Discerning Corruption: Credible Accusations and the Punishment of Politicians in Brazil

Rebecca Weitz-Shapiro
Brown University
rbweitz@brown.edu

Matthew S. Winters
University of Illinois at Urbana Champaign
mwinters@illinois.edu

When are citizens most likely to hold politicians to account for wrongdoing? In a crowded information environment, political accountability can be achieved only if credible information is available and citizens are able to identify that information. In this paper, we argue that the ability to discern more from less credible information is increasing in citizen sophistication. Using data from an original survey experiment in Brazil, we show that all citizens react negatively to corruption allegations, but that highly educated respondents are more likely to punish credible accusations and to overlook less credible accusations. We then show, using municipal-level audit data, that voters are more likely to punish credible accusations of corruption in municipalities with high literacy rates. Our findings suggest a novel mechanism that may link increasing education with control of political corruption: educated citizens are better able to discern and therefore act on credible accusations.

Word Count: 8,234

In a democracy, political corruption fundamentally violates the implicit contract in which politicians agree to govern on behalf of the citizens who have elected them.[1] Popular press and academic writings are rife with examples of the ways in which corruption diverts politicians' attention and behavior away from the interests of citizens (e.g., Mauro 1995, 1998; Rose-Ackerman 1999; Wrong 2010). Nor is corruption just a concern of opinion leaders and scholars. Around the world, citizens express distaste for government corruption. According to Transparency International's 2013 Global Corruption Barometer, an average of 51% of respondents across the 107 countries in the survey believe that corruption in the public sector is a "very serious problem" (the highest category on a five-point scale) (Hardoon and Heinrich 2013).

Does citizen attentiveness to corruption translate into electoral punishment of corrupt politicians? In this paper, we argue and provide evidence that the extent to which anti-corruption attitudes translate into the punishment of corruption at the voting booth will depend on the quality of information about malfeasance available to citizens and on the sophistication of citizens themselves. We contend that, while all voters should be more likely to change their attitudes or behavior in response to information received from more credible sources, cognitively or politically sophisticated voters will be particularly likely to do so. We use both micro- and macro-level data from Brazil to test these claims. Using an original survey experiment, we show that, compared to their less educated counterparts, more educated Brazilians are more likely to change their beliefs and behavior when they hear allegations of political corruption attributed to a more credible source and are more likely to be skeptical of allegations from a less credible source. We further support our contention that political sophistication mediates responsiveness to credible information with evidence that, when revealed by highly reputable federal audits, corruption is punished more severely in municipalities with high literacy rates. Together, these results offer the most comprehensive theoretical and empirical discussion to date of how the source of information about political malfeasance affects citizen responses to that information.

---

[1] We define corruption as the abuse of public office for private gain (Rose-Ackerman 1999).

Information, credibility, and accountability

Citizens require information about government performance if they are to meaningfully hold politicians to account. As Manin, Przeworski, and Stokes state, "if citizens do not have sufficient information to evaluate the incumbent governments, the threat of not being reelected is insufficient to induce governments to act in the best interest of the public" (Manin, Przeworski, and Stokes 1999, 30). Using a variety of proxies for information, scholars have shown that information availability facilitates the punishment of corruption (Brunetti and Weder 2003; Chang, Golden, and Hill 2010; Chowdhury 2004; Freille, Haque, and Kneller 2007; Reinikka and Svensson 2005), improves government bureaucracy and rule of law (Adserá, Boix, and Payne 2003), and leads governments to respond more effectively to natural disasters (Besley and Burgess 2002; Sen 1981).

The implicit assumption of much of this literature is that the quality of information available to citizens is invariant. In some cases, this is by design. For example, micro-level field experimental studies on the determinants of government accountability have provided citizens with information about corruption (Chong et al. 2011; de Figueiredo, Hidalgo, and Kasahara 2009), MP activity and policy positions (Humphreys and Weinstein 2013), and incumbent performance (Banerjee et al. 2010), among other issues. These interventions are designed explicitly to provide only high quality, credible information to citizens, so that researchers can examine whether citizen behavior or attitudes change as a result.[2] Similarly, in survey experiments designed to understand how citizens respond to different aspects of government or party behavior, researchers vary the content of the information they provide to

---

[2] Indeed, if field experiments were to provide inaccurate information to citizens, this would raise serious ethical concerns. This point is worth highlighting in part because field experiments are often praised for their realism. As we emphasize below, information in the "real world" may be misleading or even patently false, pointing to the possibility that the ethical limits of field experiments may be at odds with the desire to replicate real political processes as closely as possible. In such a context, the use of observational data or survey experiments may be preferable.

respondents while assuming that all respondents treat that information as reliable (Anduiza, Gallego, and Muñoz 2013; Klašnja and Tucker 2013; Konstantinidis and Xezonakis 2013; Winters and Weitz-Shapiro 2013).[3]

There are reasons to believe, however, that the quality of political information available within a democracy will frequently be uneven. Political actors with electoral aims have incentives to employ information to their advantage in their pursuit of votes. As a result, conflicting narratives concerning government performance can emerge, making it difficult for citizens to take politician statements at face value. As Przeworski (1999 fn. 18) states, "[i]f the government is acting in self-interest, it will offer a self-serving explanation, while the opposition, wanting to defeat the incumbent, will contest it." Other institutions, like ombudsman and auditing offices created to provide impartial information on government performance, can themselves be of variable quality (Moreno, Crisp, and Shugart 2003).

Furthermore, even when credible information about government performance is available, there is no guarantee that voters will identify and avail themselves of that information. On many political topics, most citizens have little specific information or knowledge (e.g., Campbell et al. 1960; Zaller 1992). We know from a vast body of work on political psychology that even sophisticated individuals seek out information consistent with their preexisting worldviews and then evaluate information in light of personal affinities for the source of that information (Taber and Lodge 2006; Iyengar et al. 2008; Iyengar and Hahn 2009; Stroud 2011; see the summary in Prior 2013). The existence of widespread informational challenges at both the individual and macro-level is consistent with a view among some scholars that "popular control of government is illusory" (Iyengar 1987, 816). As Lupia and McCubbins write, "[i]t is widely believed that there is a mismatch between the requirements of democracy and most people's

---

[3] Other authors are more attentive to the possibility of variation in the quality of information about government performance, particularly as disseminated in the media. See for example Besley, Burgess, and Prat (2002), Djankov et al. (2003), and Stanig (forthcoming).

ability to meet those requirements. … The *democratic dilemma* is that the people who are called upon to make reasoned choices may not be capable of doing so" (1998, 1).

