Priors rule: When do malfeasance revelations help and hurt incumbent parties?

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The need for electoral accountability

Programs designed to benefit the poor are often stymied by rent-seeking:

- Bribery (Hseih and Moretto 2006).
- Preferential contracting (Tran 2009).
- Misallocated spending (Larreguy et al. 2020).

Important to counteract adverse selection and moral hazard by enhancing electoral accountability (e.g. Fearon 1999).

Can informing the electorate help?

Information can play a key role in supporting electoral accountability.

But evidence on the role of information is mixed:

- Media revelations of malfesance are punished (Chang et al. 2010; Ferraz and Finan 2008; Larreguy et al. 2020).
- Limited effects (Adida et al. 2020; Banerjee et al. 2011, 2014; Chong et al. 2015; de Figuereido et al. 2013; Humphreys and Weinstein 2008).
- Mixed effects on turnout too (Banerjee et al. 2011; Chong et al. 2015).

Learning vs. other mechanisms

Evidence that information impacts electoral outcomes does not necessarily reflect learning and voter updating.

Information may generate a public signal coordinating voters in favor of better candidates without significantly updating their beliefs (e.g. Morris and Shin 2002).

May prime individuals' prior beliefs without altering their beliefs (e.g. Iyengar and Simon 2000).

May impact electoral outcomes by triggering responses from incumbent and challenger parties or inducing a strategic reallocation of campaign resources (see e.g. Casey and Glennerster 2020; Cruz, Keefer and Labonne 2021).

Whether belief updating or these alternative mechanisms drive the effects of information is key for design of dissemination campaigns.

Our Study

Research question: when do voters hold their governments to account by sanctioning incumbent parties for malfeasant behavior in office?

Seek to understand the mixed evidence by taking priors seriously.

Simple model highlights:

- Direction and magnitude of belief updating from signals relative to prior beliefs.
  - ...well-intentioned interventions could fail.
- Non-monotonic effects on turnout.

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Overview of empirical analysis

Municipal-level field experiment across 4 Mexican states in 2015.

- Relatively high mayoral malfeasance.
- Low-information environment $\rightarrow$ information could matter.
- No re-election but party-centric system.

Information treatment: outcome of independent audit reports documenting malfeasance.

3 primary contributions

Show how voters learn from information and update relative to priors.

- Previous studies in developing contexts suggest this (Banerjee et al. 2011; Chong et al. 2015; Ferraz and Finan 2008; Humphreys and Weinstein 2012; Larreguy et al. 2020; Marshall 2016).
- ...but no direct evidence on priors, only signal content.

Complement studies highlighting role of prior beliefs for understanding voter responses to partisan campaign messages

- Kendall et al. (2015) examine valence and ideological messages in Italy.

Partially rationalize disengagement effects in terms of turnout non-linearity (Chong et al. 2015; de Figueiredo et al. 2013).

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Outline

1. Background.
2. Theoretical Predictions
3. Empirical design.
4. Results.
6. Conclusions.

Background

Mexican municipal context

31 states (plus CDMX), c.2,500 municipalities, and 67,000 electoral precincts.

Municipal governments deliver basic services and manage local infrastructure.

- 20% total government spending.
- 1990s decentralization empowered traditionally weak mayors.

Mayors typically elected to 3-year terms.

Municipal Fund for Social Infrastructure (FISM)

Established by the 1997 Fiscal Coordination Law.

Federal transfer representing 24% of average municipal budget.

Designated for social infrastructure investments: water supply, drainage, electrification, health infrastructure, education infrastructure, housing, roads.

Projects must benefit those living in extreme poverty.

Voters are poorly informed about both the resources available to mayors and their responsibility to provide basic public services (Chong et al. 2015).

Independent audits of FISM transfers

Federal Auditor's Office (ASF) established in 1999 to audit the use of federal funds.

Constitutionally enshrined managerial autonomy:

- Reports to Congress.
- Can impose fines or recommend sanctions and prosecution.

Audit 150 municipalities annually, based on relative size of transfer, previous performance, and recency of audit (ASF 2014).

Audit reports

Audits announced *after* spending has occurred.

Cover spending, accounting, and management of FISM funds.

Two key dimensions:

- Share of funds spent on projects not directly benefiting the poor, e.g. building a road in a rich area [mean: 8%].
- Share of funds spent on unauthorized projects, e.g. diversion to other projects, unaccounted spending. [mean: 6%]

Reports publicly reported to Congress and made available online every February.

50% believe funds are used dishonestly (Chong et al. 2015).

Municipal elections

Increasingly competitive elections still experiencing clientelism.

3/4 main political parties: PRI, PAN, PRD, MORENA.

Two-party competition in most parts of the country.

- Regional/local bases of power.
- Normally PRI vs. PAN or PRI vs. PRD. (Subsume smaller parties.)
- 2.5 average number of effective parties.

Electoral accountability?

Party-centric system $\rightarrow$ voters hold parties accountable, despite non-reelection.

- Much better informed about parties than candidates (Chong et al. 2015; Larreguy et al. 2018); 80% correctly identify municipal incumbent party.
- Correlated within-party selection mechanisms (Langston 2003); 74% expect high correlation of politicians within party.

Model

Decision-theoretic framework

Two parties: $j \in \{I, C\}$ with fixed malfeasance level θ_j.

Unit mass of voters differentiated by partisan bias $\delta_i \sim iid\ F$.

Voters receive expressive utility from voting:

$$U_{ij} = \begin{cases} \delta_i + \mathbb{E}\left[-\theta_I\right] & \text{if } j = I \\ \mathbb{E}\left[-\theta_C\right] & \text{if } j = C. \end{cases}$$

Cost $c > 0$ to voting.

Turnout Decision

A voter only turns out to vote if the difference in expected utility between the two parties is large enough.

Conditional on voting, individuals vote for their most preferred party. i votes for:

- Incumbent party I if $\Delta_i := U_{iI} - U_{iC} \geq c$,
- Challenger party C if $-\Delta_i \geq c$,
- Abstains if $|\Delta_i| < c$.

Updating from malfeasance revelations

Prior beliefs over party p malfeasance: $N(\mu_j, \sigma_j^2)$, where $\lambda_j := 1/\sigma_j^2$ denotes prior precision.

Observe signal s_I of incumbent malfeasance from $N(\theta_I, \tau_I^2)$, where $\rho_I := 1/\tau_I^2$ is known.

Posterior belief about incumbent malfeasance is given by:

$$N\left(\mu_I + \kappa_I \Delta_I, \frac{1}{\lambda_I + \rho_I}\right),$$

where $\kappa_I := \frac{\rho_I}{\lambda_I + \rho_I}$ captures precision of the signal relative to prior and $\Delta_I := s_I - \mu_I$ captures updating about I.

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Main testable predictions - vote share

Difference in vote share with and without information $\Delta_{V_I} = V_I(s_I) - V_I(\emptyset)$ is:

- Decreasing in reported malfeasance (s_I) and extent of unfavorable updating (Δ_I).
- Increasing in prior beliefs (μ_I).
- Decreasing in magnitude with precision of prior beliefs (λ_I).

Similar predictions for posterior beliefs.

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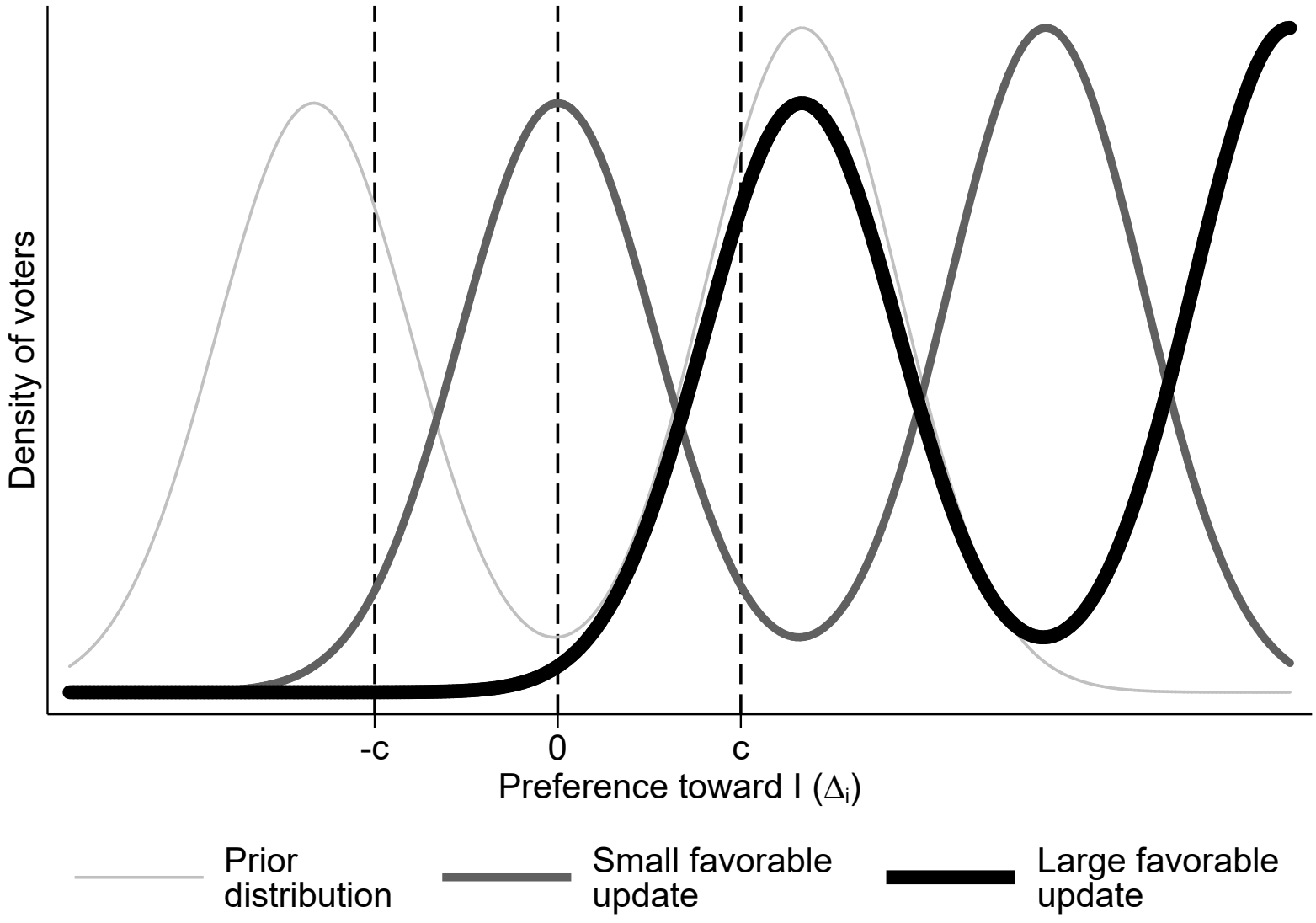
Main testable predictions - turnout

