

Can Citizens Discern? Information Credibility, Political Sophistication, and the Punishment of Corruption in Brazil

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When are citizens most likely to hold politicians to account for wrongdoing? In a crowded information environment, political accountability requires that credible information about politician behavior is available and that citizens are able to identify credible information as such. Focusing on this second requirement, we argue that the ability to discern more credible from less credible information is increasing in citizens' cognitive and political sophistication. Using data from an original survey experiment in Brazil, we show that all citizens react negatively to corruption allegations but that more politically sophisticated respondents are the most likely to discern between sources of information that differ in their credibility. In particular, they are more skeptical of low-credibility sources than their less sophisticated counterparts. 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 corruption accusations.

In a modern representative democracy, political corruption fundamentally violates the implicit contract in which elected politicians agree to govern on behalf of the citizens who have selected them.¹ Whether through direct bribe-taking, embezzlement, elaborate kickback schemes, or over-invoicing for public works projects, corruption diverts funds from public coffers and diverts politician attention away from the public interest. Scholars have documented a number of negative economic and political consequences of corruption, ranging from decreased growth and investment (e.g., Mauro 1995, 1998; Tanzi and Davoodi 1998) to decreased trust in government (Seligson 2002). Citizens themselves also express great concern about government corruption. According to Transparency International's 2013 Global Corruption Barometer, for example, an average of 51% of respondents across 107 countries believe that corruption in the public sector is a "very serious problem" (the highest category on a five-point scale; Hardoon and Heinrich 2013).

In spite of public concern, there is plenty of evidence that corruption persists at high levels in many parts of the world, especially outside of the long-standing wealthy democracies (Keefer 2007; Treisman 2007). The scale of corruption is particularly puzzling in democracies, where regular free and fair elections should present citizens with the opportunity to remove corrupt politicians from office. While other work has focused on the links between formal political institutions and the control of corruption (e.g., Kunicova and Rose-Ackerman 2005; Persson, Tabellini, and Trebbi 2003), we explore how characteristics of both individuals and the environment affect corruption punishment within a single institutional context. In particular, we call attention to the informational constraints citizens face in attempting to punish corruption. In some cases, voters lack any information at all about the corrupt behavior of particular politicians, rendering electoral action against corruption unlikely. But even in settings where information about corruption is

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

available, some political actors have incentives to report corruption information accurately, while others do not. As a result, corruption information is likely to be of variable credibility.²

In this article, we examine how both the credibility of a source of corruption information and citizen characteristics affect citizen responses to corruption. In the first instance, we argue that most individuals are sensitive to the credibility of sources that provide corruption information and calibrate their responses to that information accordingly. Beyond this, we also argue that cognitively and politically sophisticated voters are likely to be especially discerning of the credibility of information they encounter. Using an original nationally representative survey experiment in Brazil, we provide evidence that the most educated and knowledgeable Brazilians are more likely to adjust their responses to corruption allegations depending on the credibility of the source of those allegations—in our survey, a federal audit versus an opposition party. In our data, these sophisticated citizens are particularly skeptical of corruption information from less credible sources. Together these results point to the importance of the information environment in controlling corruption: the availability of more credible information about corruption should be associated with greater voter punishment of corruption. Our results also suggest a new mechanism that may explain the documented macro-level correlation between education and corruption control (Avelino, Biderman, and Mendes Lopes n.d.; Charron 2010; Glaeser and Saks 2006; Persson et al. 2003). Rather than having systematically different preferences over corruption, more educated citizens may simply be more likely to act on credible information about corruption, thus removing more corrupt politicians from office.

INFORMATION AVAILABILITY VERSUS INFORMATION CREDIBILITY

Democratic elections provide a clear opportunity for voters to pass judgment on politician performance, but citizens require information about government performance if they are to use that opportunity effectively to hold politicians to account (Manin, Przeworski, and Stokes 1999). Highlighting the importance of information for accountability, scholars have shown that greater 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 better to natural disasters (Besley and Burgess 2002; Sen 1981).

Whether making comparisons across or within countries, this literature has primarily framed concerns about the quality of information in terms of its quantity. Where media outlets or news coverage are more plentiful, it is assumed that information will be better. Similarly, existing studies of citizen responses to corruption, almost without exception, compare the presence of corruption information to either information about explicitly noncorrupt behavior or else to the absence of any relevant information at all (Anduiza, Gallego, and Muñoz 2013; Chong et al. 2015; de Figueiredo, Hidalgo, and Kasahara 2010; Ferraz and Finan 2008; Klačnja and Tucker 2013; Konstantinidis and Xezonakis 2013; Winters and Weitz-Shapiro 2013).³ In doing so, these authors assume, implicitly or explicitly, that the credibility of whatever information is disseminated is high and invariant.

The credibility of sources of political information in the real world of course often varies. Some actors—including, at times, certain government institutions, independent elements of the media, and watchdog nongovernmental organizations—have incentives to uncover and disseminate accurate information about government performance. In contrast, other actors have incentives to obscure, amplify, or even fabricate information to appeal to citizen preferences. In particular, political actors with electoral aims will be motivated to employ information to their advantage in pursuit of votes, making it difficult for citizens to take politicians' statements at face value. As Przeworski (1999, 38, n. 18) states more generally, "If 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." Incentives to obscure will be particularly strong for valence issues, where citizen preferences are widely shared and the advantages of appealing to those preferences are clear.

2. As we elaborate below, we define a source as credible for a particular piece of information when it does not have an incentive to lie about that information.

