº 07.981.189/0001-90.

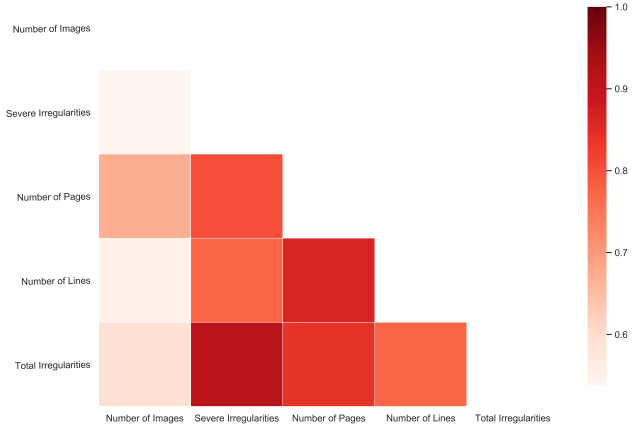
Comprovante de endereço da rua onde deveria funcionar a empresa de CNPJ nº 07.981.189/0001-90.

Placa indicativa do bairro onde deveria funcionar a empresa de CNPJ nº 07.981.189/0001-90.

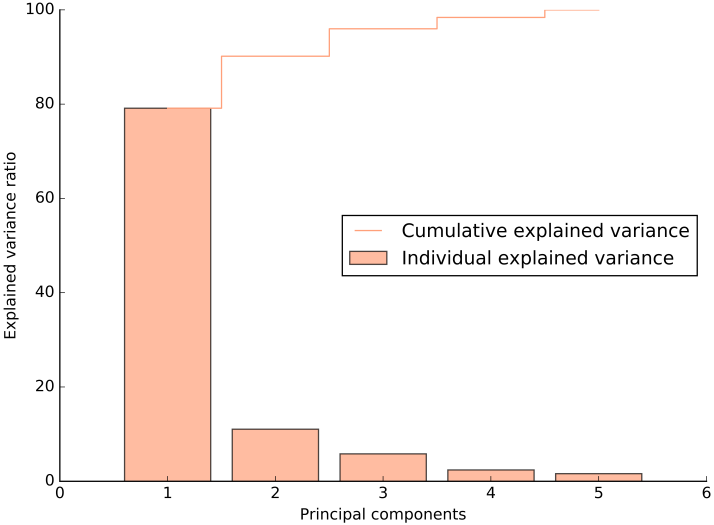
Placa indicativa do bairro onde deveria funcionar a empresa de CNPJ nº 06.313.322/0001-77.

Rua onde deveria funcionar a empresa de CNPJ nº 06.313.322/0001-77.

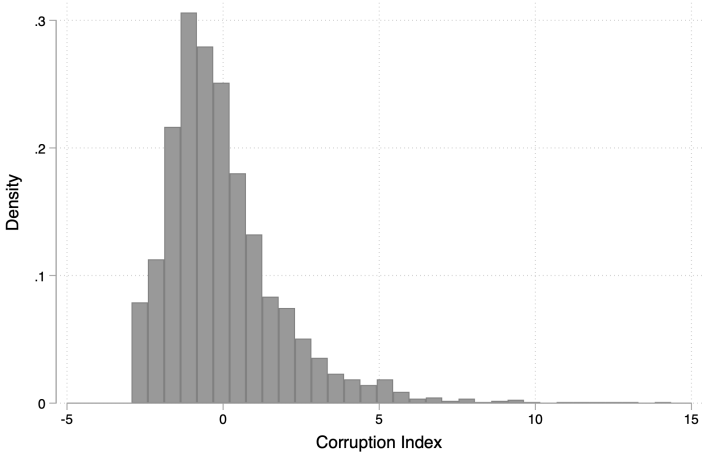
Heatmap


Number of Images
Severe Irregularities
Number of Pages
Number of Lines
Total Irregularities
Number of Images
Severe Irregularities
Number of Pages
Number of Lines
Total Irregularities
1.0
0.9
0.8
0.7
0.6

Common variation



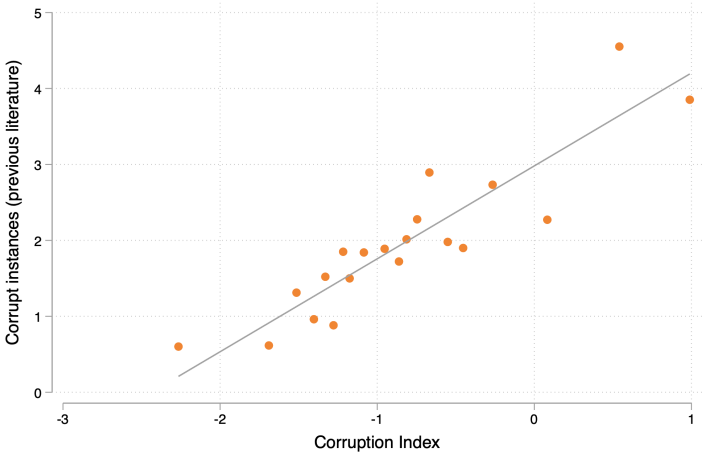
Corruption measure: The first principal component



