

PUBLICIZING MALFEASANCE: WHEN THE LOCAL MEDIA STRUCTURE FACILITATES ELECTORAL ACCOUNTABILITY IN MEXICO ^{*}

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Malfeasance in local governments is common in developing democracies. Electoral accountability could mitigate such malfeasance, but may require media market structures that incentivise profit-maximising local media to report on incumbent malfeasance. We test this claim in Mexico, leveraging plausibly exogenous variation in the pre-election release of municipal audits revealing misallocated spending *and* access to broadcast media. We find that each additional local media station amplifies voter punishment (rewards) of high (zero) malfeasance by up to one percentage point. Local media's accountability-enhancing effects are greater when there are fewer non-local competitors and where local outlets' audiences principally reside within their municipality.

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Key words: electoral accountability; malfeasance; media market structure.

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1 Introduction

An influential body of scholarship asserts that in democracies: (i) elections are a key institution producing political accountability; (ii) in order for elections to support accountability, voters must be adequately informed; and (iii) mass media play an essential role in informing voters (e.g. Ashworth 2012). An important application of this accountability dynamic is the electoral sanctioning of malfeasance behaviour, including corruption and the illegal diversion of funds away from intended projects. Such malfeasance is prevalent in developing democracies (e.g. Mauro 1995; Treisman 2007), where voters are often poorly informed about the government’s responsibilities and actions (e.g. Keefer 2007; Pande 2011), despite growing media markets. Although the media generally cover national malfeasance revelations (e.g. Puglisi and Snyder 2011), incentives for profit-maximising media outlets to inform voters about local malfeasance may be weaker. In this article, we examine whether and under what conditions broadcast media stations enable voters to hold their local government to account by publicising malfeasance in office.

We argue that local media outlets and media market structure play key roles in facilitating local electoral accountability. Our simple theoretical framework assumes that voters prefer content that is local to their municipality (e.g. Martin and McCrain 2019) and varied content (e.g. Melitz 2003), and choose between many profit-maximising media outlets that first choose how much content specific to their municipality to provide. Additional local media outlets may then influence aggregate local content consumption—i.e. hours of local content consumed by voters from outlets broadcasting from within the municipality—through two channels: increased audience among channels providing local content, and decreased provision of such content among existing outlets due to the increased competition. Both effects are more pronounced where: (i) there is less crowd out from competing outlets based outside the municipality; and (ii) local outlets primarily serve voters within their municipality (George and Waldfogel 2003; Snyder and Strömberg 2010). While voters may not seek information to select between politicians (e.g. Hamilton 2004; Prior 2007), the local news that they encounter enables them to learn about politically-relevant events, such as reports of incumbent party malfeasance in office. Where the audience effect dominates the content effect, we expect local media and conducive media market structures to increase the magnitude of electoral punishment (reward) following malfeasance revelations that exceed (fall below) voters’ prior beliefs by increasing exposure to such information.¹

This article’s main contribution is to identify the extent to which local media markets influence municipal electoral accountability in Mexico. We examine the release of audit reports pertaining to the Municipal Fund for Social Infrastructure (FISM), a major social program providing municipal

¹Prat and Stromberg (2013)’s similar theoretical expectation is driven by the media content supply, rather than demand, as in our case.

governments with federal transfers to spend on social infrastructure projects benefiting impoverished citizens. Between 2007 and 2012, the audits revealed that the average municipality spent 5.8% of FISM funds on unauthorised (i.e. non-social infrastructure) projects, which often constitute corruption, while 6.6% was misallocated to infrastructure projects that did not benefit the poor. Although mayors could not seek re-election (due to term limits), voters generally hold parties responsible for the performance of aligned mayors in Mexico's party-centric system (e.g. Langston 2003; Larreguy, Marshall and Snyder 2018; Marshall 2020). However, voters are poorly informed about mayoral responsibilities to provide public services (Chong et al. 2015), and principally rely on local broadcast media to learn about mayoral malfeasance (e.g. Castañeda Sabido 2011).

We combine two sources of plausibly exogenous variation to estimate the effect on incumbent party vote share of access to an additional local radio and television station where reports of malfeasance are released before municipal elections. First, to identify the effects of malfeasance revelations, we follow Ferraz and Finan (2008) in comparing incumbent parties where the extent of malfeasant behaviour—either unauthorised spending or diverting funds to projects not benefiting the poor—was revealed before an election to cases of similar malfeasance in municipalities where audit reports were not released until after the election. Second, to identify the effects of access to local media, we use fine-grained spatial data to leverage variation in access to local radio and television signals between neighbouring electoral precincts with areas of less than 10km² within the same (predominantly large urban) municipality. Akin to Enikolopov, Petrova and Zhuravskaya (2011), Larreguy, Marshall and Snyder (2018), and Spenkuch and Toniatti (2018), access to such signals differs due to plausibly exogenous factors such as antenna power and geographic features lying between the antenna and particular precincts.² Extensive balance, placebo, and sensitivity tests support both identification strategies, while the estimates are similar when using a broader sample containing less urban municipalities.

We find that each additional *local* media station—a station broadcasting from within the same municipality in which an electoral precinct is located—increases electoral accountability with respect to both unauthorised spending and spending that did not benefit the poor. Local media's role in amplifying rewards for incumbent parties revealed to have engaged in zero malfeasance before elections is most marked for unauthorised spending: each additional media outlet increases incumbent party vote share by up to 0.6 percentage points. In contrast, local media's role in amplifying the sanctioning of malfeasance in the top quartile of the distribution is most pronounced for not spending on the poor: each additional media outlet decreases incumbent party vote share by 1 percentage point. Local media access may thus have had important electoral implications in our

²As discussed below, we estimate the intent to treat effect on voters with access to media, given that commercial quality coverage boundaries reduce the likelihood that voters receive a media signal but cannot preclude coverage entirely. We lack the fine-grained media consumption data required to compute a first stage, so focus on reduced form estimates.

predominantly urban sample, where the mean precinct is covered by 18 local media outlets. These patterns of rewards and punishment are consistent with voters expecting non-zero levels of malfeasance, and greater unauthorised spending than spending on projects not benefiting the intended beneficiaries. Moreover, the effect of revealing an incumbent to have neglected the poor is greater in less developed precincts where voters stand to benefit most from FISM projects. In contrast, we find no evidence that an additional non-local media station facilitates electoral accountability.

We further find evidence suggesting that local media's capacity to support electoral accountability is moderated by the local media market structure. First, and consistent with competition crowding out increases in consumption of local news content, we show that the effects of additional local media outlets on incumbent party vote share decrease in the number of competing *non-local* media stations. While local media facilitate substantially greater accountability—with respect to unauthorised spending and spending that did not benefit the poor in both the bottom and top quartiles of each malfeasance distribution—where there are few competing non-local outlets to limit increased local outlet audiences, the effects of local media are not statistically significant among the third of precincts covered by 20 or more non-local competitors. Second, we find that the effects of local media stations are generally larger when their audience principally resides inside the municipality from which they emit. This finding is consistent with local news coverage of mayoral performance increasing in the share of a station's audience for whom the news is relevant. Together, these results suggest that electoral accountability relies on media market structures that incentivise local stations to supply politically-relevant information to their audiences.

Greater electoral accountability is most likely driven by increased consumption of stations providing local content, rather than changes in local content provision. Consistent with shifting audiences, the number of local media outlets predicts the consumption of news programming, while the number of non-local outlets does not. Moreover, the limited effects of additional *non-local* media outlets—which we expect to influence local content provision similarly to additional local media outlets—further suggest that local media's effect reflects audience reallocation. Since our empirical strategy does not leverage shocks that substantially alter the size or composition of media outlets' potential audience, it is not surprising that changes in content do not appear to drive our results. By suggesting that audience shifts toward new local outlets is also important, our findings complement studies documenting changes in content in response to large shocks to potential audiences (e.g. George and Waldfogel 2003, 2006; Martin and McCrain 2019; Snyder and Strömberg 2010).

Together, these findings advance our understanding of when voters hold local governments to account in several ways. First, while the extant literature has used innovative strategies to estimate the electoral effects of audit reports and of media coverage in isolation, we identify their *interaction* by exploiting plausibly exogenous variation in both malfeasance revelations and access to local media. As Ferraz and Finan (2008) note, their study cannot definitively establish whether

the effects of randomly-timed audits are amplified by radio or by correlates of radio station presence that could also increase voter sanctioning of politicians revealed to be corrupt.³ Similarly, studies randomising information provision (e.g. Banerjee et al. 2011; Chong et al. 2015) cannot separate information content from the fact that information is now being supplied.⁴ Our findings thus demonstrate that malfeasance revelations and media coverage are indeed complements in supporting electoral accountability.⁵ Moreover, local media’s sanctioning effects exceed those associated with leaflet delivery campaigns (e.g. Chong et al. 2015; Cruz, Keefer and Labonne 2018; Humphreys and Weinstein 2012), suggesting that other features of mass media—like its capacity to frame debate, disseminate information to large shares of an electorate, or coordinate voters—may also be important.

Second, we highlight the particular importance of *local* media and the moderating role of the local media market structure for electoral accountability. Consequently, our results provide evidence suggesting that the crowd out of local media consumption by national media (e.g. George and Waldfogel 2006; Martin and McCrain 2019) may also prevent voters from holding politicians to account. Crowd out by non-local media stations may then, in turn, reduce incentives for politicians to represent voters when their actions are not covered by the media (e.g. Besley and Burgess 2002; Durante and Zhuravskaya 2018; Eisensee and Strömberg 2007; Snyder and Strömberg 2010). Moreover, our result that local media’s effects are greatest where the local audience is large extends the findings of Snyder and Strömberg (2010) by showing that incentives for media outlets to tailor local news to their audience can similarly enhance political accountability in a substantially less developed context where clientelistic practices undermine accountability, and by showing that congruence between media markets and municipality boundaries is also essential for electoral accountability *after* politician performance is revealed. The importance of congruence further extends George and Waldfogel’s (2003) argument that news outlets tailor their content to their market’s demographics. In sum, these features of media structure may ultimately help explain the varying electoral impacts of malfeasance revelations across contexts (e.g. Chang, Golden and Hill 2010; Eggers 2014; Ferraz and Finan 2008; Klačnja 2017).

Finally, our findings indicate that conducive media market structures could incentivise politicians to serve their constituents (Besley and Burgess 2002; Casey 2015; Snyder and Strömberg

³Appendix Table A2 shows that media access is substantially greater in more urban, literate, and economically developed areas in Mexico. This could induce bias if such variables themselves have important political consequences (see e.g. Klačnja 2017; Weitz-Shapiro and Winters 2017).

⁴Likewise, studies only exploiting variation in access to media (e.g. DellaVigna and Kaplan 2007; Durante, Pinotti and Tesei 2019; Enikolopov, Petrova and Zhuravskaya 2011; Martin and Yurukoglu 2017) struggle to unbundle the effect of specific pieces of information, such as those related to incumbent performance, from other content that media outlets supply.

⁵Observational studies also find that corrupt politicians are more likely to be punished electorally when their corruption is covered in the news, or when political corruption is more salient (Chang, Golden and Hill 2010; Costas-Pérez, Solé-Ollé and Sorribas-Navarro 2012; Eggers 2014).

2010). However, without universal access to local content, the levels of malfeasance that we observe suggest that a positive probability of being audited may be insufficient to prevent mayoral malfeasance. As a result, declining local markets in many countries may have pernicious consequences for political accountability (see also [Martin and McCrain 2019](#); [Petrova 2011](#)).

2 Local media, market structure, and electoral accountability

In theory, a single news-reporting media outlet could be sufficient to support electoral accountability. For one news-reporting media station to be able to generate significant electoral sanctioning of malfeasance revelations, many voters would have to receive credible information from such an outlet, sufficiently update their beliefs about their incumbent party’s malfeasance, and ultimately vote according to such beliefs.

In practice, however, the media’s role in supporting this mechanism of electoral accountability faces at least two obstacles. First, media outlets may choose not to report revelations of incumbent malfeasance because of perceived lack of audience interest or weak advertising revenue incentives (e.g. [Ansolabehere, Snowberg and Snyder 2006](#); [Prat and Stromberg 2013](#); [Strömberg 2004](#); [Snyder and Strömberg 2010](#)).⁶ Second, voters may not choose to consistently consume local political information, even when it is available to them (e.g. [Delli Carpini and Keeter 1996](#); [Hamilton 2004](#); [Pande 2011](#)). This section identifies conditions under which each *additional* local media outlet can overcome these constraints to support electoral accountability by increasing consumption of local political news, which guide our empirical analysis.

2.1 Additional media outlets and local content consumption

Our simple framework first examines how additional local media outlets influence aggregate consumption of local content by voters. We assume that voters prefer local content (e.g. [Hayes and Lawless 2015](#); [Martin and McCrain 2019](#)) over general content—including entertainment, national news, and content relevant to other districts or municipalities—and also have a preference for variety of content across media outlets (e.g. [Melitz 2003](#)).⁷ Media outlets commit resources to produce local content, with the goal of maximising their profits within and beyond the municipality in which they operate (e.g. [Gentzkow and Shapiro 2006](#); [Mullainathan and Shleifer 2005](#); [Strömberg 2001, 2004](#)). We consider a continuum of media outlets to reflect our empirical focus on a setting where many media outlets are available. Appendix section A.1 formalises this framework.

⁶While our framework abstracts from this possibility, incumbent control of the airwaves could be another force driving a lack of reporting (e.g. [Besley and Prat 2006](#)).

⁷The preference for local content could reflect entertainment value, incentives to acquire information for private decision-making, or to inform vote choices (see [Prat and Stromberg 2013](#)).

The amount of local content that a voter consumes reflects both their allocation of time to consuming outlets providing local content and the amount of local content supplied by their local providers. For simplicity, we assume that local content is specific to the municipality in which a media outlet is based, and is costlier than providing national content (which can often be rebroadcasted cheaply, e.g. [Martin and McCrain 2019](#)). The incentive for audience-maximising media outlets to produce relatively costly local programming then depends on the cost of local content production, the size of their local market, the extent of competition from local and non-local outlets reaching their local audience, and voters' elasticity of substitution between outlets.

Increasing the mass of local media outlets reaching voters in precinct p_q of municipality q affects total local content consumption, $\bar{\ell}(p_q)$, through three channels in equilibrium. The following comparative static, which derives from the model in the Appendix, summarises these effects:

$$\begin{aligned}
\frac{\partial \bar{\ell}(p_q)}{\partial m_L(p_q)} &= \underbrace{h(m_L(p_q), p_q) \ell(m_L(p_q))}_{\text{local content consumed from newly-accessible outlets}} + \underbrace{\int_0^{m_L(p_q)} \ell(\theta) \frac{\partial h(\theta, p_q)}{\partial m_L(p_q)} d\theta}_{\text{change in local content driven by change in consumption of existing outlets}} \\
&\quad \underbrace{\hspace{15em}}_{\text{audience effect}} \\
&+ \underbrace{\int_0^{m_L(p_q)} h(\theta, p_q) \frac{\partial \ell(\theta)}{\partial m_L(p_q)} d\theta}_{\text{change in local content driven by change in local content provided by existing outlets}} . \tag{1} \\
&\quad \underbrace{\hspace{15em}}_{\text{content effect}}
\end{aligned}$$

where $m_L(p_q)$ and $m_N(p_q)$ are respectively the mass of local and non-local media outlets accessible to voters in precinct p_q , $h(\theta, p_q)$ is voters' level of consumption of outlet θ in precinct p_q , and $\ell(\theta)$ is media outlet θ 's level of production of local content. The positive first term simply captures the additional amount of local content consumed from the newly-available mass of local outlets. A number of studies show that new outlets can attract listeners and viewers from existing outlets (e.g. [DellaVigna and Kaplan 2007](#); [Durante and Knight 2012](#); [Durante, Pinotti and Tesei 2019](#); [Enikolopov, Petrova and Zhuravskaya 2011](#); [Strömberg 2004](#)). Holding fixed the level of local content provided before additional local outlets became available, the negative second term captures the decline in local content consumption that results from the lower audience share among the initial outlets induced by competition from additional local media outlets (i.e. $\frac{\partial h(\theta, p_q)}{\partial m_L(p_q)} < 0$). Combined, these two terms capture the total *audience effect*. The negative third term captures the *content effect*: the reduction in local content produced by the initial outlets in response to increased competition from newly-accessible local media outlets (i.e. $\frac{\partial \ell(\theta)}{\partial m_L(p_q)} < 0$).

The audience effect is positive and dominates the content effect, and thus each additional media outlet increases voter consumption of local content, under several plausible conditions. Holding

local content fixed, the audience effect will increase aggregate consumption of local content if the mass of newly-accessible local outlets does not provide substantially less local content than the initial outlets. Moreover, the countervailing content effect is likely to be dominated where greater access to media affects only a small number of voters, and thus does not significantly affect incentives to produce local content across an outlet's entire potential audience. These conditions likely hold in our empirical context, which exploits variation in additional local media outlets reaching a given electoral precinct. Other research designs that focus on local outlets that are entirely new, or that substantially increase their coverage across most of a municipality, might yield different findings due to dominant countervailing content effects.

This positive effect of additional local media on local content consumption may be moderated by media market structure in at least two ways. First, changes in voters' consumption of local content due to additional local media outlets are crowded out by the presence of more non-local media outlets. This is because voters' desire to consume a variety of outlets reduces the capacity for new local outlets to attract large audiences, while any changes in the production of local content are also muted by the more limited changes in competitive pressure. This implication is consistent with evidence from the U.S. showing that competition from the *New York Times* reduced the circulation of local newspaper outlets (George and Waldfogel 2006).

Second, the positive effects of additional local media outlets are accentuated where their potential audience is primarily located in the municipality to which they are local. For such outlets, the marginal contribution of providing local content on their total audience is greater when their potential audience is predominantly local. Reflecting this logic, Snyder and Strömberg (2010) find that local newspaper—and to a lesser extent television—coverage of a U.S. congressperson, and voter knowledge about that specific representative, increases in the share of the media outlet's market living in that congressperson's district. Also consistent with audiences driving media outlet content, George and Waldfogel (2003) find that newspaper consumption among African Americans—and content targeted at this group's preferences—increases with the share of a newspaper's potential market that is African American. Neither study links coverage of incumbent performance to electoral accountability, to which we next turn.

2.2 Implications for electoral accountability

Since political news is a common component of local content, access to an additional media station reporting on local news could influence voting behaviour by altering voters' posterior beliefs about incumbent and challenger parties. We focus on signals of incumbent malfeasance reported by local media outlets—in particular, the release of independent audit reports—that could update the prior beliefs of voters seeking to elect politicians that are likely to serve voters' interests in the future

(e.g. Fearon 1999; Rogoff 1990).⁸ Based on propositions proved in Appendix section A.1, the impact of local media outlets generates several testable implications for voting behaviour.

First, the magnitude of voter reward and punishment on the basis of incumbent malfeasance reports increases with each additional local media station. As argued above, each additional local station increases voters' consumption of local media content, which in turn increases the probability of receiving signals of incumbent malfeasance or the number of times that such news is encountered. The incumbent party's vote share will then decrease (increase) where the signal indicates malfeasance above (below) voters' prior expectations. We thus hypothesise that:

H1. *Following the release of an audit report before an election, the municipal incumbent party's vote share decreases with the number of local media stations covering the precinct when the report reveals high malfeasance, and increases with the number of local media stations covering the precinct when the report reveals low malfeasance.*

Since signals reporting intermediate levels of malfeasance could fall above or below voters' prior beliefs, we follow Ferraz and Finan (2008) in emphasising the effects of the signals at the extremes of the distribution of reported malfeasance. In these cases, signals of low (high) malfeasance are likely to be below (above) voters' prior beliefs.

Second, our analysis of media market structure implies two sources of heterogeneity in voting behaviour responses. In the first place, the presence of non-local media stations reduces an additional local media outlet's pro-accountability effects by limiting the extent to which local content consumption increases. Consequently, we expect that:

H2. *Following the release of an audit report before an election, the magnitude of the reward and punishment effects of an additional local media station (described in H1) are decreasing in the number of non-local media stations covering the precinct.*

Furthermore, when a media station's potential local audience is large in comparison to its non-local audience, the media station is more likely to provide local content and thus facilitate electoral accountability. We thus further hypothesise that:

H3. *Following the release of an audit report before an election, the magnitude of the reward and punishment effects of an additional local media station (described in H1) are increasing in the share of its audience located within the precinct's municipality.*

⁸The probabilistic voting model in Appendix section A.1 assumes that Bayesian voters learn about their incumbent party's type, and vote on the basis of such beliefs and their partisan biases.

3 Municipal government and accountability in Mexico

Mexico's federal system is divided into 31 states (excluding the Federal District of Mexico City) containing around 2,500 municipalities. Municipal governments—the focus of this study—exercise significant control over the delivery of basic public services and management of local infrastructure. Following major fiscal decentralisation reforms in the 1990s, the average municipality's annual budget reached \$9m (USD), representing 20% of total government spending.⁹ Municipal governments are led by mayors, who are typically elected to three-year terms and—until 2018—could not seek re-election. Municipal elections in different states follow different electoral cycles.

3.1 Municipal audits

An important component of a mayor's budget is the Municipal Fund for Social Infrastructure (FISM). Under the 1997 Fiscal Coordination Law, FISM funds are direct federal transfers to municipalities mandated exclusively for public infrastructure projects benefiting citizens living in extreme poverty in marginalised localities or specifically prioritised zones.¹⁰ Mayors can invest in projects in the following categories: potable water, sewage, drainage and latrines, municipal urbanisation, electrification of rural and poor suburban areas, basic health infrastructure, basic education infrastructure, improvement of housing, rural roads, and rural productive infrastructure. FISM funds are allocated according to a formula accounting for the prevalence of poverty and previous FISM transfers, and represent 24% of the average municipality's budget.

The use of FISM funds is subject to independent audits by Mexico's Federal Auditor's Office (ASF). The ASF's autonomy to audit federal funds spent by federal, state, and municipal governments is constitutionally enshrined, and the ASF is perceived as a neutral, autonomous, and professional agency by both national and international experts (De La O and Martel García 2015). Between 2007 and 2012, 14% of municipalities were audited at least once, with 150-200 municipalities drawn from all states audited each year. ASF audits are announced and conducted the year after spending occurred.

Although municipalities are not randomly selected for audit, the *timing* of an audit is essentially random within the set of audited municipalities. The ASF specifies the following criteria for auditing a municipality in a given year: the financial importance of FISM funds to the municipality, relative to the municipal budget; historical performance indicators and institutional weaknesses that raise the likelihood of misallocation; whether the municipality has recently been audited and

⁹Education and health were decentralised between 1992 and 1996 and the decentralisation of infrastructure projects followed in 1997 (Wellenstein, Núñez and Andrés 2006).

¹⁰A locality's eligibility for FISM projects is determined by a poverty index constructed by the National Population Council (CONAPO).

whether other federal audits are occurring simultaneously; and whether a specific mandate exists to examine a particular municipality.¹¹ Communications with the ASF confirmed these criteria and clarified that an audit should not have occurred within the last two years, and that—for logistical reasons—they often simultaneously audit neighbouring municipalities.¹² Crucially, given that our identification strategy exploits the timing of audits, our correspondence with the ASF also reiterated that the selection of municipalities for an audit does not reflect the electoral cycle or the government’s partisanship. The tests that we discuss below support this claim.