3. A paper by Muñoz, Anduiza, and Gallego (2016) using data from Spain is an important exception. These authors vary source credibility by having copartisan sources either confirm or deny corruption accusations. Our study abstracts from party names, which allows us to evaluate credibility effects for all respondents, including those with no party affiliation; our study is also distinguished by our examination of discernment across levels of political sophistication. A paper by Botero et al. (2015) also uses the language of source credibility. However, these authors operationalize credibility using individual-level affinity between a listener and a source. They take three sources that have incentives to provide accurate information in the Colombian context and examine whether respondents are more persuaded by sources they prefer. As such, their results reflect variation in individual source affinity rather than differences in source credibility as we define it here.

With respect to corruption, this means that citizen interest in punishing corruption creates countervailing pressures for the revelation of information about corrupt practices. Information about corruption might be uncovered and disseminated by neutral credible sources and also by opposition politicians who are motivated to reveal that information to help them unseat incumbent officials. At the same time, voter antipathy toward corruption may create incentives for some political actors to spread unsubstantiated or outright false allegations. As accusations of corruption proliferate, citizens must parse more credible from less credible accusations to maximize their ability to hold politicians to account for corruption by punishing only those who have actually committed wrongdoing.

In this article, we call attention to the possibility of variation in the credibility of information about corruption and generate and test expectations about how that variation should affect citizen responses. We argue that corruption is most likely to be punished when two conditions are met: first, that credible information about government performance is available, and second, that at least some citizens are able to identify that information as credible and distinguish it from less credible sources of information.

CITIZEN RESPONSES TO CREDIBLE INFORMATION

We define information as credible when the source does not have an incentive to lie about the information it disseminates.⁴ As such, source credibility is defined with respect to the relationship between a source and a particular piece of information it disseminates at a given time. Our definition thus distinguishes credibility from affinity, where the latter is defined with respect to the relationship between a listener and a source. For instance, if a normally partisan newspaper were to report on corruption within the political party that it typically supports, this information can be classified as relatively more credible (see Chiang and Knight 2011).⁵ In contrast, if the same newspaper were to report on corruption within a party it typically opposes, the newspaper would

be a less credible source for that piece of information. Other sources, including government bodies that are charged with disseminating truthful information, such as ombudsman's offices and audit courts, should generally be expected to provide credible information, so long as their employees' career incentives reward accuracy and there is no political interference in their operation.

Credibility does not guarantee accuracy. For any particular piece of information, a credible source may be inaccurate, and a less credible source may be accurate. In expectation, however, credible sources should be accurate more frequently than noncredible sources.⁶ To the extent that citizens can recognize source incentives and understand the connection between credibility and accuracy, citizens should respond more strongly to more credible sources of information. This leads us to our first hypothesis.

- H1.** Citizens should be more likely to update their beliefs and behavior in response to information from more credible, as compared to less credible, sources.

WHO DISCERNs? CREDIBILITY AND POLITICAL SOPHISTICATION

Although we expect citizens, on average, to be sensitive to a source's credibility, the extent of that sensitivity should vary systematically across groups of citizens. We know from the existing literature that politically aware and sophisticated citizens process and learn political information differently from their compatriots.⁷ Some scholars highlight how sophistication reduces sensitivity to new information and hence constrains political accountability. For example, when faced with well-reasoned arguments for and against contentious policy issues, political sophisticates are more likely to resist updating their beliefs or attitudes when compared with less sophisticated voters (Slothuus and de Vreese 2010; Taber, Cann, and Kucsova 2009; Taber and Lodge 2006). The work of other scholars, however, suggests that sophistication improves information processing and hence may facilitate accountability: for example, politically sophisticated individuals are better able to process certain heuristics (Lau and Redlawsk 2001)

4. In defining credibility, we build on work by Chiang and Knight (2011) and Lupia and McCubbins (1998), as well as Austen-Smith (1990, 76) and Przeworski (1999). While Lupia and McCubbins emphasize two dimensions to credibility—a source's expertise and its trustworthiness—we focus on the latter.

5. Another way to think of this is that disseminating information about an allied party is a costly signal. Lupia and McCubbins argue that when a source incurs a cost to disseminate some information, citizens should view that as a sign of credibility and be particularly responsive to that information. They describe verification and penalties for lying as other factors that might lead individuals to take cues even from sources for which they have no affinity. See also Sobel (1985) for a classic statement in economics on costly signals.

6. This assumes that access to information among sources is constant. If a credible source also has better access to information, the difference in expected accuracy will be even greater. Note that, in contrast, because affinity is inherently a relational concept, we have no expectation that sources preferred by a given individual are more likely to be accurate than less preferred sources.

7. Classic studies of political behavior in the United States demonstrate that politically knowledgeable citizens are the least sensitive to new information (Converse 1964; Zaller 1992), and similar results have been found in younger democracies (e.g., Brader and Tucker 2008; Lupu 2013).

and incorporate and understand new political frames (Chong and Druckman 2007; Druckman and Nelson 2003).

We argue that politically sophisticated respondents should be more sensitive to source credibility as compared to other respondents.⁸ Given our distinction between a source's credibility and mere affinity for a source, to assess a source's credibility, an individual must evaluate the relationship between the source and the particular piece of information the source disseminates. In the context we examine, doing so requires a combination of cognitive ability and an understanding of how the political system works. At the most basic level, political sophisticates are the most likely to recall the source of political information they encounter. In addition, sophisticates are the most likely to be capable of placing a source in its political context. That is, compared to other respondents, political sophisticates are more likely to understand the range of actors who provide political information and the strategic incentives of such actors.⁹ For example, while many individuals understand politics as a competition between opposing parties or candidates, we expect political sophisticates to take this a step further and to understand that an opposition may fabricate accusations against an incumbent politician. As such, politically sophisticated citizens should be the most capable of making informed inferences about the credibility of a given source for the particular piece of information presented.