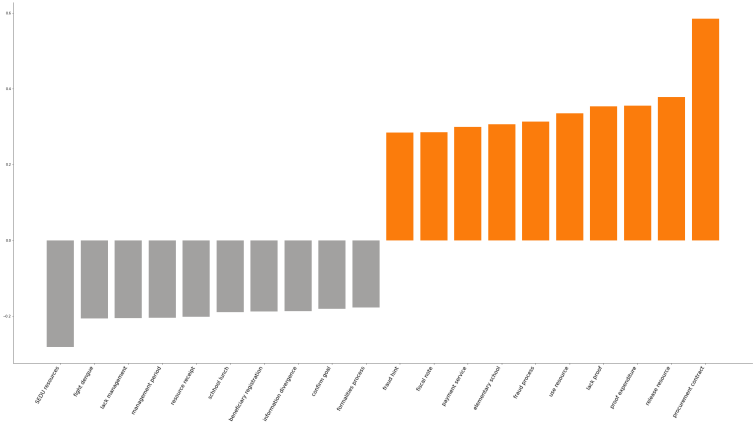
Corruption measure: Advantages

- Removes subjective decision making
- It is replicable
- Less time consuming

Correlation with other hand-coded measures



Alternative Measure: Supervised Learning



- Use hand-coded labels available in the literature to create a "target-variable"
- Low versus high corruption

Data

I combine data from many different sources:

- Audit Data – main regressor. (Comptroller General of Brazil, CGU)
  - For all years from 2003-2013
- Electoral Outcomes – dependent variable from the Brazilian Electoral Court (TSE)
  - Biennial voting outcomes for years 1996-2012
- A measure of antenna coverage and detailed geographical data provided by the Brazilian Communication Agency (ANATEL)
  - Shapefiles, Latitude and Longitude of population centroid and Gridded Population of Brazil are provided by Brazilian Statistical Office (IBGE) and NASA
  - Compute fraction of the population covered in each neighboring municipality
- Municipal Characteristics – from municipal census of 2000 as controls provided by Brazilian Statistical Office, IBGE and IPEA

Municipal elections

Identification strategy

If municipality i headed by a mayor from party p is audited, how does this affect the electoral outcomes of the party p in the municipality j

- When $i = j$, the focus is on the audited municipality.
- Otherwise, we are considering neighboring municipalities

$$E_{pit} = \alpha + \beta \text{Treated}_{pjt} + \nu_s + X_i^T \delta + \eta_p + \tau_t + \varepsilon_{pit}$$

Where:

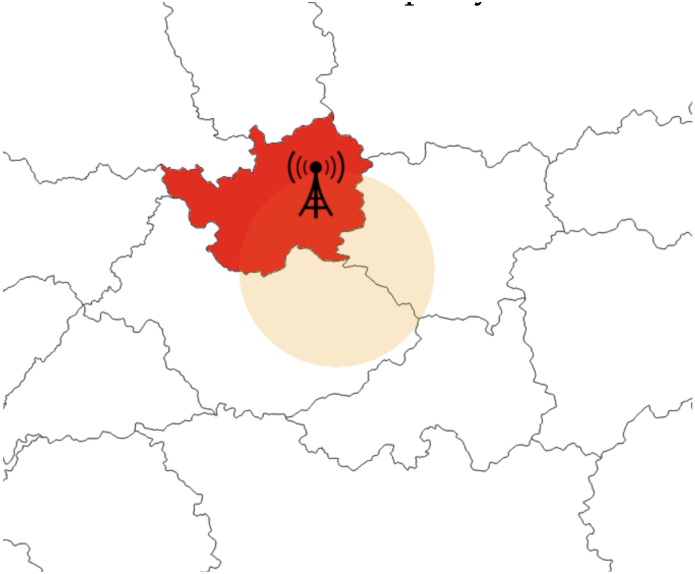
- E_{pit}: Electoral outcomes: party is (re)elected, party exit, or vote share
- Treated_{pjt}: Treatment status – one if the information about the municipal audit is disclosed before elections and zero if information is disclosed after elections
- ν_s, η_p, τ_t: State, party and term fixed effects
- X_i: Vector of municipal characteristics, measured in year 2000
- ε_{pit}: error term