In this paper, we argue that this "democratic dilemma" can be overcome when two conditions are met: first, that credible information is available, and second, that citizens are able to identify that information as credible. We classify information as credible when "it is in the [source's] best self-interest to tell the truth" (Austen-Smith 1990, 76; see also Lupia and McCubbins 1998, chap. 3; Przeworski 1999). Importantly, credibility does not guarantee accuracy – a credible source may be incorrect – but, in expectation, credible sources should be accurate more frequently than non-credible sources. As such, the availability of more credible information should enhance political accountability. This should be especially true in the presence of sophisticated citizens, who are most likely to recognize and react to credible information.

Finding credible information about corruption

Corruption is a useful lens for examining the link between political information and accountability because information about political corruption is particularly likely to be subject to credibility problems. Voter interest in punishing corruption creates countervailing pressures for the revelation of information about corrupt practices. Where accurate information is available, opposition politicians are motivated to reveal that information and use it in a way that will help them unseat incumbent officials. At the same time, voter antipathy towards corruption may be sufficiently strong to create incentives to spread unsubstantiated or even outright false allegations. As accusations of corruption proliferate, it may become difficult for citizens to parse them. At an extreme, this may lead citizens to ignore all accusations of malfeasance.

Within the literature that examines citizen punishment of corruption, there are to our knowledge two other works that engage with the question of information credibility. Drawing on evidence from Spain and Colombia respectively, Muñoz, Anduiza, and Gallego (2012) and Botero et al. (2013) both find evidence that the source of information about corruption allegations can matter for respondent reactions to

those allegations. Using an online survey experiment in Catalonia, Spain, Muñoz et al. (2012) provide each respondent with a vignette about a hypothetical politician who is a member of the party supported by the respondent (that is, a copartisan) and who is accused of corruption by opposition politicians. The credibility of those accusations is varied when the party of the accused is described as either fighting the allegations (low credibility) or tacitly admitting them (high credibility). The authors find that allegations with higher perceived credibility result in greater electoral punishment.

Botero et al. (2013) report the results of a survey experiment among urban residents in Colombia in which respondents hear a biographical sketch about a hypothetical candidate that includes accusations of corruption. In different conditions, those accusations are attributed to the judiciary, a reputable newspaper, or a well-regarded NGO, three sources that all have a history of fair-minded reporting on corruption and that all are "generally perceived as credible," according to the authors, and yet that vary in the extent to which voters trust them (Botero et al. 2013, 10).[4] The newspaper that the authors reference in the vignette is viewed as especially trustworthy by the survey respondents who therefore react most strongly to accusations levied by that source.

The results we present below build on these important contributions by developing a clear definition of credibility that focuses on the *a priori* characteristics of sources. Like Muñoz et al. (2012), we operationalize a source's credibility with respect to the source's incentives to disseminate accurate information, while, as in Botero et al. (2013), we choose sources that might be meaningful for any of our

---

[4] Although Botero et al. (2013) use the language of credibility, they operationalize credibility using individual-level affinity between a given listener and a particular source of information. That is, they take three sources that all have incentives to provide accurate information in the Colombian context and then rely on secondary information about the way that respondents relate to the source to see whether some respondents are more persuaded by one source as compared to another. As such, rather than representing differences related to the credibility of the source itself, the differences they find across sources appear to reflect an affinity dimension that is separate from credibility.

survey respondents (i.e., that do not rely on preexisting partisan identification).[5] Information that a

politician has been accused of corruption should be inherently less credible when coming from an

opposition party that stands to gain from those accusations.[6] On the other hand, information about

political corruption that comes from the politician's own party (as in Muñoz et al. (2012)) or an

independent national government agency (as in our study) is inherently more credible.

Who will discern?

We have argued that the ability to discern between more and less credible information is a crucial

part of the chain that links information about political corruption to accountability for corrupt behavior.

While credible information may not always be accurate (and information that is not credible may not

always be false), information provided by credible sources is more likely to be accurate. As such, to the

extent that citizens are more likely to punish politicians when corruption allegations are credible,

accountability will be enhanced. We present two main hypotheses with respect to how citizens process

---

[5] Developed independently, Alt et al. (2014) use a very similar approach to our own to study economic

voting in Denmark. They vary the credibility of information about unemployment projections in a survey

experiment, examining how different types of respondents react to more or less credible information.

They define a source as "objectively" credible when it either has professional incentives to be accurate (in

their empirical setting, the Danish Central Bank) or when it reports information that is counter to its

incentives (an opposition party reporting a projected decrease in unemployment under the governing

party). Similar to the results that we present below, they find that politically sophisticated respondents

update more when the information source has incentives *not* to reveal information.

[6] Unlike Muñoz et al. (2012), we do not use specific party labels. This allows us to examine how

variation in the credibility of information operates for all respondents. Although the absence of party

labels detracts some from the realism of the scenario, given the weakness of party labels in local elections

in Brazil, omitting party labels in the vignettes is less of a concern here than it might be in other contexts.

information of variable credibility. First, we expect citizens to be sensitive to a source's incentives and to be more likely to punish allegations of political corruption provided by credible sources.

> H1: Citizens should be more likely to update their beliefs and behavior in response to more credible, as compared to less credible, information.

Second, we expect that some citizens should be more sensitive to variation in information credibility than others. In particular, we argue that cognitively and politically sophisticated voters are the most capable of discerning whether information they receive is more or less likely to be true.[7] These individuals are likely to have the cognitive skills to remember the source of the information, to be familiar with the source's reputation, and to be sensitive to the source's incentives for either revealing (or concealing) information (Chong and Druckman 2007; Druckman and Nelson 2003).

> H2: More sophisticated citizens are more likely to be responsive to the credibility of the information source.

Although our main hypotheses focus on individual-level processes, they also suggest some macro-level implications. In particular, we expect that politicians accused of corruption are more likely to be punished when the allegations against them come from a credible source and where more constituents are sophisticated. After presenting our individual-level evidence, we test this macro-level implication using data from federal audits of Brazilian municipalities to show that credible accusations of corruption have greater political consequences for mayors in towns with higher literacy rates.