ASF audits cover the expenditure and management of FISM resources from the prior fiscal year. Auditors check that municipal officials abided by procurement rules and accounting procedures, that the status of the funded projects is in accordance with the books, and that funds were used as intended. Reports categorise the use of FISM funds across multiple dimensions; an example is provided in Appendix Figure A1. Of particular relevance, reports document FISM funds spent on unauthorised projects and funds spent on projects that did not benefit the intended poor recipients. Unauthorised spending captures the diversion of resources toward non-social infrastructure projects (e.g. personal expenses and election campaigns) and funds that are unaccounted for. This can broadly be interpreted as corruption (Chong et al. 2015).¹³ Examples of projects that did not benefit poor citizens or the 79% of localities (as of 2010) classified as high or very high on the federal government’s marginalisation scale include diverting funds to support agricultural production in areas without poverty or paving streets in richer areas. Audit reports are presented in Congress every February, the calendar year after the audit was conducted, and thus two calendar years after the spending occurred. Reports are then posted on the ASF’s website, www.asf.gob.mx.

Between 2007 and 2012, the ASF’s audit reports show that the mean municipality allocated 5.8% of funds to unauthorised projects and 6.6% to infrastructure projects that did not benefit the poor. As the spending distributions in Figure 1 show, malfeasance spending in our sample is concentrated among relatively few municipalities engaged in substantial malfeasance. The median audit documents 0.4% unauthorised spending and 0% spent on projects that did not benefit the poor.

The ASF has imposed various punishments on malfeasant public officials. Between December 2006 and July 2012, the Ministry of Public Function recovered \$2m (USD), sanctioned 9,000 public employees for serious misdemeanours, and incarcerated one hundred officials.¹⁴ However,

¹¹This information is formally stated on page 240 of their 2014 summary report, ‘Informe del Resultado de la Fiscalización Superior de la Cuenta Pública 2012,’ available [here](#). Federal auditors may also audit provided through other federal programs.

¹²Based on a personal interview with Lic. Jaime Alvarez Hernández, General Director of Research and Evaluation of the Special Audit of Federal Spending, in July 2012, and formal email correspondence with the ASF.

¹³This definition of corruption resembles Ferraz and Finan (2008), although our measure quantifies the monetary value of malfeasance.

¹⁴*El Universal*, ‘A la cárcel, solamente 100 ex servidores,’ 29th May 2014, [link](#).

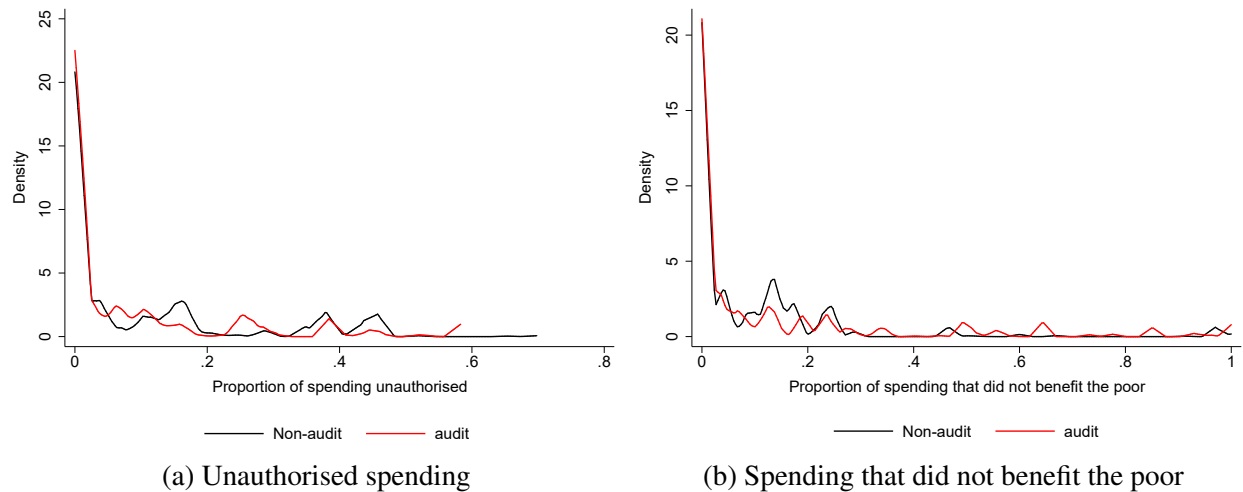


Figure 1:
Distribution of audit report results, by release around election

Notes: The audit outcome kernel density distributions are based on electoral precincts in municipalities that received an audit just before and just after an election. Precincts are weighted by the number of registered voters. We use an Epanechnikov kernel with a bandwidth of 0.025.

the greatest punishment may be electoral. Since Mexican mayors could not stand for re-election, any electoral penalty hits the *party* of a malfeasant mayor.

There are good reasons to believe that a mayor’s political party may be rewarded or punished by voters at the next election. First, although some voters are aware of particular candidates, Mexico’s strong party system ensures that local party labels play a key role in voting decisions. Over the period of our sample, Mexico’s three main parties—the left-wing Party of the Democratic Revolution (PRD), the populist PRI, and the right-wing National Action Party (PAN)—almost exclusively controlled municipal offices, in some cases in coalition with Mexico’s many smaller parties.¹⁵ Second, the top-down internal structure of Mexican parties at the state and local levels ensures that parties generally select similar candidates across elections (Langston 2003). Ultimately, studies consistently show that voters are willing to punish the parties’ of local mayors for their actions in office (e.g. Chong et al. 2015; Marshall 2020).

3.2 Voter information

Voters widely perceive Mexican politicians as malfeasant, but are not generally aware of audit reports. In the 2011 National Survey of Quality and Impact of Government, 84% of respondents believed that corrupt practices occurred frequently in their municipality, while 50% cited corrup-

¹⁵MORENA first stood in 2015 and won the majority of races in 2018.

tion among the three most important issues in their state. Moreover, only 34% of voters believe that municipal governments are transparent about the use of public resources (Castañeda Sabido 2011).¹⁶ However, voters are poorly informed about the resources available to mayors and their responsibility to provide basic public services (Chong et al. 2015). Furthermore, voters know little about the institutions responsible for auditing the use of public resources: only 25% of surveyed individuals can name a public auditing institution, and only 1.4% of those individuals identify the ASF as principally responsible for auditing the use of public funds (Castañeda Sabido 2011).

Radio and television—voters’ principal sources of news—can play an important role in providing voters with information about incumbent malfeasance. The 2009 Latinobarometer indicates that 83% of respondents gather political information from television, 41% from radio, 30% from newspapers, and 41% from family, friends, and colleagues (many of whom, of course, gather their information from television, radio, and newspapers).¹⁷ In 2008, around 10% listened to the radio every day, while the average person watched four hours of television per day (Ibope/AGB México 2009). Furthermore, voters exhibit some preference for consuming various television channels: of the individuals who choose to purchase cable television, the 2016 National Survey on the Consumption of Audiovisual Content conducted by the Mexican Federal Telecommunications Institute shows that 72% indicate that they do so because they want ‘more options of content and channels’ and ‘because they transmit programs that they cannot see otherwise.’

3.3 Local broadcast media

While most entertainment content is shared within Mexico’s large radio and television networks, news is often provided locally. Content sharing is common within major radio groups such as ACIR, MVS Radio, Radio Fórmula, and Radiorama. These networks share branding and formats among their owned-and-operated and affiliated stations, but Mexico’s Federal Election Institute (IFE) classifies all radio stations as providing localised content.¹⁸ A survey of radio stations conducted in 2016 further indicates that 83% of stations report news more than once a day and principally report on municipal—rather than national—political, economic, and security issues (Larreguy, Lucas and Marshall 2016). Mexico’s two main television networks, Televisa and TV Azteca, similarly share national content among their subsidiaries and affiliates alongside providing state-specific programming—particularly news—serving the largest municipalities in a given

¹⁶In principle, local governments are required to inform the public about the arrival of FISM funds. However, only about 50% comply with this requirement. The media often relies on ASF audit reports, since governments are reluctant to release information about their expenses to the public (Lavielle, Pirker and Serdán 2006).

¹⁷Internet has only recently become widespread: according to the 2010 Census, only 21% of households had internet access, while 3G coverage only started to expand in 2011.

¹⁸In 2009, all AM and FM stations were classified by the IFE as providing distinct content; see [here](#). The IFE has since become the National Electoral Institute (INE).

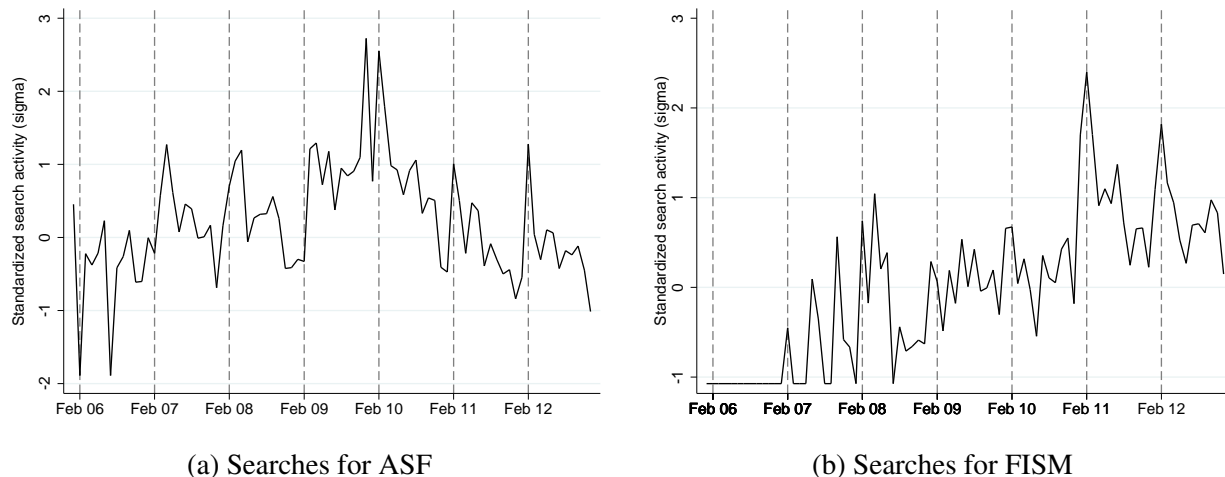


Figure 2:
Google searches related to audit reports by month, 2006-2012

Notes: Extracted using Google Correlate (correlate.googlelabs.com) on 15th July 2014. The data cover Google searches in Mexico for the period used in our sample.

state.¹⁹ Conditional on providing news, media stations provide around two hours of news coverage a day.²⁰ Commercial media outlets rely on advertising revenues and thus have financial motives to target their programming at local audiences.

The release of municipal audit report results each February is often covered by the media, especially by better-resourced outlets in larger municipalities, and malfeasance revelations can remain salient for months after they are reported. According to our survey of radio stations, 76% believe that their audience cares a lot about news relating to corruption, and 48% reported covering municipal-level corruption. Importantly, 83% of individuals report receiving information about malfeasance in the management of public resources through the media, and 61% regard such information as reliable (Castañeda Sabido 2011).

Media reports covering the ASF's reports typically cite the proportions of unauthorised spending and spending on projects not targeted at the poor, while some dig deeper to describe the nature of the malfeasance.²¹ In a particularly egregious case of unauthorised spending from 2013, BBM

¹⁹Televisa operates 190 stations solely retransmitting nationwide content from its main channels (Canal de las Estrellas and Canal 5), but also owns 33 regional stations and affiliates with 9 local stations across most states that broadcast local news. Similarly, TV Azteca owns 45 stations broadcasting only national content (Azteca 7 and Azteca Trece) and 134 stations complementing national content with state-specific programming.

²⁰These figures are based on IFE monitoring of a non-random sample of 200 radio and television stations providing news coverage during the 2012 Mexican Federal election.

²¹For example, see: BBM Noticias, 'ASF: desvió Ugartechea 370.9 mdp,' 21st October 2013, [here](#); El Informador, 'Hallan irregularidades en gasto tapatío contra pobreza,' 28th February 2013, [here](#); Revolución Tres Punto Cero, 'En 2012, se desviaron a campañas 29 millones de pesos para combate a la pobreza en Tabasco,' 6th March 2014, [here](#).

radio station reported that Oaxaca de Juárez’s mayor had created a fake union to collect payments, presided over many public works contracts without offering open tender, diverted payments for advertising and consulting fees, and failed to provide details of considerable quantities of spending.²² More generally, media outlets frequently point to mayors diverting payments, using FISM funds for personal and family expenses, and manipulating tender processes. Reports documenting failures to spend FISM funds on the poor are also common, including cases where public works projects were undertaken in urban and affluent parts of the city, or never materialised despite being paid for. Consistent with voter interest in and media coverage of the audit report releases, Figure 2 documents spikes in Google searches for the terms ASF and FISM around February and March each year.

4 Research Design

This section describes our empirical strategy for testing hypotheses H1-H3. In particular, we combine plausibly exogenous variation in *both* the timing of audit report releases and precinct-level access to local broadcast media to estimate the effect of additional local media outlets on support for incumbent party when audits reports are released before Mexican municipal elections.

4.1 Data and main variables

4.1.1 Municipal election outcomes

Mexico’s municipalities are divided into around 67,000 electoral precincts. Using data from the IFE and State Electoral Institutes, we collected municipal electoral returns for all available precincts between 2004 and 2012. We thus accumulated up to four election results per precinct, enabling us to identify the municipal incumbent party and their past vote share in all the elections in our period of analysis, 2007-2012. President Felipe Calderón of the PAN held office throughout this period.

Our main outcome is the precinct-level change in the municipal incumbent party’s vote share, as a proportion of total votes.²³ To classify cases where the incumbent was a coalition of parties that split before the next election, we determined the party affiliation of the mayor by researching their identity and party ties.²⁴ We restrict our sample to the 97% of coalitions led by candidates

²²BBM Noticias, ‘ASF: desvió Ugartechea 370.9 mdp,’ October 21st 2013, [here](#).

²³Appendix Table A6 shows that turnout is not systematically affected by audit reports, while instead normalising incumbent vote share by the number of registered voters yields similar findings.

²⁴For example, in 2009 the incumbent mayor of the municipality of Colima represented a two-party coalition containing the PRI and the Green Party (PVEM). However, the 2009 election saw six candidates stand for election: the PT, PVEM, and PC candidates stood against candidates from three coalitions, the PAN-ADC, PRI-PANAL, and PRD-PSD. Because the outgoing PRI-PVEM mayor came from the PRI, we use the PRI-PANAL vote as the incumbent’s vote share.

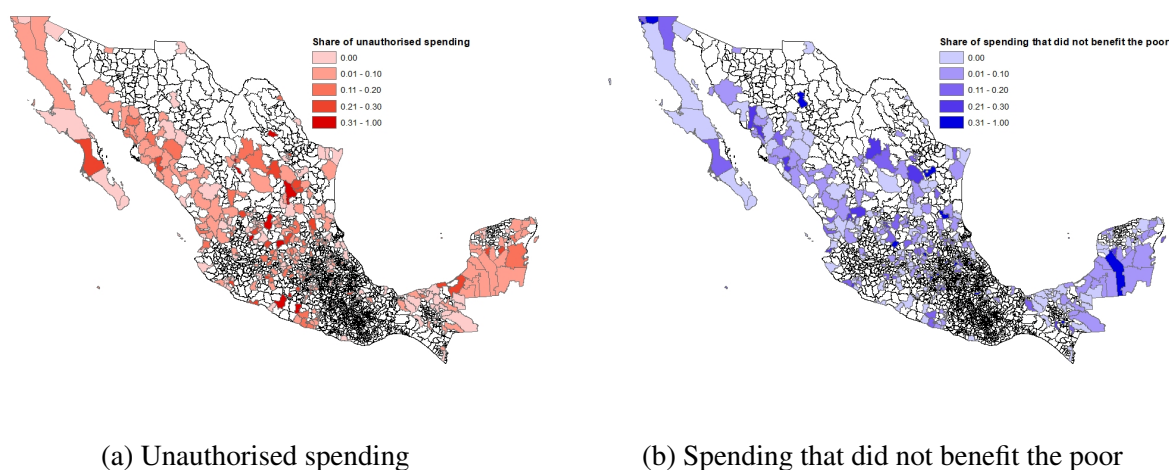


Figure 3:
Distribution of audit report outcomes by municipality

Notes: Only the 311 unique municipalities in our final sample are included. Where more than one audit occurs, we take the average level of malfeasance.

from one of the three main parties. The incumbent party received 43% of votes in the average electoral precinct in our sample, which is 5.1 percentage points below the share that they received when they won the previous election.

4.1.2 Audit reports

We extracted the proportion of funds spent in an unauthorised manner and the proportion of funds spent on projects that did not benefit the poor from all 742 available audit reports between 2007 and 2012. Of these, only 442 reports (from 311 unique municipalities) concerned incumbents from major parties were either released in a municipal election year or the year after. We henceforth focus on this subsample, which is shaded by the extent of malfeasance in Figure 3.

We operationalise municipal malfeasance severity by dividing each FISM spending metric into quartiles. Unauthorised spending in the third quartile ranges from 0.6% to 11.4% of available FISM funds with a mean of 5.4%, while unauthorised spending in the fourth quartile exceeds 11.4% with a mean of 30.1%. For spending not allocated to projects that benefited the poor, the third quartile contains any positive value up to 12.9% of available FISM funds with a mean of 5.8%, while the fourth quartile exceeds 12.9% with a mean of 36.9%. Since around 50% of precincts did not experience any unauthorised spending and 50% did not experience any spending on projects that did not benefit the poor, the 25th percentile of each distribution is 0% for both malfeasance indicators; henceforth, we therefore do not distinguish between the first and second quartiles. These

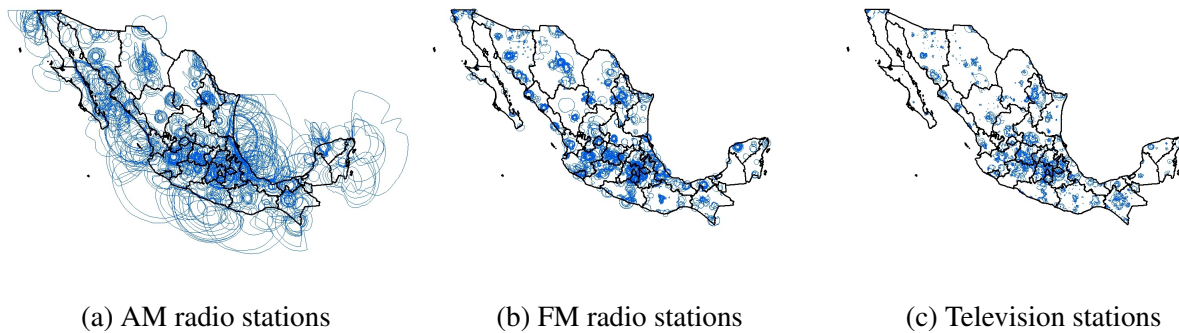


Figure 4:
Media station commercial quality signal coverage areas (source: IFE)

indicators are more flexible than a linear measure, and may better capture models suggesting that voter sanctioning involves cutoff rules (e.g. Barro 1973; Ferejohn 1986). The robustness checks in Table 3 below report similar results using a linear measure of malfeasance or cutoffs for different malfeasance thresholds.

4.1.3 Local and non-local broadcast media coverage

We match our precinct-level electoral data with fine-grained media coverage data. Following a major media reform in 2007 (see Serra 2012), the IFE required that every AM and FM radio station and every television station in the country provide signal coverage data. For each media station we are thus able to identify (i) the municipality from which it broadcasts, and (ii) the commercial quality coverage range of its signal.²⁵ Figure 4 maps the location and commercial quality signal coverage associated with each of Mexico’s 852 AM, 1,097 FM, and 1,255 television antennae. Inside a station’s commercial quality coverage area, the signal is of high quality and voters have good access to the station’s broadcasts.

We measure access to *local* media as the total number of local AM, FM, or television stations covering a given electoral precinct.²⁶ A local station is defined by: (i) providing some local content, rather than (in the case of some televisions stations) retransmitting exclusively nationwide content; and (ii) emitting from within the precinct’s municipality. This definition thus captures the media stations with the strongest audience-maximising incentives to report malfeasance revelations within a precinct’s municipality. To avoid counting signals that barely cover voters within a precinct, we

²⁵The IFE defines the boundary of the coverage area using a 60 dB μ threshold for signal strength. This is the threshold commonly used to determine a radio station’s audience and sell advertising space commercially in the U.S., where it ‘is recognised as the area in which a reliable signal can be received using an ordinary radio receiver and antenna’ (NTIA link).

²⁶The number of radio and television stations has remained fairly constant over our period of study, so we cannot exploit temporal variation in media coverage.

use (urban) block-level and (rural) locality-level population data from the 2010 Census to define a precinct as covered by a given media station only if at least 20% of the precinct’s population lies inside the commercial quality coverage boundary.²⁷ The average voter in the country is covered by 3.1, 3.9, and 1.1 local AM, FM, and television stations, respectively. The total number of local media stations covering a precinct ranges from 0 to 40.

We similarly measure the number of *non-local* media stations as the number of outlets, providing any mix of local or national content, that cover a precinct but transmit from outside their municipality. The average voter in the country is covered by 13.8, 7.6, and 3.8 non-local AM, FM, and television stations, respectively. The greater reach of AM stations reflects such signals travelling by ground or water, rather than by line of sight airwaves.

4.2 Identification strategies

Our identification strategy leverages plausibly exogenous variation in the release of audit reports before mayoral elections *and* access to local media. We describe each source of variation in turn.

4.2.1 Variation in the release of audit reports before municipal elections

To identify the effect of audit reports revealing mayoral malfeasance on incumbent party electoral performance, we exploit the timing of audit report releases with respect to municipal elections. Following Ferraz and Finan (2008), we compare municipalities where an audit report was released just before an election with municipalities where the audit was released just after a municipal election. A pre-election audit report release is defined as an audit released in February of an election year, which is typically four or five months before the election.²⁸ Our comparison group contains municipalities where the audit report was released in February the year after the election.²⁹ It is important to emphasise that reports released in both the election year and the year after refer to spending by the *same* mayoral administration, respectively in the first and second year of its term. Restricting attention to municipalities that have been audited at least once yields a maximum sample of 46,419 precinct \times election observations. The summary statistics in Appendix Table A1 indicate that this sample is broadly nationally representative over the same period, albeit somewhat more urban and developed.

²⁷Table 2 shows that the results are robust to using alternative population thresholds. We selected 20% for our baseline specification because information could diffuse within precincts, even when only a small fraction of voters can access the local media station.

²⁸Although states differ in the month in which they hold elections, only Baja California Sur holds elections before mid-February. We adjust for Baja California Sur accordingly.

²⁹The comparison group could also include reports from the mayor’s third year in office released two years after election. However, we exclude these cases because election year behaviour might differ from the first and second years of a mayor’s term.

