

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

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Abstract: Citizens in a democracy can only hold elected officials to account if they are able to correctly assess politicians' performance. While there is ample evidence that individuals learn and take political cues from favored sources, these sources may have incentives to dissemble. When will citizens discern between more and less credible source of political information? We examine citizen responsiveness to information of variable credibility in Brazil, a setting that poses a number of challenges to citizen discernment. Using data from an original survey experiment on political corruption, we show that all respondents except for the very least educated are able to discern between sources of information with differing credibility. We also show that the ability to discern more from less credible information is increasing in cognitive and political sophistication. Our findings provide the first direct empirical evidence that citizens in a middle-income democracy are sensitive to information credibility.

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Democratic elections provide citizens the opportunity to hold politicians to account by rewarding good performance and punishing poor performance or malfeasance. Citizens can only do so, however, if they are able to obtain accurate information about politicians' actions (Manin, Przeworski, and Stokes 1999). Are citizens able to distinguish more from less reliable information in a crowded information environment? From some of the earliest work on mass public opinion (e.g., Campbell et al. 1960), we know that few citizens enjoy extensive knowledge of, or interest in, complex political issues. Subsequent work, however, highlights the extent to which citizens can instead rely on cues and other information shortcuts to make decisions about politics (e.g., Sniderman, Brody, and Tetlock 1991; Popkin 1991). Nonetheless, there is an important gap in our understanding of how citizen processing of political information might vary with the source of that information. While it is well established that citizens respond to sources for which they have an affinity, we know surprisingly little about how or whether citizens learn and update their beliefs from cues that are provided by more or less *credible* sources for which they may not have any particular affinity.

The extent to which citizens respond to credible cues has important normative implications. As Kuklinski and Quirk (2000) argue, the fact that citizens follow cues provided by favored political parties or other trusted actors does not mean that citizens make "good" political decisions as a result. Source affinity is an inherently relational concept defined by a listener's attitude toward a particular source: there is no necessary relationship between an individual's affinity for a source and the source's accuracy. In contrast, source credibility is defined by the relationship between a source and the information it disseminates, regardless of the individual listener's affinity. A source's credibility reflects whether the source has any incentives to lie about a particular piece of information. In expectation, then, a credible source is more likely to

be accurate than a non-credible source.¹ Understanding the conditions under which citizens discern source credibility is therefore crucial for understanding political accountability, and yet has been the subject of very little empirical study to date.

In this paper, we argue that all citizens are likely to discern source credibility, but that political sophisticates should be the most discerning. In support of these arguments, we provide some of the first empirical evidence that systematically explores citizen responsiveness to information of variable credibility. We do so through the lens of political corruption in Brazil, a subject matter and a setting that offer unique analytical leverage for this question. As a middle-income democracy with relatively low educational achievement and relatively high institutional volatility, the Brazilian context can be understood as a “hard” context in which to observe citizen discernment. If we find evidence that citizens are sensitive to source credibility in Brazil, we should expect to find it in many other contexts. We focus on political corruption because it is widely rejected by citizens.² Corruption’s status as a negative valence issue makes it easier for us to isolate how different groups of citizens respond to variation in source credibility.³

¹ Of course, credibility does not guarantee accuracy – in any particular case, a credible source may be incorrect, and a less credible source may be accurate.

² In Transparency International’s 2013 Global Corruption Barometer, for example, an average of 51% of respondents across 107 countries labeled corruption in the public sector a “very serious problem,” the highest category on a five-point scale (Hardoon and Heinrich 2013). The average score across all the countries surveyed was 4.1. Citizen rejection of corruption is supported in a variety of national-level studies, as well.

³ By valence issue, we mean that, all else equal, citizens will want to punish corrupt politicians. In fact, there is some evidence that citizens will punish corruption even when all else is not equal—Winters and Weitz-Shapiro (2013), for example, find that citizens prefer a poorly performing, clean politician, to a well performing, corrupt one.

The results of an original survey experiment show that all but the least educated respondents are differentially responsive to sources based on their credibility. We are thus able to provide evidence that the vast majority of citizens in a middle-income, less-educated democracy respond differently to the same information depending on the credibility of the source that provides that information. We also show that highly educated and sophisticated citizens are the most discerning of source credibility. This result informs a debate in the literature about the sensitivity of political sophisticates to source cues by showing that for valence, as compared to contentious, issues, we see greater responsiveness to source incentives among political sophisticates.

