

ONLINE POLITICAL INFORMATION:  
FACEBOOK ADS, ELECTORATE SATURATION,  
AND ELECTORAL ACCOUNTABILITY IN  
MEXICO

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# Digital communication technologies

Rapid growth in 3G+ internet via cell phones in the Global South

Revolutionizing access to information and democratizing its low-cost supply

Median percentage of adults who ...



Use the internet at least occasionally or own a smartphone

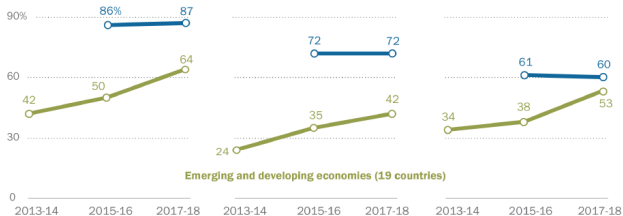


Report owning a smartphone



Use online social networking sites

Advanced economies (17 countries)



## Implications for political accountability

**The bad:** *partisan* actors manipulate or distract voters

- Could alter behavior and reduce faith in democracy
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**The good:** *non-partisan* actors could better inform citizens that relied on captured or under-resourced traditional media outlets

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**The uncertain:** *Can non-partisan mass information campaigns on social media enhance electoral accountability?*

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*Is the effect of non-partisan mass information campaigns on social media driven by campaign saturation?*



## Preview of design

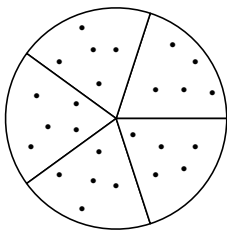
Evaluate Borde Político's Facebook video ad campaign across 128 Mexican municipalities shortly before the 2018 elections

- Reported irregularities in municipal spending from publicly available independent audit reports

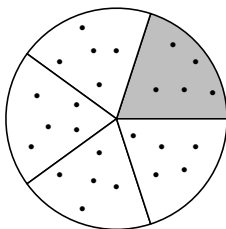
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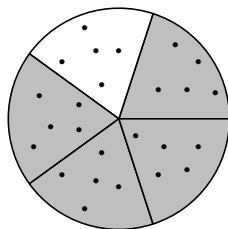
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(a) Control municipality



(b) Low (20%) saturation municipality



(c) High (80%) saturation municipality

...estimate direct and indirect/“spillover” effects, by saturation

## Preview of findings

Best-performing municipal incumbent parties rewarded by voters:

- Direct targeting: 6-7pp  $\uparrow$  in vote share
- Spillovers: about half this size, on average
- Driven by complementarity with saturation

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Worst-performing incumbent parties largely unpunished

Likely driven by interactions between voters:

- Substantial indirect and saturation effects, that are unlikely to reflect ad mistargeting
- Effects increase with social connectedness
- Little evidence of politician or media responses

## Primary contributions

Substantial potential impacts of non-partisan content disseminated via social media on vote choice

- Contrasts with smaller effects on turnout (Bond et al. 2012) and of partisan ads (Liberini et al. 2018; Rink 2019)
- Mixed electoral effects of social media exposure in general (Allcott et al. 2020; Fujiwara et al. 2021)

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Media's impact extend beyond direct exposure to content

- Long-positied social amplification (Lazarsfeld et al. 1944)
- Social interactions amplify information's electoral effects (Arias et al. 2019; George et al. 2019)

# Roadmap

1. Theoretical framework
2. Context
3. Intervention and evaluation design
4. Main electoral results
5. Exploration of potential mechanisms
6. Conclusions



## Why saturation may induce or amplify campaign effects

Greater saturation facilitates greater **learning** through increased:

- Likelihood of consumption
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Greater saturation facilitates greater **learning** through increased:

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Greater saturation facilitates voter **coordination** around information provision:

- Explicit coordination
- Implicit coordination through common knowledge

## Key implications

Direction of information effects are hard to predict (depend on priors, what is coordinated on, etc.)