The assumption required to identify the effects of audits released just before an election is that the *timing* of report releases is exogenous. This raises two main potential concerns. First, despite the ASF's claim to the contrary, selection for audit may not be independent of the electoral calendar. For example, political motivations could lead the ASF to target certain incumbent parties or particularly clean malfeasant mayors before elections. Second, audit findings could differ across reports released before and after elections. This could reflect auditors being more or less lenient or meticulous when they know that a report will be released in an election year (see Ferraz and Finan 2008), mayors anticipating the possibility that their first year in office could be subjected to an audit released before an election (Bobonis, Fuertes and Schwabe 2016), mayors reducing malfeasant FISM expenditures over the electoral cycle (Brender and Drazen 2005), or the relative inexperience of first-year mayors—about whom audit reports are released before an election—inducing them to allocate their funds differently from second-year mayors.

However, we find no evidence to suggest that municipality characteristics or the content of ASF reports vary with whether an audit report is released before an election. Appendix Table A1 confirms that electoral precincts in municipalities where an audit was released in the year before an election and precincts where an audit was released the following year are well-balanced across 53 municipal and precinct-level variables. We detect only one statistically significant difference at the 10% level.³⁰ Of particular note, pre-election audit releases are not significantly correlated with either unauthorised spending or spending on projects that did not benefit the poor, the incumbent's partisanship or alignment with the state Governor, the incumbent's victory margin in the previous election,³¹ or proxies for socio-economic development. Furthermore, Figure 1 above compares the distributions of audit report outcomes across precincts from municipalities where audit reports were released before and after the election. The distributions of unauthorised spending and spending not on the poor are very similar; in neither case does a Kolmogorov-Smirnov test reject equality of distribution.³² This is consistent with neither municipal governments nor auditors acting differently when an audit report will be released before an election.

4.2.2 Variation in access to local media

To identify the effect of access to local media stations, we exploit differences between neighbouring electoral precincts from within the same municipality in the number of local media stations that they are covered by. Our design is most closely related to Enikolopov, Petrova and Zhuravskaya (2011), Larreguy, Marshall and Snyder (2018), and Spenkuch and Toniatti (2018). Focusing on

³⁰This difference in the number of local media is controlled for in all main specifications.

³¹There is also no significant difference in the winning margin at the election around which the audit report was released, although this could be endogenous to the release of the audit reports.

³²Collapsing to the municipality-audit level (with 442 observations) to avoid duplication across precincts, the p values of the unauthorised spending and not spending on poor distributions are respectively 0.63 and 0.97.

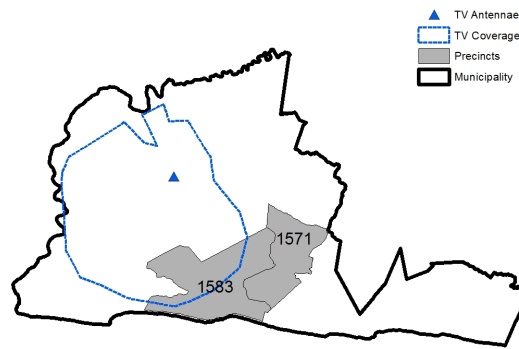


Figure 5:
Identification strategy example

Note: Both precincts are from the municipality of Villa de Tututepec de Melchor Ocampo in the state of Oaxaca. While precinct 1583 is covered by the television emitting from within the municipality, 1571 is not.

neighbouring precincts near local media coverage boundaries allows us to exploit differences in access arising from fixed signal impediments or facilitators such as large physical objects, terrain, and salt water that affect ground conductivity (in the case of AM long waves) and line of sight (in the case of FM and television waves).³³ Furthermore, leveraging only within-municipality comparisons removes municipal political differences and ensures that voters in neighbouring precincts face the same set of candidates.

Figure 5 illustrates this identification strategy graphically. Electoral precincts 1571 and 1583 in the municipality of Villa de Tututepec de Melchor Ocampo are neighbours, but differ because only precinct 1583 is covered by a television station emitting from within the municipality that broadcasts local content. We define a ‘treated’ precinct as one which differs from at least one neighbouring precinct in terms of the number of local media stations that it receives. For each such precinct, the associated ‘control’ precincts are the neighbouring precincts within the same municipality that receive a different number of local media stations.³⁴ We include fixed effects for each such grouping (of a single treated precinct and one or more control precincts) to exploit only variation between neighbouring precincts in access to local media.

Broadcast signals decay continuously and whether any given household receives a signal may depend upon the quality of their receiver and whether members of the household commute across signal coverage boundaries. Consequently, discrete differences in commercial quality signal coverage do not necessarily imply that neighbouring precincts differ strictly between receiving or not

³³While the conductivity of AM signals is sensitive to variable weather conditions and the night-time ionosphere, FM radio and television coverage is relatively constant because such waves travel by line of sight.

³⁴We lack sufficient power to compare no media to some media.

receiving a station’s signal. Furthermore, we examine equilibrium outcomes that may underestimate the direct effect of media access if there are cross-neighbour information spillovers or (in the unlikely event that) campaigns are aware of differences in media access and reallocate resources to counteract the information. Our design thus captures an ‘intent to treat’ effect of differences in access to commercial quality local media.³⁵

The identifying assumption is that neighbouring precincts differ only in their access to local media outlets. Although within-neighbour variation undoubtedly reflects plausibly exogenous topographical characteristics, it could also reflect certain types of voters locating in areas with better local media coverage or media stations strategically choosing the strength or location of their emitter to reach certain audiences. However, sorting between neighbouring precincts is unlikely for several reasons. First, voters migrating to guarantee high-quality signal coverage would likely choose a location close to the antennae, rather than near the commercial quality coverage boundary where coverage may still be imperfect. Second, media stations lack the technology to precisely differentiate neighbouring precincts: beyond the fact that excluding voters is challenging when signals do not drop off discontinuously, the antennae strengths that media stations typically purchase lack the precision required to separate neighbouring precincts. The power output in watts for the AM, FM, and television antennae in our sample are almost exclusively round thousands and generally multiples of 5,000 watts.

To minimise these identification concerns, we restrict our sample to precincts with areas of at most 10km². This increases the design’s plausibility in four important ways. First, media stations could not easily choose transmission technologies to separate between such small neighbouring precincts. Second, in urban areas already receiving many local and non-local media outlets, residential sorting on the basis of an additional outlet is less likely. Third, our area restriction prevents rural-urban comparisons at the edges of towns and cities, where differences between neighbouring precincts may be most pronounced. Finally, the block-level Census maps available within urban errors permit a more precise calculation of the share of a precinct with commercial quality access to each media outlet.

These restrictions yield a sample containing 14,826 precinct \times election observations, where neighbouring precincts typically differ by one or two local media stations. A comparison of Appendix Tables A1 and A3 unsurprisingly indicates that this sample is notably more urban and developed than the national average. This final sample of precincts comes from municipalities containing an average of around 550,000 registered voters. Local media in this sample is, unsurprisingly, more prevalent than the national average; the average precinct is covered by 18 local media—mostly AM and, especially, FM—outlets.

³⁵Ideally, we could also identify the electoral effect of *consuming* an additional media station by using our measure of access to instrument for the media actually consumed. Unfortunately, we have not been able to obtain the detailed precinct-level media required to estimate such a first stage.

We evaluate the plausibility of this design by examining whether the number of local media predicts predetermined covariates. Appendix Table A3 shows that only 4 of 39 precinct-level variables are significantly correlated with local media at the 10% significance level.³⁶ Of particular importance, local media is balanced over the distance from precinct’s centroid to the center of the municipal head and the municipality’s largest locality,³⁷ area, population and electorate size, and population density (all as natural logarithms) are all consistent with local media being exogenously assigned across neighbouring precincts. Furthermore, there is no relationship between the number of local and non-local media stations and we more generally find no evidence that the number of local media stations covering a precinct is correlated with socio-economic development or prior political behaviour. In contrast, Appendix Table A2 shows that instead exploiting variation in local media coverage across all precincts results in large and systematic imbalances across predetermined covariates.

4.2.3 Estimation

We estimate how local media moderate the effect of pre-election audit report revelations, and thus test hypothesis H1, by combining our variation in the timing of audit report releases with our variation in the number of local media stations covering neighbouring electoral precincts. Specifically, we use OLS to estimate the following baseline specification:

$$\begin{aligned}
Y_{pgmt} = & \beta_1 \text{pre-election audit}_{mt} + \beta_2 Q3_{mt} + \beta_3 Q4_{mt} + \beta_4 \text{local media}_{pm} \\
& + \beta_5 \left(\text{pre-election audit}_{mt} \times Q3_{mt} \right) + \beta_6 \left(\text{pre-election audit}_{mt} \times Q4_{mt} \right) \\
& + \beta_7 \left(\text{pre-election audit}_{mt} \times \text{local media}_{pm} \right) + \beta_8 \left(Q3_{mt} \times \text{local media}_{pm} \right) \\
& + \beta_9 \left(Q4_{mt} \times \text{local media}_{pm} \right) + \beta_{10} \left(\text{pre-election audit}_{mt} \times Q3_{mt} \times \text{local media}_{pm} \right) \\
& + \beta_{11} \left(\text{pre-election audit}_{mt} \times Q4_{mt} \times \text{local media}_{pm} \right) + \xi_{gm} + \varepsilon_{pgmt}, \tag{2}
\end{aligned}$$

where Y_{pgmt} is the change in the incumbent party’s vote share in precinct p in neighbour group g nested within municipality m in year t , $\text{pre-election audit}_{mt}$ is an indicator for an audit report being released before the election, $Q3_{mt}$ and $Q4_{mt}$ are indicators for municipalities in the third and fourth quartiles of either the unauthorised spending or spending that did not benefit the poor distributions, and local media_{pm} is the total number of local media stations covering precinct p .³⁸

³⁶Relative to Appendix Table A1, we removed municipality-level variables.

³⁷In more than 95% of cases, the largest locality within a municipality in our sample is also the municipality head.

³⁸The demanding structure of our identification strategy means that we lack the power to non-parametrically estimate media’s effect. The ideal non-parametric approach would allow the effect of local media to vary for each number of media stations. However, by requiring 4 coefficients for each of the 41 levels in our data, we quickly lose power and rely on cells containing few observations.

Given that we only consider neighbouring precincts within the same municipality, neighbour group fixed effects ξ_{gm} ensure that our estimates are identified from within-neighbour variation in media coverage within municipalities. To both weight each voter and each neighbour comparison group equally, each precinct \times election observation is weighted by the number of registered voters divided respectively by the number of precincts in the ‘treatment’ or ‘control’ group within a precinct’s neighbour-election group.³⁹ Standard errors are clustered at the municipality \times election level throughout.

Equation (2) estimates several quantities of interest. First, β_7 is the marginal effect of an additional local media station in municipalities where an audit report released before the election revealed malfeasance in the bottom two quartiles of the malfeasance distribution (Q1/Q2), whereas $\beta_7 + \beta_{11}$ estimates the same marginal effect within the top quartile (Q4).⁴⁰ At these limits of the malfeasance distribution, we expect the parties of the best-performing incumbents to be electorally rewarded ($\beta_7 > 0$) and the parties of the worst-performing incumbents to be electorally punished ($\beta_7 + \beta_{11} < 0$). In the third quartile (Q3), the direction of the overall effect ($\beta_7 + \beta_{10}$) likely depends on how the signal of incumbent malfeasance relates to voters’ prior beliefs. Second, the triple interaction coefficient β_{11} identifies the *differential* effects of an additional local media outlet in municipalities where malfeasance in Q4 is reported before the election relative to municipalities where malfeasance in Q1/Q2 is reported; our theory predicts $\beta_{11} < 0$. Because local media enters linearly, the differential effects of additional local media outlets should be interpreted as a weighted average across the intensive margins in our sample.

To examine how the local media market structure moderates local media’s role in supporting electoral accountability, we test hypotheses H2 and H3 by further interacting equation (2) with *market structure_{pm}*—one of two measures of local media market structure:

$$\begin{aligned}
Y_{pgmt} = & \beta_1 \left(pre\text{-}election\ audit_{mt} \times local\ media_{pm} \right) \\
& + \beta_2 \left(pre\text{-}election\ audit_{mt} \times Q3_{mt} \times local\ media_{pm} \right) \\
& + \beta_3 \left(pre\text{-}election\ audit_{mt} \times Q4_{mt} \times local\ media_{pm} \right) \\
& + \beta_4 \left(pre\text{-}election\ audit_{mt} \times local\ media_{pm} \times market\ structure_{pm} \right) \\
& + \beta_5 \left(pre\text{-}election\ audit_{mt} \times Q3_{mt} \times local\ media_{pm} \times market\ structure_{pm} \right) \\
& + \beta_6 \left(pre\text{-}election\ audit_{mt} \times Q4_{mt} \times local\ media_{pm} \times market\ structure_{pm} \right) \\
& + \gamma \mathbf{X}_{pmt} + \xi_{gm} + \varepsilon_{pgmt},
\end{aligned} \tag{3}$$

³⁹Appendix Table A8 shows that unweighted results yield similar estimates.

⁴⁰ β_4 , $\beta_4 + \beta_8$, and $\beta_4 + \beta_9$ analogously estimate the same marginal effects of additional local media when audit reports are instead released after the election. We treated this as a placebo test.

where \mathbf{X}_{pmt} contains the remaining lower-order and interactions terms from a fully interacted specification. Within each of the pre-election audit \times quartiles cells, the interactions with $market\ structure_{pm}$ capture differences in the effect of an additional local media outlet on incumbent party vote share.⁴¹

We test for relationships consistent with H2 by examining heterogeneity with respect to the number of non-local media stations. If non-local media stations—which face weaker incentives to report on incumbent malfeasance in a voter’s municipality—crowd out consumption of local media stations, we expect to observe $\beta_4 < 0$ and $\beta_4 + \beta_6 > 0$. We similarly assess H3 by examining heterogeneity with respect to the extent to which the potential audiences of local media stations is predominantly local. Employing a similar approach to Snyder and Strömberg (2010), we calculate the proportion of the population in each media outlet’s commercial quality coverage area that resides within the municipality containing the outlet’s antennae, before averaging this across the local AM, FM, and television stations covering each precinct. Since local media outlets are more likely to cover local malfeasance when their audience is principally located within their municipality, we expect to observe $\beta_4 > 0$ and $\beta_4 + \beta_6 < 0$.

5 Results

We now present our findings. Our first main result shows that additional local media outlets help hold municipal incumbent parties to account by facilitating greater electoral support for the incumbent parties revealed to have engaged in negligible malfeasance and facilitating lower electoral support for the incumbent parties revealed to have engaged in substantial malfeasance. We show that such effects are moderated by the media market structure: local media induces greatest accountability with respect to incumbent party malfeasance in the absence of competing non-local media stations, and where local media stations’ audiences are mostly local.

5.1 Audits, local media, and electoral accountability

Table 1 reports our estimates of the effect of access to local media stations in our urban sample of neighbouring precincts.⁴² Of principal interest are the final three coefficients on the interactions between pre-election audits and local media, which identify the differential effect of an additional local media outlet covering a precinct where an ASF report revealed a given level of malfeasance

⁴¹Because we do not leverage exogenous variation in $market\ structure_{pm}$, these heterogeneous effects may not be interpreted causally.

⁴²While our focus is on how electoral accountability within municipalities varies across precincts with differing levels of access to local media, Appendix Tables A4 and A5 suggest that the least malfeasant incumbent parties were rewarded and the most malfeasant were punished in the average municipality where an audit report was released before the election. This is consistent with the heterogeneity in effects by local media that we observe.

before the municipal election. The conditional effects by quartile of the malfeasance distribution are shown in Figure 6.

Column (1) first examines the effects of unauthorised spending revealed before elections. The positive and statistically significant coefficient on the interaction between an audit report being released before an election and the number of local media stations indicates that each additional local media station increases the vote share of incumbent parties whose mayors were shown to be clean by 0.6 percentage points. The triple interaction for the fourth quartile then shows that, on average, the effect of each additional local media station on the vote share of parties whose mayor is in the top quartile of the unauthorised spending distribution is a statistically significant 0.9 percentage points lower than in municipalities in the bottom two quartiles. Summing across these terms, Figure 6a and the point estimate at the foot of the column indicate that the overall marginal effect of an additional local media outlet is negative, albeit not statistically significantly so, for the parties of the most malfeasant mayors.⁴³ A standard deviation increase in the number of local media stations, which entails 10 more such stations, thus implies an increase (decrease) in the vote share of the least (most) malfeasant incumbent parties by 6 (3) percentage points. These effects represent around one half (quarter) of a standard deviation in the municipal victory margin—of 13 percentage points—in our sample. The conditional effect in the third quartile is close to zero, consistent with such information being close to the average voter’s prior belief. In contrast with these findings, the positive coefficients on the interactions between a pre-election audit and unauthorised spending quartile indicate that the party of a mayor revealed to be malfeasant in this respect is not punished in precincts covered by no (or few) local media stations.

We find similar evidence that local media induces sanctioning of revelations that funds were not spent on projects that benefited the poor. Column (2) reports a small and statistically insignificant increase in the vote share of incumbent parties whose mayors were revealed to have spent essentially all FISM funds on projects that benefited the poor. However, the triple interaction term again indicates that this effect is significantly lower for the quartile containing the most malfeasant mayors. As Figure 6b and the point estimates at the foot of column (2) show, the conditional effect is significantly negative in the top quartile, implying that each additional local media station reduces the vote share of the parties with the most neglectful mayors by 1 percentage point. A standard deviation increase in the number of local media stations thus entails a 10 percentage point decrease in the vote share of the average incumbent party in the top quartile, or a 25% decrease in their precinct-level vote share. The overall effect in the third quartile is again close to zero and lies between the least and most malfeasant cases, while there is also little evidence of an interaction between the pre-election audit release and spending that did not benefit the poor in locations with

⁴³The overall effects in the third and fourth quartiles are respectively computed as $\hat{\beta}_7 + \hat{\beta}_{10}$ and $\hat{\beta}_7 + \hat{\beta}_{11}$, based on equation (2).

Table 1:
Effects of each additional local media station and pre-election audit reports revealing malfeasance before municipal elections

	Outcome: Change in incumbent party vote share	
	<i>Type of malfeasance:</i>	
	Unauthorised spending (1)	Spending not benefiting the poor (2)
Pre-election audit	0.022 (0.059)	0.116*** (0.036)
Local media	-0.003 (0.002)	0.001 (0.002)
Malfeasance Q3	-0.032 (0.059)	0.133** (0.066)
Pre-election audit × Malfeasance Q3	0.058 (0.078)	-0.027 (0.102)
Malfeasance Q3 × Local media	0.007 (0.004)	0.001 (0.005)
Malfeasance Q4	-0.044 (0.064)	0.216*** (0.050)
Pre-election audit × Malfeasance Q4	0.161* (0.089)	-0.070 (0.070)
Malfeasance Q4 × Local media	0.001 (0.004)	0.002 (0.003)
Pre-election audit × Local media	0.006* (0.003)	0.002 (0.003)
Pre-election audit × Malfeasance Q3 × Local media	-0.006 (0.005)	-0.006 (0.005)
Pre-election audit × Malfeasance Q4 × Local media	-0.009* (0.005)	-0.012** (0.005)
Observations	14,826	14,826
Outcome mean	-0.04	-0.04
Outcome standard deviation	0.13	0.13
Pre-election audit mean	0.63	0.63
Malfeasance Q3 mean	0.15	0.25
Malfeasance Q4 mean	0.18	0.27
Local media mean	18.32	18.32
Local media standard deviation	9.84	9.84
Effect of Pre-election audit × Local media in Q3	-0.000 (0.004)	-0.003 (0.005)
Effect of Pre-election audit × Local media in Q4	-0.003 (0.004)	-0.010** (0.004)
Placebo effect of Local media in Q3	0.004 (0.003)	0.001 (0.004)
Placebo effect of Local media in Q4	-0.002 (0.003)	0.002 (0.001)

Notes: All specifications include neighbour group fixed effects, and are estimated using OLS. Observations are weighted by electorate size in ‘treated’ precincts and electorate size divided by the number of control precincts per neighbour set for ‘control’ precincts. The omitted category for unauthorised spending and spending that did not benefit the poor is Q1 and Q2. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

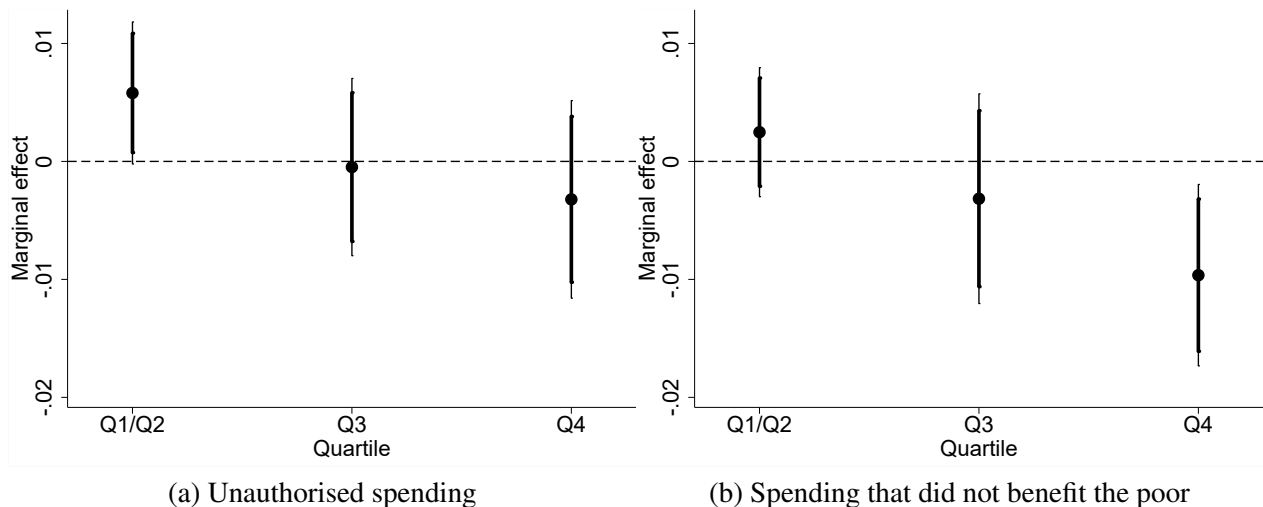


Figure 6:

Marginal effects of access to an additional local media outlet where an audit released before the election, by quartile (90% and 95% confidence intervals)

very few local media stations.

In sum, the average effects of additional local media outlets align with our theoretical predictions: good performance is generally rewarded more where more local media outlets are accessible, bad performance is generally sanctioned more where more local media outlets are accessible, and the difference between the two is statistically significant. Whereas rewards for low levels of unauthorised spending are more pronounced than sanctions for high levels, the reverse holds for not spending FISM funds on projects that benefited the poor. Through the lens of our theoretical framework, these results suggest that voters possess somewhat pessimistic prior beliefs about unauthorised spending than spending that did not benefit the poor. Reinforcing the importance of local media, an analogous approach to estimating the effects of non-local media outlets in Appendix Table A12 reports limited effects of non-local media.

5.1.1 Robustness checks

We now demonstrate the robustness of our finding that additional local media stations facilitate electoral accountability. To do so, we leverage placebo tests, conduct various sensitivity tests, examine alternative definitions of mayoral malfeasance, and explore external validity within Mexico.