While we argue that sophistication should always increase discernment, the extent to which we will be able to observe this depends on the presence of countervailing factors that dampen political sophisticates' interest in acting on their capacity to discern. As noted above, others have found that politically sophisticated citizens are likely to employ motivated reasoning when responding to new information on issues that are contentious or that evoke strong partisan biases. However, not all issues in the political space divide political opinion in the same way as contentious issues like abortion or affirmative action. For issues that are best understood as valence issues—like corruption—we expect that politically sophisticated citizens' greater capacity to evaluate political information should dominate. As a consequence, sophisticates should be the most likely to respond differentially to valence information of variable credibility.¹⁰ This leads us to our second hypothesis.

8. This view is similar to the arguments found in Alt, Lassen, and Marshall (2016).

9. In our design, we are not able to independently identify the extent to which discernment is driven by greater cognitive ability, greater understanding of politics, or the combination of the two.

10. It is also possible that more sophisticated individuals have different preferences from their fellow citizens, and this also could produce different patterns in responses across groups. In our survey, respondent attitudes

H2. More sophisticated citizens are more likely to respond to valence information in a way that varies with the credibility of the information source.

In particular, as compared to their less sophisticated counterparts, more sophisticated citizens should...

H2A. give more credence to information that comes from more credible sources

and

H2B. give less credence to information that comes from less credible sources.

EMPIRICAL SETTING: CORRUPTION IN BRAZIL

We test our hypotheses empirically through the use of experimental vignettes about municipal corruption embedded into a nationally representative survey in Brazil. In Brazil, corruption can clearly be considered a negative valence issue of high importance to citizens. For example, in an open-ended survey question that asks respondents to list the single most "serious" problem facing their country, Brazilians have consistently listed corruption as one of the top issues of concern over the past decade.¹¹ Both mass protests over the last few years and the results of recent survey work demonstrate the depth of citizen frustration and dissatisfaction with what is understood to be institutionalized political corruption in Brazil (e.g., Balán 2014; Power and Taylor 2011; Winters and Weitz-Shapiro 2013, 2014).¹² As a result, the information contained in our survey vignettes should be readily understood by respondents.

More generally, Brazil is a useful setting because it provides a very different context for the study of citizen discernment from those that have been used in the literature to date. Among scholars who have explored citizen responsiveness to information of variable credibility, those tests have been limited to wealthy, highly educated, and relatively stable democracies. In a few studies, scholars have found

toward corruption are very similar across groups, and yet sensitivity to the source of corruption information varies substantially.

11. In the 2006–12 AmericasBarometer Surveys, the share of Brazilians who mentioned corruption ranged from approximately 8% to 14%, and corruption ranged from the second to fourth most frequent response.

12. Even scholars who highlight the ability of corrupt officials to be re-elected point to Brazilian citizens' distaste for corruption (e.g., Rennó 2011). The massive ongoing scandal surrounding Brazil's state-owned oil company, Petrobras, emerged after our survey work was completed, but citizen reactions to the scandal are indicative of widespread frustration with corruption. See Arruda de Almeida and Zagaris (2015) for more details.

evidence that source credibility matters to citizens in such settings when they are making decisions of a more abstract nature,¹³ as well as for political decisions.¹⁴ In light of our second hypothesis (that sophistication facilitates discernment), Brazil can be understood as a hard case for testing our first hypothesis—that citizens as a whole will be responsive to source credibility. Brazil's historically low levels of educational achievement and quality (e.g., Birdsall and Sabot 1996; Hanushek and Woessmann 2012) should make it harder for the average respondent to recall the source of information and to discern source credibility. In addition, the country's relatively short recent history of democratic competition (dating to 1985) and multiparty system with frequently shifting partisan alliances (e.g., Desposato 2006; Mainwaring 1999; however, see Figueiredo and Limongi 2000) may make it harder for citizens to understand the strategic incentives and behavior of political actors. Given these characteristics, if we find evidence that Brazilian citizens are sensitive to source credibility (hypothesis 1), we should expect this result to travel widely.¹⁵

VARYING INFORMATION CREDIBILITY IN A SURVEY EXPERIMENT

To examine how Brazilians respond to variation in the credibility of information about corruption, we conducted an original nationally representative survey experiment in May 2013. The survey was administered by the Instituto Brasileiro de Opinião Pública e Estatística (IBOPE; Brazilian Institute of Public Opinion and Statistics), Brazil's oldest and largest sur-

vey firm, to 2,002 individuals across 25 of Brazil's 27 states in a multistage sample, with PPS (probability proportional to size) sampling of cities across the states and then quota sampling at the level of the individual. The sample resembles the general population in terms of demographics.¹⁶

We include a vignette in the survey that describes a hypothetical mayor, and we randomly vary elements of the vignette, including the credibility of the source of corruption information. As we describe in the appendix (available online), the characteristics of the respondents who received each vignette are balanced across the treatment conditions. 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 citizen responses to different types of politician behavior, including clientelism (Weitz-Shapiro 2014) and corruption (Anduiza et al. 2013; Klačnja and Tucker 2013; Muñoz et al. 2016; Winters and Weitz-Shapiro 2013). Using a survey experiment that describes a hypothetical mayor allows us to ethically vary information credibility.¹⁷ In addition, with respect to our second hypothesis, which examines how political sophistication mediates responses to source credibility, by describing an invented mayor, we eliminate the possibility that political sophistication merely serves as a proxy for preexisting knowledge about a real-world politician.