Providing information reporting sufficiently high and low levels of incumbent malfeasance increases electoral turnout, while some intermediate levels of reported malfeasance decrease turnout.

- Large favorable or unfavorable revelations motivate voters who previously abstained to turn out to vote and induces voters to switch parties.
- Relatively unsurprising – but nevertheless informative – favorable (unfavorable) information induces challenger (incumbent) partisans to become relatively indifferent between the parties and abstain from voting.

Updating and vote choice with bimodal F



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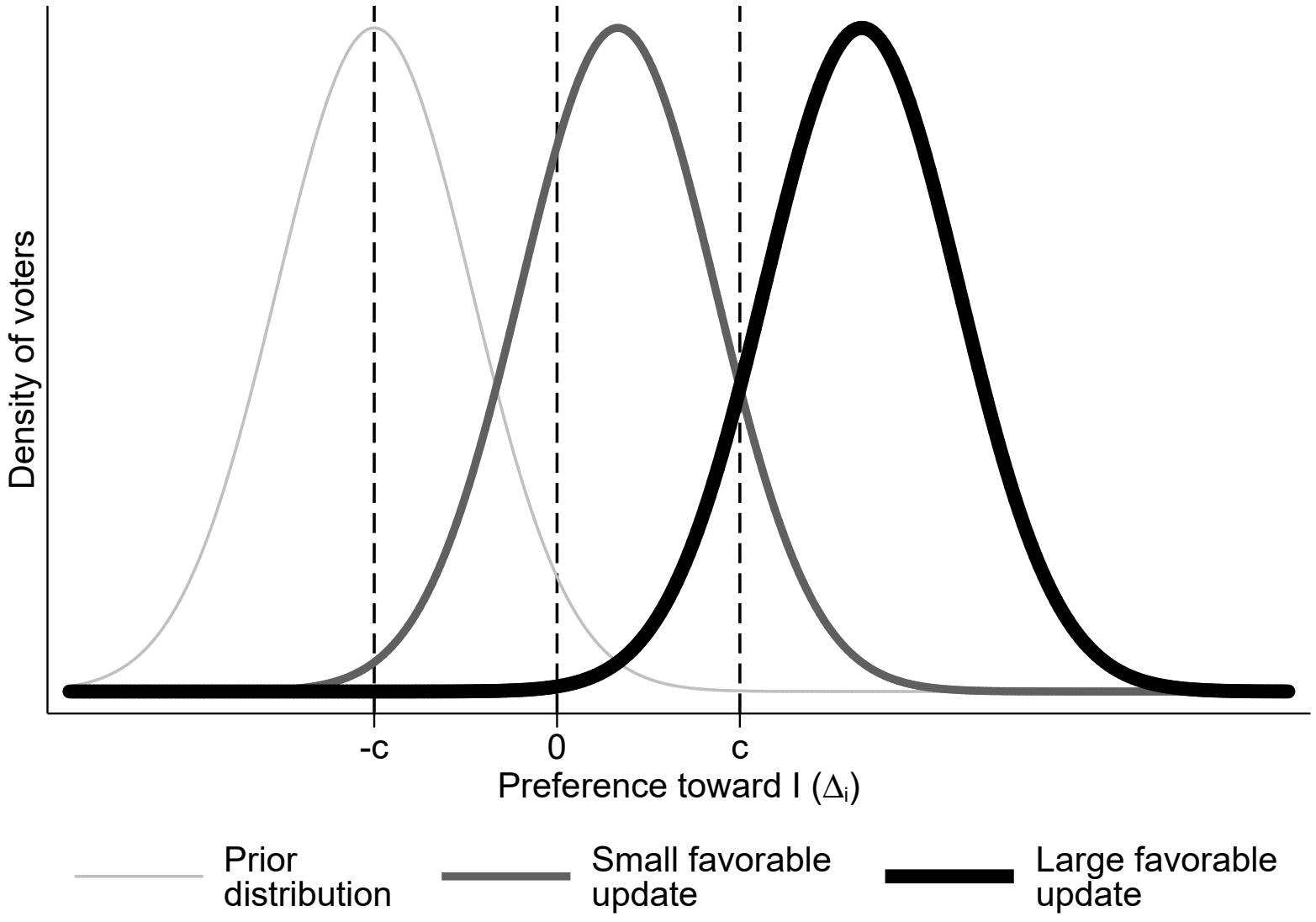