We start with two placebo tests. First, the interactions between local media and audit report outcomes released *after* the election in Table 1 imply a simple placebo test. Specifically, local media should not amplify responses to malfeasance revelations that do not become public until after the election. The estimates in columns (1) and (2), as well as the overall effects reported at the foot of each column, are consistently small in magnitude and statistically insignificant. The lack of effects of information that has not yet been released indicates that our findings are not driven

by other characteristics of municipalities that correlate with malfeasance levels and also reduce incumbent support. Second, a similar placebo test examines whether the outcomes of pre-election audit reports that were revealed ahead of the *next* election affect voting behaviour. Appendix Table A7 shows that such audit reports do not affect the incumbent party’s vote share at the election before the reports were released; the only significant effect of local media—in Q4—is in the opposite direction. This further suggests that our findings do not reflect differential trends between precincts that vary in their local media access or their municipality’s level of malfeasance.

The sensitivity checks in Table 2 show that we obtain generally similar—if not stronger—results after adjusting for potential confounds, restricting the sample to comparisons equidistant from media antennae, and varying our area restriction and media coverage definition. First, we include $pre\text{-}election\ audit_{mt} \times Q3_{mt} \times non\text{-}local\ media_{pm}$ and $pre\text{-}election\ audit_{mt} \times Q4_{mt} \times non\text{-}local\ media_{pm}$ (and lower-order terms) to interactively adjust for the possibility that the effects of an additional local media station instead reflect differential access to non-local media stations. Consistent with the balance tests reported in Appendix Table A3, column (1) indicates that the differential and overall marginal effects of local media are unaffected. Column (2) more generally shows that the results are substantively similar when simultaneously including flexible (quadratic) interactive covariates for the four variables showing statistically significant imbalances across local media, as well as five potentially important confounds—whether the precinct is a target for FISM projects, non-local media, (log) distance to the municipal head from the precinct centroid, average years of schooling, and an index of five household assets.

Second, to address the potential concern that neighbours closer to antennae—which are more likely to receive local media—systematically differ, we restrict the sample to neighbouring precincts that differ by less than 50m on average from their nearest media stations.⁴⁴ Such comparisons principally exploit topographical variation arising from impediments that limit the receipt of radio and television signals between precincts that are effectively adjacent to the signal of the average media station (Olken 2009). At the cost of dropping more than 62% of the sample, and thus reducing the precision of our estimates, column (3) confirms that this restriction produces similar point estimates.

Third, we show that our results are not driven by specific sample choices. Column (4) reports larger and more precise estimates when the restriction to precincts of 10km² or less is removed.⁴⁵ Columns (5) and (6) similarly show that our findings are generally robust to both relaxing and strengthening our cutoff for defining a precinct as covered by a local media station to respectively require that 10% or 50% of the population receive a commercial quality coverage signal, although in both cases the differential effect for unauthorised spending is a little weaker.

⁴⁴We compute the average distance to the 36 nearest stations (the sample average number of media stations covering a precinct).

⁴⁵Appendix Table A10 shows similar estimates when our 10km² restriction is relaxed to 25km² and 50km².

Table 2:
Sensitivity checks

	Outcome: Change in incumbent party vote share							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A: Unauthorized spending								
Pre-election audit × Local media	0.006*** (0.002)	0.003 (0.003)	0.008 (0.005)	0.006** (0.003)	0.006** (0.003)	0.006* (0.004)		
Pre-election audit × Malfeasance Q3 × Local media	-0.005* (0.003)	0.000 (0.003)	-0.012 (0.010)	-0.010** (0.004)	-0.008 (0.005)	-0.008 (0.005)		
Pre-election audit × Malfeasance Q4 × Local media	-0.010** (0.004)	-0.011*** (0.003)	-0.013 (0.011)	-0.016*** (0.005)	-0.010** (0.005)	-0.009* (0.006)		
Pre-election audit × Local media (log)							0.072** (0.034)	
Pre-election audit × Malfeasance Q3 × Local media (log)							-0.081* (0.047)	
Pre-election audit × Malfeasance Q4 × Local media (log)							-0.119** (0.051)	
Local media								0.003*** (0.001)
Malfeasance Q3 × Local media								-0.002 (0.001)
Malfeasance Q4 × Local media								-0.012*** (0.002)
Effect of Pre-election audit × Local media in Q3	0.001 (0.003)	0.003 (0.002)	-0.004 (0.008)	-0.004 (0.003)	-0.002 (0.004)	-0.001 (0.004)	-0.009 (0.032)	0.002 (0.001)
Effect of Pre-election audit × Local media in Q4	-0.004 (0.004)	-0.009*** (0.002)	-0.005 (0.01)	-0.010** (0.005)	-0.004 (0.004)	-0.003 (0.005)	-0.047 (0.042)	-0.009*** (0.002)
Panel B: Spending not benefiting the poor								
Pre-election audit × Local media	-0.000 (0.003)	0.004* (0.003)	0.003 (0.004)	0.006** (0.003)	0.003 (0.003)	0.003 (0.003)		
Pre-election audit × Malfeasance Q3 × Local media	-0.003 (0.007)	-0.005 (0.005)	-0.013 (0.010)	-0.005 (0.005)	-0.004 (0.006)	-0.005 (0.005)		
Pre-election audit × Malfeasance Q4 × Local media	-0.011* (0.005)	-0.010** (0.005)	-0.019** (0.009)	-0.024*** (0.005)	-0.009* (0.005)	-0.019*** (0.005)		
Pre-election audit × Local media (log)							0.030 (0.030)	
Pre-election audit × Malfeasance Q3 × Local media (log)							-0.089 (0.061)	
Pre-election audit × Malfeasance Q4 × Local media (log)							-0.164*** (0.053)	
Local media								0.006** (0.003)
Malfeasance Q3 × Local media								-0.004 (0.003)
Malfeasance Q4 × Local media								-0.014** (0.006)
Effect of Pre-election audit × Local media in Q3	-0.003 (0.006)	-0.001 (0.004)	-0.010 (0.008)	0.001 (0.004)	-0.001 (0.005)	-0.002 (0.004)	-0.059 (0.049)	0.002 (0.003)
Effect of Pre-election audit × Local media in Q4	-0.011** (0.005)	-0.005 (0.004)	-0.016* (0.008)	-0.017*** (0.004)	-0.006 (0.004)	-0.016*** (0.004)	-0.134*** (0.045)	-0.008 (0.005)
Observations	14,826	14,819	5,638	33,659	14,669	16,175	14,554	9,146
Interactive controls	Non-local media	9 quadratic covariates	None	None	None	None	None	None
Precinct area restriction	<10km ²	<10km ²	<10km ²	None	<10km ²	<10km ²	<10km ²	<10km ² & Pre-election
Cutoff for media coverage	20%	20%	20%	20%	10%	50%	20%	20%

Notes: All specifications include neighbour fixed effects, are estimated using OLS. Observations are weighted by electorate size in ‘treated’ precincts and electorate size divided by the number of control precincts per neighbour set for ‘control’ precincts. Each regression includes all lower-order interaction terms, but non-essential terms are not reported to save space. In specification (2), the controls are an indicator for precincts containing an AM antennae, the share of households with a male head, the illiterate share of the population, the share of households with a washing machine, the number of non-local media, distance to the municipal head from the precinct centroid (log), average years of schooling, an indicator for whether the precinct is eligible for FISM projects, and an index of five household assets. Column (3) excludes precincts with no local media stations. Column (4) does not apply precinct area restriction. Columns (5) and (6) respectively restrict the media coverage cutoff to 10% and 50%. Column (8) includes only pre-election audit cases. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table 3:
Alternative operationalisations of malfeasance

	Outcome: Change in incumbent party vote share							
	Unauthorised spending				Type of malfeasance: Spending that did not benefit the poor			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Pre-election audit × Local media	0.006** (0.003)	0.006** (0.003)	0.005** (0.002)	0.005* (0.002)	0.004 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.002)
Pre-election audit × Local media × Malfeasance	-0.040 (0.028)				-0.057*** (0.020)			
Pre-election audit × Local media × Malfeasance ≥ 5%		-0.006 (0.006)				-0.011*** (0.004)		
Pre-election audit × Local media × Malfeasance ≥ 10%			-0.010** (0.004)				-0.011** (0.004)	
Pre-election audit × Local media × Malfeasance ≥ 20%				-0.034** (0.014)				-0.019*** (0.005)
Observations	14,826	14,826	14,826	14,826	14,826	14,826	14,826	14,826
Effect of Pre-election audit × Local media in greater malfeasance category		-0.000 (0.006)	-0.005 (0.004)	-0.029** (0.014)		-0.008** (0.003)	-0.008** (0.004)	-0.015*** (0.004)

Notes: All specifications include neighbour fixed effects, and are estimated using OLS. Observations are weighted by electorate size in ‘treated’ precincts and electorate size divided by the number of control precincts per neighbour set for ‘control’ precincts. Each regression includes all lower-order interaction terms, but non-essential terms are not reported to save space. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Fourth, column (7) redefines local media as the natural logarithm of the number of local media stations. The results show that our findings are not driven by precincts containing many local media stations, and imply that a 10% increase in local media increases the vote share of clean incumbent parties by 0.3-0.7 percentage points and decreases the vote share of the most malfeasant incumbent parties by around 0.5-1.3 percentage points.

Finally, we drop the post-election comparison to address the possibility that media and election dynamics in municipalities receiving audit reports after the election are different. Column (8) shows that this approach, which only exploits variation in pre-election audit reports publicised by local media before the election (e.g. Banerjee et al. 2011; Chong et al. 2015), yields more precise estimates at the expense of plausibly exogenous variation in audits. In these specifications, we find clear evidence that both rewards and punishment are increasing in the number of local media stations.

Alternative definitions of malfeasance further reinforce our findings. Columns (1) and (5) of Table 3 first report linear measures of unauthorised spending and spending that did not benefit the poor. For each additional 10 percentage points of the FISM budget not spent correctly, a standard deviation increase in the number of local media stations reduces the incumbent party’s vote share by 4 percentage points in the case of unauthorised spending and 5.7 percentage points in the case of spending that did not benefit the poor. While substantial, only the estimate for spending that did not benefit the poor is precisely estimated. Together with our baseline estimates, these esti-

mates suggest that unauthorised spending's effects may be non-linear. To examine when the effect of malfeasance kicks in, the remaining columns sequentially operationalise malfeasant behaviour using indicators for unauthorised spending or funds not spent on projects that benefited the poor exceeding 5%, 10%, and 20% of FISM funds. At each level, spending that did not benefit the poor is both differentially punished and punished overall in the highest malfeasance category. Unsurprisingly, the magnitude of punishment is greatest for the 20% cutoff. Consistent with the findings above that voters are less willing to sanction unauthorised spending, the evidence suggests that only the highest levels of unauthorised spending—greater than 20%—are severely punished. However, consistent with voters possessing a more pessimistic prior about unauthorised spending, incumbent parties whose mayors engaged in zero unauthorised spending are consistently rewarded with each additional local media station.

Finally, at the cost of sacrificing our plausibly exogenous variation in local media, we estimate equation (2) in the full sample of audited municipalities to consider the external validity of the neighbour sample estimates within Mexico. The results, reported in Appendix Table A11, are broadly similar: for both unauthorised spending and spending that did not benefit the poor, the party of a mayor revealed to be in the most malfeasant quartile experienced a significant decrease in their vote share for each additional local media station, while malfeasance in the third quartile was not significantly sanctioned. Although the samples differ in terms of both composition and quality of identification, the similarity of the results suggests that our findings may generalise beyond the urban context for which our estimates are most credible.

5.1.2 Rich-poor distributional conflict over FISM spending

A potentially important difference between unauthorised spending and spending that did not benefit the poor, from the perspective of voters, is its distributional implications. While unauthorised spending still reaches the intended recipients or reaches no recipients at all, spending that did not benefit the poor generally redistributes FISM funds toward richer voters. Consequently, richer (poorer) voters may be less (more) likely to punish an incumbent party for not spending funds designed for the poor actually on those living in impoverished localities. We examine this possibility by interacting the effect of local media with two proxies for the extent of voter poverty: a standardised scale for precinct-level socio-economic under-development that combines 25 measures of impoverishment from the Census; and an indicator for precincts containing localities that FISM funds should directly target.

The results in Table 4 suggest that the impact of media-induced electoral accountability reflects distributional incentives. Columns (2) and (4) show that voters in poorer precincts, by both definitions of poverty, engage in differentially greater sanctioning of incumbent parties revealed to have spent funds on projects that did not benefit the poor. In each case, the statistically significant

Table 4:
Effects of local media and audit reports publicising malfeasance before an election, by probability of benefiting from FISM funds

	Outcome: Change in incumbent party vote share			
	<i>Type of malfeasance:</i>			
	Unauthorised spending	Spending not benefiting the poor	Unauthorised spending	Spending not benefiting the poor
	(1)	(2)	(3)	(4)
Pre-election audit × Local media	0.006** (0.003)	0.002 (0.003)	0.005 (0.003)	0.001 (0.003)
Pre-election audit × Malfeasance Q3 × Local media	-0.004 (0.005)	-0.006 (0.005)	-0.005 (0.005)	-0.005 (0.005)
Pre-election audit × Malfeasance Q4 × Local media	-0.008* (0.005)	-0.011** (0.004)	-0.007 (0.005)	-0.009** (0.004)
Pre-election audit × Local media × Under development	0.001 (0.003)	0.007*** (0.003)		
Pre-election audit × Malfeasance Q3 × Local media × Under development	-0.007 (0.005)	-0.011*** (0.003)		
Pre-election audit × Malfeasance Q4 × Local media × Under development	-0.002 (0.005)	-0.011** (0.004)		
Pre-election audit × Local media × FISM target			-0.003 (0.003)	0.002 (0.003)
Pre-election audit × Malfeasance Q3 × Local media × FISM target			0.002 (0.006)	-0.004 (0.008)
Pre-election audit × Malfeasance Q4 × Local media × FISM target			0.004 (0.005)	-0.016*** (0.006)
Observations	14,826	14,826	14,826	14,826
FISM beneficiary proxy mean	-0.04	-0.04	0.11	0.11
FISM beneficiary proxy standard deviation	0.66	0.66	0.31	0.31

Notes: All specifications include neighbour fixed effects, and are estimated using OLS. Observations are weighted by electorate size in ‘treated’ precincts and electorate size divided by the number of control precincts per neighbour set for ‘control’ precincts. The omitted category for unauthorised spending and spending that did not benefit the poor is Q1 and Q2. Each regression includes all lower-order interaction terms, but non-essential terms are not reported to save space. The under development variable is a standardised index computed across 25 Census variables capturing poverty. The FISM target variable is an indicator for precincts containing voters that FISM funds should directly target. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

interaction coefficients on under-development or being a FISM target are positive for the bottom two quartiles and negative for the top two quartiles. Conversely, columns (1) and (3) show that the sanctioning of unauthorised spending does not systematically vary by precinct socio-economic development. Although the poor are likely to suffer relatively more from unauthorised spending than the rich, these results suggest that the distributional conflict is weaker.

5.2 The moderating role of media market structure

To further illuminate the conditions under which local media stations facilitate electoral accountability, we next investigate how the media market structure—crowd-out by non-local media and the geographic composition of local stations’ potential audiences—moderates local media’s effects.

Table 5:
Effects of each additional local media station and audit reports revealing malfeasance before municipal elections, conditional on the media market structure

	Outcome: Change in incumbent party vote share			
	<i>Type of malfeasance:</i>			
	Unauthorised spending (1)	Spending not benefiting the poor (2)	Unauthorised spending (3)	Spending not benefiting the poor (4)
Pre-election audit × Local media	0.0141** (0.0057)	0.0153** (0.0066)	0.0017 (0.0050)	-0.0057** (0.0027)
Pre-election audit × Malfeasance Q3 × Local media	-0.0182* (0.0106)	-0.0317*** (0.0098)	0.0045 (0.0078)	0.0089 (0.0096)
Pre-election audit × Malfeasance Q4 × Local media	-0.0192* (0.0111)	-0.0418*** (0.0094)	0.0049 (0.0074)	0.0042 (0.0054)
Pre-election audit × Local media × Non-local media	-0.0003 (0.0002)	-0.0005*** (0.0001)		
Pre-election audit × Malfeasance Q3 × Local media × Non-local media	0.0005 (0.0003)	0.0019*** (0.0005)		
Pre-election audit × Malfeasance Q4 × Local media × Non-local media	0.0005* (0.0003)	0.0010*** (0.0002)		
Pre-election audit × Local media × Local audience			0.0151* (0.0078)	0.0157 (0.0121)
Pre-election audit × Malfeasance Q3 × Local media × Local audience			-0.0318 (0.0221)	-0.0170 (0.0162)
Pre-election audit × Malfeasance Q4 × Local media × Local audience			-0.0248 (0.0170)	-0.0398** (0.0154)
Observations	14,826	14,826	14,826	14,826
Media market structure interaction mean	17.29	17.29	0.61	0.61
Media market structure interaction standard deviation	16.45	16.45	0.29	0.29

Notes: All specifications include neighbour fixed effects, and are estimated using OLS. Observations are weighted by electorate size in ‘treated’ precincts and electorate size divided by the number of control precincts per neighbour set for ‘control’ precincts. In columns (3) and (4), the local audience variable is the average share of a media outlet’s potential audience that resides within the municipality of its antennae, averaging across all AM, FM, and television stations covering a precinct. The omitted category for unauthorised spending and spending that did not benefit the poor is Q1 and Q2. Each regression includes all lower-order interaction terms, but non-essential terms are not reported to save space. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

5.2.1 Non-local media crowd out local media

Non-local media are less likely to cover municipal mayors beyond the outlet’s own municipality, due to both resource constraints and audience incentives. Nevertheless, the content of non-local media outlets on other dimensions may still attract listeners or viewers away from local media stations. Consequently, hypothesis H2 predicts that a large number of competing non-local media outlets will crowd out the accountability-inducing effects of access to additional local media outlets.

Our estimates of equation (3) in Table 5 suggest that non-local media outlets indeed crowd out the effects of local media stations. For each type of malfeasance revelation and within both Q1/Q2 and Q4, the triple and quadruple interaction coefficients in columns (1) and (2) show that

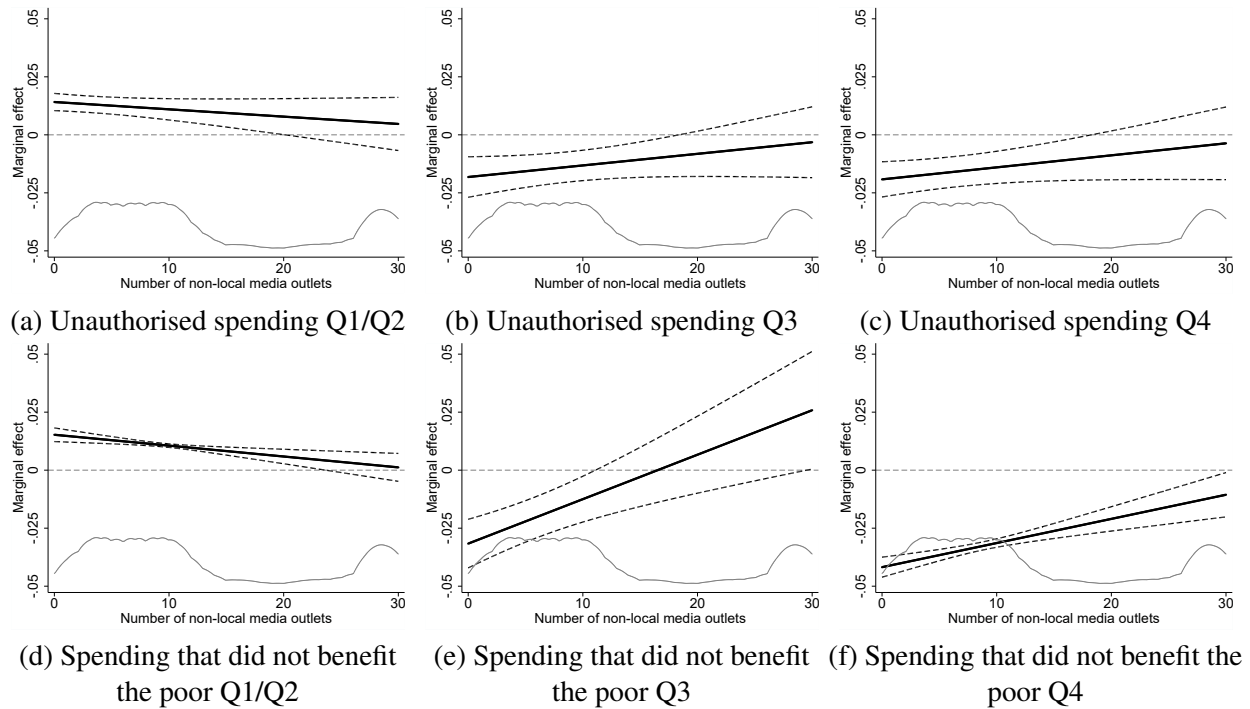


Figure 7:

Marginal effects of access to an additional local media outlet where an audit released before the election, by number of non-local media outlets and malffeasance quartile (95% confidence intervals)

Notes: The solid gray line plots the density of non-local media outlets in the main sample; this distribution is truncated at the 90th percentile of the distribution, due to its thin tail. Estimates are from Table 5.

the magnitude of the effect of an additional local media station declines in the number of competing non-local media stations covering an electoral precinct. This effect is especially strong for spending that did not benefit the poor, where both effects are statistically significant and show that each additional non-local media station reduces the magnitude of the effect of an additional local media station by 0.05-0.1 percentage points, 2.5-5% of an additional local media station's effect in the absence of non-local media. In the average precinct, covered by 17 non-local media stations, the effect of an additional local media station thus falls by around 2 percentage points. Although non-local media also reduce the effect of an additional local media station, and significantly so in Q4, the analogous drop off in effect magnitude in the presence of more non-local media stations is around half the size in the case of unauthorised spending. Where there are few non-local outlets, our results also suggest that malffeasance in Q3 is also punished to a lesser degree.