Varying information credibility in a survey experiment

The primary test of our hypotheses relies on an original, nationally-representative survey experiment administered in Brazil in May 2013. In order to examine the effects of variation in the credibility of information about corruption on citizen beliefs and behavior, we include a vignette in the

---

[7] It is also possible that more sophisticated individuals have different preferences from their fellow citizens. In the context of our survey, we are able to show that respondent attitudes towards corruption are very similar across groups, but that sensitivity to the source of corruption information varies substantially.

survey that describes a hypothetical mayor, and then we randomly vary characteristics of the vignette, including the credibility of the information source.[8] Describing a hypothetical mayor allows us to maintain significant control over the information environment and is a technique that has now been used frequently in the study of how citizens respond to different types of politician behavior, including clientelism (Weitz-Shapiro 2012) and corruption (Anduiza, Gallego, and Muñoz 2013; Klašnja and Tucker 2013; Muñoz, Anduiza, and Gallego 2012; Winters and Weitz-Shapiro 2013). From the perspective of testing our second theoretical claim, describing a hypothetical mayor allows us to identify how political sophistication shapes respondents' assessments of source credibility, as distinct from sophistication's role in signaling preexisting knowledge about a particular politician.

Respondents in the survey are randomly assigned to hear one of seven versions of the vignette. All versions of the vignette begin by describing a hypothetical, high-performing mayor, as follows:[9]

> *Imagine that you live in a neighborhood similar to your own but in a different city in Brazil. Let's call the mayor of that hypothetical city in which you live Carlos. Imagine that Mayor Carlos is running for reelection. During the four years that he has been mayor, the municipality has experienced a number of improvements, including good economic growth and better health services and transportation.*

The variation across the vignettes is contained in the next sentence, which presents different types of information about corrupt behavior by the politician. In a pure control condition, no information about corruption is provided, and in a "clean" condition, the mayor is explicitly described as *not* engaging in corruption. The remaining five variants of the vignette include allegations of corruption, varying either

---

[8] We developed the vignettes and survey questions based on our previous research (Author citation) and during focus groups in the city of São Paulo in August 2012. The survey was administered by IBOPE, Brazil's oldest and largest survey firm, to 2,002 individuals across 25 of Brazil's 27 states in a multi-stage sample, with PPS sampling of cities across the states and then quota sampling at the level of the individual. For more details on the sampling procedure, see the appendix.

[9] Following convention in Brazil, the mayor is referred to by his first name.

the source of that information and/or the precise target of the accusations. All seven versions are described in table 1.

Credibility Condition	Specificity Condition	Final Sentence of Vignette
Pure Control		[Text above only]
No Corruption		Also, it is well known in the city that Mayor Carlos has not accepted any bribes when awarding city contracts.
Corruption: No Source		Also, it is well known in the city that Mayor Carlos has accepted bribes when awarding city contracts.
Corruption: More Credible Source	Mayor	Also, a federal audit of the city says that Mayor Carlos has accepted bribes when awarding city contracts.
	Municipal Officials	Also, a federal audit says that municipal officials have accepted bribes when awarding city contracts.
Corruption: Less Credible Source	Mayor	Also, the opposition party says that Mayor Carlos has accepted bribes when awarding city contracts.
	Municipal Officials	Also, the opposition party says that municipal officials have accepted bribes when awarding city contracts.

Note: In the current paper, we do not study variation in specificity conditions.

Table 1: Experimental Vignettes

As the table makes clear, some of the vignettes vary the target of the corruption accusations, referring either to the mayor directly or to municipal officials.[10] We explore that variation in a separate paper; here, we concentrate on variation in the source of the accusations. Therefore, in our analyses we pool responses to prompts with the same source credibility, regardless of whether the mayor or city officials were mentioned.

With respect to source characteristics, the source of the corruption accusations is described as either a federal audit or the opposition party. Including these two contrasting sources allows us to vary the credibility of the accusations for all respondents, with the federal audit likely to be understood as inherently more credible, as compared to the opposition party accusations. We use the federal audit as our credible source in part because the Brazilian government – through the Office of the Comptroller General (Controladoria-Geral da União, CGU) – maintains a system of federal audits of municipal accounts for municipalities with populations under 500,000. These audits are conducted by highly skilled bureaucrats

---

[10] In Portuguese, the latter referenced "*ocupantes de cargos na Prefeitura.*" The full Portuguese text of the prompts is found in the online appendix.

and are widely recognized as impartial and competently executed (see the description in Ferraz and Finan (2008, 2011) for more details on the program). Drawing on data from public employee records, Bersch, Praça, and Taylor (2013) identify the auditing agency as being well above the median federal agency in Brazil in terms of both capacity and autonomy from political influence. We also use data from this program in the analysis of macro-level implications below.

Although less educated respondents may not be familiar with the audit system per se, public opinion surveys reveal that the federal government has widespread credibility in Brazil. In the 2010 AmericasBarometer survey in Brazil, respondents were asked to rate, on a scale from 1-7, their degree of confidence/trust (*confiança*) in a variety of institutions. The mean response for the federal government was relatively high, at 4.4. About 20% of respondents said that their confidence in the federal government was in the lowest two categories, whereas 37% placed their confidence in the highest two categories. In contrast, trust in political parties elicited a mean response of 2.97, with 44% rating their degree of trust in political parties in the lowest two categories, and only 9% rating their trust as falling into the highest two categories. Participants in focus group discussions held in advance of the survey also articulated a high level of trust in the veracity of information disseminated by federal actors.

The alternate named source of corruption information in the vignettes is an opposition party. As noted above, political parties face a fair bit of skepticism in the Brazilian context. Furthermore, like Muñoz et al. (2012), we view accusations of corruption made by members of an opposition party as *inherently* less credible because of the self-serving nature of those accusations: the opposition party stands to benefit directly from any electoral punishment of the subject of these accusations. Accusations levied by an opposition party may, of course, turn out to be true in any given case; however, the fact that those making the accusations stand to gain from them should decrease respondents' estimates of their accuracy. As described above, we expect the differences in source credibility to affect all respondents (H1), with more sophisticated respondents being particularly sensitive to these differences (H2).

After hearing the vignette to which he or she was randomly assigned, each respondent was asked a series of follow-up questions, including two that were designed to gauge her opinion of the hypothetical

mayor. The first asked the respondent to evaluate how likely she would be to vote for the mayor, on a scale from one (not at all likely) to four (very likely). A second question asked her to evaluate the hypothetical mayor on a scale from 1 to 7, with 1 indicating a "terrible" mayor and 7 indicating an "excellent" one. As we are ultimately interested in citizen behavior in response to corruption, all the analyses below are carried out with the four-point vote-intention score as the outcome of interest. In the online appendix, we show that the main results are robust to the use of the feeling thermometer.