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Various potential mechanisms are hard to separate

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FISM expenditures are subject to independent ASF audits

- ~200 of 2,448 municipalities audited every year
- Document irregularities, e.g. projects benefiting ineligible populations, unauthorized spending categories
  - 17% irregular spending on average, 2009-2018
- Voters unaware of FISM use, while coverage of ASF reports is mixed (Chong et al. 2015; Larreguy et al. 2020)



## Elections and social media

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- Party-centric systems, but mayors now eligible for re-election
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### Widespread use of social media in Mexico

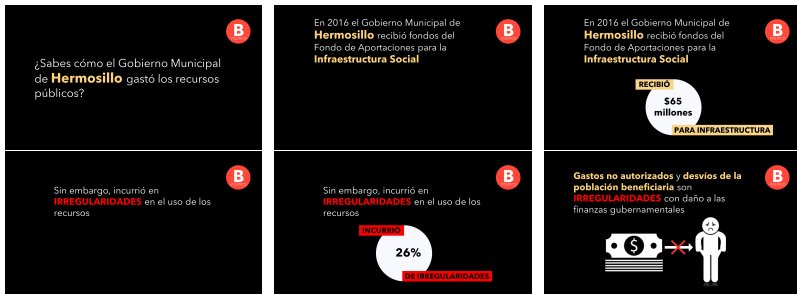
- 72% own a smart phone, 65% accessed the Internet (8 hours a day)
- 89% of these use social media (3 hours a day), of which 98% on Facebook and 91% use WhatsApp

## Partner with Borde Político



Mexico City-based NGO promoting political transparency, using digital campaigns

## Facebook ad video (26 seconds)



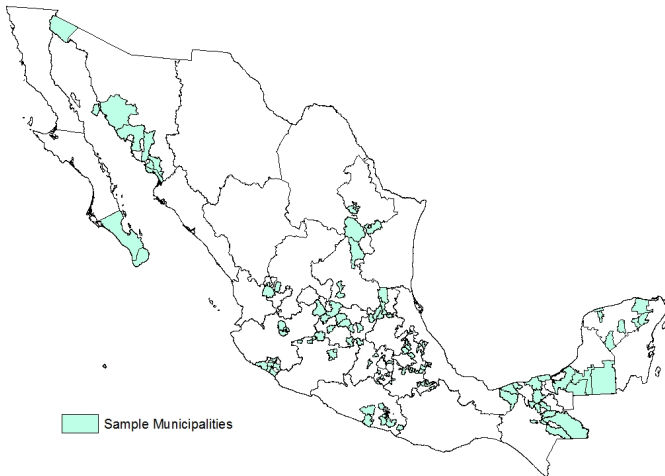
Data from ASF reports

Ads “boosted” from municipality-specific Facebook pages

Week long campaign until June 27, last day of the campaign

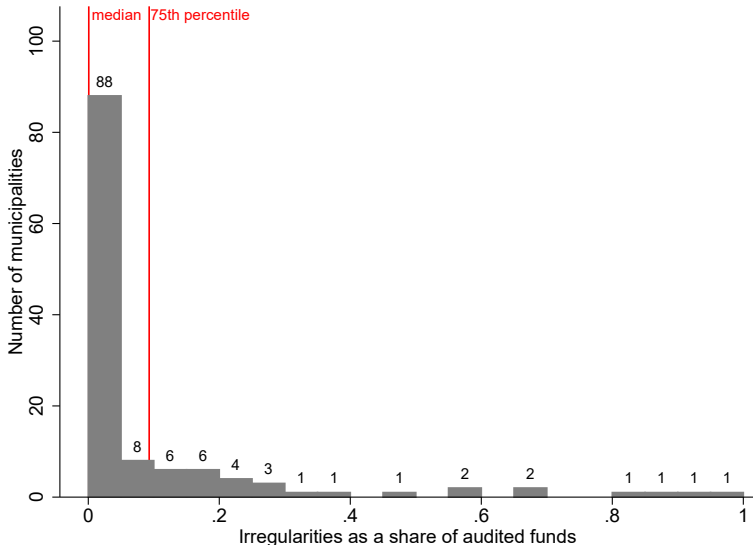
Some users received a common knowledge treatment at end

# 128 municipalities from 17 election-holding states where audit reports were released in 2017 or 2018



Broadly nationally representative sample of ~30m voters

## Distribution of spending irregularities (mean = 9.2%)



0% in 61 out of 128 municipalities

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  - Stratified by party, 43 blocks of most similar municipalities