To facilitate the interpretation of the interaction terms, we plot these effects in Figure 7. The graphs demonstrate that the marginal effect of additional local media outlets is large in precincts covered by few non-local media outlets and becomes statistically insignificant in markets with

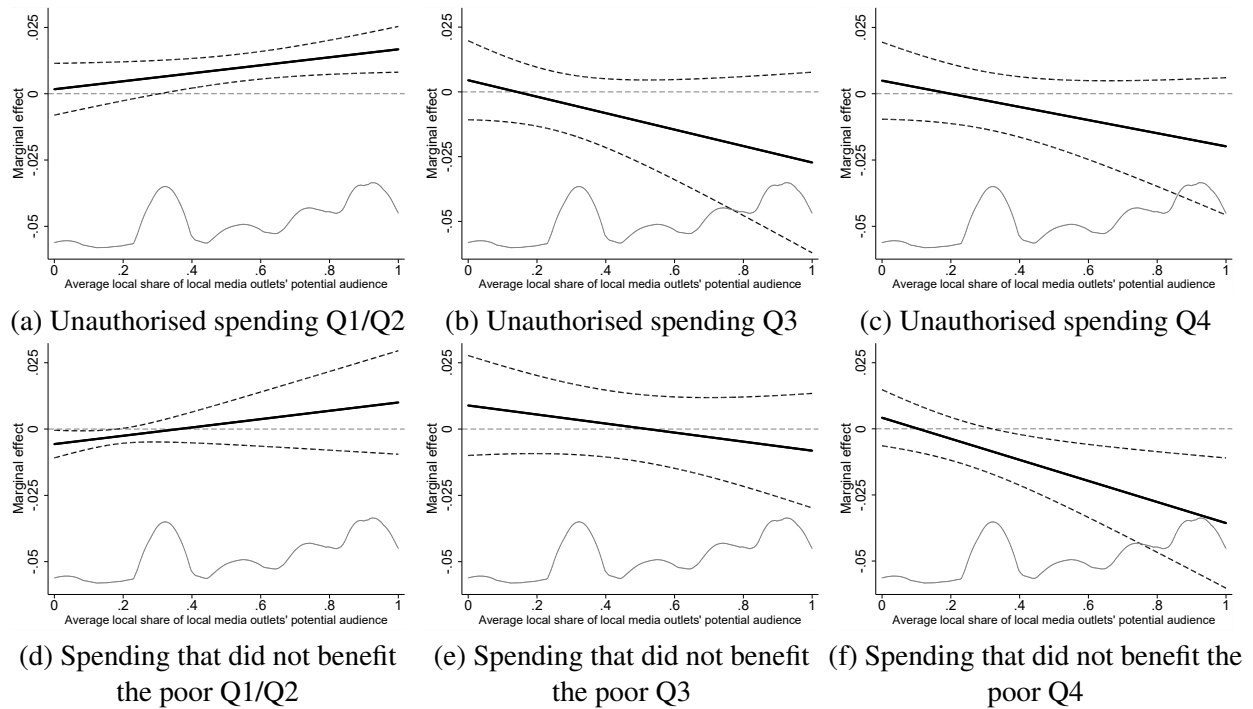


Figure 8:

Marginal effects of access to an additional local media outlet where an audit released before the election, by the audience composition of local media outlets and malfeasance quartile (95% confidence intervals)

Notes: The solid gray line plots the density of the average local share of local media outlets' potential audience. Estimates are from Table 5.

around 20 non-local competitors. This evidence suggests that competing non-local media stations drown out the electoral accountability facilitated by local media. Nevertheless, the density plot at the foot of each figure suggests that local media support electoral accountability in the substantial number of urban precincts covered by fewer than 15 non-local outlets.

5.2.2 Audience composition influences electoral accountability

We further explore the audience incentives mechanism driving local media's effect by examining the role of the composition of local media outlets' audiences. As we argued above, local media outlets predominantly serving an audience within their municipality face stronger incentives to publicise audit report outcomes of interest to their potential audience. Since we expect this to increase consumption of local news content, hypothesis H3 predicts that electoral accountability should be greater in precincts covered by local media primarily serving their own municipality.

Columns (3) and (4) of Table 5 provide evidence consistent with the composition of local outlets' potential audiences influencing electoral accountability. The interaction coefficients in Q1/Q2

and Q4 indicate that a larger local market share amplifies the reward and punishment of the least and most malfeasant incumbent parties. This is again particularly true for expenditures that did not benefit the poor, where summing across interaction terms implies that each additional media station with an entirely local market share reduces the incumbent party's vote share by 3.5 percentage points in the most malfeasant municipalities that comprise Q4. Although the slope with respect to local audience is not quite statistically significant, mayors that correctly spend FISM funds on projects that benefited the poor gain 1 percentage point for an additional media station exclusively serving their market. The analogous coefficients for unauthorised spending further show that the positive effect of an additional local media outlet grows significantly with local audiences in Q1/Q2, while the magnitude of the negative effect each additional local media station also increases—albeit not quite statistically significantly so—in Q4. Where local outlets only serve voters within their municipality, the party of a municipal government in Q4 is punished by 1 percentage point and the party of a municipal government in Q1/Q2 receives a boost of 1.7 percentage points for each additional local media station.

Figure 8 illustrates these results, also showing that there is limited reward or punishment of incumbent parties when the primary market for local media outlets lies outside the municipality from which it broadcasts. The distribution of local audience composition at the foot of each figure again indicates that local media facilitate electoral accountability in a substantial fraction of electoral precincts.

5.3 Potential mechanisms

Our theoretical framework suggests that the number of local and non-local outlets serving a media market affect local news consumption—and ultimately electoral accountability—through two main channels. First, where additional local and non-local media stations appeal to consumers, an additional local outlet generally increases aggregate local news consumption, while an additional non-local outlet decreases aggregate local news consumption. This *audience effect* is captured by the first two terms in equation (1). Second, both additional local and non-local media stations reduce aggregate consumption of local news if competition reduces returns to investing in costly local content. The third term in equation (1) captures this *content effect*.

While the audience and content effects compound to reduce electoral accountability in the case of additional non-local media outlets, these channels imply opposing effects due to additional local media outlets. Within this framework, our estimates of the effect of additional local media outlets suggest that the audience effect dominates any content effect. This may not be surprising, given our identification strategy. By comparing neighbouring precincts at the limit of the reach of local media stations, we effectively hold an outlet's potential audience constant. We thus expect minimal content effects because, as the model in Appendix section A.1 shows, the content that media outlets

Table 6:
Correlation between access to broadcast media and news consumption

	Any radio news program (1)	Number of radio news programs (2)	Any television news program (3)	Number of television news programs (4)	Any news program (5)	Total news programs (6)
Panel A: Local media						
Local radio stations	0.004* (0.002)	0.005** (0.002)				
Local television stations			0.024*** (0.009)	0.045** (0.018)		
Local media					0.004*** (0.001)	0.015*** (0.004)
Media mean	8.40	8.40	1.31	1.31	9.72	9.71
Media standard deviation	8.96	8.96	1.67	1.67	10.30	10.30
Panel B: Non-local media						
Non-local radio stations	0.002 (0.002)	0.003 (0.002)				
Non-local television stations			0.015* (0.008)	0.020 (0.013)		
Non-local media					0.002 (0.001)	0.004 (0.003)
Media mean	23.42	23.42	3.71	3.71	23.43	23.42
Media standard deviation	21.27	21.27	2.98	2.98	21.27	21.27
Observations	1,055	1,055	2,110	2,110	2,110	1,055
Outcome mean	0.29	0.34	0.80	1.10	0.81	1.44
Outcome standard deviation	0.45	0.56	0.40	0.71	0.39	0.98

Notes: The sample sizes vary because all respondents were asked the identities of any news programs that they regularly watch on television (and could name up to two), but only half the sample was asked for the identities of any news program that they regularly listen to on the radio. All specifications include state fixed effects, and are estimated using OLS. Standard errors are clustered by municipality. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

provide to their entire audience is only likely to change with large shifts in their potential audience. Content effects are therefore more likely to arise in response to technological shocks, or entry and exit from media markets, that affect access to media for large masses of consumers.

Consistent with audience effects driving our results, the likelihood of a voter following the news is increasing in the availability of local media stations. Using data on news consumption from the predominantly urban 2009 CIDE-CSES Survey sample, panel A of Table 6 reports a sta-

tistically significant positive (within-state) correlation between the number of local media stations that the respondent has access to and news consumption at both the extensive and intensive margins. The point estimates indicate that each additional local radio and television station respectively increases the number of radio and television programs regularly consumed by 0.005 and 0.045.⁴⁶ These relationships are consistent with additional local media outlets inducing more voters to consume local news content. Although we cannot distinguish the consumption of local from non-local content, panel B shows that non-local outlets are not systematically associated with greater news consumption. Moreover, given that non-local media stations also report news—just not relevant local news—the lack of correlation with non-local media outlets further suggests that changes in audience due to additional local stations are greater than changes due to additional non-local media stations.

Although the audience effects of local and non-local outlets are expected to have diverging impacts on local news consumption, Appendix section A.1 shows that any content effects of local and non-local outlets are likely to be similar in magnitude. Intuitively, this is because both types of competition reduce the audience that can be gained from producing local content. The *difference* between the effects of additional local media stations (in Table 1) and additional non-local media stations (in Appendix Table A12) may then, at least to a first-order approximation, difference out any content effects.⁴⁷ A comparison of these estimates—which shows a substantially larger accountability effect of additional local media stations than non-local media stations—further suggests that the audience effect drives our findings.

6 Conclusion

Scholars often describe the media as ‘the fourth estate,’ due to its potential to inform voters about the behaviour of politicians in office. While the influence of national-level media has received considerable attention, we demonstrate the importance of access to local media and the local media market structure for electoral accountability in Mexico—a major developing context where local governments’ role in service delivery is often subject to malfeasance. We thus highlight the political importance of the supply side of media markets.

In large municipalities with relatively deep media markets, we first demonstrate that each additional local media outlet substantially increases voters’ electoral punishment of malfeasant in-

⁴⁶In the absence of detailed media consumption data and a comparable sample, these figures cannot be combined with our main estimates to compute a persuasion rate.

⁴⁷If competition from non-local outlets instead creates stronger incentives for local outlets to differentiate themselves by providing more local content (Gentzkow, Shapiro and Sinkinson 2014; George and Waldfogel 2003), additional non-local media outlets could in fact increase local news consumption by increasing local content among existing providers. That we do not observe effects consistent with such an effect dominating again suggests that content effects are minimal under our design.

cumbent parties and increase voters' electoral rewards for incumbent parties revealed to be clean. Consistent with our theoretical framework, we further show that these effects are driven by media environments containing fewer competing non-local media stations and where local media primarily serve an audience located within their municipality. Our findings are especially pronounced with respect to the sanctioning of spending that did not benefit its poor intended recipients, and appear to be driven by increased consumption of local news stations, rather than changes in media outlet content. These results suggest that variation in access to local media and media market structure have the potential to help explain the substantially varying levels of electoral accountability observed within and across countries.

The implications for democracies across the world are somewhat mixed. On the one hand, increasing access to media in developing contexts offers unprecedented opportunities for supporting democratic accountability.⁴⁸ Our estimates imply that extensive nationwide access to local media stations could remove malfeasant incumbent parties from office and increase the probability of re-electing high-performing parties. Moreover, by reporting on incumbent performance in office, local media may also incentivise future performance (e.g. [Avis, Ferraz and Finan 2018](#)).

On the other hand, local news content is increasingly being replaced by national and international content (e.g. [Hayes and Lawless 2015](#); [Martin and McCrain 2019](#)).⁴⁹ To the extent that this crowds out and replaces local content, this decline is likely to adversely affect local accountability as voters consume less content relevant to appraising local politicians. Moreover, a lack of regulation in media markets, combined with an understanding of media's potential impact, can create opportunities for media capture by politicians and other interests ([Besley and Prat 2006](#); [Boas and Hidalgo 2011](#); [Petrova 2011](#); [Stanig 2015](#)). Indeed, Reporters Without Borders worryingly report that global press freedoms have decreased 14% since 2013.⁵⁰

⁴⁸See e.g. State of the Media, 'Why U.S. Newspapers Suffer More than Others,' stateofthemedialab.org/2011/mobile-survey/international-newspaper-economics for a cross-national comparison of media environments.

⁴⁹In the U.S., see e.g. Nieman Lab, 'As giant platforms rise, local news is getting crushed,' September 1st 2015, niemanlab.org/2015/09/as-giant-platforms-rise-local-news-is-getting-crushed, and *Washington Post*, 'Charting the years-long decline of local news reporting,' March 26th 2014, washingtonpost.com/lifestyle/style/charting-the-years-long-decline-of-local-news-reporting/2014/03/26/977bf088-b457-11e3-b899-20667de76985_story.html. In China, see e.g. State of the Media, 'Why U.S. Newspapers Suffer More than Others,' stateofthemedialab.org/2011/mobile-survey/international-newspaper-economics.

⁵⁰Reporters Without Borders, 'A 'deep and disturbing' decline in media freedom,' rsf.org/en/deep-and-disturbing-decline-media-freedom.

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A Appendix

Contents

A.1	Theoretical model	A2
A.1.1	Media market model	A2
A.1.2	Equilibrium media consumption and electoral accountability	A5
A.2	Examples of audit reports	A10
A.3	Variable definitions	A10
A.4	Balance tests	A16
A.4.1	Balance across municipalities where audits are released before and after elections	A16
A.4.2	Lack of balance across media stations in the full sample of audit reports	A16
A.4.3	Balance in the neighbouring precincts sample	A16
A.5	Average effects of audits, unconditional on the media environment	A16
A.6	Effects on turnout	A23
A.7	Prior election outcomes placebo test	A23
A.8	Robustness to not weighting by registered voters	A23
A.9	Robustness to additional precinct area restrictions	A23
A.10	Interaction with local media in the full sample	A23
A.11	Effects of an additional non-local media station	A23

A.1 Theoretical model

A.1.1 Media market model

Each municipality $q = 1, \dots, Q$ contains a continuum of electoral precincts denoted by p_q . In turn, each precinct contains a continuum of voters of mass $f(p_q)$. Voters in any given precinct choose which media stations to consume, and may consequently learn about the municipal incumbent party's malfeasance in office. Without loss of generality, we focus on a generic precinct p_q in municipality q .

Media stations. Each precinct p_q is covered by masses $m_L(p_q) \geq 0$ and $m_N(p_q) > 0$ of *local* media stations (L) and *non-local* media stations (N) respectively, which compete to maximise their profit. Within each category, there is a continuum of identical individual stations denoted by θ , where $\hat{\theta}(p_q) \in \{L, N, \emptyset\}$ denotes whether θ is local, non-local, or out of the reach of precinct p_q .¹ The difference between local and non-local media stations, from the perspective of voters, is that media stations only have the capacity to provide content specific to the municipality in which they are located, e.g. because their office and antennae are located in that municipality and they thus possess a substantial comparative advantage in producing local news. We denote $\ell(\theta)$ as the share of θ 's content that is specific to the municipality where θ is located. By definition, θ provides zero local content when $\hat{\theta}(p_q) = N$, while $\ell(\theta) \in [0, 1]$ when $\hat{\theta}(p_q) = L$. The total audience of a media station θ located in municipality q is then given by:

$$A(\ell(\theta)) := \underbrace{\int_{p_q \in \mathcal{P}_q(\theta)} h(\theta, p_q) f(p_q) dp_q}_{\text{local audience within } \theta\text{'s municipality}} + \underbrace{\sum_{q' \neq q} \int_{p_{q'} \in \mathcal{P}_{q'}(\theta)} h(\theta, p_{q'}) f(p_{q'}) dp_{q'}}_{\text{audience from other municipalities}}, \quad (\text{A1})$$

where $\mathcal{P}_q(\theta)$ is the set of precincts in municipality q that station θ covers, and $h(\theta, p_q) \geq 0$ denotes the number of hours of station θ consumed in precinct p_q . The first term in equation (A1) represents θ 's audience in the municipality q that it is local to, while the second represents its audience in all other municipalities.

Media stations maximise their profits by providing general and local content. For simplicity, we assume that outlets receive ad revenues of value $\alpha > 0$ per unit of audience. General content includes entertainment, national news, and content only relevant for *other* municipalities (from the perspective of our generic precinct). We conceive of local content as news, including but not restricted to political news like mayoral audit reports.² Local stations choose to devote fraction

¹A continuum with fixed mass is a popular modelling device, but reasonably approximates our context where there are many media stations. Additional layers of station heterogeneity, such as quality or variation in the proportion of their audience that is local, could be included at the cost of mathematical complexity.

²Given the large mass of local media stations, as in our empirical context, we assume that competitors will expose factual inaccuracies, and thus limit the slanting of news content (Gentzkow and Shapiro 2006; Lawson 2002; Puglisi

$\ell(\theta) \in [0, 1]$ of their broadcasting to local content, at cost $c(\ell)$, where $c(0) = 0$, $c'(\ell) > 0$, and $c''(\ell) > 0$. For simplicity, we assume that general content can be provided costlessly (e.g. through retransmission). Recall also that non-local media stations are unable to provide local content, e.g. because their reach is insufficiently large to warrant building a local office. These simplifying assumptions do not drive our results.

Voters. Within precinct p_q , we assume that the media-content consumption of all voters is identical. We thus focus on the media consumption of a representative voter who must choose among the $m_L(p_q) + m_N(p_q)$ mass of media outlets that they have access to. Their choices reflect two motivations: (i) a preference for variety across stations; and (ii) a preference for greater local content.³ The preference for variety, which implies that voters would prefer to consume a fixed amount of content from many different stations than the same amount from a single station, is the standard assumption underpinning consumer choice in new trade theory (e.g. Melitz 2003). It also represents a reasonable approximation to competitive media markets where stations provide differentiated content (and no station can provide only high-quality content) and new outlets are able to attract listeners and viewers (e.g. DellaVigna and Kaplan 2007; Durante and Knight 2012; Durante, Pinotti and Tesei 2019; Enikolopov, Petrova and Zhuravskaya 2011; Strömberg 2004). Given that no single voter is likely to affect election outcomes, the preference for local content reflects individual benefits arising from the greater relevance or interest of localised content. In Table 6 of the main paper, we provide evidence indicating such a preference for local news in Mexico.

Formally, we characterise such preferences by the following constant elasticity of substitution utility function:

$$U(p_q) := \left(\int_0^{m_L(p_q) + m_N(p_q)} \left[h(\theta, p_q) [1 + \ell(\theta)] \right]^\rho d\theta \right)^{\frac{1}{\rho}} \quad (\text{A2})$$

where $\rho \in (0, 1)$ represents substitutability across stations. The multiplier $[1 + \ell(\theta)]$ captures differential interest in local content by allowing voters to obtain greater utility from consuming an hour of media from a station where fraction $\ell(\theta)$ is devoted to locally-relevant content. Voter choice is subject to the time constraint that they cannot consume more than T hours of content in total:

$$\int_0^{m_L(p_q) + m_N(p_q)} h(\theta, p_q) d\theta \leq T. \quad (\text{A3})$$

Electoral rewards and punishment. Because our principal focus is on the media environment, we adopt a reduced form sanctioning model where Bayesian voters decide whether to re-elect an

and Snyder 2011).

³To simplify exposition, we assume that voters cannot specifically tune in to watch scheduled local content.

incumbent party by comparing it to a challenger about whom nothing is learned.⁴ Upon consuming media content, voters receive informative signals indicating that the incumbent party I_q in municipality q misallocated share s_{I_q} of funds. Each signal s_{I_q} is independently drawn from normal distribution $\mathcal{N}(x_{I_q}, \psi_{I_q}^2)$, where the expectation x_{I_q} is the true level of malfeasant misallocation with variance $\psi_{I_q}^2 > 0$.⁵ The number of signals received by voters in precinct p_q is given by the total number of hours of *local* content consumed:⁶

$$\bar{\ell}(p_q) := \int_0^{m_L(p_q) + m_N(p_q)} h(\theta, p_q) \ell(\theta) d\theta. \quad (\text{A4})$$

Exposure to malfeasance revelations is thus increasing in the total number of hours of local content consumed. Although voters do not explicitly acquire information to sanction politicians in our model, such a motivation could be incorporated as an additional utility received from consuming local news. Alternatively, such information could just be an externality of preferring local content.

Voters possess common prior beliefs regarding the malfeasance of the incumbent party I_q and challenger party C_q in municipality q . Specifically, prior beliefs are normally distributed according to $\mathcal{N}(\kappa_{j_q}, \tau_{j_q}^2)$, where $\kappa_{j_q} \in (0, 1)$ is expected malfeasance and $\tau_{j_q}^2 > 0$ is the prior's variance for $j \in \{I_q, C_q\}$. In addition to preferring less malfeasant incumbent parties, each voter $i(p_q)$ in precinct p_q possesses a partisan bias $\delta(i, p_q)$ in favour of I_q . This bias is independently and uniformly distributed across each precinct's electorate over the interval $[-\frac{1}{2\phi}, \frac{1}{2\phi}]$. Voter $i(p_q)$'s voting decision is $v(i, p_q) \in \{I_q, C_q\}$, where $i(p_q)$ re-elects I_q (i.e. $v^*(i, p_q) = I_q$) if:⁷

$$\delta(i, p_q) - \left[\omega(\bar{\ell}(p_q)) \bar{x}_{I_q} + [1 - \omega(\bar{\ell}(p_q))] \kappa_{I_q} \right] \geq -\kappa_{C_q}, \quad (\text{A5})$$

where the second term on the left hand side is voters' common posterior expectation κ_{I_q} of the incumbent party's malfeasance. This term assigns weight $\omega(\bar{\ell}(p_q)) := \frac{\bar{\ell}(p_q) \tau_{I_q}^2}{\psi_{I_q}^2 + \bar{\ell}(p_q) \tau_{I_q}^2}$ to the mean signal received, \bar{x}_{I_q} , and weight $1 - \omega(\bar{\ell}(p_q))$ to the prior expectation, κ_{I_q} . Naturally, the weight $\omega(\bar{\ell}(p_q))$ is increasing in the number of signals received $\bar{\ell}(p_q)$ and the variance of the prior $\tau_{I_q}^2$, and decreasing in the variance of the signal $\psi_{I_q}^2$.

The sequencing of actions can be summarised as:

1. Media stations simultaneously choose their fraction of local content $\ell(\theta)$.

⁴Allowing voters to also learn about the challenger (if challenger types are believed to be correlated with incumbent party types) would impose significant mathematical complexity. However, the guiding intuitions apply to contexts where voters believe that the correlation of types is not too high.

⁵For tractability, we use an unbounded normal distribution to capture prior beliefs about, and signals of, the share of malfeasant spending. This violates the restriction that the share lies between 0 and 1. However, for sufficiently tight distributions, beliefs and signal will generally remain between 0 and 1.

⁶While $\bar{\ell}(p_q)$ is continuous, we think of this as yielding a discrete number of signals for convenience.

⁷For simplicity, we assume that voters are risk-neutral.

2. Voters choose to consume $h(\theta, p_q)$ hours of each media station θ .
3. Voters receive $\bar{\ell}(p_q)$ signals regarding incumbent misallocation.
4. Voters make their vote choice $v(i, p_q)$.

A.1.2 Equilibrium media consumption and electoral accountability

We work backwards to solve for the subgame perfect equilibrium (SPNE). Given total local media consumption $\bar{\ell}(p_q)$ in equilibrium, the voting rule in equation (A5), and integrating over voter partisan biases, the incumbent party vote share $V_{I_q}(p_q)$ in precinct p_q is given by:⁸

$$V_{I_q}(p_q) = \frac{1}{2} - \phi \left[\omega(\bar{\ell}(p_q)) [\bar{x}_{I_q} - \kappa_{I_q}] + \kappa_{I_q} - \kappa_{C_q} \right]. \quad (\text{A6})$$

This vote share makes clear that voters become more likely to vote against an incumbent party revealed to have engaged in more malfeasance than expected (i.e. $\bar{x}_{I_q} > \kappa_{I_q}$), and for a party revealed to have engaged in less malfeasance than expected (i.e. $\bar{x}_{I_q} < \kappa_{I_q}$).