Discerning across sources of information about political corruption

Before turning to a test of the hypotheses, we describe some general trends of interest in the data.[11] First, we check to see whether respondents expressed less support for mayors linked to corruption in the vignette than those not linked to corruption; to do this, we compare our two control conditions with the five conditions that contained information about corruption. Our results show quite clearly the strong, negative effect of corruption information on respondent intention to vote for the hypothetical mayor. In the two control conditions, support for the mayor reaches an average of 3.38 on the 1 to 4 scale. The high vote intention is probably explained by the strongly positive description of the mayor's performance and the fact that he is not assigned any partisan identification, thus eliminating a cue that has the potential to generate opposition among some respondents. Average support for the mayor across the five conditions that mention corruption of any type drops dramatically to 2.21, a difference that is highly statistically significant.[12] These results are consistent with existing survey work that shows that, for a given level of performance, politicians described as corrupt receive lower levels of support.

---

[11] As we describe in the online appendix, we believe that the vignettes were not administered in a completely random order but find no observable covariates that correlate with vignette assignment.

[12] If we exclude the cases that mention city officials rather than the mayor, the point estimate of the difference increases in magnitude and remains highly statistically significant.

Uniquely for this literature, our experiment also included two control conditions, which offer interesting insights into the assumptions that respondents make about political corruption when they do not receive information about that dimension of performance.[13] In the pure control condition, survey respondents heard information only about the mayor's strong performance with respect to economic growth, health, and transportation; they received no information—either positive or negative—about corruption. In the "clean" control condition, the positive information about performance was followed by information *explicitly* describing the mayor as not engaged in corruption. (These are the first two vignettes listed in Table 1 above.) Respondents' reactions to the mayors described in these two vignettes are practically identical. Mean vote intention in the pure control condition was 3.38, and it was 3.39 in the explicitly clean control condition, numbers that are statistically indistinguishable. These results are consistent with those reported in Winters and Weitz-Shapiro (2013) where, in the presence of information about strong public service delivery performance and no information about corruption, Brazilian voters respond in ways similar to when they are explicitly told that politicians are clean. In a survey setting, Brazilian respondents treat information about good policy performance as a signal of clean, rather than corrupt, municipal administration.

Credible information

We test our main hypotheses using respondents' intended vote intention on a four-point scale as the measure of their evaluation of the hypothetical mayor described in the vignettes. Taking advantage of the experimental nature of the data, we rely on simple difference-in-means tests throughout.

Our first hypothesis predicts that survey respondents will be more responsive to credible, as opposed to less credible, allegations of corruption. The results in Table 2 show that this is indeed the case. The first column indicates that, among respondents who heard the mayor or his administration accused of corruption by a federal audit, the mean intention to vote for the mayor is 2.07, whereas it increases to 2.37

---

[13] Other work that uses similar experimental vignettes tends to either include an explicit "clean" condition (e.g., Klašnja and Tucker 2013) or no control condition at all (e.g., Muñoz, Anduiza, and Gallego 2012).

among respondents who heard a similar accusation of corruption attributed to an unnamed opposition party. This difference is highly statistically significant. In other words, respondents have a less punitive response when accusations of corruption come from a less credible source. It is worth noting, as is evident in the third row, that corruption information is punished, regardless of its source; respondents in the control groups have a much higher average vote intention of 3.38.[14] The shift in mean vote intention evinced by more credible accusations of corruption is about one-quarter of the size of the effect of any corruption accusations at all on vote intention. Given that the source of the allegations is only mentioned once in the vignette, we view this as a fairly substantial effect.

The third row of Table 2 further highlights the fact that respondents were quite attentive to the source of corruption information in the prompts: the mean vote intention for those who were told about a corrupt mayor but *not* given any indication about the source of the information falls between the vote intention of those who received a credible (federal audit) versus a less credible (opposition party) cue, although it is only significantly different from the latter. In other words, voters know to discount the accusations brought by the opposition party. On the whole, these results show that information credibility matters for citizen responses to corruption and also that a diverse group of voters can identify and respond to relatively subtle differences in the credibility of information attributed to different sources.

---

[14] The strong punishment of corruption, even when allegations are unsubstantiated, suggests that it may be in politicians' best interests to make indiscriminate accusations of corruption. However, such an "always accuse" equilibrium is probably not sustainable, since voters could update to think of every accusation as cheap talk. Therefore, opposition parties most likely do need to be discriminating when using the weapon of corruption accusations. Future work will explore whether denials of corruption accusations, of the type likely to occur in the real world, moderate this punishment.

How likely are you to vote for the mayor? (N)	Average Response (Standard Error)	Estimated Difference from Control Conditions	Estimated Difference from Unsourced Accusations	Estimated Difference from Less Credible Accusations
Credible Accusations (N=553)	2.07 (0.05)	-1.30 (p < 0.01) [p < 0.01]	-0.10 (p < 0.21) [p < 0.21]	-0.29 (p < 0.01) [p < 0.01]
Less Credible Accusations (N=547)	2.37 (0.05)	-1.02 (p < 0.01) [p < 0.01]	0.18 (p < 0.03) [p < 0.03]	--
No Source of Corruption Accusations (N=278)	2.18 (0.07)	-1.20 (p < 0.01) [p < 0.01]	--	--
Pure Control/Control with Clean Mayor (N=560)	3.38 (0.04)	--	--	--

Note: Cells in columns 2-4 present difference-in-means tests among the means reported in column 1. The first p-value is from a t-test of the null hypothesis of no difference in means between the two groups. The second p-value is from a randomization inference test of the sharp null hypothesis of no unit-level treatment effect.

Table 2: Source credibility and vote intention

Voter sophistication and information credibility

Table 3 presents the results for the second hypothesis – that more politically sophisticated individuals should be more sensitive to the credibility of the source presenting information about politician malfeasance, whereas the least sophisticated should be least able to discern source credibility. In our experiment, we compare accusations revealed by a federal audit to those attributed to an opposition party. More sophisticated voters are more likely to understand that opposition accusations of corruption may be motivated by self-interest, making their veracity more suspect. They are also more likely to be familiar with the federal bureaucracy's reputation for competence and high capacity.

We operationalize voter sophistication in three different ways, using the respondent's level of educational attainment, her response to two political knowledge questions, and her self-declared level of

interest in politics. Table 3 presents the results for education only; results for knowledge and interest

show a similar pattern and are included in the online appendix.[15]

In our sample, education levels run from those with no formal education to those with completed

tertiary education. We divide the sample into five groups based on educational attainment, and as Table 3

shows, there is a strong, clear trend of increasing discernment with increasing levels of education. In fact,

among those with the lowest levels of education, there is no statistical difference at all in vote intention

between those who are in the more versus less credible treatment groups. The contrast with the most

educated group is quite stark. Compared to the least educated respondents, those who are most educated

are *less* likely to punish politicians who are accused by opposition party members and *more* likely to

punish those accused of corruption by the reputable federal audit system.[16] Among the most educated

respondents, vote intention falls from 2.44 for less credible accusations to 1.97 for more credible

accusations, a difference of nearly half a point on the four-point scale. The credibility "gap" for the most

---

[15] The size of punishment for credible accusations relative to less credible accusations increases

monotonically for both interest and education. Knowledge was measured with two factual questions that

asked respondents to supply the number of states in Brazil and the name of Argentina's president. Those

who got both answers right (17% of the sample) punished credible accusations at a far greater rate than

those who got neither answer correct (62% of the sample); however, among those who got one answer

correct, there is no statistically significant difference in the mean vote intention in the credible versus less

credible groups. All results are presented in the appendix.