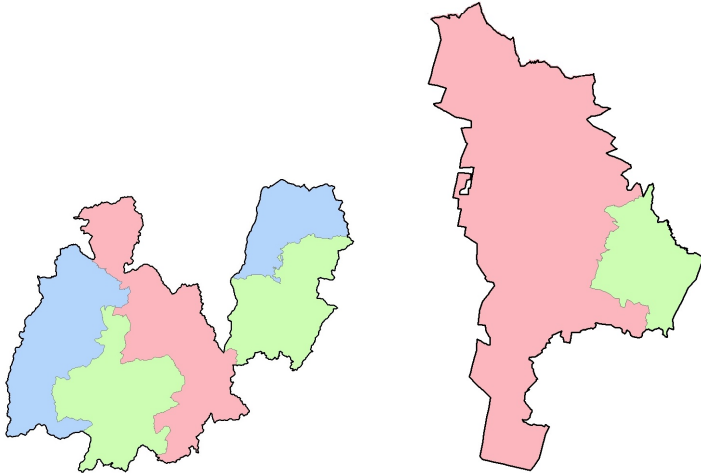


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  - Stratified by party, 43 blocks of most similar municipalities
2. Completely **randomize ads targeting voting age Facebook users** across 783 segments according to municipal saturation
  - Divide municipalities into (multiples of) 5 equally-populated segments of convex and compact electoral precincts

# Segments in high and low saturation municipalities



Segments in high- and low-saturation municipalities

- Pool ineffectual common knowledge variant (blue and green)

## Municipal-level consumption of Facebook ads

	<b>Municipal counts per capita (2015 adult population)</b>				
	Paid-for unique viewers (1)	Organic unique viewers (2)	Unique user page engagements (3)	Unique views (of 3 seconds) (4)	Unique views (of 10 seconds) (5)
High saturation	0.194*** (0.030)	0.008 (0.006)	0.006** (0.002)	0.075*** (0.013)	0.047*** (0.009)
Observations	83	83	83	83	83
Low saturation outcome mean	0.08	0.02	0.01	0.04	0.03
Null: 4 * Low = High ( $p$ value)	0.339	0.049	0.054	0.173	0.094

Ads appeared 7.3m times to 2.7m users

~15% of targeted voting age adults (~20% of adult Facebook users) watched at least 3 seconds

Limited differential effects by level of irregularities reported or type of Facebook users

## Internalization of ad content

Parallel WhatsApp intervention embedded within a 1,500-person panel survey

Different delivery, but treated respondents more likely to remember the message and recall the content several weeks after the election

Majority regarded the information as credible

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- Differential direct and indirect effects by municipal saturation:

$$Y_{psm} = \alpha_b + \beta_1 Direct\ in\ Low_{sm} + \beta_2 Direct\ in\ High_{sm} \\ + \gamma_1 Indirect\ in\ Low_{sm} + \gamma_2 Indirect\ in\ High_{sm} + \delta Y_{psm}^{lag} + \varepsilon_{psm}$$

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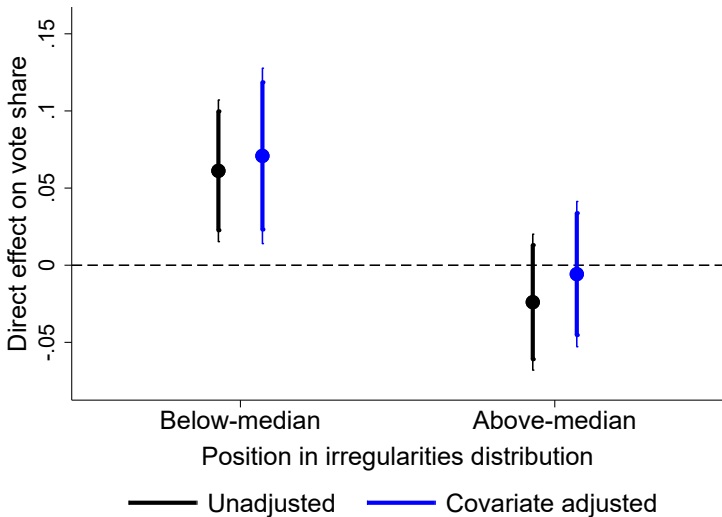
- Heterogeneity by (non-random) reported irregularities