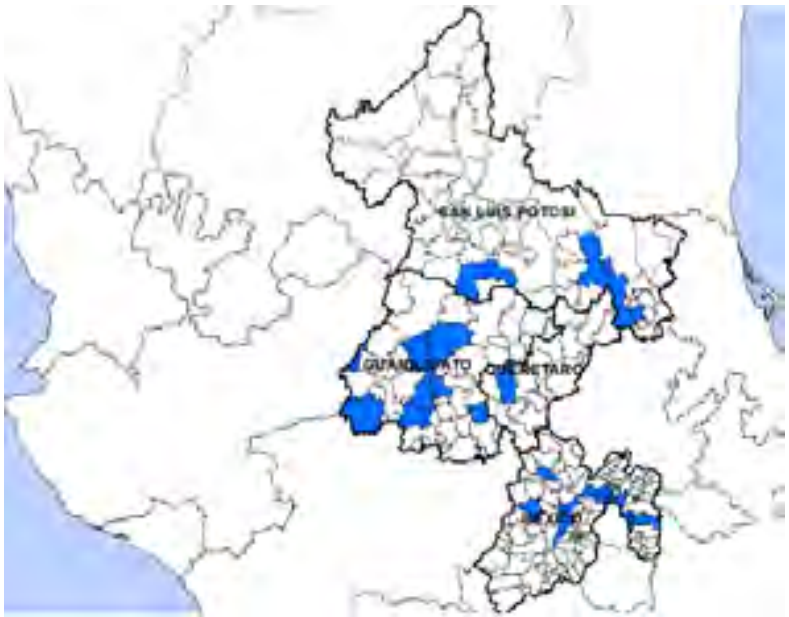
Empirical design

Experimental context

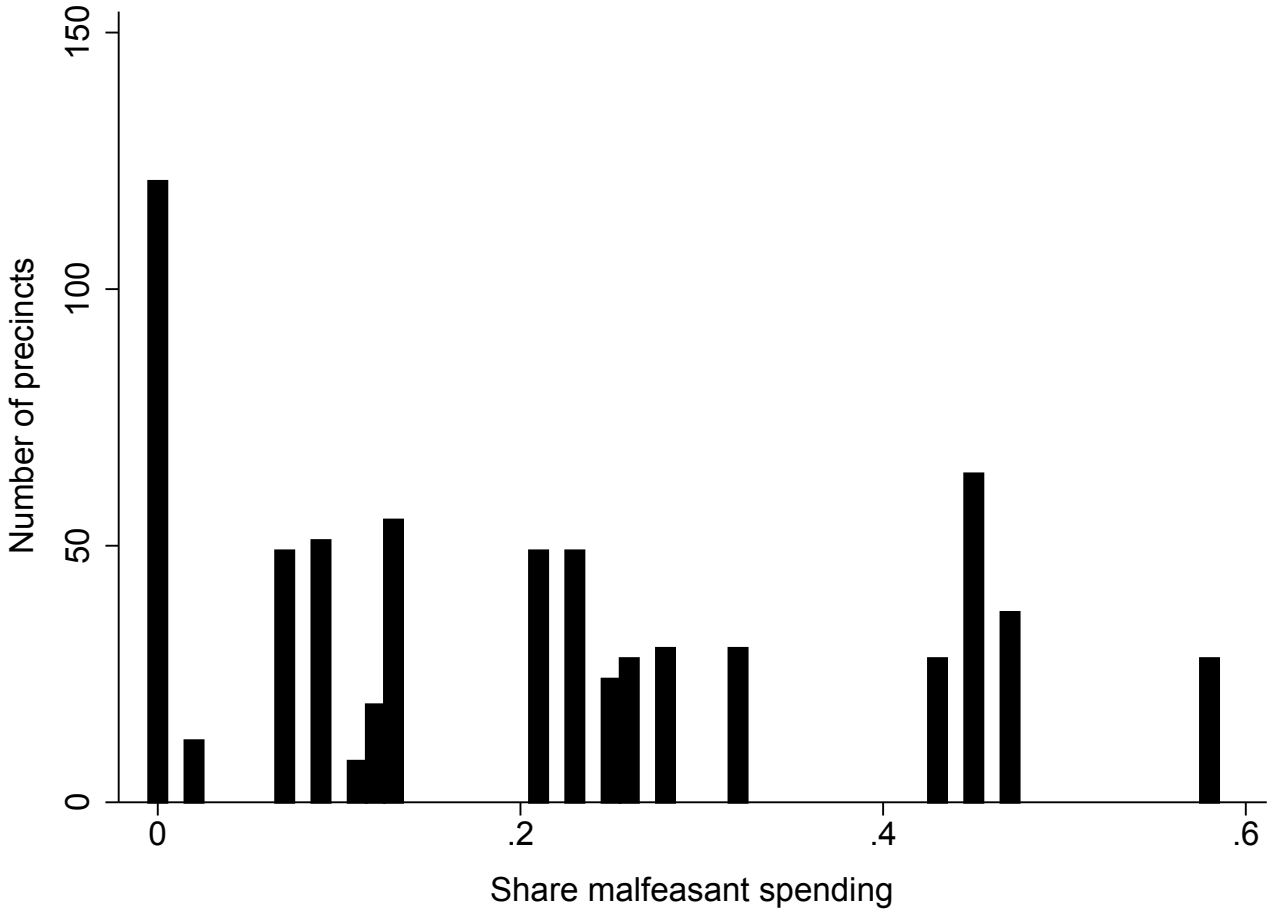
2015 municipal elections (concurrent federal and state elections).

678 precincts from 26 municipalities from states of Guanajuato, Estado de México, San Luis Potosí, and Querétaro.

- Safe municipalities, match party distribution.
- Maximize difference with other municipalities within the state under other parties.
- $\leq 1/3$ of precincts, minimizing urban neighbors, $\leq$1,750 voters.



Malfeasance distribution in our sample



Inform voters *either* about unauthorized spending or not spending on the poor.

Treatment leaflet

BORDE

¡BORDE ES UNA ASOCIACIÓN CIVIL SIN FINES PARTIDISTAS Y TE TRAEMOS

INFORMACIÓN IMPORTANTE!

Visita www.borde.mx/2015 para ver más datos y los documentos originales.

Cualquier inquietud contáctanos al
52 08 01 88 o en informes@borde.mx

La información de este volante está basada en los reportes oficiales de la Auditoría Superior de la Federación que puedes encontrar en:
www.asf.gob.mx

BORDE

EL DINERO DEL **FISM**, FONDO DE INFRAESTRUCTURA SOCIAL MUNICIPAL, **DEBE** GASTARSE EN OBRAS DE INFRAESTRUCTURA

LOS GASTOS QUE NO SEAN EN OBRAS DE INFRAESTRUCTURA **DEBEN** SER 0%

EN 2013, EL **PARTIDO** QUE GOBIERNA **ECATEPEC** RECIBIÓ **146.3 MILLONES** DE PESOS DEL FISM Y GASTÓ **45%** EN COSAS QUE **NO DEBE**

GASTÓ COMO **NO DEBE**

45 %
PARTIDO QUE GOBIERNA ECATEPEC

¡PIÉNSALO! EL **7** DE JUNIO EL VOTO DEPENDE DE TI ¡COMPÁRTELO!

Treatment assignment

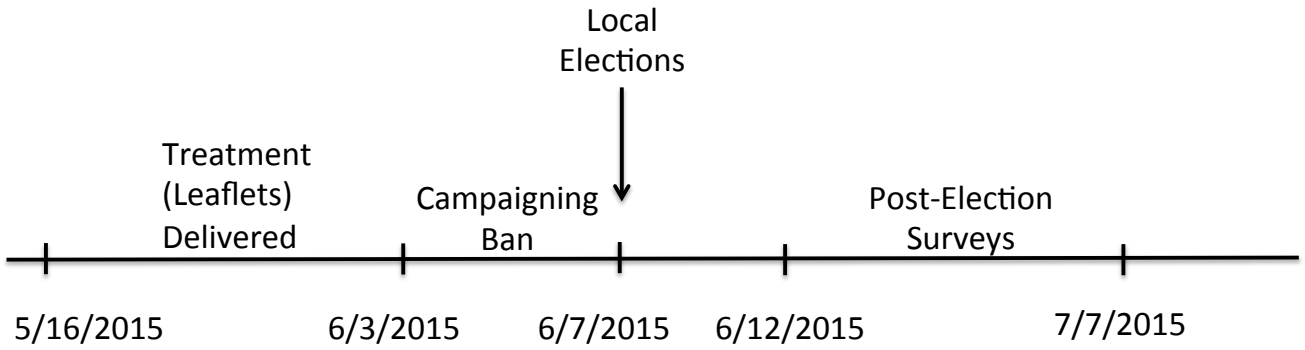
	Control	Private	Public
Control	278 precincts		
Local		100 precincts	100 precincts
Comparative		100 precincts	100 precincts

Generally casts incumbent in a bad light relative to other municipalities in the state governed by other parties. [Variants]

Pool treatment variants which had little differential effect (see Arias et.al. 2018)

Block randomization: 6 or 7 similar precincts per block (over 23 variables); 4 treatments per block.

Implementation



Up to 200 leaflets distributed per treated precinct (in person or pinned to door). [median precinct: 353 households.]

Generally good compliance:

- Few instances of delivery outside precinct.
- Some local pushback.
- ...focus on ITT throughout.

Data

Precinct-level electoral returns:

- Incumbent vote share (share of turnout and registered voters).
- Turnout.

Post-election survey of 10 voters from all treated and 1 control precinct per block.

- Posterior incumbent malfeasance beliefs (-2 to 2).
- Posterior precision (1 to 4).

Estimation

Follow pre-analysis plan: [Details]

$$Y_{pbm} = \beta \, Treatment_{pbm} + \eta_{bm} + \varepsilon_{pbm},$$

Cluster by municipality-treatment.

Treatment generally well-balanced, robust to predetermined controls. [Results]

Heterogeneous effects: add $Treatment_{pbm} \times X_{bm}$.

Constructing prior beliefs

Problem: could only afford a *post*-election survey $\rightarrow$ no direct measure of priors and updating.

Solutions:

- Use the post-election responses from each municipality's control precincts to proxy for the average prior beliefs and precision (μ_I, λ_I) of treated and control voters in the municipality.
- Show control group the leaflet during post-election survey, use average change in beliefs to proxy for updating $(\kappa_I \Delta_I)$.

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Validating prior and updating measures

Assumptions:

- Control group respondents similar to treatment group ones (enhanced by blocking).
- Control group beliefs persistent between treatment and survey and not subject to spillovers.

Validation exercises:

- Election results uncorrelated with beliefs in the control group. [Results]
- No evidence of cross-precinct spillovers, controls near treated no more likely to recall our leaflet. [Results]
- Control group respondents update more than treated respondents upon being shown the leaflet. [Results]
- 2012 Mexican Panel Survey and Brazilian Metaketa study show high within-individual belief persistence. [Results]