[16] Note that in Brazil, higher educational attainment is generally linked to lower trust in government

institutions. In the 2010 LAPOP survey, for example, 19% of respondents who were university graduates

said they had no trust in the federal government, as compared to 10% of respondents who had only

completed primary education. To the extent this holds more broadly, this makes our results even stronger,

as it suggests that educated voters are sufficiently sensitive to actor incentives to overcome their antipathy

for the source.

educated is statistically significantly greater than any such gap for the least educated respondents. The

data also show a clear trend towards increasing discernment as education increases, although the

differences between adjacent education groups are not statistically significant.

How likely are you to vote for the mayor?	Illiterate / less than primary	Complete primary; incomplete middle	Complete middle; incomplete secondary	Complete secondary	At least some tertiary
Less Credible Accusations	2.13 (0.15) N=58	2.26 (0.09) N=137	2.46 (0.10) N=126	2.41 (0.09) N=136	2.44 (0.12) N=90
Credible Accusations	2.18 (0.15) N=59	2.01 (0.10) N=129	2.16 (0.10) N=143	2.07 (0.09) N=146	1.97 (0.12) N=76
Difference	-0.05	0.25	0.31	0.34	0.47
p-value on H_0: No Difference	0.82	0.06	0.02	0.01	0.01
p-value on H_0: No Difference between CATE and CATE for Lowest Education Group	--	0.24	0.16	0.12	0.06

Note: P-values for the null hypothesis on the conditional average treatment effect (CATE) for each group
are based on difference-in-means t-tests. P-values for differences across the CATEs are based on the
randomization inference tests described in Gerber and Green (2012).

Table 3: Respondent educational attainment and responsiveness to source credibility

Note that these results do not reflect differences in attitudes towards corruption per se. These least

educated respondents give responses that suggest they condemn corruption at similar levels to the

population overall. For the least educated, reported vote intention falls from 3.24 in the clean/control

conditions to an average of 2.10 across the set of five corrupt conditions; among the most educated, there

is a similarly-sized decrease in support from 3.43 to 2.23. Thus, even for two groups who both exhibit

clear distaste for corrupt politicians, our results point to important differences in how citizens are likely to

respond to corruption allegations of differential credibility. Voters with little or no formal education seem

to understand our prompt in the broadest sense, but their responses suggest they either ignore, fail to

understand, or fail to recall the more subtle information about the *source* of corruption allegations.

Some previous work on voter responses to information has found that the highly educated react less strongly to information contained in survey vignettes. For instance, both Brader and Tucker (2007) and Lupu (2013) find that more politically-sophisticated respondents are less likely to change their partisan attachment after being exposed to information about parties in a survey environment. They explain this effect by highlighting that sophisticated respondents are likely to already have access to the real-world information provided in these survey vignettes. In contrast, the politicians and information described in our experiment are all hypothetical; therefore, highly educated respondents have no more baseline information than respondents with lower levels of education. This approach allows us to more directly estimate the role that political sophistication, as distinct from preexisting knowledge, plays in citizens' abilities to discern more credible from less credible information. Thus, while the recent literature on motivated reasoning points to the limits that sophisticated voters face because of their strong biases, by stripping out party ID and focusing on a valence issue, we are able to show that sophistication can have important positive consequences for accountability. Our results are also consistent with other recent work (Alt et al. 2014) that finds that more sophisticated voters are more able to identify and respond to information from credible sources.

Macro-level evidence from municipal election outcomes

In the survey experiment, we vary the credibility of information without reference to real-world political actors, which allows us to more readily isolate the effects of political sophistication on the ability of respondents to discern source credibility. As always, however, we should exercise caution in extrapolating from survey results to citizen behavior in a less controlled environment (Barabas and Jerit 2010). While acknowledging that the real-world information environment is necessarily more complex than that of a survey experiment, we argue that political sophistication should continue to be a useful predictor of the ability to discern credible information in the real world. In this section, we provide evidence that revealing credible information about political corruption has a greater impact on political outcomes in Brazilian municipalities with higher proportions of likely-sophisticated residents. This

macro-level evidence suggests that the results of the survey experiment, which showed that sophisticated citizens are more discerning of source credibility, have external validity.

We take advantage of data generated by Brazilian federal government audits of municipal accounts. As described above, these audits of small and medium-sized municipalities are conducted by highly skilled civil servants and are widely understood to be reliable and impartial. The audits are ongoing, but only a small number of municipalities are audited at any given time; in each round, municipalities are selected to be audited through a lottery. Given the random nature of the lottery, some audits take place before local elections, while others occur only after elections have already transpired for the administration that is the subject of the audit. This creates a natural experiment in which it becomes possible to compare political outcomes across municipalities with the same level of underlying corruption (as detected by the audit) but where corruption has only been revealed to voters by a credible source (the audit) prior to elections in some subset of the municipalities. Ferraz and Finan (2008) and Brollo et al. (2013) have shown that mayors in municipalities with the same levels of corruption are more likely to suffer electoral consequences if those infractions are revealed prior to an election.[17]

Extrapolating from our micro-level theory and findings to the municipal level, we expect that the revelation of highly credible information about corruption prior to an election should lead to greater punishment in municipalities with more politically sophisticated residents.[18] We test this claim using data collected by Brollo et al. (2013) for Brazilian municipalities covering two mayoral terms, 2001-2005 and 2005-2009.[19] Limiting our sample to the set of mayors who were eligible to run for reelection, we

---

[17] Brollo et al. (2013), Ferraz and Finan (2008, 2011), and Litschig and Zamboni (2011) all use these data and provide more details on the audit process.

[18] Due to the problem of ecological inference, we cannot be sure that the more sophisticated voters in these municipalities drive our results, but the municipal-level results are consistent with our theory and micro-level empirical evidence.