The key insights of this simple model concern media consumption, and thus the level of $\bar{\ell}(p_q)$. In particular, voters optimise their media consumption by choosing $h^*(\theta, p_q)$ to maximise equation (A2) subject to equation (A3), taking the proportion of local content $\ell(\theta)$ for each station as given. Given that $\ell = 0$ for non-local outlets, we later prove that media consumption in precinct p_q for station θ is:

$$h^*(\theta, p_q) = \begin{cases} \frac{T[1+\ell(\theta)]^{\rho\sigma}}{\int_0^{m_L(p_q)} [1+\ell(\theta')]^{\rho\sigma} d\theta' + m_N(p_q)} & \text{if } \hat{\theta}(p_q) = L \\ \frac{T}{\int_0^{m_L(p_q)} [1+\ell(\theta')]^{\rho\sigma} d\theta' + m_N(p_q)} & \text{if } \hat{\theta}(p_q) = N \\ 0 & \text{if } \hat{\theta}(p_q) = \emptyset \end{cases} \quad (\text{A7})$$

where $\sigma = \frac{1}{1-\rho}$ is the constant elasticity of substitution between media outlets. Demand for local media station θ is thus greater than for a non-local media station if $\ell(\theta) > 0$, and is increasing in $\ell(\theta)$. Given their preference for variety, voters consume content from every media station to which they have access. However, where $\rho\sigma$ is large, media consumption is heavily weighted toward the outlets provided the most local content.

The final step of our backward induction sees media stations choose fraction $\ell(\theta)$ of content local to their municipality q . Since there is a continuum of media stations facing identical maximisation problems, and given anticipated voter media consumption $h^*(\theta, p_q)$ in each precinct, each

⁸Given that vote share is bounded on $[0, 1]$ we assume that $\phi \left[\omega(\bar{\ell}(p_q)) [\bar{x}_{I_q} - \kappa_{I_q}] + \kappa_{I_q} - \kappa_{C_q} \right] \in (-\frac{1}{2}, \frac{1}{2})$, and thus an interior solution exists.

station θ solves the following optimisation problem:⁹

$$\max_{\ell(\theta) \in [0,1]} \alpha A(\ell(\theta)) - c(\ell(\theta)). \quad (\text{A8})$$

Equilibrium local content provision by any media station local to municipality q and covering our generic precinct p_q is then given implicitly by the following first-order condition:

$$\alpha \rho \sigma T [1 + \ell^*(\theta)]^{\rho\sigma-1} \int_{p_q \in \mathcal{P}_q(\theta)} \frac{f(p_q)}{\int_0^{m_L(p_q)} [1 + \ell(\theta')]^{\rho\sigma} d\theta' + m_N(p_q)} dp_q - c'(\ell(\theta)) = 0 \quad (\text{A9})$$

Intuitively, it is clear that the marginal increase in audience due to increasing local content (the first term) increases with the total density of voters in their catchment area for whom their content would be local (i.e. $\int_{p_q \in \mathcal{P}_q(\theta)} f(p_q) dp_q$). A relatively large local audience share thus increases the provision of local content.

Putting everything together yields the following result:

Proposition 1. (*Equilibrium uniqueness*) *A unique SPNE $\langle \ell^*(\theta), h^*(\theta, p_q), v^*(i, p_q) \rangle$ exists.*

Proof: We solve for the SPNE by working backwards. Starting with sanctioning, each voter i in precinct p_q chooses optimal sanctioning rule $v^*(i, p_q)$. This follows straightforwardly from the decision to vote for I_q when the expected utility from voting for the incumbent, i.e. $\delta(i, p_q) - [\omega(\bar{\ell}(p_q))\bar{x}_{I_q} + [1 - \omega(\bar{\ell}(p_q))\kappa_{I_q}]]$, exceeds the expected utility from voting for C_q , i.e. $-\kappa_{C_q}$. Integrating over $\delta(i, p_q)$ then yields $V_{I_q}(p_q)$, as given in equation (A6).

Continuing to work backwards, we turn to voter media consumption, holding $\ell(\theta)$ fixed. Voters solve the following Lagrangian:

$$\mathcal{L}(p_q) = [U(p_q)]^\rho + \lambda \left[T - \int_0^{m_L(p_q) + m_N(p_q)} h(\theta, p_q) d\theta \right], \quad (\text{A10})$$

where the strictly increasing transformation of U to U^ρ allows us to simplify the derivation without altering the solutions. We now have a continuum of first-order conditions in $h(\theta, p_q)$:

$$\frac{\partial \mathcal{L}(p_q)}{\partial h(\theta, p_q)} = 0 \implies \rho [1 + \ell(\theta)]^\rho h^*(\theta, p_q)^{\rho-1} = \lambda, \quad (\text{A11})$$

which is a maximum because $\rho < 1$ implies that $\frac{\partial^2 \mathcal{L}(p_q)}{\partial h(\theta, p_q)^2} = \rho(\rho - 1) [1 + \ell(\theta)]^\rho h^*(\theta, p_q)^{\rho-2} < 0$.

⁹The continuum of stations ensures that θ 's choice of $\ell^*(\theta)$ does not affect the choices of other stations, while the continuum of precincts ensures that changes in demand in any given precinct do not affect a station's optimisation.

Solving for $h^*(\theta, p_q)$ yields:

$$h^*(\theta, p_q) = \left(\frac{\lambda}{\rho}\right)^{-\sigma} \frac{1}{[1 + \ell(\theta)]^{-\rho\sigma}}, \quad (\text{A12})$$

where recall that $\sigma = \frac{1}{1-\rho}$. Remove λ by dividing through by the analogous first-order condition for $\theta' \neq \theta$ (which also cover p_q), and then rearrange to give:

$$h^*(\theta, p_q) = h^*(\theta', p_q) \left[\frac{1 + \ell(\theta)}{1 + \ell(\theta')} \right]^{\rho\sigma}. \quad (\text{A13})$$

Given that the budget constraint binds, integrating over θ on both sides yields:

$$T = h^*(\theta', p_q) [1 + \ell(\theta')]^{-\rho\sigma} \int_0^{m_L(p_q) + m_N(p_q)} [1 + \ell(\theta)]^{\rho\sigma} d\theta. \quad (\text{A14})$$

After interchanging θ and θ' , this rearranges to give the equilibrium consumption function for θ :

$$\begin{aligned} h^*(\theta, p_q) &= \frac{T}{[1 + \ell(\theta)]^{-\rho\sigma} \int_0^{m_L(p_q) + m_N(p_q)} [1 + \ell(\theta')]^{\rho\sigma} d\theta'} \\ &= \frac{T[1 + \ell(\theta)]^{\rho\sigma}}{\int_0^{m_L(p_q)} [1 + \ell(\theta')]^{\rho\sigma} d\theta' + m_N(p_q)}, \end{aligned}$$

where the separation in the denominator of the second line reflects the fact that $\ell(\theta) = 0$ for all non-local stations (which can be ordered in the index without loss of generality).

Finally, we turn to the choice of $\ell(\theta)$ for a media station local to municipality q . As noted above, each local station faces the maximisation problem in equation (A8). Given the continuum of local stations, the denominator of $h^*(\theta, p_q)$ —a local-content index of media stations—is taken as fixed. The first-order condition in equation (A9) for station θ then implicitly characterises the optimal ℓ . The second-order condition for a maximum requires that:

$$\rho\sigma(\rho\sigma - 1)T[1 + \ell^*(\theta)]^{\rho\sigma-2} \int_{p_q \in \mathcal{P}_q(\theta)} \frac{f(p_q)}{\int_0^{m_L(p_q)} [1 + \ell^*(\theta')]^{\rho\sigma} d\theta' + m_N(p_q)} dp_q < c''(\ell^*(\theta)) \quad (\text{A15})$$

An interior solution requires that the cost is sufficiently large or that $\rho < \frac{1}{2}$ (and thus $\rho\sigma - 1 < 0$). If this condition does not hold, then we have a corner solution where $\ell^*(\theta) = 1$.

In sum, the unique SPNE is thus characterised (implicitly in the case of $\ell^*(\theta)$) by:

$$c'(\ell^*(\theta)) = \alpha\rho\sigma T[1 + \ell^*(\theta)]^{\rho\sigma-1} \int_{p_q \in \mathcal{P}_q(\theta)} \frac{f(p_q)}{\int_0^{m_L(p_q)} [1 + \ell^*(\theta')]^{\rho\sigma} d\theta' + m_N(p_q)} dp_q, \quad (\text{A16})$$

where θ is local to municipality q (A17)

$$h^*(\theta, p_q) = \begin{cases} \frac{T[1+\ell^*(\theta)]^{\rho\sigma}}{\int_0^{m_L(p_q)} [1+\ell^*(\theta')]^{\rho\sigma} d\theta' + m_N(p_q)} & \text{if } \hat{\theta}(p_q) = L \\ \frac{T}{\int_0^{m_L(p_q)} [1+\ell^*(\theta')]^{\rho\sigma} d\theta' + m_N(p_q)} & \text{if } \hat{\theta}(p_q) = N \\ 0 & \text{if } \hat{\theta}(p_q) = \emptyset \end{cases} \quad (\text{A18})$$

$$v^*(i, p_q) = \begin{cases} I_q & \text{if } \delta(i, p_q) - \left[\omega(\bar{\ell}(p_q))\bar{x}_{I_q} + [1 - \omega(\bar{\ell}(p_q))\kappa_{I_q}] \right] \geq -\kappa_{C_q} \\ C_q & \text{otherwise} \end{cases} \quad (\text{A19}) \quad \blacksquare$$

To understand the model's core insight, consider how an additional local media station affects a voter's total local media consumption. In the context of our empirical analysis, this could entail a local media station's reach extending slightly further to cover a precinct that would not have received the signal otherwise *or* a local station competing throughout the market of other local media outlets. The following comparative static characterises the effect in either case:

$$\frac{\partial \bar{\ell}(p_q)}{\partial m_L(p_q)} = \underbrace{h^*(m_L(p_q), p_q) \ell^*(m_L(p_q))}_{\text{increased mass of local media}} + \int_0^{m_L(p_q)} \left[\underbrace{\ell^*(\theta) \frac{\partial h^*(\theta, p_q)}{\partial m_L(p_q)}}_{\text{audience loss}} + \underbrace{h^*(\theta, p_q) \frac{\partial \ell^*(\theta)}{\partial m_L(p_q)}}_{\text{reduced local content}} \right] d\theta \quad (\text{A20})$$

This equation highlights several effects. The first term simply captures the increase in local media consumption due to the addition of a newly-accessible local media outlet. The second term is the countervailing loss of audience aggregated across all other local media outlets. The net effect of these two effects is positive where the new local media outlet provides enough local content. The third term captures the reduced incentive to provide local content among all other local media outlets due to the increase in competition between local news outlets. However, this third effect only kicks in when the new local media outlet competes with a substantial share of the audience among existing local media outlets. Provided that this endogenous effect on the content of existing outlets is relatively small, local news content consumption will increase overall.

For the purpose of establishing which theoretical quantities our empirical strategy plausibly identifies, it is also informative to examine the effect of non-local media outlets. The analogous

comparative static for non-local media is given by:

$$\frac{\partial \bar{\ell}(p_q)}{\partial m_N(p_q)} = \int_0^{m_L(p_q)} \left[\underbrace{\ell^*(\theta) \frac{\partial h^*(\theta, p_q)}{\partial m_N(p_q)}}_{\text{audience loss}} + \underbrace{h^*(\theta, p_q) \frac{\partial \ell^*(\theta)}{\partial m_N(p_q)}}_{\text{reduced local content}} \right] d\theta < 0. \quad (\text{A21})$$

Although the partial differentials determining the audience loss and reduced local content effects will be somewhat different in magnitudes, the first-order difference is that there is no longer an increase in local news content consumption due to the greater mass of local media outlets, as the following differential illustrates:

$$\begin{aligned} \frac{\partial \bar{\ell}(p_q)}{\partial m_L(p_q)} - \frac{\partial \bar{\ell}(p_q)}{\partial m_N(p_q)} &= h^*(m_L(p_q), p_q) \ell^*(m_L(p_q)) + \int_0^{m_L(p_q)} \ell^*(\theta) \left(\frac{\partial h^*(\theta, p_q)}{\partial m_L(p_q)} - \frac{\partial h^*(\theta, p_q)}{\partial m_N(p_q)} \right) d\theta \\ &+ \int_0^{m_L(p_q)} h^*(\theta, p_q) \left(\frac{\partial \ell^*(\theta)}{\partial m_L(p_q)} - \frac{\partial \ell^*(\theta)}{\partial m_N(p_q)} \right) d\theta. \end{aligned} \quad (\text{A22})$$

Provided that the indirect negative audience loss and reduced local content effects are relatively similar—which is likely to be the case when there are already a good number of local and non-local outlets in the market—then the difference between the effect of local and non-local media outlets can be attributed to increased consumption of local news due to the additional outlet.

Assuming that an additional local media station increases total local news consumption, the following comparative statics characterise the equilibrium:

Proposition 2. (Comparative statics) *In the unique SPNE $\langle \ell^*(\theta), h^*(\theta, p_q), v^*(i, p_q) \rangle$ where $\frac{\partial \bar{\ell}(p_q)}{\partial m_L(p_q)} > 0$, the following comparative statics hold:*

1. *The incumbent vote share $V_{I_q}(p_q)$ in a given electoral precinct is decreasing (increasing) in the mass of local media stations $m_L(p_q)$ covering that precinct when $\bar{x}_{I_q} > (<) \kappa_{I_q}$.*
2. *Under non-restrictive conditions on $\psi_{I_q}^2$ and $\tau_{I_q}^2$ (see proof), the magnitude of the marginal effect of $m_L(p_q)$ on $V_{I_q}(p_q)$ is decreasing in $m_N(p_q)$ and increasing in the size of the local audience of local media stations $\int_{p_q \in \mathcal{P}_q(\theta)} f(p_q) dp_q$.*

Proof. The first part follows from differentiating $V_{I_q}(p_q)$ with respect to $m_L(p_q)$:

$$\frac{\partial V_{I_q}(p_q)}{\partial m_L(p_q)} = -\phi \omega'(\bar{\ell}(p_q)) [\bar{x}_{I_q} - \kappa_{I_q}] \frac{\partial \bar{\ell}(p_q)}{\partial m_L(p_q)} < (>) 0, \quad (\text{A23})$$

where the negative (positive) sign follows from $\phi > 0$ and $\omega'(\bar{\ell}(p_q)) > 0$, when $\bar{x}_{I_q} > (<) \kappa_{I_q}$.

The second part of the proposition follows from further differentiating by $m_N(p_q)$ and $f(p_q)$:

$$\begin{aligned} \frac{\partial^2 V_{I_q}(p_q)}{\partial m_L(p_q) \partial m_N(p_q)} &= -\phi[\bar{x}_{I_q} - \kappa_{I_q}] \left[\omega'(\bar{\ell}(p_q)) \frac{\partial^2 \bar{\ell}(p_q)}{\partial m_L(p_q) \partial m_N(p_q)} + \omega''(\bar{\ell}(p_q)) \frac{\partial \bar{\ell}(p_q)}{\partial m_N(p_q)} \frac{\partial \bar{\ell}(p_q)}{\partial m_L(p_q)} \right] > (<)0, \\ &= -\phi \omega'(\bar{\ell}(p_q)) [\bar{x}_{I_q} - \kappa_{I_q}] \left[\frac{\partial^2 \bar{\ell}(p_q)}{\partial m_L(p_q) \partial m_N(p_q)} + \frac{2}{\psi_{I_q}^2 + \bar{\ell}(p_q) \tau_{I_q}^2} \frac{\partial \bar{\ell}(p_q)}{\partial m_N(p_q)} \frac{\partial \bar{\ell}(p_q)}{\partial m_L(p_q)} \right] > (<)0, \end{aligned} \quad (\text{A24})$$

$$\begin{aligned} \frac{\partial^2 V_{I_q}(p_q)}{\partial m_L(p_q) \partial f(p_q)} &= -\phi[\bar{x}_{I_q} - \kappa_{I_q}] \left[\omega'(\bar{\ell}(p_q)) \frac{\partial^2 \bar{\ell}(p_q)}{\partial m_L(p_q) \partial f(p_q)} + \omega''(\bar{\ell}(p_q)) \frac{\partial \bar{\ell}(p_q)}{\partial f(p_q)} \frac{\partial \bar{\ell}(p_q)}{\partial m_L(p_q)} \right] < (>)0, \\ &= -\phi \omega'(\bar{\ell}(p_q)) [\bar{x}_{I_q} - \kappa_{I_q}] \left[\frac{\partial^2 \bar{\ell}(p_q)}{\partial m_L(p_q) \partial f(p_q)} + \frac{2}{\psi_{I_q}^2 + \bar{\ell}(p_q) \tau_{I_q}^2} \frac{\partial \bar{\ell}(p_q)}{\partial f(p_q)} \frac{\partial \bar{\ell}(p_q)}{\partial m_L(p_q)} \right] > (<)0. \end{aligned} \quad (\text{A25})$$

where, given $\bar{x}_{I_q} > (<) \kappa_{I_q}$ and $\omega'(\bar{\ell}(p_q)) > 0$, both conditions hold if the first term in brackets dominates the second. It is easy to see that $\frac{\partial^2 \bar{\ell}(p_q)}{\partial m_L(p_q) \partial f(p_q)} > 0$, while $\frac{\partial \bar{\ell}(p_q)}{\partial m_N(p_q)} < 0$ and $\frac{\partial \bar{\ell}(p_q)}{\partial f(p_q)} > 0$. Moreover, $\frac{\partial^2 \bar{\ell}(p_q)}{\partial m_L(p_q) \partial m_N(p_q)} < 0$ holds under similar condition to when $\frac{\partial \bar{\ell}(p_q)}{\partial m_L(p_q)} > 0$ holds; for example, when $\ell^*(\theta)$ is unaffected by $m_L(p_q)$ or $m_N(p_q)$.

The first term dominates when the second-order effect through $\omega''(\bar{\ell}(p_q))$ is small in magnitude relative to the first-order effect through $\omega'(\bar{\ell}(p_q))$. This occurs when the variances of the signal and prior, $\psi_{I_q}^2$ and $\tau_{I_q}^2$, are sufficiently large; intuitively, this ensures that $\omega(\bar{\ell}(p_q))$ is not too concave in equilibrium. Due to the continuum of precincts, an increase in $f(p_q)$ in a single precinct does not affect local news provision. However, given the discrete number of municipalities, an increase in $f(p_q)$ across all $p_q \in \mathcal{P}_q$ —i.e. $\int_{p_q \in \mathcal{P}_q} f(p_q) dp_q$ —entails $\frac{\partial^2 \bar{\ell}(p_q)}{\partial m_L(p_q) \partial f(p_q)} > 0$. ■

A.2 Examples of audit reports

Figures A1 and A2 provide an example of an audit report from 2008 for the municipality of Ajalpan in the state of Puebla.

A.3 Variable definitions

Change in incumbent party vote share. The change in incumbent vote share, as a proportion of total votes cast, in a given electoral precinct. Where the incumbent is part of a coalition that changes in the following election, we count the vote share of the coalition of the party affiliation of the mayor at the next election. We hand-coded the mayor's affiliation for around a quarter of municipalities in the sample where the mayor's affiliation could not be immediately established. Source: IFE and State Electoral Institutes.

Incumbent party re-elected. Indicator coded one where the incumbent party is re-elected (municipal level variation). Incumbents are defined as above. Source: IFE and State Electoral Institutes.

Change in turnout. The change in turnout in a given electoral precinct. Source: IFE and State Electoral Institutes.

FONDO PARA LA INFRAESTRUCTURA SOCIAL MUNICIPAL
INDICADORES PARA APOYAR LA VALORACIÓN DEL CUMPLIMIENTO
DE METAS Y OBJETIVOS DEL FONDO
MUNICIPIO DE AJALPAN, PUEBLA
CUENTA PÚBLICA 2008

Concepto	Valor del Indicador
I. OPORTUNIDAD EN EL EJERCICIO DEL FONDO	
I.1 Nivel de gasto al 31 de diciembre. (% ejercido del monto asignado).	55.8
I.2 Nivel de gasto al 31 de julio de 2009 (% ejercido del monto asignado).	86.9
II.- CUMPLIMIENTO DE LA PROGRAMACIÓN	
II.1 Obras del programa inicial aprobado por el cabildo que fueron ejecutadas. (%)	100.0
II.2 Monto de las obras del programa inicial aprobado por el cabildo que fueron ejecutadas. (%)	100.0
II.3 Cumplimiento de las metas físicas aprobadas de las obras y acciones de la muestra de auditoría. (% de las obras y acciones de la muestra de auditoría que cumplieron con sus metas físicas).	100.0
III.- APLICACIÓN DE LOS RECURSOS	
III.1 Recursos ejercidos en obras y acciones que no beneficiaron a población en rezago social y pobreza extrema (% respecto del monto total ejercido del FISM).	11.1
III.2 Recursos ejercidos en obras y acciones que no beneficiaron directamente a población en rezago social y pobreza extrema (% respecto de la muestra de auditoría)	11.4
III.3 Recursos ejercidos en rubros no autorizados por la Ley de Coordinación Fiscal (% respecto del monto total ejercido del FISM)	41.8
III.4 Destino de la inversión en obras y acciones por rubro y gasto (%)	
1.- Agua Potable.	8.1
2.- Alcantarillado.	2.6
3.- Drenaje y letrinas.	0.0
4.- Urbanización municipal.	23.4
5.- Electrificación rural y de colonias pobres.	1.1
6.- Infraestructura básica de salud.	0.0
7.- Infraestructura básica de educación.	16.0
8.- Mejoramiento de vivienda.	0.9
9.- Caminos rurales.	11.5
10.- Infraestructura productiva rural.	0.0
11.- Desarrollo Institucional.	0.0
12.- Gastos indirectos.	0.0
13.- Otros.	36.4
Total	100.0
III.5 Inversión en pavimentos y obras similares (% del monto total ejercido del FISM).	19.1
III.6 Inversión en la cabecera municipal (% del monto total ejercido del FISM).	18.8
III.7 Población en la cabecera municipal en 2008 (% de la población total del municipio).	45.3
III.8 Proporción de viviendas particulares habitadas respecto del total, que no disponen de:	
Agua entubada de red pública (%).	31.3
Drenaje. (%).	55.5
Energía eléctrica. (%).	6.6
III.9 ¿Se destinaron recursos del FISM al Desarrollo Institucional?, Sí o No.	NO
a) ¿El municipio convino el programa de Desarrollo Institucional con el Ejecutivo Federal - SEDESOL- y con el Ejecutivo Estatal?, Sí o No.	NO
III.10 Recursos aplicados en Desarrollo Institucional que no corresponden con los objetivos de este rubro (% del monto ejercido en Desarrollo Institucional).	0.0
IV.- RESULTADOS	
IV.1 Situación constructiva y operativa de las obras visitadas (distribución % de las obras visitadas).	
A) número de obras visitadas 38	100.0
1. Obras Terminadas	94.7
a) Operan adecuadamente.	100.0
b) No operan adecuadamente.	0.0
c) No operan.	0.0
2. Obras en proceso.	5.3
3. Obras suspendidas.	0.0

Figure A1: Sample ASF audit report (page 1)

Notes: Extracted from the ASF audit report on the use of FISM funds by the municipal government of the municipality of Ajalpan in the state of Puebla in 2008. The red squares indicate the lines where the ASF reports the FISM funds spent in an unauthorised manner and the share spent on projects that did not benefiting the poor.