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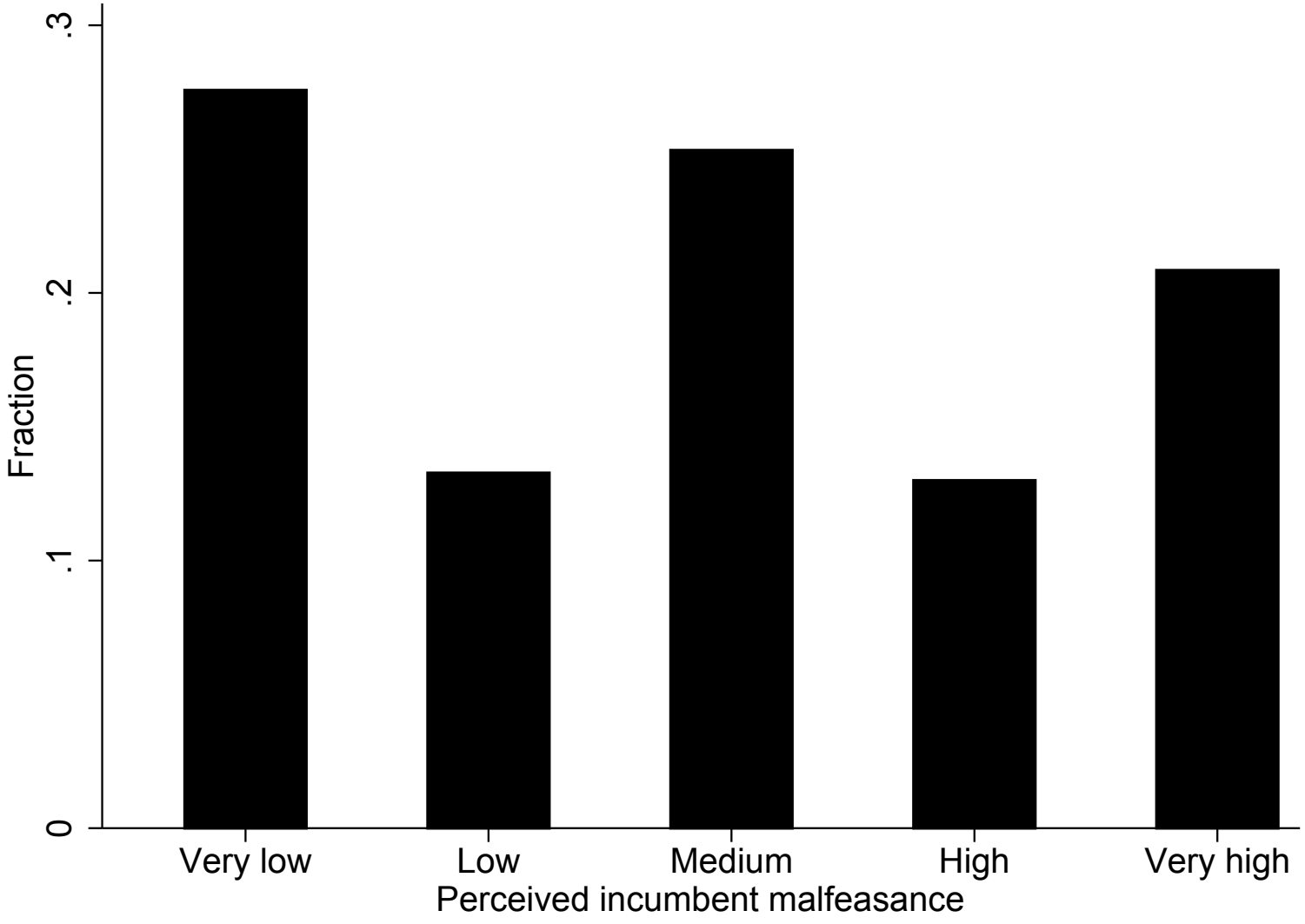
Results

Low expectations of incumbent in the control group



Posterior belief updating

	Perceived incumbent party malfeasance (very low to very high)					
	(1)	(2)	(3)	(4)	(5)	(6)
Information treatment	-0.001	-0.015	0.427	0.016	0.848*	-0.096**
	(0.040)	(0.037)	(0.476)	(0.067)	(0.452)	(0.047)
× Incumbent malfeasance prior		-0.126***			-0.151***	
		(0.035)			(0.033)	
× Incumbent prior precision			-0.132		-0.258*	
			(0.149)		(0.139)	
× Incumbent malfeasant spending				-0.083	-0.137	
				(0.214)	(0.165)	
× Unfavorable incumbent updating						0.102***
						(0.030)
Outcome range	{-2,-1,0,1,2}	{-2,-1,0,1,2}	{-2,-1,0,1,2}	{-2,-1,0,1,2}	{-2,-1,0,1,2}	{-2,-1,0,1,2}
Control outcome mean	-0.14	-0.14	-0.14	-0.14	-0.14	-0.14
Control outcome std. dev.	1.48	1.48	1.48	1.48	1.48	1.48
Interaction range		[-1.4,1.1]	[2.4,3.8]	[0,0.58]		[-0.6,2.7]
Interaction mean		-0.09	3.23	0.21		0.91
Interaction std. dev.		0.82	0.26	0.17		1.00
R^2	0.29	0.29	0.29	0.29	0.30	0.29
Observations	4,624	4,624	4,624	4,624	4,624	4,624

Findings for posterior beliefs

No average change in posteriors upon learning of relatively high levels of malfeasance, on average.

Suggests that the information provided broadly aligned with what voters already believed.

Heterogeneity: Information operates broadly as expected, except for the share of malfeasant spending.

For the average leaflet, the difference in responses to the treatment between those with the most favorable and most unfavorable prior beliefs is almost one third of a standard deviation in the posterior belief.

Substantively, a one-standard-deviation difference in updating translates to around a 0.1-standard-deviation change in posterior beliefs among treated voters.

Precinct-level results: share of turnout

	Incumbent party vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Information treatment	0.020***	0.019***	0.146***	0.031***	0.137***	0.026***
	(0.004)	(0.004)	(0.044)	(0.006)	(0.036)	(0.004)
× Incumbent malfeasance prior		0.009*			0.005	
		(0.005)			(0.003)	
× Incumbent prior precision			-0.040***		-0.033***	
			(0.014)		(0.010)	
× Incumbent malfeasant spending				-0.052**	-0.051***	
				(0.023)	(0.016)	
× Unfavorable incumbent updating						-0.009**
						(0.004)
Outcome range	[0.07,0.85]	[0.07,0.85]	[0.07,0.85]	[0.07,0.85]	[0.07,0.85]	[0.07,0.85]
Control outcome mean	0.38	0.39	0.39	0.38	0.39	0.39
Control outcome std. dev.	0.12	0.12	0.12	0.12	0.12	0.12
R^2	0.61	0.59	0.59	0.61	0.59	0.59

Precinct-level results: share of registered voters

	Incumbent party vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Information treatment	0.008***	0.008***	0.054**	0.014***	0.047**	0.012***
	(0.002)	(0.002)	(0.025)	(0.003)	(0.019)	(0.003)
× Incumbent malfeasance prior		0.005**			0.004*	
		(0.002)			(0.002)	
× Incumbent prior precision			-0.014*		-0.010*	
			(0.008)		(0.006)	
× Incumbent malfeasant spending				-0.029**	-0.028***	
				(0.013)	(0.010)	
× Unfavorable incumbent updating						-0.005***
						(0.002)
Outcome range	[0.03,0.47]	[0.03,0.47]	[0.03,0.47]	[0.03,0.47]	[0.03,0.47]	[0.03,0.47]
Control outcome mean	0.19	0.20	0.20	0.19	0.20	0.20
Control outcome std. dev.	0.07	0.07	0.07	0.07	0.07	0.07
R^2	0.62	0.61	0.61	0.62	0.61	0.61

Findings for incumbent vote share - ATE

On average, information about incumbent malfeasance *increased* the incumbent party's vote share.

Average increase in vote share of 2 percentage points, as a proportion of those that turned out or 0.8 percentage point increase as a proportion of all registered voters in the precinct.

The latter estimate indicates that the information caused the incumbent party to gain more voters, rather than simply demobilized challenger supporters.

Positive ATE may seem puzzling given that intervention did not shift posterior beliefs on average

Why a positive ATE? - risk aversion

Incorporating risk aversion in the model can account for the null average effect on posteriors and positive ATE on vote share.

Information treatment could have increased incumbent party support by reducing posterior uncertainty about the party's type.

Evidence consistent with this...

Effect of information treatment on the precision of voters' posterior beliefs

	Precision of perceived incumbent party malfeasance (very low - very high)			
	(1)	(2)	(3) Above-mean incumbent prior precision	(4) Below-mean incumbent prior precision
Information treatment	0.016	0.675**	-0.020	0.050*
	(0.024)	(0.265)	(0.041)	(0.026)
× Incumbent prior precision		-0.204**		
		(0.084)		
Outcome range	{1,2,3,4}	{1,2,3,4}	{1,2,3,4}	{1,2,3,4}
Control outcome mean	3.25	3.25	3.51	2.94
Control outcome std. dev.	0.85	0.85	0.72	0.88
Interaction range		[2.4,3.8]		
Interaction mean		3.23		
Interaction std. dev.		0.26		
R^2	0.11	0.11	0.06	0.06
Observations	4,673	4,673	2,429	2,244

Why a Positive ATE? - Political responses

Information interventions can trigger politicians' responses and increase vote buying (Banerjee et al. 2011; Casey 2015; Cruz et al. 2021; Bidwell, Casey and Glennerster 2020).

Qualitative evidence:

- Some incumbents justified, opposition arranged meetings.
- 7 PRI and 1 PAN municipalities experienced illegal pushback.
- There were instances of arrests, threats, forged leaflets. [Leaflet]

More campaign activities in treated precincts but effect is relatively small. [Results]

Political responses cannot account for heterogeneity in treatment effects by priors, updating and reported malfeasance.

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Why a positive ATE? - alternative explanations

False crediting of mayor for bringing in funds? – no HEs by quantity of funds received (in total or per voter). [Results]

Smear campaign? – voters update and believe leaflets were non-partisan (44% of voters correctly believed that the leaflet came from a non-partisan NGO, more than twice as likely as any particular political party).

Changes weights voters attach to different attributes? No evidence of this. [Results]

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Control outcome mean	0.19	0.20	0.20	0.19	0.20	0.20
Control outcome std. dev.	0.07	0.07	0.07	0.07	0.07	0.07
R^2	0.62	0.61	0.61	0.62	0.61	0.61

Findings for incumbent vote share heterogeneous effects I

Consistent with the model, the treatment's largest positive effects were detected where voters initially believed that their incumbent was more malfeasant.

Moving from the municipality with the most favorable prior beliefs about the incumbent party (-1.4) to the municipality with the most unfavorable prior beliefs (1.1) increases the effect of providing information on the incumbent party's vote share from 0.6 to 2.9 percentage points.

We also find a significantly smaller positive effect of the information in precincts where the municipality's control respondents had more precise prior beliefs.