[19] We are extremely grateful to Fernanda Brollo and colleagues for making their data publicly available.

examine how municipal literacy rates (a proxy for sophistication) condition the political consequences of the revelation of credible information through the audit process.[20]

Following Brollo et al. (2013), we study the impact of revealed corruption on three outcomes: the mayor's decision to run for reelection, the likelihood of reelection conditional on deciding to run, and the unconditional likelihood that the mayor returns to office for a subsequent term. In all cases, we follow Brollo et al. (2013) in using linear probability models. Our empirical models predict each outcome variable as a function of whether or not the audit uncovered any instances of corruption (*corrupt*), whether the audit took place prior to an election (*before*) and the literacy level in each municipality (*literacy*). For our measure of corruption, we use Brollo et al.'s (2013) "narrow" definition, "which only includes severe irregularities that are also more likely to be visible to voters" (1774). We also include regional fixed effects and a time-period indicator that distinguishes 2001-2005 incumbents from 2005-2009 incumbents.

Table 4 below presents the results of the regressions for each of the three outcome variables. Together, they suggest that as literacy (our proxy for sophistication) increases, so does punishment for credible accusations of corruption. The triple interaction between the indicator for corruption, the indicator for the audit results being released before the election, and the measure of the literacy rate within the municipality is negative in each case (and statistically significant in columns 1 and 3).

---

[20] Low historical rates of educational attainment mean that literacy varies quite a bit in Brazil, which makes this a better proxy for sophistication than it might be in other contexts. Municipal literacy rates in the sample range from a low of 24% to a high of 77%.

	Probability of Running for Reelection	Probability of Reelection | Running for Reelection	Unconditional Probability of Reelection
Corrupt*Before*Literacy	-1.50***	-0.55	-1.18*
	(0.57)	(0.75)	(0.61)
Corrupt*Literacy	0.40	0.32	0.38
	(0.33)	(0.42)	(0.34)
Corrupt*Before	0.89***	0.33	0.71**
	(0.30)	(0.40)	(0.32)
Before*Literacy	0.91**	0.15	0.60
	(0.37)	(0.49)	(0.39)
Literacy	-0.67**	-0.23	-0.49
	(0.31)	(0.41)	(0.33)
Corrupt	-0.21	-0.19	-0.22
	(0.17)	(0.22)	(0.19)
Before	-0.60***	-0.10	-0.40*
	(0.21)	(0.28)	(0.22)
Constant	1.04***	0.74***	0.69***
	(0.18)	(0.22)	(0.19)
N	816	564	816
R^2	0.06	0.06	0.07

Note: Linear probability models with region and mayoral-term fixed effects (not reported).

Table 4: Political effects of credible accusations of corruption, conditional on literacy

Figure 1 depicts the results graphically and illustrates that the predicted punishment of credible accusations of corruption is higher in municipalities with higher levels of literacy. In the top panel of Figure 1 we graph, by level of municipal literacy, the predicted probability that a mayor seeks reelection when audits reveal corruption before the election (the solid line) and after the election (the dashed line). In corrupt municipalities where that corruption is only revealed by the audit after the election, there is very little difference in the probability that the mayor seeks reelection across levels of literacy. This is evident by the relatively flat slope of the dotted line. Among those municipalities where an audit reveals corruption before the election, on the other hand, the slope of the line is much steeper. This suggests that politicians anticipate stronger electoral punishment of credible accusations of corruption in municipalities where more citizens are literate. Using simulations, we can estimate the difference in the probability of running for reelection between a high and low literacy municipality when an audit reveals corruption prior to an election. As literacy goes from its 25% value in the sample (41% literate) to its 75% value in

the sample (64% literate), the predicted probability of running for reelection drops by about 19 percentage points (from a 69% likelihood to a 50% likelihood). This difference is significant at the .05 level.[21]
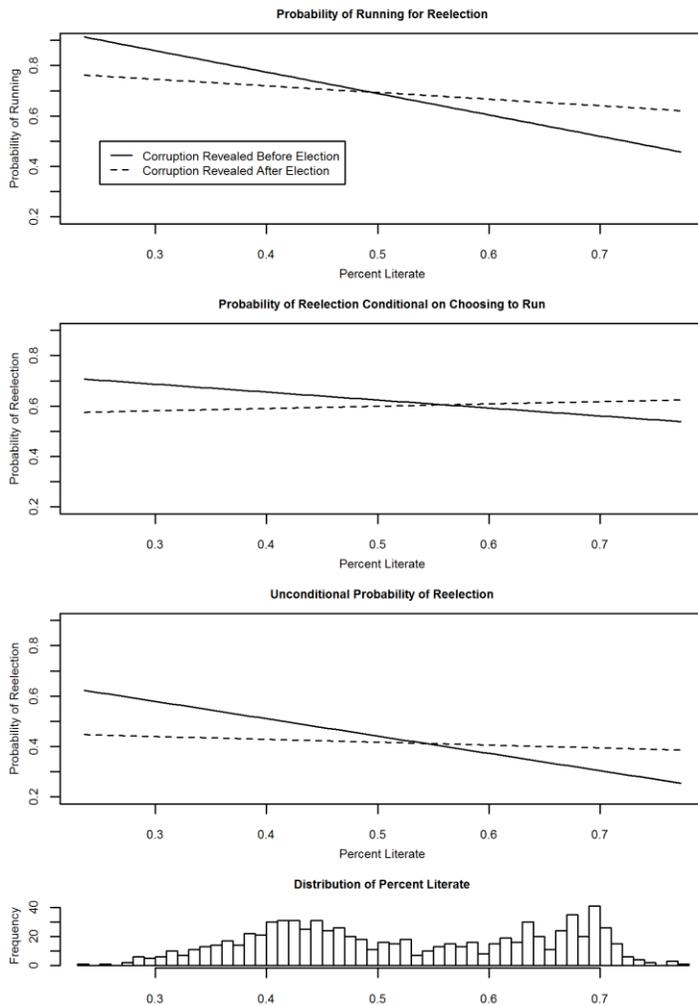

Figure 1: The decision to run for reelection and the probability of reelection
Note: The solid lines indicate predictions for municipalities where corruption is revealed before the election; the dashed lines indicate cases where corruption is revealed after the election.

---

[21] Simulations were conducted using the Clarify package (King, Tomz, and Wittenberg 2000) in Stata. Since the confidence intervals for the predicted probabilities at any given level of literacy are quite large, we cannot statistically distinguish at conventional significance levels the point estimate on the probability of running for reelection in the "before" cases from the point estimate on the probability of running for reelection in the "after" cases.