## Main effects

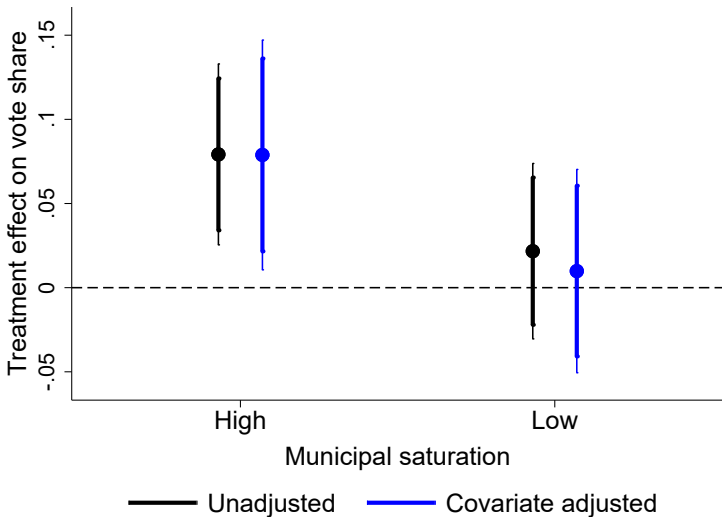
	Incumbent party vote (share of turnout)			Turnout		
	(1)	(2)	(3)	(4)	(5)	(6)
Direct effect	0.026 (0.016)	0.061** (0.023)	0.071** (0.029)	0.013* (0.008)	0.009 (0.012)	-0.011 (0.009)
Direct effect × Above-median irregularities		-0.085** (0.034)	-0.077* (0.042)		0.005 (0.018)	0.036** (0.015)
Indirect effect	0.011 (0.016)	0.027 (0.022)	0.032 (0.026)	0.006 (0.008)	0.007 (0.013)	-0.011 (0.009)
Indirect effect × Above-median irregularities		-0.031 (0.036)	-0.041 (0.041)		-0.006 (0.017)	0.012 (0.014)
Observations	13,254	13,254	13,254	13,254	13,254	13,254
Number of municipality clusters	124	124	124	124	124	124
$R^2$	0.51	0.53	0.60	0.63	0.63	0.69
Control outcome mean	0.28	0.28	0.28	0.64	0.64	0.64
Control outcome std. dev.	0.14	0.14	0.14	0.12	0.12	0.12
Test: null effect of direct effect below median ( $p$ value)		0.01	0.02		0.46	0.18
Test: null direct effect above median ( $p$ value)		0.29	0.81		0.21	0.02
Test: null indirect effect below median ( $p$ value)		0.23	0.23		0.60	0.24
Test: null indirect effect above median ( $p$ value)		0.86	0.71		0.97	0.83
Treatment × covariate interactions			✓			✓

## Heterogeneity in direct effect by level of irregularities



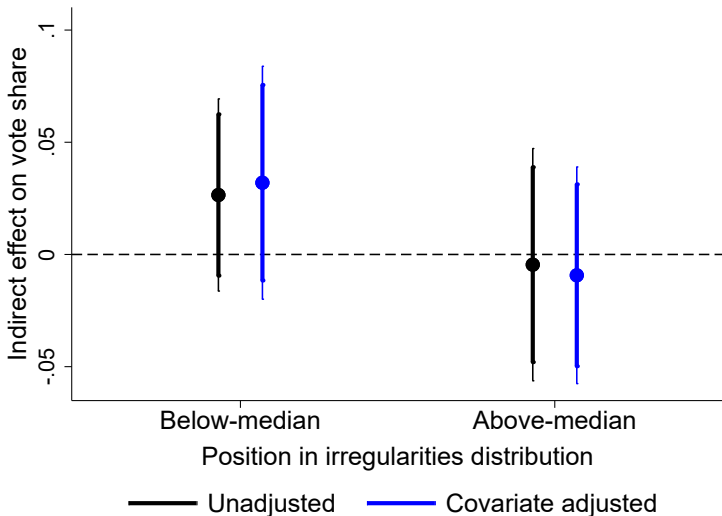
Treatment-covariate interactions adjust for 11 municipal variables