Information processing and accountability

Although citizens require reliable information about government performance if they are to hold politicians to account, the quality of information available in a democracy is inevitably variable. Some actors – such as certain government institutions, independent elements of the media, and watchdog NGOs – have incentives to uncover and disseminate accurate information, but some other actors do not. Furthermore, political actors with electoral aims will be motivated 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 politicians’ 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.” In light of these conflicting incentives, how do citizens learn about politician performance?

Do citizens discern source credibility?

In order to answer this question, we turn first to the ample literature, developed mostly in the United States, that demonstrates that citizens rely on cognitive shortcuts for learning political information and making political decisions. Dating back to classic statements by Campbell et al. (1960) and Zaller (1992), most authors argue that citizens follow cues from actors with whom they share an affinity of some kind or another. While signals from political parties with which voters identify and endorsements from media outlets or prominent elites that voters trust serve as particularly powerful cues, it has been shown that individuals use a wide range of cues when making political decisions, including their assessment of a speaker's personal character, their shared identity with a speaker or his followers, and even their impressions of a speaker's physical appearance.⁴ Regardless of the precise cues they rely on, a large body of work shows that many citizens seek out information consistent with their preexisting worldviews and 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). Thus, when faced with the "self-serving" politicians Przeworski describes, existing research from the long-standing wealthy democracies supports the claim that individuals learn from and believe favored sources, which do not necessarily have any incentive to report the truth.

In contrast to this consensus on the importance of favored sources, we know surprisingly little about how citizens learn and update their beliefs when affinity is not at play. Lupia and McCubbins (1998) introduce a new model of citizen persuasion, arguing that citizens can learn and be persuaded even in the absence of source affinity as long as certain other conditions are

⁴ This literature is too large to comprehensively cite here. For book-length, classic treatments, see Sniderman et al (1991) and Popkin (1991). Kuklinski and Quirk (2000) and Lau and Redlawsk (2001) also provide helpful synthesis and summary of the literature.

met. Importantly for our purposes, they argue that when a source incurs a cost to send some piece of information, citizens should be more responsive to that information.⁵ In this view, citizens are capable of identifying and understanding factors that make a source more credible and are more likely to rely on cues and to learn from credible sources.

To date, empirical evidence on citizen responsiveness to information of variable credibility remains limited. In the United States, Lupia and McCubbins (1998) and Boudreau (2009) use evidence from abstract settings—predicting the outcomes of a coin toss and answering math problems, respectively—to show that individuals rely more upon more credible sources of information. Evidence from applied political settings remains quite limited but is consistent with the view that source credibility matters. In particular, ongoing work by a small number of authors provides evidence that citizens in wealthy democracies respond differently to information and political endorsements of variable credibility.⁶

⁵ Lupia and McCubbins describe verification and penalties for lying as other factors that might lead individuals to take cues even from sources they do not trust. See also Sobel (1985) for a classic statement in economics on costly signals.

⁶ Chiang and Knight (2011) examine the effects of “surprising” newspaper endorsements in the United States; this is the only published paper of which we are aware that explores credibility effects in an applied political setting. Working papers by Alt et al. (2014) and Munoz et al. (2013) also examine the effects of differential credibility, focusing on economic voting in Denmark and corruption responses in Spain, respectively. Though developed independently, these are the closest to our work. Our study is the only one of which we are aware to examine source credibility outside of the United States and Western Europe. Also in contrast to both of these studies, we do not study political parties as information sources, which allows us to examine the effects of variable credibility for all citizens, not just partisans. This is particularly important for the many democracies where partisan identity is limited. The Alt et al. (2014)

This work informs our first hypothesis. Building on Lupia and McCubbins' work, we define information as credible when it is not in the source's interest to lie about the information it disseminates.⁷ As such, our definition encompasses Lupia and McCubbins' focus on costly signals and also considers credible other scenarios, including situations where a source's career, monetary, or other incentives motivate truth-telling.⁸ We consider a source *less* credible when it has incentives to dissemble about a particular piece of information it disseminates.

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

This hypothesis is particularly of interest in settings outside the United States or Western Europe. Given evidence that individuals do not invest significant time in understanding political information even in highly educated, resource-endowed populations like the United States (e.g., Delli Carpini and Keeter 1996), we might be a priori skeptical that citizens would be sensitive to source credibility in democracies with lower mean education and higher levels of institutional volatility.⁹ Lower levels of education may decrease citizens' capacity to assess a source's

paper, like our own, also finds that credibility effects are heightened among political sophisticates.

⁷ In some cases, a source's incentives to lie, and hence its credibility, may vary with the information it provides. To take an example from the U.S. context, a Republican-leaning newspaper that accuses a Republican politician of malfeasance is more credible than when that same source makes a similar accusation against a Democratic politician. See Chiang and Knight (2011).