IV.2 Procuración de las preservación y protección del medio ambiente (% de las obras de la muestra de auditoría que cuentan con la validación de no impacto ambiental desfavorable).	100.0
IV.3 Satisfacción de los beneficiarios de las obras revisadas (% de las obras revisadas en las que los beneficiarios están satisfechos).	100.0
V.- PARTICIPACIÓN SOCIAL	
V.1 Obras y acciones de la muestra de auditoría autorizadas por el Comité de Planeación para el Desarrollo Municipal (COPLADEM) ó Consejo de Desarrollo Municipal (CDM) (%).	100.0
V.2 Inversión en obras y acciones de la muestra de auditoría que fueron autorizadas por el COPLADEM ó CDM (%).	100.0
V.3 Obras y acciones de la muestra de auditoría que cuentan con la solicitud de la comunidad (%).	100.0
V.4 Inversión en obras y acciones de la muestra de auditoría que cuentan con solicitud de la comunidad (%).	100.0
V.5 Obras terminadas de la muestra de auditoría que cuentan con acta de entrega recepción a la comunidad y al organismo operador (%).	100.0
V.6 Obras y acciones de la muestra de auditoría con acta de entrega recepción suscrita por el representante del Comité Pro Obra (%).	100.0
V.7 Nivel de operación y participación social del COPLADEM o CDM	
a) ¿Existe y opera en el municipio el COPLADEM o CDM?, Si o No.	SI
b) En su caso, ¿Opera regularmente el COPLADEM o CDM? [criterio: opera regularmente cuando sesiona al menos 3 veces al año], Si o No.	SI
c) Número de sesiones de trabajo que tuvo el COPLADEM o CDM en el año.	3
d) Número de representantes sociales que en promedio participaron en las sesiones del COPLADEM o CDM	105
VI.- TRANSPARENCIA EN LA APLICACIÓN DE RECURSOS	
VI.1 Entrega de informes trimestrales a la SEDESOL sobre el ejercicio del fondo (% de informes entregados respecto de los previstos enviar).	0.0
VI.2 Entrega de informes trimestrales a la SHCP sobre el ejercicio, destino y resultados obtenidos de los recursos de los fondos (% de informes entregados respecto de los previstos entregar).	50.0
VI.3 Difusión de la información enviada a la SHCP sobre el ejercicio del gasto y que fue publicada en los órganos locales oficiales de difusión, Internet u otro medio local de difusión (% de informes difundidos respecto a los previstos difundir).	0.0
a) ¿La información de los informes trimestrales reportados a la SHCP coinciden con los registros contables del municipio?, Si o No.	NO
b) ¿La calidad de la información de los informes trimestrales reportados a la SHCP fue adecuada; está desglosada por obra y acción, y coincide con los registros contables del municipio?, Si o No.	SI
VI.4 Difusión de las obras y acciones a realizar (% del monto asignado al fondo que fue difundido al inicio del ejercicio, respecto de las obras y acciones por realizar, con su costo, ubicación, metas y beneficiarios).	0.0
a) ¿Se difundió adecuadamente entre la población, al inicio del ejercicio, el monto recibido del FISM, así como las obras y acciones a realizar, su costo, ubicación, metas y beneficiarios?, Si o No.	NO
VI.5 Difusión de los resultados Alcanzados (% de la inversión ejercida en obras y acciones, que se difundieron e informaron a la población, al cierre del ejercicio, junto con sus resultados)	0.0
a) ¿Se difundieron adecuadamente entre la población, al final del ejercicio, las obras y acciones realizadas, su costo, ubicación, metas y beneficiarios, Si o No.	NO
VII.- FINANZAS MUNICIPALES	
VII.1 Importancia del fondo respecto a los recursos propios municipales	2,379.8
VII.2 Importancia del fondo respecto a las participaciones fiscales	153.7
VII.3 Importancia del fondo respecto a los recursos propios municipales y participaciones fiscales	144.4
VII.4 Proporción de la inversión del fondo en obra pública respecto a la inversión total en obra pública, del municipio	91.2
VII.5 Importancia del fondo respecto al monto total del presupuesto aprobado 2008 del municipio	47.2
VII.6 Variación de los ingresos propios municipales 2008 - 2007	14.3

FUENTE: Información proporcionada por el municipio de Ajalpan, Puebla *Censo de Población 2005, INEGI.

Figure A2: Sample ASF audit report (page 2)

Note: See Figure A1.

Pre-election audit. Indicator coded one for municipalities where ASF audit reports were released in the year before the election, as opposed to the year after the election. Source: ASF reports obtained from the ASF website.

Unauthorised spending. Percentage of FISM funds spent in an unauthorised manner. See text for further discussion. The variables Unauthorised Q3 and Unauthorised Q4 are defined by the third and fourth quartiles of our full sample. Source: ASF audit reports.

Spending that did not benefit the poor. Percentage of FISM funds spent on projects that did not benefit the poor. See text for further discussion. The variables Not poor Q3 and Not poor Q4 are defined by the third and fourth quartiles of our full sample. Source: ASF audit reports.

Malfeasance Q3/Q4. Indicator coded one for municipalities in the third and fourth quartiles of the unauthorised spending or spending that did not benefit the poor distributions. Quartiles were defined separately for each measure of malfeasance based on the distribution in the full sample of eligible audits. Source: ASF reports obtained from the ASF website.

Local media. The total number of AM, FM and television stations with local content emitting from within an electoral precinct's municipality and covering at least 20% of voters in a given precinct. Source: computed from IFE data.

Local AM/FM/television. The total number of AM/FM/television stations with local content emitting from within an electoral precinct's municipality and covering at least 20% of voters in a given precinct. Source: computed from IFE data.

Non-local media. The total number of AM, FM and television stations emitting from outside an electoral precinct's municipality or broadcasting only national content. Source: computed from IFE data.

Under-development. Standardised scale combining the following precinct-level measures of socio-economic development: average number of children per woman, share indigenous speakers, average years of schooling, share illiterate, share no schooling, share incomplete primary schooling, share complete primary schooling, share incomplete secondary schooling, share complete secondary schooling, share higher education, share economically active, share without health insurance, share state workers without health care, average occupants per dwelling, average occupants per room, share non-dirt floor, share toilet at home, share running water, share drainage, share electricity, share fridge, share washing machine, share cell phone, share car and share computer. The scale was constructed so that higher values reflect lower levels of development.

FISM target. Indicator coded 1 for precincts containing at least one locality with high or very high levels of marginalisation.

Local audience. The share of covered voters located within the municipality from which the media station emits, averaged across all local media stations.

PAN/PRI/PRD incumbent. Indicator coded one for the incumbent mayor represents a coalition

containing the PAN, PRI or PRD. Source: IFE and State Electoral Institutes.

Coalition partners. The number of parties in the incumbent mayor's coalition. Source: computed from IFE and State Electoral Institutes.

Municipal incumbent victory margin (lag). The difference between the largest and the second largest party in a given electoral precinct at the last election. Source: computed from IFE and State Electoral Institutes.

Municipal effective number of political parties (lag). The effective number of political parties in the municipal, defined by the following formula:

$$\frac{1}{\sum_{p=1}^P v_p^2},$$

where v_p is the municipal vote share of party $p = 1, \dots, P$. Source: computed from IFE and State Electoral Institutes.

Incumbent party vote share (lag). The vote share of the incumbent party in a given electoral precinct at the previous election. Source: IFE and State Electoral Institutes.

Effective number of political parties (lag). The effective number of political parties, defined at the precinct level. Source: computed from IFE and State Electoral Institutes.

Registered voters. The number of voters registered to vote in the electoral precinct. Source: IFE and State Electoral Institutes.

Turnout (lag). Precinct-level electoral turnout at the previous election. Source: IFE and State Electoral Institutes.

Kilometres to the municipal head from precinct centroid (log). The (logged) distance in kilometres from the municipal head to the centroid of the electoral precinct. Source: computed from INEGI data.

Kilometres to the largest locality from precinct centroid (log). The (logged) distance in kilometres from the largest locality in the municipality to the centroid of the electoral precinct. Source: computed from INEGI data.

Area (km²). Electoral precinct area in square kilometres. Source: computed from IFE data.

Population (log). Electoral precinct population (logged). Source: Mexican 2010 Census.

Population density (log). Electoral precinct population density (logged). Source: computed from the two variables above.

AM/FM/television antennae in precinct. Indicator coded 1 for precincts containing one or more AM/FM/television antennae.

Average children per woman. Average number of children per woman in the electoral precinct. Source: Mexican 2010 Census.

Share households with male head. Share of households in the electoral precinct with a male

head of household. Source: Mexican 2010 Census.

Share indigenous speakers. Share of the electoral precinct population aged 3+ that speaks an indigenous language. Source: Mexican 2010 Census.

Average years of schooling. Average number of completed grades of schooling among the population aged above 15. Source: Mexican 2010 Census.

Share illiterate. Share of the electoral precinct population aged above 15 that is illiterate in 2010. Source: Mexican 2010 Census.

Share no schooling/incomplete primary schooling/complete primary schooling/incomplete secondary schooling/complete secondary schooling/higher education. Share of the electoral precinct population aged above 15 for whom no schooling/incomplete primary schooling/complete primary schooling/incomplete secondary schooling/complete secondary schooling/higher education is the highest level of education that they possess. Source: Mexican 2010 Census.

Share economically active. Share of the electoral precinct population aged above 12 that is economically active (i.e. (had job, had job but not working, looking for job)). Source: Mexican 2010 Census.

Share without health insurance. Share of the electoral precinct population without public or private health care. Source: Mexican 2010 Census.

Share state workers health care. Share of the electoral precinct population with state workers health care. Source: Mexican 2010 Census.

Average occupants per dwelling/room. Average number of occupants per dwelling/room in the electoral precinct. Source: Mexican 2010 Census.

Share non-dirt floor. Share of the electoral precinct population in a private dwelling without a dirt floor. Source: Mexican 2010 Census.

Share toilet at home. Share of the electoral precinct population with a toilet. Source: Mexican 2010 Census.

Share running water. Share of the electoral precinct population in a private dwelling with running water. Source: Mexican 2010 Census.

Share drainage. Share of the electoral precinct population in a private dwelling with drainage. Source: Mexican 2010 Census.

Share electricity. Share of the electoral precinct population in a private dwelling with electricity. Source: Mexican 2010 Census.

Share fridge. Share of the electoral precinct population in a private dwelling with a refrigerator. Source: Mexican 2010 Census.

Share washing machine. Share of the electoral precinct population in a private dwelling with a washing machine. Source: Mexican 2010 Census.

Share cell phone. Share of the electoral precinct population in a private dwelling with a cell

phone. Source: Mexican 2010 Census.

Share car. Share of the electoral precinct population in a private dwelling with a car or truck. Source: Mexican 2010 Census.

Share computer. Share of the electoral precinct population in a private dwelling with a computer. Source: Mexican 2010 Census.

Household assets index. Standardised scale combining the following precinct-level measures of household assets: share fridge, share washing machine, share cell phone, and share computer. These variables are defined above, and higher values of the index indicate a higher proportion of voters within precinct possessing these goods.

A.4 Balance tests

A.4.1 Balance across municipalities where audits are released before and after elections

Table A1 reports summary statistics across municipalities where audits were released before and after elections. We detect a statistically significant difference between these two groups across a variety of audit report, political, and socio-economic variables in only one case.

A.4.2 Lack of balance across media stations in the full sample of audit reports

Table A2 shows that the number of local media stations that cover an electoral precinct is strongly correlated with virtually every precinct-level covariate. In particular, precincts with more local media stations are inhabited by more urban and pro-incumbent households, that are also far more likely to be literate, possess more household necessities and amenities (see variable definitions above), and have fewer children. In short, precincts with more media stations are more developed.

A.4.3 Balance in the neighbouring precincts sample

Table A3 reports the balance tests associated with our analysis of neighbouring precincts that differ in the number of local media outlets that cover them. Our estimates of equation (2) show only two statistically significantly different across 39 precinct-level political, topographical, media access, and socio-economic variables.

A.5 Average effects of audits, unconditional on the media environment

Tables A4 and A5 report the average effect of audit reports released before an election on the precinct-level change in incumbent party vote share and incumbent party's probability of re-election, regardless of the local media environment. Tables A4 reports results for all electoral precincts where an audit was released before or after the election, while Table A5 reports estimates within

Table A1: Summary statistics by pre-election audit status (full sample)

	Control (post-election) audit		Difference between post- and pre-election audit		All precincts in the country	
	Mean	Std. dev.	Coef.	Std. error	Mean	Std. dev.
<i>Municipal-level variables</i>						
Unauthorised spending	0.098	[0.148]	-0.018	(0.029)	0.084	[0.139]
Unauthorised spending Q3	0.175	[0.380]	0.066	(0.063)	0.245	[0.430]
Unauthorised spending Q4	0.303	[0.460]	-0.085	(0.081)	0.236	[0.425]
Spending that did not benefit the poor	0.089	[0.165]	0.040	(0.033)	0.123	[0.231]
Not poor Q3	0.230	[0.421]	0.012	(0.076)	0.253	[0.435]
Not poor Q4	0.259	[0.438]	0.000	(0.081)	0.249	[0.433]
PAN incumbent	0.362	[0.481]	0.025	(0.087)	0.313	[0.464]
PRD incumbent	0.477	[0.499]	-0.081	(0.059)	0.231	[0.422]
PRI incumbent	0.162	[0.368]	0.065	(0.089)	0.445	[0.497]
PAN state Governor	0.436	[0.496]	-0.092	(0.088)	0.349	[0.477]
PRD state Governor	0.111	[0.314]	0.006	(0.086)	0.144	[0.351]
PRI state Governor	0.666	[0.472]	-0.017	(0.051)	0.649	[0.477]
Mayor aligned with Governor	0.547	[0.498]	0.132	(0.086)	0.566	[0.496]
Total coalition partners	1.746	[1.121]	0.097	(0.231)	1.773	[1.123]
Municipal incumbent victory margin (lag)	-0.154	[0.118]	0.016	(0.019)	-0.136	[0.112]
Municipal effective number of political parties (lag)	2.600	[0.577]	-0.020	(0.079)	2.787	[0.676]
<i>Precinct-level variables</i>						
Incumbent party vote share (lag)	0.487	[0.132]	-0.008	(0.012)	0.456	[0.132]
Effective number of political parties (lag)	2.472	[0.570]	-0.017	(0.063)	2.630	[0.652]
Registered voters (log)	7.456	[0.722]	-0.036	(0.062)	7.330	[0.682]
Turnout (lag)	0.471	[0.126]	0.028	(0.019)	0.523	[0.122]
Kilometres to the municipal head from precinct centroid (log)	2.710	[3.983]	-0.323	(0.373)	7.916	[1.907]
Kilometres to the largest locality from precinct centroid (log)	2.663	[3.968]	-0.303	(0.362)	7.897	[1.934]
Area (log)	1.022	[1.368]	-0.079	(0.116)	1.207	[1.466]
Population (log)	7.692	[0.851]	0.015	(0.057)	7.625	[0.825]
Population density (log)	7.960	[2.111]	0.160	(0.212)	7.613	[2.307]
Local media	9.730	[10.382]	3.557*	(2.112)	8.199	[10.406]
Non-local media	28.685	[24.139]	-3.638	(4.582)	25.262	[22.226]
Average children per woman	2.294	[0.447]	-0.009	(0.034)	2.337	[0.500]
Share households with male head	0.748	[0.068]	-0.002	(0.005)	0.747	[0.074]
Share indigenous speakers	0.038	[0.131]	-0.002	(0.008)	0.050	[0.161]
Average years of schooling	8.969	[2.172]	0.198	(0.156)	8.724	[2.284]
Share illiterate	0.051	[0.057]	-0.001	(0.005)	0.065	[0.073]
Share no schooling	0.058	[0.052]	-0.001	(0.004)	0.069	[0.067]
Share incomplete primary schooling	0.942	[0.052]	0.001	(0.004)	0.931	[0.067]
Share complete primary schooling	0.830	[0.116]	0.005	(0.010)	0.806	[0.137]
Share incomplete secondary schooling	0.675	[0.158]	0.010	(0.013)	0.647	[0.180]
Share complete secondary schooling	0.624	[0.170]	0.010	(0.013)	0.597	[0.189]
Share higher education	0.387	[0.204]	0.016	(0.015)	0.370	[0.209]
Share economically active	0.409	[0.057]	0.007	(0.006)	0.405	[0.061]
Share without health care	0.321	[0.124]	-0.016	(0.015)	0.336	[0.137]
Share state workers health care	0.053	[0.052]	0.006	(0.005)	0.060	[0.059]
Average occupants per dwelling	3.925	[0.471]	0.034	(0.038)	3.943	[0.524]
Average occupants per room	1.063	[0.288]	-0.007	(0.024)	1.091	[0.315]
Share non-dirt floor	0.944	[0.080]	0.004	(0.005)	0.938	[0.088]
Share toilet at home	0.962	[0.086]	0.003	(0.005)	0.954	[0.095]
Share running water	0.899	[0.197]	0.015	(0.016)	0.893	[0.199]
Share drainage	0.924	[0.168]	0.012	(0.011)	0.912	[0.175]
Share electricity	0.981	[0.053]	0.002	(0.002)	0.980	[0.051]
Share washing machine	0.714	[0.190]	0.024	(0.018)	0.679	[0.215]
Share fridge	0.860	[0.152]	0.017	(0.013)	0.831	[0.181]
Share cell phone	0.689	[0.193]	0.016	(0.016)	0.650	[0.222]
Share car	0.470	[0.208]	0.013	(0.023)	0.443	[0.200]
Share computer	0.327	[0.215]	0.017	(0.019)	0.306	[0.215]

Notes: The audit difference results are from regressions of the outcome variables on the left-hand-side of the table on an indicator for an audit being released the year before an election, where observations are weighted by electorate size. Each regression contains 46,419 observations; weighting ensures that municipal-level variables are equivalent to municipal-level regressions. Sample means and standard deviations are weighted identically. Standard errors clustered by municipality-election are in parentheses. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A2: Lack of balance across the number of local media stations (full sample)

	Correlation with local media	
Incumbent party vote share (lag)	0.001*	(0.001)
Effective number of political parties (lag)	-0.009***	(0.003)
Registered voters (log)	-0.001	(0.003)
Turnout (lag)	0.000	(0.001)
Kilometres to the municipal head from precinct centroid (log)	-0.132***	(0.016)
Kilometres to the largest locality from precinct centroid (log)	-0.129***	(0.016)
Area (log)	-0.035***	(0.005)
Population (log)	-0.002	(0.003)
Population density (log)	0.053***	(0.010)
Non-local media	-0.919***	(0.164)
AM antennae in precinct	0.000***	(0.000)
FM antennae in precinct	0.001***	(0.000)
Television antennae in precinct	0.000	(0.000)
Average children per woman	-0.009***	(0.002)
Share households with male head	-0.002***	(0.000)
Share indigenous speakers	-0.002***	(0.000)
Average years of schooling	0.060***	(0.007)
Share illiterate	-0.002***	(0.000)
Share no schooling	-0.002***	(0.000)
Share incomplete primary schooling	0.002***	(0.000)
Share complete primary schooling	0.004***	(0.000)
Share incomplete secondary schooling	0.005***	(0.001)
Share complete secondary schooling	0.005***	(0.001)
Share higher education	0.005***	(0.001)
Share economically active	0.002***	(0.000)
Share without health care	-0.002***	(0.001)
Share state workers health care	0.000	(0.000)
Average occupants per dwelling	-0.009***	(0.002)
Average occupants per room	-0.009***	(0.001)
Share non-dirt floor	0.001***	(0.000)
Share toilet at home	0.002***	(0.000)
Share running water	0.004***	(0.001)
Share drainage	0.004***	(0.000)
Share electricity	0.001***	(0.000)
Share washing machine	0.007***	(0.001)
Share fridge	0.005***	(0.000)
Share cell phone	0.007***	(0.001)
Share car	0.008***	(0.001)
Share computer	0.007***	(0.001)

Notes: The audit difference results are from regressions of the outcome variables on the left-hand-side of the table on an indicator for an audit being released the year before an election, where observations are weighted by electorate size. Standard errors clustered by municipality-election are in parentheses. There are 46,419 observations for each variable. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A3: Balance over local media (local media neighbour sample)

	Incumbent party vote share (lag)	Effective number of political parties (lag)	Registered voters (log)	Turnout (lag)	Kms. to municipal head from centroid (log)	Kms. to largest locality from centroid (log)	Area (log)	Population (log)	Population density (log)	Non-local media
Local media	0.0002 (0.0004)	-0.0006 (0.002)	-0.0017 (0.0068)	0.0002 (0.0005)	-0.0112 (0.0472)	-0.0108 (0.0473)	-0.0070 (0.0058)	-0.0012 (0.0051)	0.0050 (0.0058)	-0.0591 (0.1979)
Outcome mean	0.501	2.313	7.101	0.484	1.616	1.609	0.488	7.351	8.370	15.804
	AM antennae in precinct	FM antennae in precinct	Television antennae in precinct	Average children per woman	Share households with male head	Share indigenous speakers	Average years of schooling	Share illiterate	Share no schooling	Share incomplete primary schooling
Local media	-0.0051** (0.0024)	-0.0033 (0.0026)	0.0001 (0.0003)	-0.0017 (0.0024)	-0.0005** (0.0002)	0.0000 (0.0003)	0.0311 (0.0261)	-0.0002* (0.0001)	-0.0002 (0.0002)	0.0002 (0.0002)
Outcome mean	0.015	0.034	0.019	2.233	0.728	0.020	9.439	0.037	0.047	0.953
	Share complete primary schooling	Share incomplete secondary schooling	Share complete secondary schooling	Share higher education	Share economically active	Share without health care	Share state workers health care	Average occupants per dwelling	Average occupants per room	Share non-dirt floor
Local media	0.0004 (0.0005)	0.0009 (0.0009)	0.0009 (0.001)	0.0014 (0.0015)	0.0000 (0.0002)	-0.0003 (0.0005)	0.0003 (0.0003)	-0.0025 (0.0036)	-0.0021 (0.0017)	0.0003 (0.0002)
Outcome mean	0.854	0.705	0.653	0.424	0.422	0.294	0.060	3.795	1.001	0.949
	Share toilet at home	Share running water	Share drainage	Share electricity	Share washing machine	Share fridge	Share cell phone	Share car	Share computer	
Local media	-0.0001 (0.0003)	0.0009 (0.0007)	0.0004 (0.0004)	0.0001 (0.0001)	0.0010* (0.0006)	0.0005 (0.0004)	0.0007 (0.0007)	0.0009 (0.0011)	0.0020 (0.0013)	
Outcome mean	0.972	0.936	0.956	0.984	0.756	0.905	0.740	0.532	0.371	

Notes: Each coefficient is from a separate OLS regression including neighbour fixed effects, and is estimated using OLS. Observations are weighted by electorate size in “treated” precincts and electorate size divided by the number of control precincts per neighbour set for “control” precincts (see equation (2) in the main text). Each regression contains 14,826 observations. Standard errors are clustered by municipality \times election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

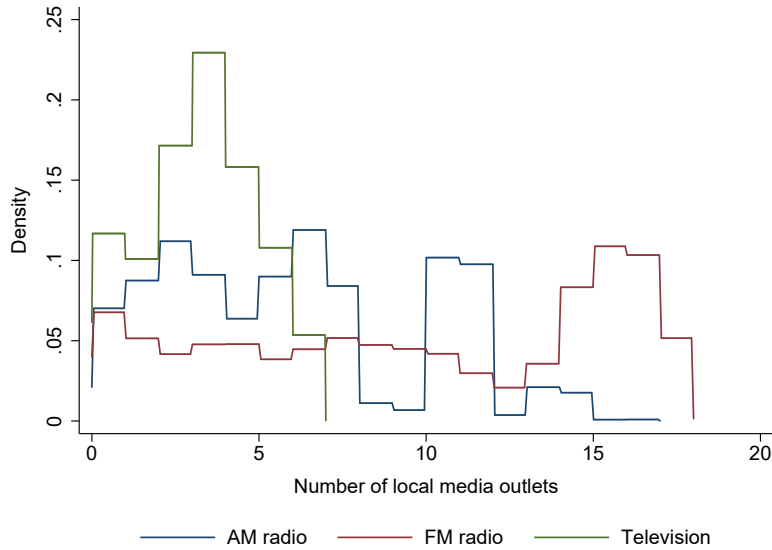


Figure A3: Distribution of local media outlets (local media neighbour sample)

the sample we use for estimating the effects of local media. The results tentatively suggest that, on average across precincts, pre-election audit report revelations could have electoral consequences. For both unauthorised spending and spending that did not benefit the poor, the pre-election audit coefficient in the first row of Table 1—which captures the baseline category of zero or negligible disclosed malfeasance—suggests that the parties of such mayors slightly increase their vote share on average. Summing across interaction terms, column (1) further estimates that a pre-election audit revealing the incumbent party’s mayor to be in the top quartile of unauthorised spending reduces that party’s vote share by 3.3 percentage points. Column (2) similarly estimates that revealing the mayor to have spent FISM funds on projects not benefiting the poor reduces the incumbent party’s vote share by 3.9 percentage points on average for mayors in the fourth quartile. For mayors in the third quartile, where malfeasance is low but not zero, the estimates are close to zero. Columns (3) and (4) examine the municipal-level probability of re-election, and show similar results. Although the estimates are unsurprisingly noisier. Table A5 reports similar results in the sample used to estimate the differential effects by access to local media outlets as well.