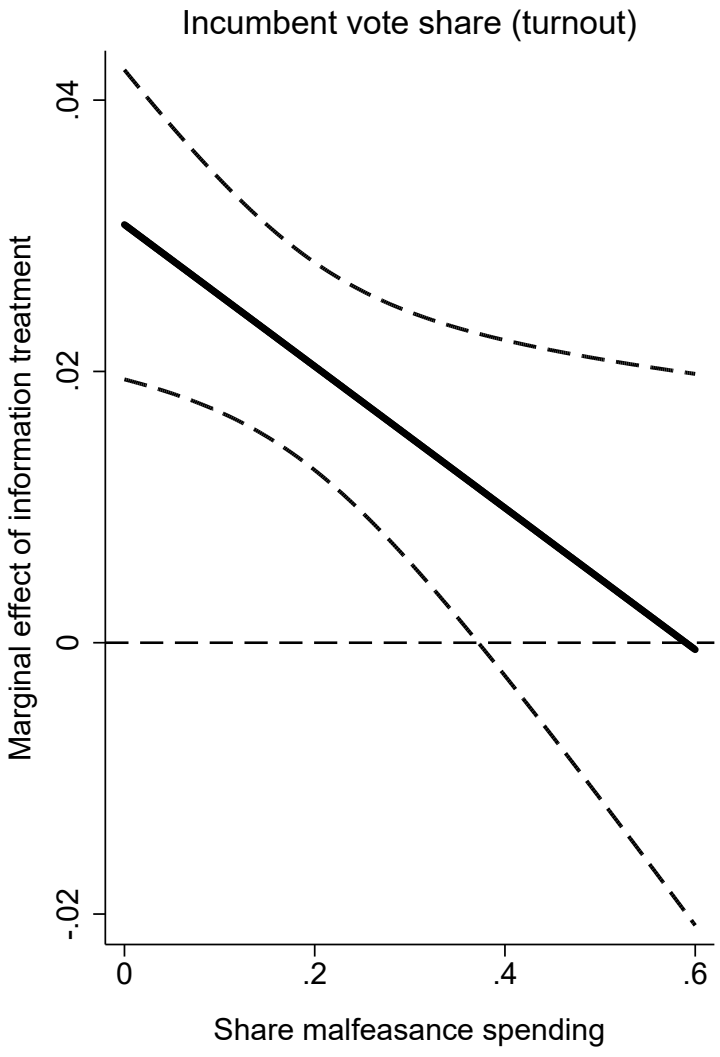
Findings for incumbent vote share heterogeneous effects II

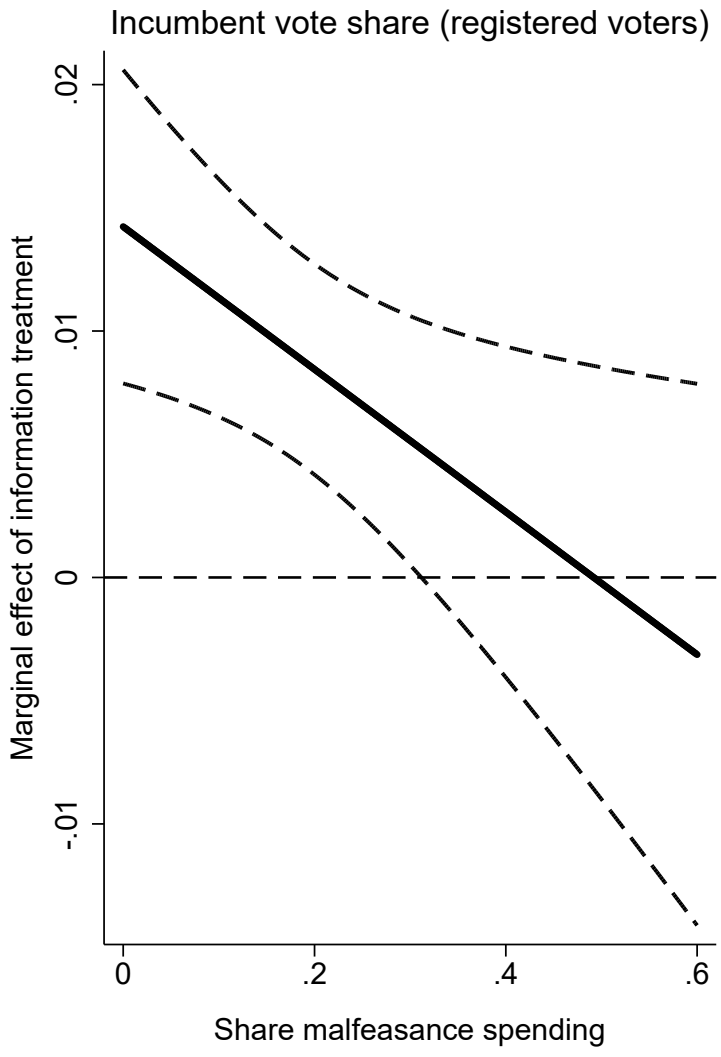
Treated voters were more likely to vote for incumbents overseeing lower levels of malfeasance.

A one-standard-deviation increase in reported malfeasance implies a 0.9-percentage-point decline in the incumbent party's vote share (as a share of turnout).

A one-standard-deviation increase in unfavorable updating induced by the information treatment reduces the incumbent party's vote share (as a share of turnout) by 0.9 percentage points.

Differential effects by malfeasance level





Robustness checks

Similar results for not spending on the poor and unauthorized spending. [Results]

Coefficients robust to:

- Predicting priors at the precinct or individual level. [Results]
- Controlling for the interaction of treatment and several precinct and municipal-level (potential) confounders of prior beliefs. [Results]
- Weighting precincts by the (expected) share of the precinct that received a leaflet [Results]

Findings for turnout

Findings support prediction of non-monotonic relationship between the extent of malfeasance and turnout.

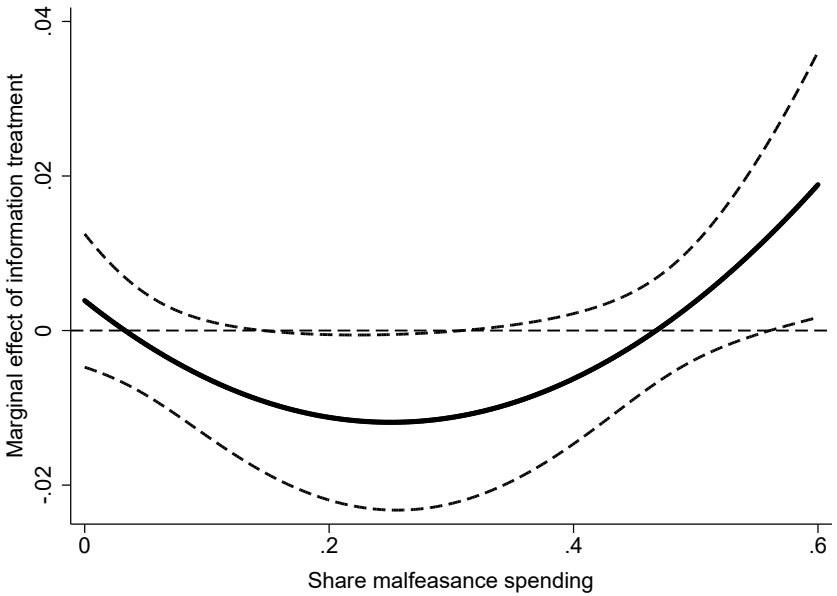
Panel A: Turnout	Turnout			
	(1)	(2)	(3)	(4)
Information treatment	-0.004	-0.005	0.004	0.002
	(0.003)	(0.004)	(0.004)	(0.005)
× Incumbent malfeasance spending		0.002	-0.126**	
		(0.012)	(0.059)	
× Incumbent malfeasance spending squared			0.251**	
			(0.111)	
× Incumbent malfeasance spending quartile 2				-0.000
				(0.006)
× Incumbent malfeasance spending quartile 3				-0.028***
				(0.008)
× Incumbent malfeasance spending quartile 4				0.003
				(0.005)
R^2	0.68	0.68	0.68	0.68
Observations	675	675	675	675

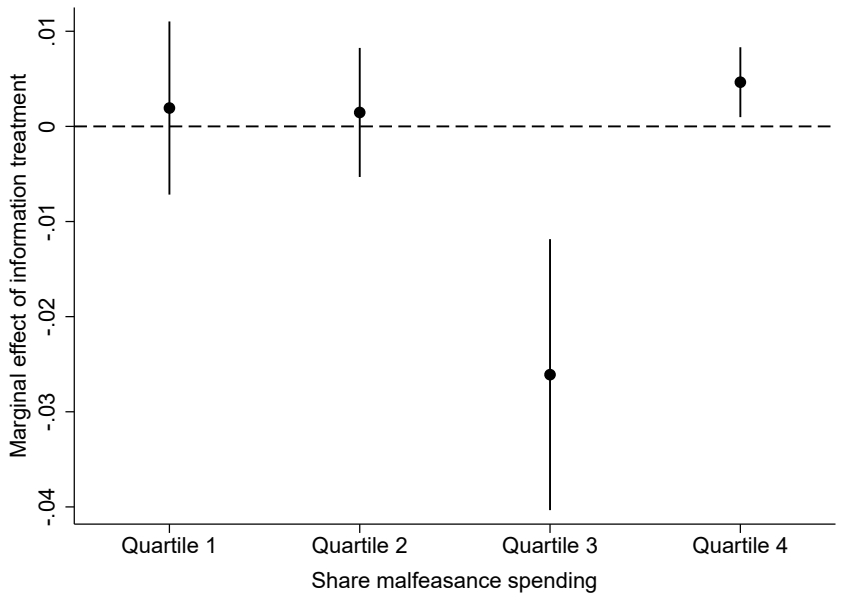
Findings for Turnout

Findings support prediction of non-monotonic relationship between the extent of malfeasance and turnout.