⁸ For similar definitions, see also Austen-Smith 1990, 76 and Przeworski 1999.

⁹ The limited work on cue-taking in younger democracies, which is focused on party cues, shows that these cues do function to some extent, but only for certain types of respondents and certain types of parties (e.g., Brader and Tucker 2012; Samuels and Zucco 2014).

credibility, and higher levels of institutional volatility and informality (Helmke and Levitsky 2006) should reduce citizens' incentives—whatever their educational level—to invest time and effort in understanding formal political actors and their motivations.

Who discerns? Credibility and political sophistication

If we find support for H1b, that citizens are differentially responsive to information depending on its credibility, will all citizens be equally responsive to credibility? Much of the literature on citizen learning emphasizes that political sophisticates use political cues and process information differently from other citizens.¹⁰ Although scholars agree on this point, they reach different conclusions about the degree to which sophisticates learn and incorporate new information about politics, as well as the consequences of sophistication for democratic accountability. We describe two schools of thought on how political sophisticates process information and then hypothesize that this group will be more responsive to signals about source credibility when receiving political information about a valence issue.

The first school of thought emphasizes that political sophisticates resist updating their beliefs or attitudes when confronted with new information. For instance, when faced with well-reasoned arguments for and against policy issues like affirmative action, political sophisticates have proven more likely to *maintain* their preexisting beliefs than less sophisticated voters (Taber and Lodge 2006; Taber, Cann, and Kucsova 2009; Slothuus and de Vreese 2010). Classic studies of political behavior in the United States highlight the extent to which politically sophisticated citizens are the least sensitive to new information (Converse 1962, Zaller 1992),

¹⁰ Following Sniderman, Brody, and Tetlock (1991), we treat political sophistication as a “bundle” concept that 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 (see also Gomez and Wilson 2007 for a summary).

and similar results have been found in younger democracies, as well (e.g., Brader and Tucker 2008; Lupu 2013).¹¹ At an extreme, this portrayal of sophisticates as resistant to new information might lead us to conclude that their presence in the electorate is bad for political accountability.¹²

Scholars in the second school of thought emphasize the extent to which politically sophisticated individuals *incorporate new information* more effectively. Lau and Redlawsk (2001), for example, provide evidence that the use of heuristics by political experts improves the likelihood that they make political decisions that are coherent with their stated preferences. Other scholars have shown that political sophisticates have the greatest propensity to remember the source of information they receive, to be familiar with the source's reputation, and to diagnose the source's incentives for revealing accurate information (Chong and Druckman 2007; Druckman and Nelson 2003).

Whereas much of the literature on cues and motivated reasoning that defines the first school of thought examines how citizens respond to new information on issues that are contentious or that evoke strong partisan biases, not all issues in the political space divide political opinion in the same way as abortion or affirmative action.¹³ For issues that are best understood as valence issues, like corruption, which we study here, and where partisan biases are not at play, we expect that politically sophisticated citizens' greater capacity to evaluate political

¹¹ Both these papers find that more sophisticated respondents are somewhat less likely to change their partisan attachment after being exposed to information about parties in a survey environment.

¹² See Taber and Lodge (2006, p767) for a discussion of this possibility, which they ultimately reject.

¹³ Taber, Cann, and Kucsova (2009) examine both contentious issues (like gays in the military) and less contentious issues (like punishing cheaters in college), but they do not present results disaggregated by issue.

information should dominate any tendency towards motivated reasoning. Therefore, we argue that politically sophisticated citizens will be the most likely to understand and identify the incentives of different sources of political information. As a consequence, sophisticates should be the *most* likely to respond differentially to information of variable credibility.¹⁴

This leads us to our second hypothesis.

H2: More sophisticated citizens are more likely to respond to 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 nationally representative surveys in Brazil. As noted above, Brazil is a particularly apt choice for a study of information processing because in many respects it is a “hard” case for finding evidence that citizens discern between sources based on credibility. Brazil has many of the characteristics—low educational attainment, a large number of parties and relatively high institutional volatility—that make it harder for citizens to discern source credibility and that reduce citizens’ incentives to invest heavily in learning about the incentives

¹⁴ 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 towards corruption are very similar across groups, and yet sensitivity to the source of corruption information varies substantially.

of political actors.¹⁵ If we find evidence that Brazilian citizens are sensitive to the credibility of sources of political information (H1), we should be confident that this would be the case in many other settings.