Respondents in the survey are randomly assigned to hear one of seven versions of the vignette. All versions begin by describing the same high-performing mayor:¹⁸

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

13. Lupia and McCubbins (1998) ask respondents to predict the outcome of a coin toss, while Boudreau (2009) has citizens answer math problems.

14. In the United States, Chiang and Knight (2011) examine the effects of "surprising" (i.e., more credible) newspaper endorsements, while Druckman (2001) shows that respondents in a lab are more susceptible to framing effects from sources who are viewed as knowledgeable and trustworthy. Druckman deems these sources to be credible, although the operationalization makes it difficult to isolate source credibility from affinity. Papers by Alt et al. (2016) and Muñoz et al. (2016) examine the effects of information of differential credibility on economic voting in Denmark and responses to corruption in Spain. In contrast to both of these studies, we do not include named political parties as information sources, which allows us to examine the effects of variable credibility for all citizens, not just partisans. This is important in light of the many countries where partisan identity is limited or in decline (Whiteley 2011). Similar to our results here, Alt et al. (2015) find evidence that credibility effects are heightened among political sophisticates.

15. On the other hand, the variation in educational attainment in Brazil may make it somewhat easier for us to find evidence of hypothesis 2—that is, differences in discernment across groups of citizens—as compared to a country with more uniform levels of education. We thank an anonymous reviewer for this point.

16. For more details on the sampling procedure, see the appendix.

17. In contrast, if a field experiment on corruption provided unreliable information, this would raise ethical concerns. As such, the use of observational data and/or survey experiments is a preferable tool for examining the effects of misleading information on citizen behavior.

18. Following convention in Brazil, the mayor is referred to by his first name. We focus on health services and transportation because these are highly salient issues where municipalities exercise substantial policy control.

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

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.¹⁹ We explore that variation elsewhere (Winters and Weitz-Shapiro 2016); here we pool responses to prompts with the same source credibility, regardless of whether the mayor or city officials was mentioned.²⁰

The source of corruption accusations is described as either “the [unnamed] opposition party” or “a federal audit.” Including these two contrasting sources allows us to vary the credibility of the accusations for all respondents, with the opposition party accusations inherently less credible than those coming from a federal audit. None of the vignettes mention a political party by name, which allows us to avoid cueing source affinity for most respondents.²¹

Recall that we define credibility by the relationship between a source and the information it disseminates: a credible source has no incentive to lie about a particular piece of information. Beginning with the low-credibility source, we treat accusations of corruption made by members of an opposition party as inherently less credible because of the self-serving nature of those accusations. An opposition party in electoral competition with the incumbent stands to benefit directly from any electoral punishment of the incumbent.²² 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 creates incentive for falsification and thus decreases the credibility of those claims.

In contrast, we treat a “federal audit” as a relatively more credible source of corruption information about Brazilian mayors. 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 500,000.²³ These audits are conducted by highly skilled, well-paid bureaucrats who have been selected through competitive processes. Drawing on public employee records, Bersch, Praça, and Taylor (2013) place the auditing agency well above the median federal agency in Brazil in terms of both technical capacity and political autonomy. In contrast to an opposition party, CGU staffers have no positional incentive to fabricate information about corruption for personal gain.²⁴ The audits the CGU produces are widely recognized by academics and policy makers as politically impartial and competently executed. Furthermore, existing literature provides evidence that citizens take these audits seriously. For example, Ferraz and Finan (2008) show that mayoral reelection rates are lower in municipalities where the CGU revealed corruption before an election as compared to municipalities where the CGU revealed similar levels of corruption but after voting had taken place. Timmons and Garfias (2015) show that citizens become less likely to pay their property taxes and more likely to mobilize for the adoption of participatory budgeting institutions in municipalities where CGU audits reveal corruption. Also consistent with the claim that the federal government is a more credible source of corruption information than an opposition party, public opinion surveys in Brazil show higher public confidence in the federal government than in political parties.²⁵ Taken together, the institutional characteristics, positional incentives, and evidence from public opinion

19. In Portuguese, the latter referenced “*ocupantes de cargos na Prefeitura*.” The full Portuguese text of the prompts is found in the appendix.

20. Compared to those reported here, results are substantively the same or even stronger if we replicate the analyses using only vignettes that mention the mayor. These results are reported in the appendix.

21. We discuss two possible exceptions in depth below: (i) in the absence of explicit reference to a named party, some respondents may project the partisan identity of the mayor of the municipality in which they live onto the hypothetical mayor named in the vignette, and (ii) PT partisans may react more strongly to information coming from the federal government.

22. Note that we would classify our sources similarly even if we followed Lupia and McCubbins (1998) in defining credibility by both expertise and trustworthiness. This is because federal audits are both knowledgeable and trustworthy, while the opposing party is not trustworthy and may not even be knowledgeable. We thank an anonymous reviewer for this point.

23. Brollo et al. (2013), Ferraz and Finan (2008, 2011), and Litschig and Zamboni (2015) all provide extensive details on the program. In May 2016, under President Michel Temer, the functions of the CGU were absorbed into the newly established Ministry of Transparency, Supervision, and Control.

24. Of course, any agency may make mistakes, and thus there is no guarantee that information about municipal corruption from a federal audit will be accurate; however, in expectation, it is more likely to be accurate than that distributed by an opposition party.