## Differential by saturation in below-median municipalities

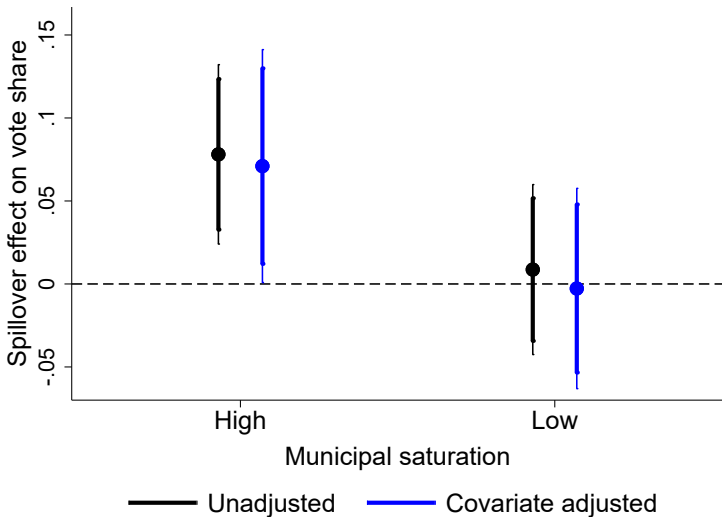


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# Heterogeneity in indirect effect by level of irregularities



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# Potential mistargeting of Facebook ads

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Several tests (not exploiting geographic proximity to treatment) suggest this is unlikely:

- Accounting exercise shows that mistargeting required to account for results is substantial
- Current location targeting → but spillover effects do not increase in Facebook's within-municipality movement metrics
- Error in nighttime location → but no differential effects at treated segment borders between separate (CK and non-CK) and combined (both CK or non-CK) ad markets



## Summary of main results

Large direct and indirect effects among best-performers

- Magnitudes align with subsequent non-partisan interventions (Garbiras-Diaz and Montenegro 2021)

Larger effects in high versus low saturation municipalities

- Comparable to studies on media reporting of irregularities (Ferraz and Finan 2008; Larreguy et al. 2020; cf. Dunning et al. 2019)

## Potential mechanisms

Implausible persuasion rates implied by watching ads *directly*

- 35-71% persuasion based on reaching 17th second of ad
- Other studies: mean 10%, median 12%, maximum 20% (DellaVigna and Gentzkow 2010)

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Exclusion restriction violation could reflect:

- Social interactions between voters (information diffusion or coordination)
- Reactions by campaigns and/or media

## Descriptive evidence consistent with social interactions

Information frequently diffuses through discussion:

- 76% of survey respondents reported discussing politics at least weekly
- 55% of survey respondents that recalled receiving the WhatsApp message discussed it with others

Explicit and tacit voter coordination is common:

- 66% of survey respondents say discussions with others inform their vote choice
- 84% of survey respondents report being influenced by expectations of others' vote choices

## Direct and spillover effects in Q1/Q2 increase in municipal-level Facebook SCI score

	Incumbent party vote (share of turnout)	
	(1)	(2)
Direct effect in high saturation × SCI (standardized)	0.068** (0.034)	0.101* (0.056)
Direct effect in low saturation × SCI (standardized)	0.083* (0.047)	0.061 (0.070)
Indirect effect in high saturation × SCI (standardized)	0.070** (0.033)	0.111** (0.056)
Indirect effect in low saturation × SCI (standardized)	0.102** (0.042)	0.085 (0.070)
Observations	13,233	13,233
Number of municipality clusters	123	123
Control outcome mean	0.28	0.28
Control outcome std. dev.	0.14	0.14
Interactive covariates		✓

Social connectedness index (SCI): probability that any individual is friends with another individual within a municipality

## Mixed evidence of more coordinated vote choices

No additional effect of the common knowledge variant of the treatment

- But few viewers reached the end of the ad
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Treatment reduced the ENPV by 0.3-0.4 parties in precincts that were directly and indirectly targeted with Facebook ads in high saturation municipalities with below-median levels of irregularities

## Little evidence of campaign or media amplification

Limited response from political campaigns:

- Only 2 candidates (both opposition sharing high irregularities reports) responded via their Facebook pages; 0 via Twitter
- 2 reactions by federal deputies to the ads themselves, and 8 shares by municipal politicians



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Limited relaying by 263 local newspapers serving 92 municipalities

- Identified no newspaper article reporting on ASF irregularities between ad campaign and election day
- No differential coverage of corruption, more generally
- Main effects are not moderated by the number of local and non-local radio and television stations reaching an electoral precinct

## Conclusions

### Main findings:

- Non-partisan information disseminated via social media increased support for the best-performing municipal incumbent parties
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### Implications:

- Online political information can work for good, and is low-cost...
- ...but its power may need to be harnessed
- Citizen interactions induced by saturation may explain variation in information's effect on electoral accountability