Corruption's status as a valence issue means that information about corruption is 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, it 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 towards corruption may create incentives for some political actors to spread unsubstantiated or outright false allegations. Under these conditions, citizens may punish accusations of corruption even when those accusations come from a less credible source, but following our first hypothesis (H1), we expect citizens to be *especially* punitive in the face of credible accusations of corruption. To the extent citizens discern between more and less credible information about corruption (and contingent on the

¹⁵ For a middle income country, Brazil has historically suffered from relatively low mean levels of educational achievement and quality (e.g., Birdsall and Sabot, eds., 1996). In standard measures of educational achievement, for example, Brazil performs less well than other large Latin American economies, including Argentina, Chile, Mexico, and Colombia (Hanushek and Woessmann 2012). In terms of institutional and political volatility, Brazil has had seven constitutions since the late 1800s. The latest constitution, ratified in 1988, has been quite durable, although it is relatively easy to amend and has been amended dozens of times since ratification. Since its democratic transition in 1985, Brazil has been notorious for its apparently chaotic multiparty system (e.g., Mainwaring and Scully 1995 although recent work provides evidence of a more coherent, functional party system (e.g., Figueiredo and Limongi 2000)).

availability of credible information about corruption), this discernment will create incentives for politicians to refrain from engaging in corrupt behavior.¹⁶

In spite of the likelihood of observing more and less credible information about corruption, existing research on corruption treats information quality, almost without exception, as invariant.¹⁷ Whether analyzing natural, field, or survey experiments, the rapidly growing body of research on this topic examines only how citizens respond to *credible* information about corruption (Ferraz and Finan 2008; de Figueiredo, Hidalgo, and Kasahara 2010; Anduiza,

¹⁶ Brazil provides ample examples of both apparent failures and successes of political accountability for corruption, sometimes even for the same official. For example, the reputation of Yeda Crusius, governor of Rio Grande do Sul state from 2007-2011, was badly damaged by opposition allegations of corruption, and she placed only third in her reelection attempt. She was ultimately cleared of all wrong-doing and earned enough votes in the 2014 national legislative elections to become a substitute (*suplente*); elected substitutes often do eventually serve in Congress in Brazil (Leoni 2004).

¹⁷ The single exception of which we are aware is a working paper by Muñoz et al. (2012) that examines source credibility and corruption in Spain. In addition to our focus on a less institutionalized, less educated democracy, our study differs in our examination of how discernment varies across levels of political sophistication as well as in our choice to abstract from party names. The latter choice allows us to examine the effects of variable credibility for all citizens, not just partisans, which is particularly important for the many democracies where partisan identity is limited. One other working paper on citizen responses to corruption, by Botero et al. (2013), also uses the language of source credibility. However, they operationalize credibility using individual-level affinity between a given listener and a particular source. 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 each source to see whether some respondents are more persuaded by one source as compared to another. As such, the differences they find across sources reflect variation in affinity between listeners and sources, rather than differences in the credibility of the sources themselves.

Gallego, and Muñoz 2013; A. Chong et al. 2013; Klašnja and Tucker 2013; Konstantinidis and Xezonakis 2013; Winters and Weitz-Shapiro 2013).¹⁸ This paper then makes a unique contribution by asking whether, citizens respond differently to information about corruption of differential credibility, and which citizens are most responsive to those differences.

Varying information credibility in a survey experiment

In order to examine the effects of variation in the credibility of information about corruption on citizen beliefs and behavior, we conducted an original, nationally-representative survey experiment administered in Brazil in May 2013. We include a vignette in the survey that describes a hypothetical mayor, and then we randomly vary characteristics of the vignette, including the credibility of the source of corruption information.¹⁹ 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

¹⁸ Indeed, in the case of field experiments carried out in the course of real elections, if these did not provide high quality information, this would raise serious ethical concerns. This point is worth highlighting in part because field experiments are often praised for their realism. As we note, 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.

¹⁹ We developed the vignettes and survey questions using 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.

(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 better identify how political sophistication shapes assessments of source credibility, as distinct from the possibility that political sophistication proxies for 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:²⁰

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

<<Table 1>>

<i>Credibility Condition</i>	<i>Specificity Condition</i>	<i>Final Sentence of Vignette</i>
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

²⁰ Following convention in Brazil, the mayor is referred to by his first name.

		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.²¹ 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.²²

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 inherently more credible than 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

²¹ In Portuguese, the latter referenced “*ocupantes de cargos na Prefeitura*” The full Portuguese text of the prompts is found in the online appendix.