Panel A: Turnout	Turnout			
	(1)	(2)	(3)	(4)
Information treatment	-0.004	-0.005	0.004	0.002
	(0.003)	(0.004)	(0.004)	(0.005)
× Incumbent malfeasance spending		0.002	-0.126**	
		(0.012)	(0.059)	
× Incumbent malfeasance spending squared			0.251**	
			(0.111)	
× Incumbent malfeasance spending quartile 2				-0.000
				(0.006)
× Incumbent malfeasance spending quartile 3				-0.028***
				(0.008)
× Incumbent malfeasance spending quartile 4				0.003
				(0.005)
R^2	0.68	0.68	0.68	0.68
Observations	675	675	675	675

Differential effects on turnout by reported malfeasance





Limited evidence of voter disengagement

Panel B: Confidence in the system	Elections help to select competent candidates (did not help at all - helped a lot)					
	(1)	(2)	(3)	(4)	(5)	(6)
Information treatment	0.008	-0.000	0.389	0.052	0.712	-0.044
	(0.042)	(0.041)	(0.511)	(0.078)	(0.517)	(0.054)
× Incumbent malfeasance prior		-0.078			-0.100**	
		(0.049)			(0.048)	
× Incumbent prior precision			-0.118		-0.205	
			(0.158)		(0.163)	
× Incumbent malfeasant spending				-0.209	-0.247	
				(0.255)	(0.229)	
× Unfavorable incumbent updating						0.057
						(0.038)
R^2	0.06	0.06	0.06	0.06	0.06	0.06
Observations	4,615	4,615	4,615	4,615	4,615	4,615

Conclusions

Priors rule

Understanding voter prior beliefs is essential for understanding when malfeasance information will induce punishment (Banerjee et al. 2011; Ferraz and Finan 2008) and may help reconcile mixed findings in the literature,

The implications of our findings for using information interventions to improve governance are mixed:

- Good news: voters learn from signals of incumbent malfeasance and incorporate them into their voting behavior. Information thus helps voters to choose between candidates.
- Bad news: pessimism and low expectations may lead voters to reward mediocre behavior.

Low-expectations trap

Low voter expectations $\rightarrow$ keep getting similar politicians and set weak incentives for office-holders.

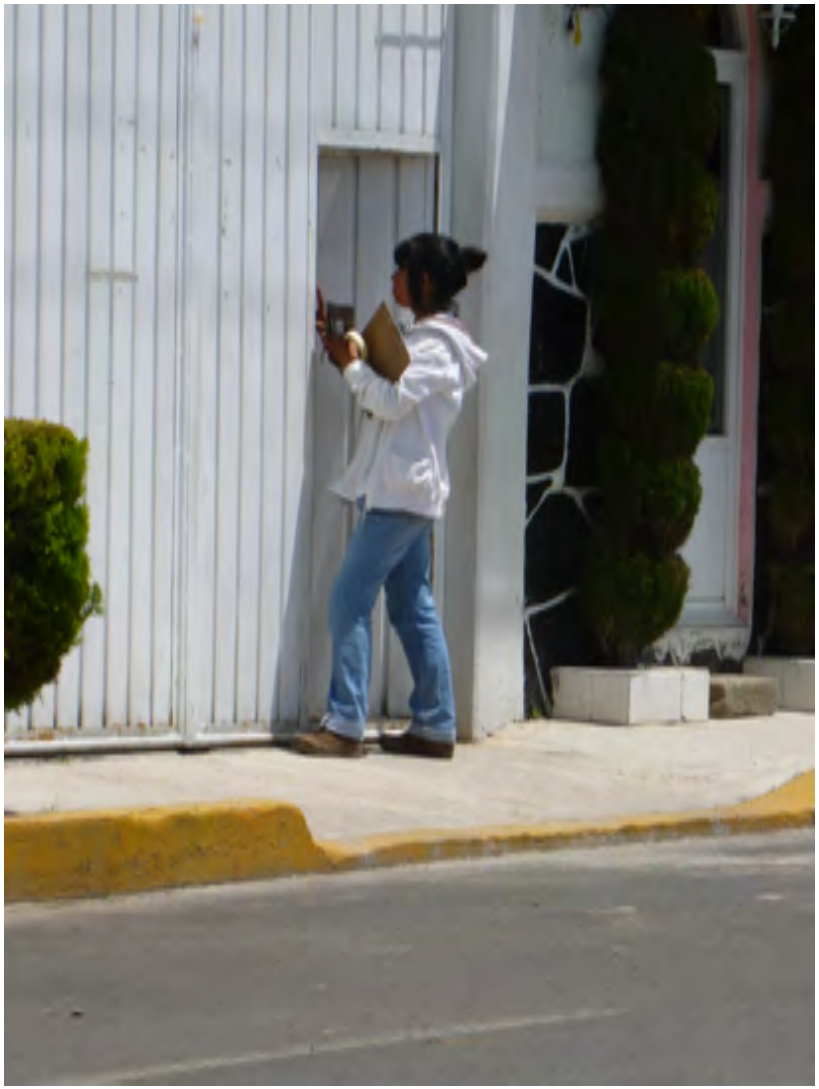
How can this trap be broken?

- Civic education or a critical media may be required to help voters understand what good performance entails (e.g. Adida et al. 2017; Botero et al. 2015; Gottlieb 2016).
- Higher-quality candidates should also be encouraged to stand for office; i.e. via higher wages (Caselli and Morelli 2004; Gagliarducci and Nannicini 2013).
- More effective audits and legal sanctions may also help improve politicians' performance (Avis, Ferraz and Finan 2018; Bobonis, Fuertes and Schwabe 2016; Olken 2007; Zamboni and Litschig 2018).

Appendix

Treatment variant: comparative

Treatment variant: private vs. public



Relation to PAP

Experiment pre-registered at www.egap.org/registration/760:

- Paper focuses on primary precinct-level outcomes in PAP, i.e., incumbent vote share and turnout.
-
- Results on other primary hypotheses reported in companion working paper (Arias et al., 2018).
- Results on secondary outcomes and mediators are reported if speaking to results on the primary outcomes.
- Empirical specifications mirror PAP. For non-monotonic effects on turnout, we use two most natural ways (quadratic polynomial and non-parametric splitting).

[Return]

Balance tests

	Control mean	Treatment mean	Treatment effect	Standard error	Observations
Panel A: precinct-level covariates					
Area	10.0	10.5	-0.637	(0.717)	675
Population	1372.6	1392.7	-26.24	(36.34)	675
Population density	6126.5	5491.7	90.93	(231.8)	675
Distance from municipal centroid	7645.4	8839.5	438.7	(273.2)	675
Number of households	329.4	330.9	-6.831	(8.787)	675
Number of private dwellings	395.9	398.6	-9.930	(11.06)	675
Average occupants per dwelling	4.10	4.16	0.014	(0.016)	675
Average occupants per room	1.15	1.19	0.006	(0.008)	675
Share of homes with 2+ rooms	0.66	0.65	0.001	(0.006)	675
Share of homes with 3+ rooms	0.76	0.75	0.001	(0.006)	675
Average years of schooling	8.12	7.73	-0.107*	(0.054)	675
Share married	0.55	0.55	0.001	(0.002)	675
Share working age	0.63	0.63	-0.001	(0.001)	675
Share economically active	0.38	0.37	0.000	(0.002)	675
Share without health care	0.34	0.35	0.011**	(0.005)	675
Share with state workers health care	0.04	0.04	0.000	(0.002)	675
Share aged 65+	0.06	0.06	0.001	(0.002)	675
Average children per woman	2.47	2.58	0.042***	(0.015)	675
Share of households with male head	0.77	0.77	0.001	(0.003)	675
Share born out of state	0.27	0.27	0.006	(0.006)	675
Share indigenous speakers	0.06	0.06	0.008**	(0.004)	675
Share of homes without a dirt floor	0.92	0.92	-0.001	(0.003)	675
Share of homes with a toilet	0.89	0.88	-0.001	(0.005)	675
Share of homes with water	0.84	0.84	0.002	(0.009)	675
Share of homes with drainage	0.83	0.82	-0.004	(0.006)	675
Share of homes with electricity	0.96	0.96	0.002	(0.003)	675
Share of homes with water, drainage, and electricity	0.76	0.74	-0.008	(0.009)	675
Share of homes with a washing machine	0.58	0.57	0.004	(0.005)	675
Share of homes with a landline telephone	0.42	0.38	-0.016**	(0.007)	675
Share of homes with a radio	0.82	0.82	0.000	(0.003)	675
Share of homes with a fridge	0.75	0.74	-0.001	(0.006)	675
Share of homes with a cell phone	0.55	0.53	0.008	(0.005)	675
Share of homes with a television	0.90	0.89	-0.004	(0.003)	675
Number of local media stations	2.32	2.33	0.05	(0.030)	675
Share of homes with a car	0.39	0.37	-0.005	(0.006)	675
Share of homes with a computer	0.25	0.21	-0.007	(0.006)	675
Share of homes with internet	0.17	0.14	-0.006	(0.006)	675
Turnout in 2012	0.63	0.63	0.007**	(0.003)	675
Incumbent party vote share in 2012	-0.17	-0.20	-0.017***	(0.006)	675
Incumbent party vote margin in 2012	0.42	0.44	0.014***	(0.005)	675
Panel B: survey-level covariates					
Female	0.62	0.64	0.020	(0.018)	4,958
Age	44.6	44.4	-0.528	(0.531)	4,869
Education	8.13	8.00	-0.062	(0.133)	4,948
Income	2.55	2.48	-0.043	(0.081)	4,402
Income (log)	1.16	1.14	-0.010	(0.017)	4,402
Employed	0.42	0.42	-0.006	(0.014)	4,950
Turnout in 2012	0.63	0.63	0.004	(0.012)	4,958
Incumbent vote in 2012	0.55	0.54	-0.007	(0.021)	3,122
Political knowledge index	2.39	2.40	0.006	(0.025)	4,958