25. The 2010 AmericasBarometer survey in Brazil asked respondents their degree of confidence/trust (*confiança*) in a variety of institutions. The mean response for the federal government was 4.4 on a seven-point scale, and about 37% of respondents placed their confidence in the highest two categories. In contrast, trust in political parties elicited a mean response of 2.97, with only 9% rating their trust as falling into the highest two categories. As survey responses, these results likely reflect affinity to some extent, but they are suggestive of the relative credibility of the two sources we use.

Table 1. Experimental Vignettes

Condition	Text of Vignette
Pure control	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.
	Pure Control Plus:
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, 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.
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.

surveys all point to the greater credibility of federal audits, as compared to an opposition party, as a source of corruption information about a sitting mayor.²⁶

After hearing the vignette to which he or she was randomly assigned—high or low credibility, or one of the two control conditions—each respondent was asked a series of questions, including two designed to gauge his or her opinion of the hypothetical mayor. We focus here on a question that asked the respondent to evaluate how likely he or she would be to vote for the mayor, using a scale from 1 (not at all likely) to 4 (very likely).²⁷

26. Focus groups held by the authors in the city of São Paulo in August 2013 also support this conclusion. For example, in a session held on August 13, 2013, when asked whether federal officials could detect corruption, one respondent replied: “I think so. Probably yes. Because they will delay, but they go in-depth.... If it were another candidate [making the accusations], no, then I would try to find out if it was [really corruption], because another candidate is always trying to burn the other” (authors’ translation).

27. A second question asked the respondent to evaluate the hypothetical mayor on a scale from 1 to 7, with 1 indicating a “terrible” mayor and 7 indicating an “excellent” one. In the appendix, we show that the results are robust to the use of this feeling thermometer. As we describe in the appendix, we believe that the vignettes were not administered in a completely random order in the field. However, examining balance on

We expect the differences in source credibility to affect all respondents (hypothesis 1), with more sophisticated respondents being particularly sensitive to these differences (hypothesis 2), giving more credence to accusations from the federal government (hypothesis 2a) and being more skeptical of accusations from an opposition party (hypothesis 2b).

Political sophistication can be understood as a “bundle” concept, one which combines elements of a variety of characteristics, including knowledge of specific political facts, attentiveness to politics, and cognitive sophistication, and yet is not wholly made up of any one of these (Gomez and Wilson 2007; Sniderman, Brody, and Tetlock 1991). In survey work in the United States, political sophistication is typically measured through a battery of questions on specific knowledge of political actors and issues, although recent work points to some drawbacks of these questions and highlights the extent to which “don’t know” responses and wrong answers can be sensitive to question wording, time constraints, and incentives

observable characteristics using two different methods, we find no more differences across treatment groups than we would expect due to random chance. We nonetheless replicate the results reported in tables 2, 3, and 4 using regression analyses that control for multiple covariates; the substantive results are unchanged in all cases. The balance tests and regression results are reported in the appendix.

(Boudreau and Lupia 2011; Mondak and Davis 2001; Prior and Lupia 2008). Much less is known about the appropriateness of such a knowledge battery in younger democracies like Brazil, where institutional weakness and volatility may mean that specific factual knowledge about politics is less telling than in the United States.²⁸ We thus rely on three possible measures of sophistication in our survey—educational attainment, accuracy in answering two political knowledge questions, and frequency of political discussion. While none of these is a perfect measure, each taps into a different element—cognitive ability, knowledge of the political system, and interest in politics—of the constituent parts of political sophistication. As discussed below, these measures of sophistication are positively correlated yet also distinct, and we find support for our main hypotheses using all three measures.²⁹

PUNISHING CORRUPTION AND DISCERNING SOURCES

We test our hypotheses using respondents' vote intention on a four-point scale. Taking advantage of the experimental nature of the data, we rely on simple difference-in-means tests throughout. Because of the small number of response categories, we also present significance tests from Wilcoxon Rank Sum (Mann-Whitney) tests. Significance levels from the two tests are nearly identical for all comparisons.

To begin, we examine whether respondents expressed less support for mayors linked to corruption than for those not linked to corruption, comparing responses in our two control conditions with those in the five conditions that contained any information about corruption.³⁰ Our results clearly show the strong, negative effect of corruption in-

formation 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 four-point scale. The high vote intention is likely explained by the positive description of the mayor's performance and the absence of any partisan identification, eliminating a cue that might generate opposition among at least 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 substantively large and statistically significant. 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.

Our first hypothesis predicts that, on average, survey respondents will be more responsive to more credible, as opposed to less credible, allegations of corruption. The results in table 2 show that this is indeed the case. The second row 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 among respondents who heard a similar accusation of corruption attributed to an unnamed opposition party. Respondents have a less punitive response when accusations of corruption come from a relatively less credible source, and this difference is highly statistically significant.

It is worth noting, as is evident in the first three columns, that all corruption information is punished regardless of its source; respondents in both the pure control group, who hear no corruption information, and in the control group, where the mayor is explicitly described as clean, report a much higher average vote intention of 3.38. This suggests that allegations of corruption, even those made by less credible sources, are treated as plausible by respondents. As noted above, less credible information may in fact be accurate, and so it is not surprising that allegations that come from a less credible source are not discounted entirely.³¹ In a context like Brazil, where many citizens believe that corruption is widespread, voters may rationally treat even low-credibility allegations of corruption as plausible.³² That said,

28. In a setting where informal rules and institutions are equally or even more important than their formal counterparts (Helmke and Levitsky 2006), different types of political knowledge may be relevant or useful. As part of a related project, we are working on developing alternative knowledge batteries.