Informed Neighbor

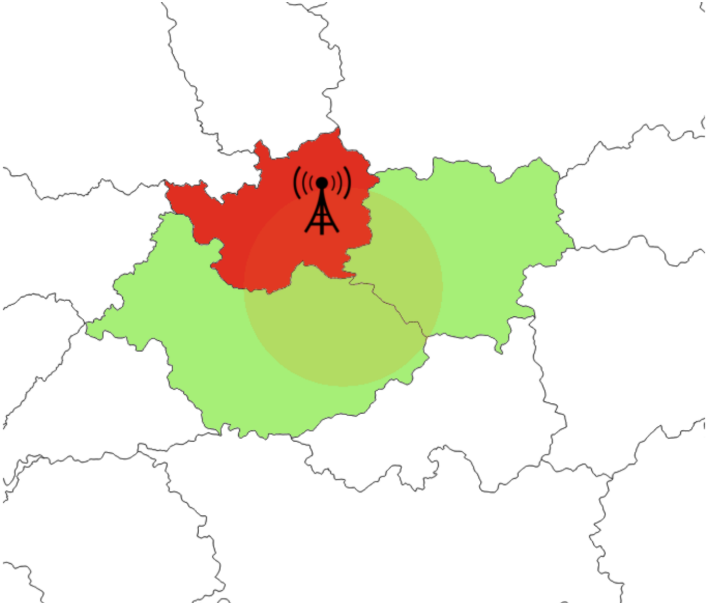
Neighbour j is informed on what happens on the audited municipality i if:

- It is contiguous to the audited municipality
- Receives radio coverage from an antenna located in the audited municipality i
  - 40% of Brazilians use radios as a source of political information (Latinobarometro)
  - TV broadcast is dominated by national channels which are unlikely to provide local information
  - Brazil has one of the lowest levels of newspaper penetration in the world (Porto, 2003; IBOPE, 2012)

Audited Municipality



Informed Neighbors



Municipal Elections: Results

	Party elected		Party Exit		Δ Vote Share	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Audited Area						
Treated	-0.023	-0.023	-0.034	-0.029	1.612	1.467
	(0.025)	(0.025)	(0.026)	(0.026)	(1.495)	(1.499)
Observations	1347	1347	1347	1347	1347	1347
Panel B: Informed Neighbors						
Treated	0.011	0.012	-0.058*	-0.052	3.150*	2.789
	(0.032)	(0.032)	(0.032)	(0.032)	(1.807)	(1.776)
Observations	1179	1179	1179	1179	1179	1179
Term FE	Yes	Yes	Yes	Yes	Yes	Yes
Party FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes

Local Elections: Heterogeneous effects

	Party elected		Party Exit		Δ Vote Share	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Audited Area						
Treated	0.008	0.006	-0.106**	-0.097**	6.046**	5.834**
	(0.044)	(0.045)	(0.045)	(0.045)	(2.704)	(2.690)
Treated x C2 ($\gamma 2$)	-0.053	-0.042	0.120*	0.109*	-8.837**	-8.428**
	(0.062)	(0.062)	(0.065)	(0.065)	(3.795)	(3.770)
Treated x C3 ($\gamma 3$)	-0.033	-0.036	0.083	0.084	-3.796	-4.148
	(0.063)	(0.063)	(0.064)	(0.064)	(3.749)	(3.738)
F-stat $\gamma 2 = \gamma 3$	0.109	0.008	0.331	0.157	1.929	1.390
p-value $\gamma 2 = \gamma 3$	0.741	0.931	0.565	0.692	0.165	0.239
Observations	1347	1347	1347	1347	1347	1347
Panel B: Informed Neighbors						
Treated	0.033	0.031	-0.111**	-0.098*	7.493**	6.977**
	(0.053)	(0.053)	(0.055)	(0.055)	(3.272)	(3.342)
Treated x C2 ($\gamma 2$)	-0.037	-0.028	0.084	0.066	-7.841*	-7.130*
	(0.067)	(0.067)	(0.069)	(0.070)	(4.169)	(4.246)
Treated x C3 ($\gamma 3$)	-0.028	-0.029	0.072	0.068	-4.851	-5.020
	(0.080)	(0.080)	(0.076)	(0.076)	(4.303)	(4.417)
F-stat $\gamma 2 = \gamma 3$	0.018	0.000	0.028	0.001	0.671	0.346
p-value $\gamma 2 = \gamma 3$	0.892	0.990	0.868	0.971	0.414	0.557
Observations	1179	1179	1179	1179	1179	1179
Controls	No	Yes	No	Yes	No	Yes