[Return]

Correlation between municipal-level election outcomes and prior beliefs in the control group

	Incumbent malfeasance prior		Strength incumbent prior	
	(1)	(2)	(3)	(4)
Municipal incumbent won election (2015)	-0.516		0.197	
	(0.382)		(0.127)	
Municipal incumbent vote share (2015)		-1.713		1.207**
		(1.661)		(0.481)
Municipal incumbent vote share (2012)	3.307*	3.723**	-0.865	-1.027
	(1.690)	(1.767)	(0.695)	(0.697)
Constant	-1.198	-1.110	3.482***	3.238***
	(0.779)	(1.007)	(0.368)	(0.381)
Control outcome mean	-0.14	-0.14	3.25	3.25
Control outcome std. dev.	1.48	1.48	0.85	0.85
2015 election outcome mean	0.75	0.38	0.74	0.38
2015 election outcome std. dev.	0.44	0.08	0.44	0.08
R^2	0.06	0.04	0.02	0.02
Observations	1,070	1,070	1,081	1,081

[Return]

Neighbor spillover effects of information treatment on incumbent party vote share

	Incumbent party vote share					
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Incumbent party vote share (share of turnout)						
Neighbor information treatment	-0.003	-0.003	0.055*	-0.011***	0.067*	-0.004
	(0.003)	(0.002)	(0.028)	(0.004)	(0.033)	(0.003)
× Neighbor incumbent malfeasance prior		-0.000			-0.003	
		(0.003)			(0.003)	
× Neighbor incumbent prior precision			-0.017**		-0.024**	
			(0.008)		(0.010)	
× Incumbent malfeasant spending				0.035***	0.037***	
				(0.011)	(0.010)	
× Neighbor unfavorable incumbent updating						0.002
						(0.002)
Panel B: Incumbent party vote share (share of registered voters)						
Neighbor information treatment	-0.003**	-0.003**	0.029*	-0.009***	0.039***	-0.005**
	(0.001)	(0.001)	(0.015)	(0.002)	(0.014)	(0.002)
× Neighbor incumbent malfeasance prior		-0.001			-0.002**	
		(0.001)			(0.001)	
× Neighbor incumbent prior precision			-0.010**		-0.014***	
			(0.005)		(0.004)	
× Incumbent malfeasant spending				0.023***	0.024***	
				(0.006)	(0.005)	
× Neighbor unfavorable incumbent updating						0.001
						(0.001)
Observations	2,302	2,268	2,268	2,302	2,268	2,268

[Return]

Neighbor spillover of information treatment on self-reported engagement with leaflet in control precincts

	Remember leaflet (1)	Remember reading leaflet (2)	Correctly remember content (3)	Leaflet influenced vote (4)	Total incumbent activities (5)	Total challenger activities (6)
Share of treated neighbors	-0.014	-0.013	-0.017	0.007	-0.396*	-0.254
	(0.040)	(0.024)	(0.022)	(0.011)	(0.193)	(0.183)
Outcome range	{0,1}	{0,1}	{0,1}	{0,1}	{0,1,2,3,4,5}	{0,1,2,3,4,5}
Outcome mean	0.09	0.05	0.06	0.02	0.43	0.40
Outcome std. dev.	0.28	0.22	0.25	0.14	1.18	1.17
Share of treated neighbors mean	0.41	0.41	0.41	0.41	0.41	0.41
Share of treated neighbors std. dev.	0.42	0.42	0.42	0.42	0.42	0.42
R^2	0.00	0.00	0.00	0.00	0.02	0.01
Observations	1,139	1,139	1,139	1,139	1,139	1,139

[Return]

Effect of showing voters in control precincts the leaflet in the post-treatment survey

	Perceived incumbent party malfeasance (very low - very high)					
	(1)	(2)	(3)	(4)	(5)	(6)
Shown leaflet for first time	0.061*	0.059*	0.065	-0.008	0.034	0.025
	(0.031)	(0.035)	(0.355)	(0.043)	(0.401)	(0.057)
× Incumbent malfeasance prior		-0.023			-0.020	
		(0.049)			(0.049)	
× Incumbent prior precision			-0.001		-0.013	
			(0.107)		(0.117)	
× Incumbent malfeasant spending				0.329*	0.322	
				(0.171)	(0.192)	
× Unfavorable incumbent updating						0.040
						(0.036)
Perceived incumbent party malfeasance (pre-leaflet)	-0.001	-0.001	-0.001	-0.002	-0.001	-0.001
	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)	(0.041)
Observations	4,624	4,624	4,624	4,624	4,624	4,624

[Return]

Prior and posterior correlations in Brazil

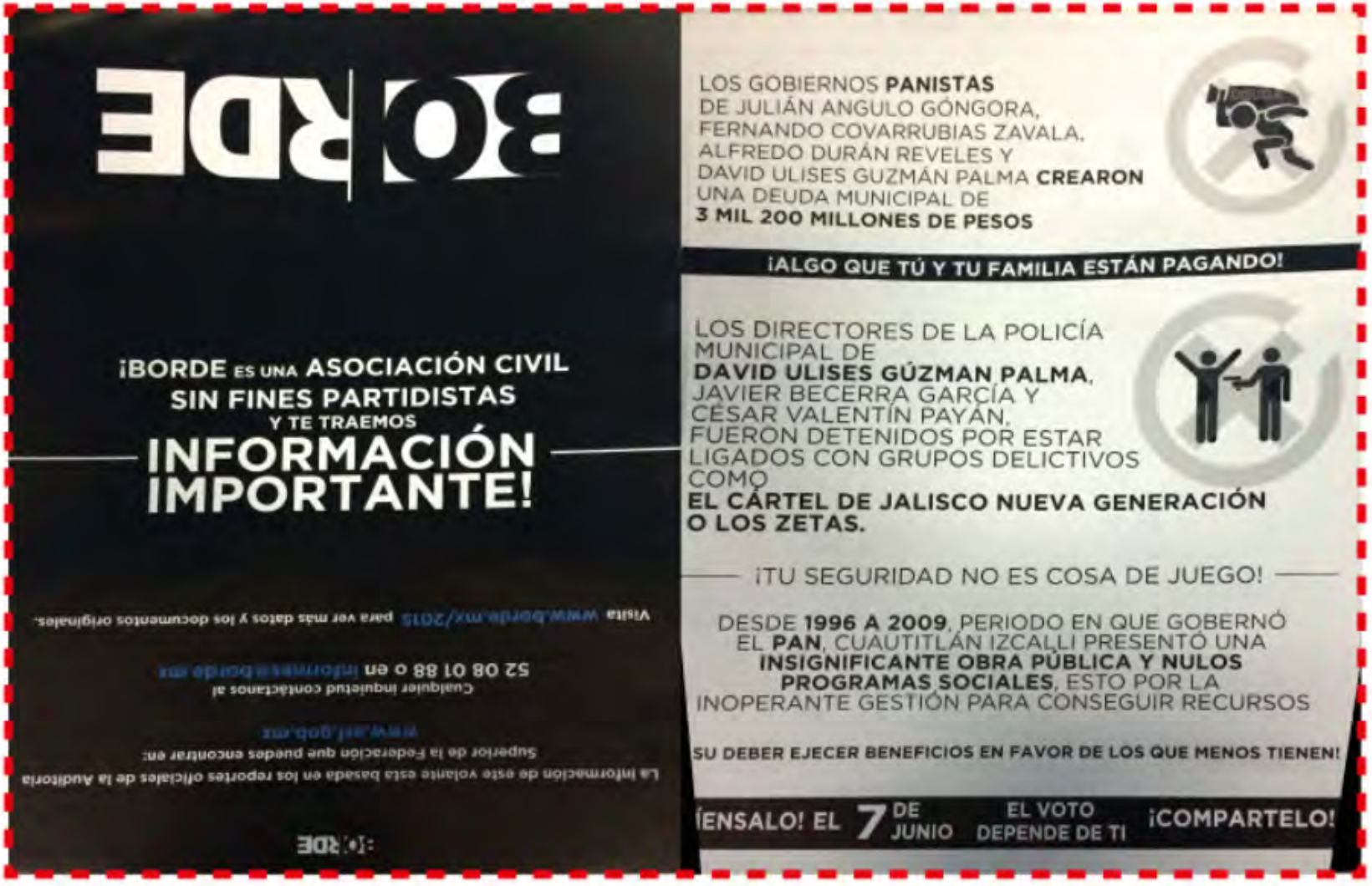
Table: Correlation analysis: both treatments pooled