29. See the appendix for cross-tabulations showing the relationships between the three variables.

30. Uniquely for this literature, our experiment included two control conditions, which offer insight into the assumptions that respondents make about political corruption when they do not receive information about that dimension of performance. In the pure control condition, survey respondents heard information only about the mayor's strong performance; 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.) As table 2 shows, responses to mayors described in these two vignettes are essentially identical. 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.

31. In equilibrium, we would not expect opposition parties to play a strategy in which they always make corruption accusations. Doing so runs the risk of driving their credibility to zero, since voters might update their priors to think of every opposition party accusation as "cheap talk." An opposition party that plays a strategy in which it sometimes makes false accusations and always reiterates true accusations from other sources should lead voters to sometimes believe opposition party accusations. Our results therefore reflect a plausible real world equilibrium in which voters discount, but do not completely disregard, opposition party accusations.

32. Winters and Weitz-Shapiro (2013), for example, find that 78% of Brazilian respondents say that it is "somewhat" or "very" common for local politicians to take bribes.

Table 2. Source Credibility and Vote Intention

Treatment Condition	Credible Accusations	Less Credible Accusations	Unsourcesd Accusations	Control with Clean Mayor	Pure Control
1. <i>N</i>	553	547	278	280	280
2. Average response to “How likely are you to vote for the mayor?”	2.07	2.37	2.18	3.39	3.38
Standard error	.05	.05	.07	.06	.06
3. Estimated difference from pure control	−1.30 (<i>p</i> < .01) [<i>p</i> < .01]	−1.01 (<i>p</i> < .01) [<i>p</i> < .01]	−1.19 (<i>p</i> < .01) [<i>p</i> < .01]	.02 (<i>p</i> < .83) [<i>p</i> < .74]	
4. Estimated difference from control with clean mayor	−1.31 (<i>p</i> < .01) [<i>p</i> < .01]	−1.03 (<i>p</i> < .01) [<i>p</i> < .01]	−1.21 (<i>p</i> < .01) [<i>p</i> < .01]		
5. Estimated difference from unsourced accusations	−.10 (<i>p</i> < .21) [<i>p</i> < .22]	.18 (<i>p</i> < .03) [<i>p</i> < .03]			
6. Estimated difference from less credible accusations	−.29 (<i>p</i> < .01) [<i>p</i> < .01]				

Note. Cells in rows 3–6 present difference-in-means tests among the means reported in row 2. The *p*-values (in parentheses) are from a *t*-test of the null hypothesis of no difference in means between the two groups. The *p*-values in squared brackets are from a Wilcoxon rank sum test of the null hypothesis of no difference in the distribution of the outcome variable between the two groups. The *p*-values from randomization inference tests of the sharp null hypothesis of no unit-level treatment effect are identical.

even with an apparent inclination to believe corruption information regardless of source, the shift in mean vote intention prompted by the more credible accusations of corruption is substantial—about one-quarter of the size of the effect of any corruption accusations at all on vote intention. The credibility of a source of information, therefore, has considerable additional explanatory power for understanding citizen reactions to corruption allegations.

Further highlighting the fact that respondents were attentive to the source of information in the prompt, the third column of table 2 shows that the mean vote intention for those who were told about corruption but not given the information source falls between the mean vote intention of respondents who received a credible (federal audit) versus a less credible (opposition party) cue, although it is only significantly different from the latter.³³ As a group, our respon-

dents appear to recognize the self-serving nature of corruption allegations and therefore 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 source credibility.

VOTER SOPHISTICATION AND INFORMATION CREDIBILITY

Our second hypothesis is that more sophisticated individuals will be especially sensitive to the credibility of the source presenting information about politician malfeasance. This should generate a larger gap in their responses to relatively more credible versus less credible allegations, whereas the least sophisticated will be less able to discern source credibility and hence will have more similar reactions to information coming from more credible and less credible sources (hypothesis 2). In the context of our experiment, more sophisticated voters are more likely to understand that opposition accusations of corruption may be motivated by self-interest, making their veracity more suspect, and they therefore should

33. Note that when we replicate this table using vignettes with specific accusations against the mayor only (and not those that contain accusations against municipal officials), both differences are at least marginally statistically significant at conventional levels. Results are reported in the appendix.

be less punitive than less sophisticated voters when they hear such accusations (hypothesis 2b). More sophisticated respondents are also more likely to be familiar with the federal bureaucracy's reputation for competence and high capacity and therefore are more likely than less sophisticated respondents to punish accusations from such a source (hypothesis 2a). In contrast, less sophisticated respondents should react to the vignettes in ways that suggest more limited differentiation between the two sources of corruption allegations.

As noted above, we operationalize voter sophistication in three different ways, using the respondent's level of educational attainment, his or her response to two political knowledge questions, and his or her self-reported level of political discussion. We present results below using dichotomous measures that group respondents into the more and less sophisticated categories for each variable.³⁴ For education, we split the sample between the 15% of respondents who have some tertiary education and the remainder who do not. 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.³⁵ Twenty-one percent of the sample answered one of the two questions correctly, while 17% responded correctly to both questions, and a clear majority—62% of respondents—answered neither question correctly.³⁶ For political discussion, we compare those who report discussing politics very frequently or frequently (23% of the sample) to those who rarely or never discuss politics.