In the second panel of figure 1, we examine how the revelation of credible accusations of corruption before the election, as compared to only after the election, affects the probability of reelection for those mayors who have chosen to run. Although not as steep as the slope in the top panel, the slope of the solid line is again negative with respect to literacy, suggesting that the availability of credible accusations of corruption is associated with a lower chance of reelection where literacy is higher. The third panel of figure 1 shows the unconditional combination of both the selection and the election effects. Here we can see that the overall probability that an incumbent is returned to office when credible information about corruption is revealed before an election is decreasing in municipal literacy rates. In contrast, in the presumed absence of credible accusations of corruption (that is, in cases in which audit results reveal corruption only after the election), the predicted probability of reelection is relatively flat with respect to literacy. Although the ecological inference problem and the fact that literacy is only a rough proxy for political sophistication mean that our results should be interpreted with some caution, they are consistent with our micro-level results and the contention that political sophisticates are more capable of both discerning and acting on credible information.

Discussion

While information is widely acknowledged to be crucial for political accountability, relatively little attention has been paid to the ways in which voters react to information of different quality. When citizens punish poor performance, political accountability should increase. At the same time, however, citizen distaste for practices like corruption creates incentives for false accusations of malfeasance to be propagated. As a result, discernment—that is, the ability of citizens to discriminate between more and less credible information—is crucial for political accountability. We first hypothesize that citizens are capable of such discernment and will respond differently to corruption allegations based on the credibility of the source of that information. More importantly, we expect to see variation across groups of citizens with regard to their ability to discern more credible from less credible information. In particular, we expect more politically sophisticated voters to have the cognitive skills necessary for better discernment, while

23

the least sophisticated citizens are not likely to be attentive to subtle cues about information quality. Focusing on citizen reactions to corruption, we test these hypotheses using a nationally-representative, original survey experiment carried out in Brazil in 2013 and an analysis of municipal-level data on the electoral punishment of mayors who oversaw administrations suffering from corruption, as identified by highly credible federal audits.

We find that information credibility affects how citizens interpret accusations of corruption. Notably, all survey respondents except the least educated appear to distinguish between more and less credible information. Furthermore, the tendency to discern between sources of information based on their credibility increases monotonically with level of education. Our paper is one of several recent survey experiments that examine how the nature of the source of information about corruption affects citizen responses to that information (Botero et al. 2013; Muñoz et al. 2012). Our paper advances the literature by juxtaposing universally more and less credible accusations against one another, in its analysis of how cognitive sophistication affects reactions to source credibility, and in its use of macro-level data to support the external validity of the findings.

Our findings have interesting implications for our understanding of the relationship between education and political accountability. They suggest a new mechanism through which high educational attainment might decrease corruption—not through changes in preferences that may be associated with different education levels, but rather because more educated individuals are better able to discern more from less credible information and therefore are more likely to act on the former. These results should be heartening to governments, like Brazil's, that have invested in the creation of reputable independent auditing and control units. As long as these agencies are able to maintain their reputation for high quality, we should expect their influence to grow as the population becomes increasingly educated.

Works Cited

Adserá, Alicia, Carles Boix, and Mark Payne. 2003. "Are You Being Served? Political Accountability and Quality of Government." *Journal of Law, Economics and Organization* 19(2): 445–90.

Alt, James E., David D. Lassen, and John Marshall. 2014. "Information, Source Credibility and Political Sophistication: Experimental Evidence on Economic Voting." Presented at the Annual Meeting of the European Political Science Association, Edinburgh.

Anduiza, Eva, Aina Gallego, and Jordi Muñoz. 2013. "Turning a Blind Eye: Experimental Evidence of Partisan Bias in Attitudes Toward Corruption." *Comparative Political Studies* 46(12): 1664-1692.

Austen-Smith, David. 1990. "Credible Debate Equilibria." *Social Choice and Welfare* 7(1): 75–93.

Banerjee, Abhijit, Donald Green, Jennifer Green, and Rohini Pande. 2010. "Can Voters Be Primed to Choose Better Legislators? Experimental Evidence from Rural India." Presented at Political Economy Seminar Series, Department of Economics, Stanford University.

Barabas, Jason, and Jennifer Jerit. 2010. "Are Survey Experiments Externally Valid?" *American Political Science Review* 104(02): 226–42.

Bersch, Katherine, Sérgio Praça, and Matthew M. Taylor. 2013. "State Capacity and Bureaucratic Autonomy Within National States: Mapping the Archipelago of Excellence in Brazil." Presented at the Annual Meeting of the American Political Science Association, Chicago.

Besley, Timothy, and Robin Burgess. 2002. "The Political Economy of Government Responsiveness: Theory and Evidence from India." *Quarterly Journal of Economics* 117(4): 1415–51.

Besley, Timothy, Robin Burgess, and Andrea Prat. 2002. "Mass Media and Political Accountability." In *The Right to Tell: The Role of Mass Media in Economic Development*, Washington, D.C.: The World Bank.

Botero, Sandra, Rodrigo Castro Cornego, Laura Gamboa, Nara Pavao, and David Nickerson. 2013. "Says Who? The Impact of Sources of Corruption Accusations in Colombia."Presented at the Annual Meeting of the Midwest Political Science Association, Chicago.

Brader, Ted A., and Joshua A. Tucker. 2007. "Reflective and Unreflective Partisans? Experimental Evidence on the Links between Information, Opinion, and Party Identification." Presented at the Annual Meeting of the American Political Science Association, Chicago.

Brollo, Fernanda, Tommaso Nannicini, Roberto Perotti, and Guido Tabellini. 2013. "The Political Resource Curse." *American Economic Review* 103(5): 1759–96.

Brunetti, Aymo, and Beatrice Weder. 2003. "A Free Press Is Bad News for Corruption." *Journal of Public Economics* 87(7): 1801–24.

Campbell, Angus, Philip Converse, Warren Miller, and Donald Stokes. 1960. *The American Voter*. New York: John Wiley & Sons.

Chang, Eric C. C., Miriam A. Golden, and Seth J. Hill. 2010. "Legislative Malfeasance and Political Accountability." *World Politics* 62(02): 177-220.

Chong, Alberto, Ana de la O, Dean Karlan, and Leonard Wantchekon. 2011. "Looking Beyond the Incumbent: Exposing Corruption and the Effect on Electoral Outcomes." NBER Working Paper No. 17679.

Chong, Dennis, and James N. Druckman. 2007. "Framing Theory." *Annual Review of Political Science* 10(1): 103–26.

Chowdhury, Shyamal K. 2004. "The Effect of Democracy and Press Freedom on Corruption: An Empirical Test." *Economics Letters* 85(1): 93–101.