Variables	av_bl_c	av_bl_t	av_el_c	av_el_t
av_bl_c	1.000			
av_bl_t	0.858	1.000		
av_el_c	0.859	0.779	1.000	
av_el_t	0.766	0.784	0.876	1.000

[Return]

Forged leaflet

VOLANTE FALSIFICADO EN CUAUTITLÁN IZCALLI



[Return]

Incumbent party reactions

	Total party activities					
	(1)	(2)	(3)	(4)	(5)	(6)
Information treatment	0.032	0.034	0.681*	-0.131*	0.439	-0.001
	(0.043)	(0.043)	(0.348)	(0.077)	(0.296)	(0.069)
× Incumbent malfeasance prior		0.024			0.018	
		(0.038)			(0.032)	
× Incumbent prior precision			-0.204*		-0.177*	
			(0.111)		(0.096)	
× Incumbent malfeasant spending				0.766***	0.755***	
				(0.258)	(0.230)	
× Unfavorable incumbent updating						0.036
						(0.040)
Control outcome mean	0.43	0.46	0.43	0.43	0.43	0.43
Control outcome std. dev.	1.18	1.17	1.18	1.18	1.18	1.18
R^2	0.12	0.12	0.12	0.12	0.12	0.12
Outcome range	{0,1,2,3,4,5}	{0,1,2,3,4,5}	{0,1,2,3,4,5}	{0,1,2,3,4,5}	{0,1,2,3,4,5}	{0,1,2,3,4,5}
Interaction range		[-1.4,1.1]	[2.0,3.8]	[0,0.58]	[-0.6,2.7]	[0,0.58]
Interaction mean		-0.09	3.18	0.21		0.90
Interaction std. dev.		0.80	0.35	0.17		0.97
Observations	4,958	4,958	4,958	4,808	4,958	4,958

[Return]

Challenger parties reactions

	Total party activities					
	(1)	(2)	(3)	(4)	(5)	(6)
Information treatment	0.102**	0.105***	0.609	-0.024	0.400	0.089
	(0.039)	(0.039)	(0.398)	(0.060)	(0.384)	(0.060)
× Incumbent malfeasance prior		0.033			0.029	
		(0.043)			(0.038)	
× Incumbent prior precision			-0.159		-0.132	
			(0.122)		(0.116)	
× Incumbent malfeasant spending				0.591***	0.588***	
				(0.204)	(0.187)	
× Unfavorable incumbent updating						0.014
						(0.036)
Control outcome mean	0.40	0.48	0.40	0.40	0.40	0.40
Control outcome std. dev.	1.17	1.24	1.17	1.17	1.17	1.17
R^2	0.12	0.12	0.12	0.12	0.12	0.12
Outcome range	{0,1,2,3,4,5}	{0,1,2,3,4,5}	{0,1,2,3,4,5}	{0,1,2,3,4,5}	{0,1,2,3,4,5}	{0,1,2,3,4,5}
Interaction range		[-1.4,1.1]	[2.0,3.8]	[0,0.58]	[-0.6,2.7]	[0,0.58]
Interaction mean		-0.09	3.18	0.21		0.90
Interaction std. dev.		0.80	0.35	0.17		0.97
Observations	4,958	4,958	4,958	4,808	4,958	4,958

[Return]

Effects by amount of FISM funds received

	Incumbent party vote share (share of turnout)		(share of registered voters)	
	(1)	(2)	(3)	(4)
Information treatment	0.015849*	0.020323***	0.004950	0.006682***
	(0.008398)	(0.004763)	(0.004608)	(0.002459)
× FISM pesos received (millions)	0.000059		0.000048	
	(0.000088)		(0.000047)	
× FISM pesos received per voter (1000s)		-0.001243		0.002824
		(0.003713)		(0.002242)
R^2	0.61	0.61	0.62	0.62
Observations	675	675	675	675

[Return]

Effect of information treatment on the importance of different factors determining a respondent's vote choice

	Importance attached to characteristic (1)	(2)	(3)
Panel A: Candidate's honesty			
Information treatment	0.014	0.011	0.027
	(0.033)	(0.059)	(0.065)
× Absolute updating		0.003	
		(0.035)	
× Share malfeasance spending			-0.062
			(0.190)
Outcome range	{1,2,3,4,5}	{1,2,3,4,5}	{1,2,3,4,5}
Control outcome mean	4.04	4.04	4.04
Control outcome std. dev.	1.22	1.22	1.22
Interaction range		[0,2.7]	[0,0.58]
Interaction mean		1.04	0.21
Interaction std. dev.		0.86	0.17
R^2	0.06	0.06	0.06
Observations	4,674	4,674	4,674
Panel B: Candidate's policies to address poverty			
Information treatment	0.037	0.054	0.067
	(0.031)	(0.050)	(0.051)
× Absolute updating		-0.016	
		(0.037)	
× Share malfeasance spending			-0.143
			(0.138)
Outcome range	{1,2,3,4,5}	{1,2,3,4,5}	{1,2,3,4,5}
Control outcome mean	4.11	4.11	4.11
Control outcome std. dev.	1.26	1.26	1.26
Interaction range		[0,2.7]	[0,0.58]
Interaction mean		1.04	0.21
Interaction std. dev.		0.86	0.17
R^2	0.07	0.07	0.07
Observations	4,697	4,697	4,697

[Return]

Effect of information treatment on incumbent party vote share, by type of malfeasance

	Incumbent party vote share (share of turnout)			Incumbent party vote share (share of registered voters)		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Municipalities receiving information regarding the share of spending not spent on the poor						
Information treatment	0.014**	0.027***	0.017	0.006*	0.014***	0.016**
	(0.006)	(0.006)	(0.014)	(0.003)	(0.004)	(0.007)
× Incumbent malfeasant spending		-0.063**			-0.039***	
		(0.025)			(0.013)	
× Unfavorable incumbent updating			-0.004			-0.007*
			(0.009)			(0.004)
Observations	407	407	383	407	407	383
Panel B: Municipalities receiving information regarding the share of unauthorized spending						
Information treatment	0.028***	0.034***	0.025***	0.011***	0.012*	0.008**
	(0.005)	(0.009)	(0.005)	(0.003)	(0.006)	(0.004)
× Incumbent malfeasant spending		-0.027			-0.006	
		(0.022)			(0.015)	
× Unfavorable incumbent updating			-0.037*			-0.027*
			(0.019)			(0.014)
Observations	268	268	268	268	268	268

[Return]

Predicted precinct-level prior beliefs and updating

	Incumbent party vote share (share of turnout)					
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Predicted precinct-level prior beliefs and updating						
Information treatment	0.020***	0.022***	0.135***	0.031***	0.128***	0.033***
	(0.004)	(0.004)	(0.045)	(0.006)	(0.037)	(0.005)
× Incumbent malfeasance prior (predicted)		0.009*			0.006	
		(0.005)			(0.004)	
× Incumbent prior precision (predicted)			-0.036**		-0.030**	
			(0.014)		(0.011)	
× Incumbent malfeasant spending				-0.052**	-0.052***	
				(0.023)	(0.017)	
× Unfavorable incumbent updating (predicted)						-0.009**
						(0.004)

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Adjusting for interaction of treatment with demeaned precinct-level covariates

	Incumbent party vote share (share of turnout)					
	(1)	(2)	(3)	(4)	(5)	(6)
Panel B: Adjusting for (demeaned) precinct-level covariates interacted with information treatment						
Information treatment	0.018***	0.018***	0.105**	0.030***	0.131**	0.026***
	(0.003)	(0.003)	(0.052)	(0.006)	(0.052)	(0.004)
× Incumbent malfeasance prior		0.008**			0.007*	
		(0.004)			(0.004)	
× Incumbent prior precision			-0.027*		-0.031*	
			(0.016)		(0.016)	
× Incumbent malfeasant spending				-0.058**	-0.068***	
				(0.025)	(0.021)	
× Unfavorable incumbent updating						-0.010***
						(0.003)

Adjusting for interaction of treatment with demeaned municipality-level covariates

	Incumbent party vote share (share of turnout)					
	(1)	(2)	(3)	(4)	(5)	(6)
Panel C: Adjusting for (demeaned) municipal-level covariates interacted with information treatment						
Information treatment	0.020***	0.019***	0.146***	0.040***	0.151***	0.031***
	(0.004)	(0.003)	(0.037)	(0.005)	(0.032)	(0.006)
× Incumbent malfeasance prior		0.011			0.003	
		(0.008)			(0.006)	
× Incumbent prior precision			-0.040***		-0.035***	
			(0.012)		(0.010)	
× Incumbent malfeasant spending				-0.093***	-0.093***	
				(0.020)	(0.016)	
× Unfavorable incumbent updating						-0.013**
						(0.006)

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Weighted precinct estimates

Panel D: Weighting observations by the (expected) share of the precinct that received a leaflet						
Information treatment	0.026***	0.024***	0.168***	0.042***	0.144***	0.034***
	(0.006)	(0.005)	(0.062)	(0.007)	(0.046)	(0.006)
× Incumbent malfeasance prior		0.012**			0.008*	
		(0.006)			(0.004)	
× Incumbent prior precision			-0.045**		-0.033**	
			(0.019)		(0.014)	
× Incumbent malfeasant spending				-0.072***	-0.071***	
				(0.027)	(0.018)	
× Unfavorable incumbent updating						-0.012**
						(0.004)

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