²² Results are substantively the same if we omit from the analysis any vignettes that mention municipal officials and examine only those cases where the mayor is mentioned. These results are reported in the online appendix.

conducted by highly skilled, well-paid bureaucrats who have been selected through competitive processes.²³ The audits are widely recognized by scholars as politically impartial and competently executed.²⁴ In addition, 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.

The alternate named source of corruption information in the vignettes is an opposition party. 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: 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 – even if they are false – should decrease respondents’ estimates of their accuracy.²⁵ 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), giving more credence to

²³ Ferraz and Finan (2008; 2011), Brollo et al. (2013), and Zamboni and Litschig (2013) all provide extensive details on the program.

²⁴ 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, 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.

²⁵ Muñoz et al. (2012) and Alt et al. (2014) similarly point to the self-serving nature of opposition accusations of corruption and certain economic forecasts, respectively.

accusations from the federal government (H2a) and being more skeptical of accusations from an opposition party (H2b).

Following Sniderman, Brody, and Tetlock (1991), we treat political sophistication 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 (see also Gomez and Wilson 2007 for a summary). In the context of survey work in the United States, political sophistication has typically been measured through a battery of questions on specific knowledge of political actors and issues (e.g., Zaller 1992, among others). However, recent work points to some drawbacks of these knowledge questions and has highlighted the extent to which “don’t know” responses and wrong answers can be sensitive to question wording and the time available and incentives offered to answer such questions correctly (Boudreau and Lupia 2011; Prior and Lupia 2008; Mondak and Davis 2001). We therefore rely on two main measures of sophistication in our survey—a respondent’s answers to two political knowledge questions relevant to the Brazilian context, and his or her educational attainment. As discussed in detail below, these measures of sophistication are positively correlated yet also distinct, and we find support for our main hypotheses using both key measures of sophistication.²⁶

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

²⁶ Our hypotheses are also supported using a third possible measure of sophistication—political interest. Those results are presented in the online appendix.

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 results are robust to the use of the feeling thermometer.

Punishing Corruption and Discerning Sources

Before turning to a test of the hypotheses, we describe some general trends of interest in the data.²⁷ First, we check to see whether respondents expressed less support for mayors linked to corruption in the vignette than for 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 clearly show 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 likely 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 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 highly statistically

²⁷ As we describe in the online appendix, we believe that the vignettes were not administered in a completely random order in the field. Examining balance on 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. A detailed description of the balance tests and the regression results are reported in the appendix.

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.

Credible information

We test our main hypotheses using respondents' vote intention on a four-point scale as a 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. Because of the small number of response categories in our main outcome variable, we also present significance tests from Wilcoxon Rank Sum (Mann-Whitney) tests, which might be more appropriate for ordinal variables. The significance levels from the two tests are always close to identical.

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 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 all corruption information is punished, regardless of its source; respondents in the control groups, who hear no corruption information, 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 many respondents. As noted above, less credible information may in fact be accurate, and in the

Brazilian context, where many citizens believe that corruption is widespread, it is not surprising that even allegations that come from a less credible source are not discounted entirely.²⁸ That said, the shift in mean vote intention prompted by the more credible accusations of corruption is about one-quarter of the size of the effect of any corruption accusations at all on vote intention. Information credibility, therefore, clearly has additional, substantial 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 row of Table 2 shows that the mean vote intention for those who were told about corruption but *not* given any indication about 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.²⁹ As a group, our respondents 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.

²⁸ In equilibrium, opposition parties should not play a strategy in which they always make corruption accusations. Doing so would drive their credibility to zero, since voters would update their priors to think of every opposition party accusation as “cheap talk.” Playing a strategy in which they sometimes make false accusations and always reiterate 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 discredit opposition party accusations.

²⁹ Replicating this table using mayor vignettes only (and not municipal officials vignettes), both differences are statistically significant. Results are reported in the appendix.

<i>How likely are you to vote for the mayor?</i> (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 < 0.22]	-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. p-values in parentheses are from a t-test of the null hypothesis of no difference in means between the two groups. p-values in 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. p-values from randomization inference tests of the sharp null hypothesis of no unit-level treatment effect are identical.

Table 2: Source credibility and vote intention

Voter sophistication and information credibility

Our second hypothesis is that more sophisticated individuals will be more sensitive to the credibility of the source presenting information about politician malfeasance, generating a gap in their responses to more versus less credible allegations, whereas the least sophisticated will be less able to discern source credibility and hence have more similar reactions to information coming from more and less credible sources (H2). 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, and they therefore should be less punitive than less

sophisticated voters when they hear such accusations (H2b). They are also more likely to be familiar with the federal bureaucracy's reputation for competence and high capacity and therefore more likely than less sophisticated respondents to punish accusations from such a source (H2a).³⁰ In contrast, less sophisticated respondents should give answers to the survey questions that suggest more limited differentiation based on the source of corruption allegations.