It is important to emphasize that although these point estimates are relatively large, they are imprecise and statistically insignificant by conventional standards.¹⁰ As our main findings in the main paper suggest, one potential explanation for this lack of precision is that pre-election audit reports only influence voter behaviour in the presence of local media stations.

¹⁰Our estimates are similar in magnitudes to those in Ferraz and Finan’s (2008) larger Brazilian sample.

Table A4: Effects of audits revealing malfeasance before an election on municipal elections (full sample)

	Change in incumbent party vote share		Incumbent party re-elected	
	Unauthorised spending	Spending that did not benefit the poor	Unauthorised spending	Spending that did not benefit the poor
	(1)	(2)	(3)	(4)
Pre-election audit	0.012 (0.019)	0.024 (0.021)	-0.008 (0.125)	-0.036 (0.116)
Malfeasance Q3	0.016 (0.026)	0.016 (0.023)	0.015 (0.155)	-0.207 (0.159)
Pre-election audit × Malfeasance Q3	-0.000 (0.037)	-0.025 (0.036)	0.181 (0.191)	0.228 (0.204)
Malfeasance Q4	0.014 (0.038)	0.029 (0.043)	0.100 (0.161)	-0.139 (0.167)
Pre-election audit × Malfeasance Q4	-0.045 (0.047)	-0.063 (0.048)	-0.220 (0.215)	-0.141 (0.207)
Observations	46,419	46,419	46,419	46,419
Outcome mean	-0.05	-0.05	0.54	0.54
Outcome standard deviation	0.15	0.15	0.50	0.50
Pre-election audit mean	0.61	0.61	0.61	0.61
Malfeasance Q3 mean	0.25	0.25	0.25	0.25
Malfeasance Q4 mean	0.25	0.24	0.25	0.24

Notes: All specifications include neighbour fixed effects, and are estimated using OLS. Observations are weighted by electorate size. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A5: Effects of audits revealing malfeasance before an election on municipal elections
(neighbour sample)

	Change in incumbent party vote share		Incumbent party re-elected	
	Unauthorised spending	Spending that did not benefit the poor	Unauthorised spending	Spending that did not benefit the poor
	(1)	(2)	(3)	(4)
Pre-election audit	0.042 (0.032)	0.055 (0.040)	0.198 (0.206)	0.180 (0.201)
Malfeasance Q3	0.008 (0.035)	0.019 (0.031)	0.218 (0.222)	-0.366 (0.224)
Pre-election audit × Malfeasance Q3	-0.016 (0.057)	-0.014 (0.061)	-0.049 (0.281)	0.317 (0.300)
Malfeasance Q4	0.018 (0.049)	0.023 (0.044)	0.045 (0.217)	-0.045 (0.234)
Pre-election audit × Malfeasance Q4	-0.067 (0.068)	-0.083 (0.056)	-0.070 (0.317)	-0.222 (0.306)
Observations	14,826	14,826	14,826	14,826
Outcome mean	-0.04	-0.04	0.53	0.53
Outcome standard deviation	0.13	0.13	0.50	0.50
Pre-election audit mean	0.63	0.63	0.63	0.63
Malfeasance Q3 mean	0.15	0.25	0.15	0.25
Malfeasance Q4 mean	0.18	0.27	0.18	0.27

Notes: All specifications include neighbour fixed effects, and are estimated using OLS. Observations are weighted by electorate size in “treated” precincts and electorate size divided by the number of control precincts per neighbour set for “control” precincts. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

A.6 Effects on turnout

Table A6 shows that turnout is not driving our findings. Columns (1) and (2) show that turnout is inconsistently impacted by audit report revelations, while columns (3) and (4) show that our main estimates of the accountability-enhancing effects of local media are if anything strengthened by calculating the change incumbent vote share using the number of registered voters in the denominator.

A.7 Prior election outcomes placebo test

Table A7 reports the results of our placebo test examining the effects of future audit revelations. In particular, we regress incumbent party vote share at the *previous* election on our audit measures interacted with local media. The results are very different from those in columns (1) and (2) of Table 1 in the main paper; the only significant coefficient associated with local media is now positive. This suggests that our main findings are not driven by trends between precincts that vary in their municipal malfeasance and local media access.

A.8 Robustness to not weighting by registered voters

Tables A8 and A9 provide estimates from unweighted regressions, and show that our main findings and the heterogeneous effects by market structure are substantively unaffected.

A.9 Robustness to additional precinct area restrictions

Table A10 show that our findings are robust to both relaxing our definition of precinct coverage to require only that 10% of the population receives a local media signal, or strengthening it to 50%.

A.10 Interaction with local media in the full sample

Table A11 estimates the triple interaction between revealing unauthorised spending or spending that did not benefit the poor by the number of local media stations in the full sample. As noted in the main text, we find broadly similar results to our findings exploiting plausibly exogenous variation in local media.

A.11 Effects of an additional non-local media station

Although non-local media stations are not driving the estimates of local media's effects, they could nevertheless also support electoral accountability. We examine this possibility using the same identification strategy, but instead exploiting variation in non-local media coverage across neighbouring

Table A6: Effects of each additional local media station and audit reports revealing malfeasance before municipal elections on turnout and change in vote share normalised by registered voters

	Outcome: Change in turnout		Outcome: Change in incumbent party vote share (as a share of registered voters)	
	Unauthorised spending	Spending that did not benefit the poor	Unauthorised spending	Spending that did not benefit the poor
	(1)	(2)	(3)	(4)
	<i>Type of malfeasance:</i>			
Pre-election audit	-0.003 (0.047)	0.032 (0.049)	-0.010 (0.023)	0.046** (0.021)
Local media	0.003 (0.003)	0.003 (0.002)	-0.000 (0.001)	0.001 (0.001)
Malfeasance Q3	-0.016 (0.064)	0.054 (0.095)	-0.031 (0.031)	0.080** (0.034)
Pre-election audit × Malfeasance Q3	-0.020 (0.080)	-0.150 (0.128)	0.040 (0.040)	-0.044 (0.068)
Malfeasance Q3 × Local media	-0.007 (0.005)	-0.013* (0.007)	-0.001 (0.002)	-0.006** (0.003)
Malfeasance Q4	-0.033 (0.081)	0.015 (0.056)	-0.042 (0.026)	0.097*** (0.026)
Pre-election audit × Malfeasance Q4	0.245** (0.110)	-0.003 (0.062)	0.185*** (0.045)	-0.013 (0.030)
Malfeasance Q4 × Local media	-0.001 (0.004)	-0.001 (0.003)	-0.000 (0.002)	0.000 (0.001)
Pre-election audit × Local media	-0.002 (0.003)	-0.003 (0.003)	0.003*** (0.001)	0.001 (0.001)
Pre-election audit × Malfeasance Q3 × Local media	0.010* (0.006)	0.016** (0.008)	0.002 (0.002)	0.004 (0.003)
Pre-election audit × Malfeasance Q4 × Local media	-0.020*** (0.005)	0.000 (0.003)	-0.014*** (0.003)	-0.006*** (0.002)
Observations	14,826	14,826	14,826	14,826
Outcome mean	0.02	0.02	-0.01	-0.01
Outcome standard deviation	0.11	0.11	0.08	0.08
Pre-election audit mean	0.63	0.63	0.63	0.63
Malfeasance Q3 mean	0.15	0.25	0.15	0.25
Malfeasance Q4 mean	0.18	0.27	0.18	0.27
Local media mean	18.32	18.32	18.32	18.32
Local media standard deviation	9.84	9.84	9.84	9.84
Effect of Pre-election audit × Local media in Q3	0.008 (0.005)	0.012* (0.007)	0.005 (0.002)	0.005* (0.003)
Effect of Pre-election audit × Local media in Q4	-0.022*** (0.004)	-0.003 (0.002)	-0.011*** (0.003)	-0.006*** (0.002)

Notes: All specifications include neighbour fixed effects, and are estimated using OLS. Observations are weighted by electorate size in “treated” precincts and electorate size divided by the number of control precincts per neighbour set for “control” precincts. The omitted category for unauthorised spending and spending that did not benefit the poor is Q1 and Q2. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A7: Placebo effects of each additional local media station and audit reports revealing malfeasance before municipal elections

	Outcome: Incumbent party vote share (lag)	
	<i>Type of malfeasance:</i>	
	Unauthorised spending (1)	Spending that did not benefit the poor (2)
Placebo pre-election audit	-0.051 (0.056)	-0.087* (0.046)
Placebo pre-election audit × Malfeasance Q3	0.075 (0.073)	0.058 (0.071)
Placebo pre-election audit × Malfeasance Q4	-0.140* (0.080)	0.043 (0.058)
Placebo pre-election audit × Local media	-0.000 (0.003)	0.001 (0.003)
Placebo pre-election audit × Malfeasance Q3 × Local media	-0.001 (0.003)	-0.000 (0.004)
Placebo pre-election audit × Malfeasance Q4 × Local media	0.009*** (0.003)	0.006 (0.003)
Observations	14,826	14,826
Outcome mean	0.50	0.50
Outcome standard deviation	0.12	0.12
Placebo pre-election audit mean	0.63	0.63
Malfeasance Q3 mean	0.15	0.25
Malfeasance Q4 mean	0.18	0.27
Local media mean	18.32	18.32
Local media standard deviation	9.84	9.84
Effect of Placebo re-election audit × Local media in Q3	-0.001 (0.002)	0.001 (0.003)
Effect of Placebo pre-election audit × Local media in Q4	0.009*** (0.002)	0.007*** (0.003)

Notes: All specifications include neighbour fixed effects, and are estimated using OLS. Observations are weighted by electorate size in “treated” precincts and electorate size divided by the number of control precincts per neighbour set for “control” precincts. The omitted category for unauthorised spending and spending that did not benefit the poor is Q1 and Q2. Each regression includes all lower-order interaction terms, but non-essential terms are not reported to save space. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

precincts that differ in the number of non-local media stations that they are covered by. The large number of non-local media stations increases our sample to 40,206 observations. The results presented in Table A12 suggest that access to non-local media does not systematically influence voter responses to incumbent malfeasance revelations. The significant negative coefficient for Q3 unauthorised spending is not consistent with the smaller effects for Q4 and positive coefficients for

Table A8: Effects of each additional local media station and audit reports revealing malfeasance before municipal elections, unweighted

	Outcome: Change in incumbent party vote share	
	<i>Type of malfeasance:</i>	
	Unauthorised spending	Spending that did not benefit the poor
	(1)	(2)
Pre-election audit	0.003 (0.049)	0.107*** (0.040)
Local media	-0.004* (0.002)	-0.000 (0.003)
Malfeasance Q3	-0.051 (0.059)	0.136*** (0.048)
Pre-election audit × Malfeasance Q3	0.063 (0.075)	-0.008 (0.100)
Malfeasance Q3 × Local media	0.009* (0.005)	0.000 (0.004)
Malfeasance Q4	-0.066 (0.051)	0.190*** (0.053)
Pre-election audit × Malfeasance Q4	0.180** (0.079)	-0.029 (0.070)
Malfeasance Q4 × Local media	0.001 (0.004)	0.003 (0.004)
Pre-election audit × Local media	0.006* (0.003)	0.003 (0.004)
Pre-election audit × Malfeasance Q3 × Local media	-0.008 (0.005)	-0.007 (0.005)
Pre-election audit × Malfeasance Q4 × Local media	-0.010* (0.005)	-0.015*** (0.005)
Observations	14,826	14,826
Outcome mean	-0.04	-0.04
Outcome standard deviation	0.13	0.13
Pre-election audit mean	0.62	0.62
Malfeasance Q3 mean	0.17	0.30
Malfeasance Q4 mean	0.15	0.23
Local media mean	19.58	19.58
Local media standard deviation	9.67	9.67
Effect of Pre-election audit × Local media in Q3	-0.002 (0.005)	-0.004 (0.004)
Effect of Pre-election audit × Local media in Q4	-0.003 (0.005)	-0.012*** (0.004)

Notes: All specifications include neighbour fixed effects, and are estimated using OLS. The omitted category for unauthorised spending and spending that did not benefit the poor is Q1 and Q2. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A9: Effects of each additional local media stations and audit reports revealing malfeasance before municipal elections, conditional on the media market structure, unweighted

	Outcome: Change in incumbent party vote share			
	<i>Type of malfeasance:</i>			
	Unauthorised spending		Spending that did not benefit the poor	
	(1)	(2)	(3)	(4)
Pre-election audit × Local media	0.0113*	0.0091	0.0034	-0.0043
	(0.0059)	(0.0074)	(0.0053)	(0.0029)
Pre-election audit × Malfeasance Q3 × Local media	-0.0166	-0.0215**	0.0013	0.0045
	(0.0113)	(0.0103)	(0.0069)	(0.0091)
Pre-election audit × Malfeasance Q4 × Local media	-0.0201**	-0.0357***	0.0068	-0.0024
	(0.0096)	(0.0094)	(0.0087)	(0.0060)
Pre-election audit × Non-local media × Local media	-0.0003	-0.0003**		
	(0.0002)	(0.0002)		
Pre-election audit × Malfeasance Q3 × Non-local media × Local media	0.0004	0.0015***		
	(0.0003)	(0.0005)		
Pre-election audit × Malfeasance Q4 × Non-local media × Local media	0.0006*	0.0009***		
	(0.0003)	(0.0002)		
Pre-election audit × Local media × Local audience			0.0087	0.0067
			(0.0085)	(0.0132)
Pre-election audit × Malfeasance Q3 × Local media × Local audience			-0.0285	-0.0052
			(0.0186)	(0.0174)
Pre-election audit × Malfeasance Q4 × Local media × Local audience			-0.0246	-0.0224
			(0.0169)	(0.0158)
Observations	14,826	14,826	14,826	14,826
Media market structure interaction mean	15.80	15.80	0.63	0.63
Media market structure interaction standard deviation	14.73	14.73	0.28	0.28

Notes: All specifications include neighbour fixed effects, and are estimated using OLS. In columns (3) and (4), the local audience variable is the average share of a media outlet's potential audience that resides within the municipality of its antennae, averaging across all AM, FM, and television stations covering a precinct. The omitted category for unauthorised spending and spending that did not benefit the poor is Q1 and Q2. Each regression includes all lower-order interaction terms, but non-essential terms are not reported to save space. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A10: Effects of each additional local media station and audit reports revealing malfeasance before municipal elections, by area restriction

	Outcome: Change in incumbent party vote share			
	<i>Type of malfeasance:</i>			
	Unauthorised spending	Spending that did not benefit the poor		
	(1)	(2)	(3)	(4)
Pre-election audit	-0.007 (0.054)	0.059 (0.046)	0.005 (0.044)	0.053 (0.037)
Local media	-0.003 (0.002)	-0.003 (0.003)	-0.003 (0.002)	-0.004 (0.003)
Malfeasance Q3	-0.042 (0.058)	0.033 (0.070)	-0.038 (0.053)	0.020 (0.058)
Pre-election audit × Malfeasance Q3	0.077 (0.073)	0.021 (0.098)	0.085 (0.066)	0.022 (0.083)
Malfeasance Q3 × Local media	0.008* (0.005)	0.006 (0.005)	0.008* (0.004)	0.007 (0.004)
Malfeasance Q4	-0.091* (0.048)	0.130** (0.066)	-0.077* (0.047)	0.097 (0.064)
Pre-election audit × Malfeasance Q4	0.278*** (0.075)	0.041 (0.094)	0.264*** (0.068)	0.092 (0.082)
Malfeasance Q4 × Local media	0.002 (0.004)	0.008* (0.004)	0.002 (0.004)	0.010** (0.004)
Pre-election audit × Local media	0.007** (0.003)	0.005 (0.003)	0.006** (0.003)	0.006* (0.003)
Pre-election audit × Malfeasance Q3 × Local media	-0.008 (0.005)	-0.009 (0.006)	-0.008* (0.005)	-0.010* (0.005)
Pre-election audit × Malfeasance Q4 × Local media	-0.013*** (0.005)	-0.020*** (0.006)	-0.013*** (0.005)	-0.024*** (0.006)
Area restriction	<25km ²	<25km ²	<50km ²	<50km ²
Observations	19,519	19,519	24,504	24,504
Outcome mean	-0.04	-0.04	-0.04	-0.04
Outcome standard deviation	0.14	0.14	0.14	0.14
Pre-election audit mean	0.62	0.62	0.62	0.62
Malfeasance Q3 mean	0.18	0.25	0.19	0.26
Malfeasance Q4 mean	0.20	0.26	0.19	0.25
Local media mean	16.91	16.91	15.95	15.95
Local media standard deviation	10.21	10.21	10.33	10.33
Effect of Pre-election audit × Local media in Q3	-0.001 (0.004)	-0.004 (0.005)	-0.002 (0.004)	-0.004 (0.004)
Effect of Pre-election audit × Local media in Q4	-0.006 (0.005)	-0.015*** (0.005)	-0.008 (0.005)	-0.018*** (0.005)

Notes: All specifications include neighbour fixed effects, and are estimated using OLS. The omitted category for unauthorised spending and spending that did not benefit the poor is Q1 and Q2. Observations are weighted by electorate size in “treated” precincts and electorate size divided by the number of control precincts per neighbour set for “control” precincts. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

Table A11: Effects of each additional local media station and pre-election audit reports revealing malfeasance before municipal elections (full sample)

	Outcome: Change in incumbent party vote share	
	<i>Type of malfeasance:</i>	
	Unauthorised spending (1)	Spending that did not benefit the poor (2)
Pre-election audit	-0.002 (0.021)	-0.007 (0.022)
Local media	-0.000 (0.001)	-0.001 (0.002)
Malfeasance Q3	0.024 (0.026)	0.020 (0.026)
Pre-election audit × Malfeasance Q3	-0.035 (0.035)	-0.021 (0.038)
Malfeasance Q3 × Local media	-0.001 (0.002)	0.000 (0.002)
Malfeasance Q4	-0.027 (0.043)	-0.042 (0.052)
Pre-election audit × Malfeasance Q4	0.039 (0.063)	0.047 (0.059)
Malfeasance Q4 × Local media	0.007 (0.004)	0.009** (0.004)
Pre-election audit × Local media	0.001 (0.002)	0.003 (0.002)
Pre-election audit × Malfeasance Q3 × Local media	0.003 (0.003)	-0.001 (0.003)
Pre-election audit × Malfeasance Q4 × Local media	-0.009** (0.005)	-0.012*** (0.004)
Observations	46,419	46,419
Outcome mean	-0.06	-0.06
Outcome standard deviation	0.14	0.14
Pre-election audit mean	0.60	0.60
Malfeasance Q3 mean	0.21	0.24
Malfeasance Q4 mean	0.25	0.26
Local media mean	11.87	11.87
Local media standard deviation	10.82	10.82
Effect of Pre-election audit × Local media in Q3	0.004 (0.003)	0.002 (0.002)
Effect of Pre-election audit × Local media in Q4	-0.008* (0.004)	-0.009*** (0.003)

Notes: All specifications are estimated using OLS and weighted by precinct electorate size. The omitted category for unauthorised spending and spending that did not benefit the poor is Q1 and Q2. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.

spending that did not benefit the poor. Only in the case of Q1/Q2 for unauthorised spending do we find similar estimates to those for local media in Table 1 in the main paper. In sum, these analyses indicate that *local* media is the key driver of electoral accountability, and thus access to *any* type of media is not sufficient to hold the parties of better and worse performing mayors to account.

Table A12: Effects of each additional non-local media station and audit reports revealing malfeasance before municipal elections (non-local media neighbour sample)

	Outcome: Change in incumbent party vote share	
	<i>Type of malfeasance:</i>	
	Unauthorised spending (1)	Spending that did not benefit the poor (2)
Pre-election audit	-0.118 (0.072)	0.020 (0.056)
Non-local media	-0.004** (0.002)	-0.000 (0.001)
Malfeasance Q3	-0.043 (0.066)	0.014 (0.075)
Pre-election audit × Malfeasance Q3	0.122 (0.085)	-0.098 (0.122)
Malfeasance Q3 × Non-local media	0.003 (0.002)	-0.000 (0.002)
Malfeasance Q4	-0.100 (0.087)	0.209** (0.088)
Pre-election audit × Malfeasance Q4	-0.006 (0.104)	-0.153 (0.127)
Malfeasance Q4 × Non-local media	0.005** (0.002)	-0.003* (0.002)
Pre-election audit × Non-local media	0.005** (0.002)	-0.000 (0.001)
Pre-election audit × Malfeasance Q3 × Non-local media	-0.006** (0.003)	0.006 (0.004)
Pre-election audit × Malfeasance Q4 × Non-local media	-0.003 (0.003)	0.002 (0.003)
Observations	40,206	40,206
Outcome mean	-0.06	-0.06
Outcome standard deviation	0.14	0.14
Pre-election audit mean	0.62	0.62
Malfeasance Q3 mean	0.19	0.21
Malfeasance Q4 mean	0.25	0.28
Local media mean	32.35	32.35
Local media standard deviation	22.62	22.62
Effect of Pre-election audit × Local media in Q3	-0.001 (0.002)	0.005 (0.004)
Effect of Pre-election audit × Local media in Q4	0.001 (0.002)	0.002 (0.002)

Notes: This neighbour sample was computed in the same way as for local media (see text for details). All specifications include neighbour fixed effects, and are estimated using OLS. Observations are weighted by electorate size in “treated” precincts and electorate size divided by the number of control precincts per neighbour set for “control” precincts. The omitted category for unauthorised spending and spending that did not benefit the poor is Q1 and Q2. Standard errors are clustered by municipality × election. * denotes $p < 0.1$, ** denotes $p < 0.05$, *** denotes $p < 0.01$.