For each of the three political sophistication comparisons, table 3 presents respondents' mean vote intention for the mayor on a four-point scale, separated out by more credible and less credible allegations. Differences in reactions to the more credible and less credible accusations are found in the third row of the table and serve as an estimate of respondents' propensity to discern between sources with dif-

ferential credibility. We find clear support for hypothesis 2 across all three measures of sophistication. More educated respondents, more politically knowledgeable respondents, and respondents who engage in more political discussion all show greater discernment between more credible and less credible information than do those who are less educated, less politically knowledgeable, or less likely to discuss politics. While all respondents differentiate between more credible and less credible sources, the estimated amount of differentiation (the difference in vote intention after hearing more credible vs. less credible information) is about twice as large among sophisticateds.³⁷

Table 3 also allows us to test hypotheses 2a and 2b, which state that, compared to less sophisticated citizens, individuals with greater sophistication should give more credence to credible information and less credence to less credible information. Beginning with the latter, we find relatively robust evidence that more sophisticated respondents are more forgiving of corruption information when it comes from a less credible source. For all three measures of political sophistication, more sophisticated respondents have a higher vote intention for the mayor than less sophisticated respondents when corruption information comes from the relatively less credible source (the opposition party). In addition, for two measures of sophistication (political knowledge and political sophistication), differences across more sophisticated versus less sophisticated respondents are statistically significant.³⁸ On the other hand, we do not find evidence in favor of hypothesis 2a. In the context of our survey, more sophisticated and less sophisticated respondents treat accusations from the relatively more credible source (the federal audit) in a statistically indistinguishable manner.³⁹

34. Results for the full range of each variable and for an additive index of all three variables are included in the appendix. They are consistent with those presented here in showing that discernment increases with political sophistication, although in the case of political knowledge, respondents in the intermediate knowledge category show more limited discernment than either high or low knowledge respondents.

35. We accepted either 26 or 27 as the correct answer for the number of states (accounting for the federal district) and any variant on Cristina Fernández de Kirchner's name was counted as correct. Precise wording is in the appendix.

36. The Spearman's rho and Pearson's *r* statistics for the correlation between education and political knowledge are both about 0.42. Other surveys in Brazil have included a larger battery of political knowledge questions—most notably those conducted by Baker (2009), Baker, Ames, and Renno (2006), and the 2010 Brazilian Electoral Panel Study (Ames et al. 2013). The correlation between education and political knowledge in those studies is very similar to what we find here. Cross-tabulations between all three measures of sophistication are included in the appendix.

37. The differences in the estimated CATEs (conditional average treatment effects) between more sophisticated and less sophisticated respondents are not statistically significant at conventional levels, but given the small number of sophisticateds in our survey, we do not find that surprising. As we show in the appendix, when we use the full range of the education measure, differences in discernment between the least educated and most educated groups are statistically significant at the $p < .06$ level. When we limit the analysis to specific vignettes only, we find that the CATEs are at least marginally significantly different from one another for all three measures of sophistication.

38. For knowledge, $\delta = .29$ ($p < .02$), and for discussion, $\delta = .30$ ($p < .01$).

39. In future empirical work, we will explore whether this holds across different operationalizations of the more credible source. Note that a series of additional comparisons show that, for all three measures of sophistication (education, knowledge, and interest), the gap in vote intention between the control conditions and the credible accusation conditions is larger for more sophisticated respondents, although confidence intervals for these differences overlap for more and less sophisticated respondents. These differences reflect the fact that more sophisticated respondents re-

Table 3. Respondent Sophistication and Responsiveness to Source Credibility

"How likely are you to vote for the mayor?"	Completed High School or Less (1)	Some Tertiary Education or More (2)	Less Politically Knowledgeable (3)	Most Politically Knowledgeable (4)	Less Political Discussion (5)	Most Political Discussion (6)
Less credible accusations	2.35 (.05) N = 457	2.44 (.12) N = 90	2.31 (.05) N = 443	2.60 (.11) N = 104	2.30 (.05) N = 419	2.60 (.10) N = 124
More credible accusations	2.10 (.05) N = 477	1.97 (.12) N = 76	2.08 (.05) N = 459	2.09 (.11) N = 94	2.06 (.05) N = 440	2.16 (.11) N = 104
Difference between credible and less credible accusations	.25 (.07)	.47 (.17)	.23 (.07)	.51 (.16)	.24 (.07)	.43 (.15)
<i>p</i> -value on H ₀ : no difference	.01 [.01]	.01 [.01]	.01 [.01]	.01 [.01]	.01 [.01]	.01 [.01]
<i>p</i> -value on H ₀ : no difference between CATEs		.23		.11		.24

Note. The *p*-values for the null hypothesis on the conditional average treatment effect (CATE) for each group and for the null hypothesis of different reactions to each treatment across the two groups are based on difference-in-means *t*-tests and (in squared brackets) Wilcoxon rank sum tests. The *p*-values for differences across the CATEs are based on the randomization inference tests described in Gerber and Green (2012). Standard errors are in parentheses.

ALTERNATIVE EXPLANATIONS AND EXTERNAL VALIDITY

Our results demonstrate that, as a group, Brazilian respondents distinguish between more credible and less credible sources of corruption information. In addition, we find evidence that more sophisticated citizens differentiate most strongly between information provided by a federal audit and an opposition party and that this group is particularly wary of information provided by the latter. We argue that these effects are driven by political sophisticates' greater ability to assess source credibility. To further support our claim, we also consider and ultimately reject an alternative explanation for the patterns we observe—that the results reflect different attitudes among respondents toward specific political parties.⁴⁰

Although the experimental vignette did not assign a specific partisan identity to either "Mayor Carlos" or the hypo-

thetical local opposition party, it is possible that respondents understood the survey with reference to the main ruling and opposition parties in national politics or to those governing in their own city.⁴¹ We explore both of these possibilities and show that while partisanship does affect responses to some degree, our results for hypotheses 1 and 2 continue to be supported even when we take into account partisan preferences among different groups of respondents.⁴²

We begin with the possibility that, because the Workers' Party (PT; Partido dos Trabalhadores) held Brazil's presidency

port higher vote intention for candidates in the control conditions. These results are included in the appendix.