Presidential elections

Presidential elections: Results

	Audited Municipality				Informed Neighbors			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treated	-4.052**	-4.273**	-0.305	-0.421	-3.245*	-3.024	-0.692	0.340
	(1.682)	(1.663)	(2.600)	(2.653)	(1.862)	(1.884)	(2.275)	(2.244)
Treated x C2 ($\gamma 2$)			-3.847	-3.595			-0.568	-1.145
			(4.119)	(4.181)			(4.756)	(5.087)
Treated x C3 ($\gamma 3$)			-6.752*	-7.054*			-7.059**	-8.835**
			(3.941)	(3.938)			(3.500)	(3.441)
F-stat $\gamma 2 = \gamma 3$	.	.	0.448	0.630	.	.	1.606	2.162
p-value $\gamma 2 = \gamma 3$	.	.	0.504	0.428	.	.	0.208	0.145
Observations	392	392	392	392	872	872	872	872
Party FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	No	Yes	No	Yes	No	Yes	No	Yes

Mechanism

Media as a mechanisms

- Anecdotes that local and national media picks up local content
- Local media are usually captured by incumbents (about 30% of media concessions are owned by politicians Moreira (2016), Boas (2011)) but they can't silence the news if disclosed corruption is high
- Negative news coverage, and opposition attacks, in presidential elections

National media picks up local content

Scarape Folha de S.Paulo, 2002 -2012

- Named Entity Recognition to get mentions of municipalities
- Co-occurence with audit related stems such as ‘audit,’ ‘CGU,’ and municipality’

Event Study

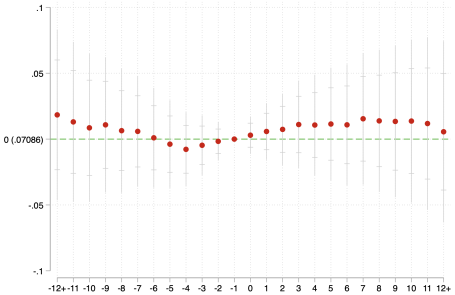
$$Y_{i,m,t} = \sum_{m=-12}^{-2} \beta_m Audit_{i,m,t} + \sum_{m=0}^{12} \beta_m Audit_{i,m,t} + \alpha_i + \delta_{m,t} + \varepsilon_{i,q,t}$$

Where:

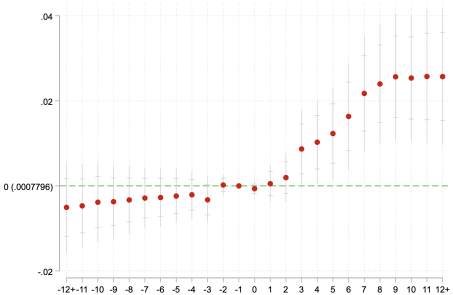
- Where $Y_{i,m,t}$ is an indicator variable if the municipality i is ever mentioned in the news articles published in month m of year t or if it is mentioned in conjunction with audits, or CGU, or municipality
- $\text{Audit}_{i,m,t}$: are indicator variables tracking the month of audit announcement
- α_i: municipality fixed effects
- $\delta_{m,t}$: state-year fixed effects
- $\varepsilon_{i,q,t}$: error term

Event Study: Results

Figure: Event Study Analysis

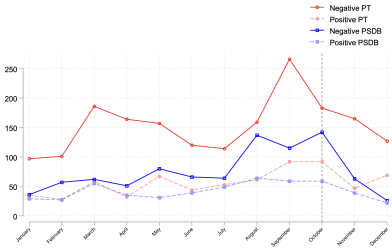


(a) Municipal Mentions

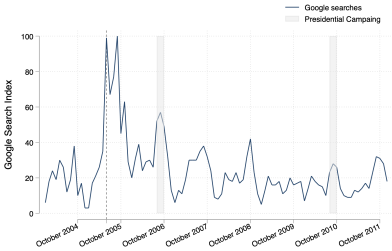


(b) Audit Related Mentions

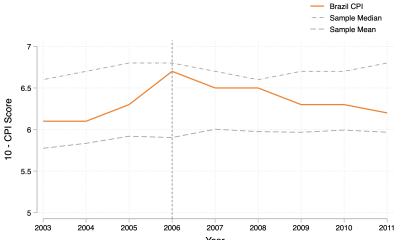
Searched, Perceived and Actual Corruption

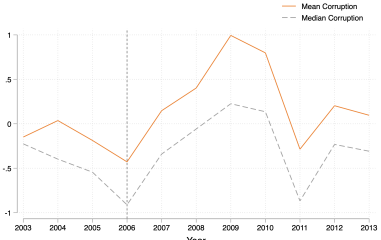


(c) Sentiment Campaign 2006



(d) Google searches





Conclusions

- I document electoral effect on the party in case of misbehavior of the individual politician. Nearby areas and presidential candidates are affected
  - Severity of disclosed corruption matters because of media dissemination, and opposition attacks
- Spillovers are larger than the direct effect previously documented. Parties with a national counterpart experience a vote loss that is six times as large
- Implications of the findings:
  - These results are relevant towards better understanding the role of political parties and (eroded) trust in organizations
  - Electoral accountability as an important way to fight corruption