Djankov, Simeon, Caralee McLiesh, Tatiana Nenova, and Andrei Shleifer. 2003. "Who Owns the Media?" *Journal of Law and Economics* 46: 341–81.

Druckman, James N., and Kjersten R. Nelson. 2003. "Framing and Deliberation: How Citizens' Conversations Limit Elite Influence." *American Journal of Political Science* 47(4): 729–45.

Ferraz, Claudio, and Frederico Finan. 2008. "Exposing Corrupt Politicians: The Effects of Brazil's Publicly Released Audits on Electoral Outcomes." *Quarterly Journal of Economics* 123(2): 703–45.

———. 2011. "Electoral Accountability and Corruption: Evidence from the Audits of Local Governments." *American Economic Review* 101(4): 1274–1311.

De Figueiredo, Miguel F.P., F. Daniel Hidalgo, and Yuri Kasahara. 2009. "When Do Voters Punish Corrupt Politicians? Experimental Evidence from Brazil." Presented at the Annual Meeting of the American Political Science Association, Toronto.

Freille, Sebastian, M. Emranul Haque, and Richard Kneller. 2007. "A Contribution to the Empirics of Press Freedom and Corruption." *European Journal of Political Economy* 23(4): 838–62.

Gerber, Alan S., and Donald P. Green. 2012. *Field Experiments: Design, Analysis, and Interpretation*. New York: W.W. Norton & Co.

Hardoon, Deborah, and Finn Heinrich, eds. 2013. *Global Corruption Barometer 2013*. Berlin: Transparency International.

Humphreys, Macartan, and Jeremy Weinstein. 2013. "Policing Politicians: Citizen Empowerment and Political Accountability in Uganda Preliminary Analysis." London. International Growth Centre Working Paper. http://cu-csds.org/wp-content/uploads/2009/10/ABCDE-paper.pdf (January 14, 2014).

Iyengar, Shanto. 1987. "Television News and Citizens' Explanations of National Affairs." *American Political Science Review* 81(3): 815–32.

Iyengar, Shanto, and Kyu S. Hahn. 2009. "Red Media, Blue Media: Evidence of Ideological Selectivity in Media Use." *Journal of Communication* 59(1): 19–39.

Iyengar, Shanto, Kyu S. Hahn, Jon A. Krosnick, and John Walker. 2008. "Selective Exposure to Campaign Communication: The Role of Anticipated Agreement and Issue Public Membership." *Journal of Politics* 70(1): 186–200.

King, Gary, Michael Tomz, and Jason Wittenberg. 2000. "Making the Most of Statistical Analyses: Improving Interpretation and Presentation." *American Journal of Political Science* 44(2): 341–55.

Klašnja, Marko, and Joshua A. Tucker. 2013. "The Economy, Corruption, and the Vote: Evidence from Experiments in Sweden and Moldova." *Electoral Studies* 32(3): 536–43.

Konstantinidis, Iannis, and Georgios Xezonakis. 2013. "Sources of Tolerance towards Corrupted Politicians in Greece: The Role of Trade Offs and Individual Benefits." *Crime, Law and Social Change* 60(5): 549–63.

Litschig, Stephan, and Yves Zamboni. 2011. "Audit Risk and Rent Extraction: Evidence from a Randomized Evaluation in Brazil." Universitat Pompeu Fabra, Economics Working Paper Series, No. 1270.

Lupia, Arthur, and Mathew D. McCubbins. 1998. *The Democratic Dilemma: Can Citizens Learn What They Need to Know?* New York: Cambridge University Press.

Lupu, Noam. 2013. "Party Brands and Partisanship: Theory with Evidence from a Survey Experiment in Argentina." *American Journal of Political Science* 57(1): 49–64.

Manin, Bernard, Adam Przeworski, and Susan C. Stokes. 1999. "Elections and Representation." In *Democracy, Accountability, and Representation*, eds. Adam Przeworski, Susan C. Stokes, and Bernard Manin. New York: Cambridge University Press.

Mauro, Paulo. 1995. "Corruption and Growth." *Quarterly Journal of Economics* 110(3): 681–712.

———. 1998. "Corruption and the Composition of Government Expenditure." *Journal of Public Economics* 69(2): 263–79.

Moreno, Erika, Brian F. Crisp, and Matthew Soberg Shugart. 2003. "The Accountability Deficit in Latin America." In *Democracy and Accountability in Latin America*, eds. Scott Mainwaring and Christopher Welna. New York: Oxford University Press, 79–131.

Muñoz, Jordi, Eva Anduiza, and Aina Gallego. 2012. "Why Do Voters Forgive Corrupt Politicians? Implicit Exchange, Noise, and Cynicism." Presented at the International Political Science Association World Congress, Madrid.

Prior, Markus. 2013. "Media and Political Polarization." *Annual Review of Political Science* 16(1): 101–27.

Przeworski, Adam. 1999. "Minimalist Conception of Democracy: A Defense." In *Democracy's Value*, eds. Ian Shapiro and Casiano Hacker-Cordón. New York: Cambridge University Press.

Reinikka, Ritva, and Jakob Svensson. 2005. "Fighting Corruption to Improve Schooling: Evidence from a Newspaper Campaign in Uganda." *Journal of the European Economic Association* 3(2-3): 259–67.

Rose-Ackerman, Susan. 1999. *Corruption and Government: Causes, Consequences, and Reform*. New York: Cambridge University Press.

Sen, Amartya. 1981. *Poverty and Famines: An Essay on Entitlement and Deprivation*. New York: Oxford University Press.

Stanig, Piero. forthcoming. "Regulation of Speech and Media Coverage of Corruption: An Empirical Analysis of the Mexican Press." *American Journal of Political Science*.

Stroud, Natalie. 2011. *Niche News: The Politics of News Choice*. New York: Oxford University Press.

Taber, Charles S., and Milton Lodge. 2006. "Motivated Skepticism in the Evaluation of Political Beliefs." *American Journal of Political Science* 50(3): 755–69.

Weitz-Shapiro, Rebecca. 2012. "What Wins Votes: Why Some Politicians Opt Out of Clientelism." *American Journal of Political Science* 56(3): 568–83.

Winters, Matthew S., and Rebecca Weitz-Shapiro. 2013. "Lacking Information or Condoning Corruption: When Do Voters Support Corrupt Politicians?" *Comparative Politics* 45(4): 418–36.

Wrong, Michela. 2010. *It's Our Turn to Eat: The Story of a Kenyan Whistle-Blower*. Reprint edition. New York: Harper Perennial.

Zaller, John. 1992. *The Nature and Origins of Mass Opinion*. Cambridge University Press.