As noted above, we operationalize voter sophistication in two different ways in the survey, using the respondent's level of educational attainment and her response to two political knowledge questions.³¹ 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.³² Between 25 and 30 percent of the sample answered each of these two questions correctly, while 17 percent responded correctly to both questions, and a clear majority—62 percent of

³⁰ An alternative hypothesis that would make similar predictions would be that Brazilian sophisticates have a greater affinity for the federal government. In Brazil, however, political sophistication 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. This biases against finding that highly educated respondents are particularly responsive to federal audits because of an affinity with the federal government, making an assessment of source credibility the more likely origin of any differences we detect. Ultimately, as we discuss below, the increased discernment associated with political sophistication is driven mostly by increased skepticism of opposition allegations among sophisticates, rather than by increased credence attached to allegations made by federal audits.

³¹ We also studied how treatment effects vary with political interest and find very similar patterns, which we present in the online appendix.

³² 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.

respondents—answered neither question correctly. Education levels in our sample track closely those of the Brazilian population as a whole and run from no formal education to completed tertiary education.³³ For the purpose of analysis, we divide respondents into five groups based on educational attainment.

For each education category, Table 3 presents respondents' mean vote intention for the mayor on a four-point scale, separated out by more credible and less credible allegations. The difference between these values serves as an estimate of respondents' ability to discern between sources with differential credibility. An examination of this difference, displayed in the third row of Table 3, provides clear support for H2. Among those with the lowest levels of education, there is no statistically significant difference in vote intention between those who are in the more versus less credible treatment groups. In stark contrast, 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 estimated credibility “gap” for the most educated is marginally statistically significantly greater than the gap estimated for the least educated respondents. The data also show that, in our sample, discernment increases

³³ The Spearman's rho and Pearson's r statistics for the correlation between education and political knowledge are both about 0.42. As described in the text, we conceive of political sophistication as combining elements of cognition and political knowledge without being wholly constituted by either. Other large surveys in Brazil have included a larger battery of political knowledge questions—most notably those conducted by Andy Baker and colleagues (Baker, Ames, and Renno 2006; Baker 2009) and the 2010 Brazilian Electoral Panel Study (Ames et al. 2013). The correlation between education and political knowledge in these data is very similar to what we find here, which suggests that this correlation is not an artifact of the number of questions we employ. In our data, educational attainment and political knowledge are more highly correlated with each other than either is with political interest.

monotonically as education increases, although the differences in discernment between adjacent education groups are not statistically significantly different from one another.

<<Table 3>>

<i>How likely are you to vote for the mayor?</i>	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
<i>p-value on H₀: No Difference</i>	0.82 [0.71]	0.06 [0.06]	0.02 [0.03]	0.01 [0.01]	0.01 [0.01]
<i>p-value on H₀: No Difference between CATE and CATE for Lowest Education Group</i>	--	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 and (in brackets) Wilcoxon rank sum 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

Table 3a examines hypotheses H2a and H2b in more detail, again using education to proxy for sophistication. In this table, we compare those in the lowest two education groups with those in the highest three education categories. Examining the first row, the results are consistent with the argument that more sophisticated voters are more skeptical of less credible accusations of corruption (H2b). Compared to less sophisticated voters, sophisticates report a greater willingness to support mayors accused of corruption by less credible sources. For mayors facing

less credible accusations, mean vote intention is 2.44 among more sophisticated respondents, while it falls to 2.23 among less sophisticated respondents, and this difference is statistically significant.³⁴ In contrast, the table does not suggest that responses to more credible accusations vary with sophistication, as hypothesis H2a anticipated. Vote intention for more and less sophisticated voters who hear corruption allegations attributed to a federal audit is effectively indistinguishable.³⁵

<i>How likely are you to vote for the mayor?</i>	Completed primary or less (bottom 2 education levels)	Completed middle or more (top three education levels)	Difference	<i>p-value on H₀: No difference between first and second column</i>
Less credible accusations	2.23 (0.08) N=195	2.44 (0.06) N=352	0.22	0.03 [0.03]
More credible accusations	2.06 (0.08) N=188	2.09 (0.06) N=365	0.03	0.80 [0.72]

Table 3a: Education and Credibility: Within-Treatment Comparison

Note: p-values for the null hypothesis are based on difference-in-means t-tests and (in brackets) Wilcoxon rank sum tests.