40. Note that partisanship in Brazil is comparatively weak (see Samuels and Zucco [2014, 2015] for recent discussion). In our sample, only 37% of respondents report a partisan identity, a share that is consistent with other recent work on partisanship in Brazil.

41. At the national level, the PT has held the presidency since the election of Luis Inácio Lula da Silva (Lula) in 2002. Brazil's multiparty federal system makes it somewhat difficult to identify which parties are allies or opponents of the ruling PT. At the national level, the PSDB (Partido da Social Democracia Brasileira, a center-right party) is clearly in the opposition. In the 2014 election, the PSDB candidate for president narrowly lost to the PT's Dilma Rousseff, whose running mate came from the PMDB (Partido do Movimento Democrático Brasileiro, a catch-all party). Nonetheless, coalitions in Brazil's states vary widely, and the PSDB and the PMDB are the only parties, apart from the PT, with more than a minimal number of partisans in the electorate (Samuels and Zucco 2014; Winters and Weitz-Shapiro 2014).

42. The fact that partisan preferences can affect citizen responses to corruption even in a context where party identification is weak is itself of note and may merit further research.

from 2003 to 2016, survey respondents who are PT sympathizers give more credence to information that comes from a federal audit. If this is the case and a sufficiently large number of respondents are PT supporters, it is possible that our main results reflect greater affinity for the PT rather than the relatively greater credibility of federal audits as a source of corruption information. To examine this possibility, we replicate our analyses for PT and non-PT sympathizers separately (see the extensive discussion and replication of relevant tables in the appendix). We do find evidence that, when compared to other respondents, PT sympathizers are more likely to punish a mayor when accusations come from the federal audit. This suggests that, for these respondents, both credibility and affinity may be at play. At the same time, however, both PT and non-PT respondents react to opposition accusations in a very similar manner, showing greater skepticism of this unnamed opposition party when compared to unnamed sources or the federal audit. To ensure our results are not driven by PT partisans, we replicate the tests of our main hypotheses excluding PT partisans (about 27% of respondents). Results presented in the appendix show that even with this somewhat smaller sample, there is clear evidence of discernment between more credible and less credible sources (hypothesis 1) and of greater discernment among sophisticates (hypothesis 2).

Separately, we also consider the possibility that, although respondents were explicitly instructed to think of a “different city in Brazil” in the vignette, some respondents may project the partisan identity of their own city’s mayor onto the hypothetical “Mayor Carlos.” Because we know the city in which each respondent resides, we are able to identify the party of each respondent’s local mayor at the time of the survey and combine that with the respondent’s own self-reported partisan identity to create three categories: matched partisans (respondents who share a party identity with their sitting mayor), unmatched partisans (respondents who are partisans of a party different from that of their sitting mayor), and nonpartisans. Given the small number of self-reported partisans in the sample and the fact that only some of these partisans reside in a city where the mayor is from their preferred party, the number of matched partisans in our sample is very small. As we show in the appendix, we find some evidence that matched partisans have a somewhat higher vote intention for “Mayor Carlos” and also that this group is less punitive when accusations come from a federal audit. At the same time, our results indicate that all groups of respondents—both matched partisans and others—punish corruption and discern between more credible and less credible accusations (hypothesis 1). In addition, we find clear support for hypothesis 2—sophisticates are most likely to discern most acutely between more credible and less credible sources of

corruption information—even when we exclude all partisans from our sample.

DISCUSSION

The availability of information about politician performance is widely acknowledged to be crucial for political accountability for corruption as well as more broadly. However, for political accountability to be achieved, not just any type of information will do: citizens must be able to identify credible information about politician performance. Although it is well established that citizens rely on cues from trusted sources to obtain political information and make political decisions, we know far less about whether and what types of citizens discern between sources of political information based on the sources’ credibility. In this article, we test hypotheses about citizen responsiveness to source credibility using original survey experimental data on reactions to political corruption in Brazil.

We first hypothesize that, on average, citizens are capable of discernment and will respond differently to corruption allegations based on the credibility of the source of that information. Additionally, 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 sophisticated voters to have the cognitive skills and political understanding necessary for better discernment, believing credible information more readily and being more skeptical of less credible information as compared to the least sophisticated citizens. Results from our survey experiment provide clear evidence that information credibility affects how the vast majority of Brazilian respondents react to accusations of corruption. All except the least-educated distinguish between more credible and less credible information, and politically sophisticated citizens discern the most. In our study, this is particularly due to their greater skepticism of less credible sources.

Our findings are useful in interpreting macro-level analyses of the correlates of corruption. Recent work has argued that education is linked to better control of corruption, and there is some evidence for the association subnationally in the United States (Glaeser and Saks 2006), in other countries (Avelino et al., n.d.; Charron 2010), and cross-nationally (Persson et al. 2003). Our study suggests a new mechanism through which high educational attainment might decrease corruption. We show that education may improve accountability, not through changes in preferences associated with educational achievement but rather because more educated individuals are better able to discern more credible from less credible information and therefore are less likely to act on the latter. 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.

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