Tables 4 and 4a report these same results for our main alternative measure of sophistication—political knowledge. The results are broadly consistent with those for education, with some differences we explore below. As Table 4 shows, those who did not answer either

³⁴ As education is not randomly assigned, we cannot interpret these as causal effects.

³⁵ Alternately, we might compare vote intention within the more and less credible treatment groups for the highest and lowest education groups only. This comparison supports hypothesis H2b and yields slightly more evidence for hypothesis H2a. For these groups, the difference in vote intention is significant at the $p < 0.11$ level for less credible accusations, and at the $p < 0.25$ level for more credible accusations. This again suggests that, in our survey, sophisticates were especially likely to discount less credible accusations while differences between more and less sophisticated respondents in response to credible accusations are less pronounced.

political knowledge question correctly do discern between more and less credible accusations, with a difference in reported vote intention of 0.26 points on the four-point scale. This group makes up 62 percent of our sample, and thus it is likely to be more heterogeneous than the low education groups discussed in Tables 3 and 3a. Respondents who answered both questions right are a much smaller group, and our point estimate of their discernment is, at 0.51, about twice the size of that estimated for the lowest knowledge respondents. The difference in discernment between the two groups is significant at the $p < 0.16$ level. Respondents who answered only one question right, however, do not clearly fit the pattern of discernment observed in Table 3. This is mostly due to their responses to the credible accusations: in response to the federal audit treatment, respondents with one question correct report a higher average vote intention than those from either of the other two knowledge categories. Responses to less credible accusations, on the other hand, do demonstrate the expected monotonic pattern across the three groups, with vote intention increasing as knowledge increases, presumably a result of increasing skepticism of the opposition party source. This is consistent with H2b.

<i>Political Knowledge</i>	No Questions Right	One Question Right	Both Questions Right
Less Credible Accusations	2.29 (0.06) N=321	2.34 (0.10) N=122	2.60 (0.11) N=104
Credible Accusations	2.04 (0.06) N=352	2.21 (0.11) N=107	2.09 (0.11) N=95
Difference	0.26	0.14	0.51
<i>p-value on H₀: No Difference</i>	0.01 [0.01]	0.36 [0.37]	0.01 [0.01]
<i>p-value on H₀: No Difference between CATE and CATE for no questions right group</i>		0.49	0.16

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 and (in brackets) Wilcoxon rank sum tests.

p-values for differences across the CATEs are based on the randomization inference tests described in Gerber and Green (2012).

Table 4: Respondent political knowledge and responsiveness to source credibility

Table 4a again more directly tests hypotheses H2a and H2b, employing political knowledge as a proxy for sophistication. As in Table 3a, above, the results are consistent with hypothesis H2b which states that, compared to non-sophisticates, political sophisticates will be more skeptical of accusations from low credibility sources and hence have a higher average reported vote intention for the hypothetical mayor in this scenario. After hearing corruption information attributed to an opposition party, high knowledge respondents have a mean vote intention of 2.6, while low knowledge respondents have a mean vote intention of 2.3, and this difference is statistically significant. As in Table 3a, the results displayed in the second row of Table 4a do not support the claim that sophisticated respondents will give more credence to more credible accusations; mean vote intention among those who learned about corruption from a federal audit does not vary with level of political knowledge.

How likely are you to vote for the mayor?	Lowest knowledge (no questions right)	Highest knowledge (2 questions right)	Difference	<i>p-value on H₀: No difference between lowest and highest education</i>
Less credible accusations	2.30 (0.06) N=321	2.60 (0.11) N=104	0.30	0.02 [0.01]
More credible accusations	2.04 (0.06) N=352	2.09 (0.11) N=94	0.03	0.72 [0.77]

Table 4a: Knowledge and Credibility: Within-Treatment Comparison

Note: p-values for the null hypothesis are based on difference-in-means t-tests and (in brackets) Wilcoxon rank sum tests.

Alternative explanations and external validity

The results from these tables demonstrate 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 more and less sophisticated Brazilians towards specific political parties.

Although the experimental vignette did not assign a specific partisan identity to either "Mayor Carlos" or the hypothetical local opposition party, it is possible that respondents answered the survey with reference to the main ruling and opposition parties in national politics—the PT and PSDB/PMDB, respectively.³⁶ If this is the case, respondents who support the national ruling party, the PT, might be particularly skeptical of allegations attributed to an unnamed opposition, whereas those who are sympathetic to opposition parties might be especially credulous of opposition allegations. If respondents understood the vignettes through the lens of national politics in this way, this will confound our results if sophisticated

³⁶ The PT, or Worker's Party (Partido do Trabalhadores) has held the presidency since the election of Luis Inácio Lula da Silva (Lula) in 2002. In Brazil's multi-party, federal system, it is 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 PT, with more than a minimal number of partisans in the electorate (Samuels and Zucco 2014).

respondents are also especially likely to be PT sympathizers and especially unlikely to be opposition sympathizers.

In fact, however, patterns in the data do not support this interpretation. There is no statistically significant relationship between PT identification and sophistication; if anything, there is a slight (but not significant) decrease in rates of PT identification as education increases. When looking at the two major opposition parties, sophisticates are somewhat more likely to identify with the PSDB and somewhat less likely to identify with the PMDB. Given the PSDB's historical status as the more relevant opposition party in national politics, this would suggest that, if respondents have in mind particular political parties, more sophisticated respondents would give more credence to corruption information provided by the opposition, which is precisely the opposite of what we find.³⁷ Thus, both patterns reinforce our claim that variation in the ability to discern source incentives drives our results. To explore this further, we also examine response patterns among PT-identifying respondents, who we might expect to be more skeptical of opposition-provided information, regardless of their political sophistication. We find no difference in responses to the less credible prompts between PT and non-PT sympathizers, which again points to the importance of political sophistication in explaining response patterns in our survey.³⁸

Although, as always, we should exercise caution in extrapolating from survey results to citizen behavior in a less controlled environment (Barabas and Jerit 2010), our approach highlights some advantages of using a survey experiment to examine citizen responses to corruption. Because we vary the credibility of information in a controlled setting, without

³⁷ When PSDB and PMDB sympathizers are grouped together, there is no relationship between sophistication and sympathy with these major opposition parties.

³⁸ These results are included in the online appendix.

reference to real-world political actors, our survey allows us to isolate political sophistication's effects on the ability of respondents to discern source credibility from other possible effects sophistication might have. While previous work has found that the highly educated react less strongly to information contained in survey vignettes (e.g., Brader and Tucker 2007), this effect may be due to the fact that sophisticated respondents are likely to already have access to the real-world information provided in these survey vignettes. By employing hypothetical vignettes, we ensure that 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 plays in allowing citizens to discern more credible from less credible information, as distinct from any advantages it confers in terms of preexisting knowledge. Additionally, given the uneven credibility of information in the real world, the use of a survey experiment affords us some advantages in terms of realism. Importantly, it allows us to *vary* credibility, using both more and less credible sources in our stimulus, in a way that would likely be impossible (for ethical reasons) in a field experiment.

Discussion

The availability of information about politician performance is widely acknowledged to be crucial for political accountability. 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 paper, we test hypotheses about citizen responsiveness to source

credibility using original survey experimental data on voter reactions to political corruption in Brazil.

We first hypothesize that 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, who are not likely to be attentive to subtle cues about information quality.

Ours is the first effort of which we are aware to test hypotheses about citizen discernment outside of the United States and Western Europe. As we highlight, lower levels of education and greater institutional volatility and informality create barriers to citizen discernment in the world's middle-income and developing democracies. Nonetheless, we find that information credibility affects how the vast majority of Brazilian respondents react to accusations of corruption. All except the least educated appear to distinguish between more and less credible information. At the same time, we show that the tendency to discern between sources of information is highest among more politically sophisticated citizens.

These results advance our understanding of political information processing in a number of ways. They support the small number of existing studies that demonstrate that source credibility matters, but they do so in a new context—information about corruption in Brazil. This paper provides the first systematic evidence on discernment outside of the wealth democracies, and in so doing, demonstrates that many citizens can discern source credibility even when

institutional or individual-level factors make that task more difficult. With respect to political sophistication, our results speak to an ongoing debate in the literature on whether political sophisticates are especially resistant to updating their beliefs or behaviors in response to new information. By focusing on a valence issue (corruption), we are able to show that political sophisticates are more capable of discerning a political source's incentives to dissemble.

Our findings are also useful in interpreting macro-level analyses of the correlates of corruption. Recent work has argued education is linked to better control of corruption (i.e., Treisman 2000), and there is some evidence for the association subnationally in the United States (Glaeser and Saks 2006), in other countries (Avelino, Biderman, and Mendes Lopes nd; Charron 2010), and cross-nationally (Persson, Tabellini, and Trebbi 2003). Our study suggests a 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 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.

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**“Can Citizens Discern? Information Credibility, Political Sophistication, and the
Punishment of Corruption in Brazil”
Online Appendix**

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Vignettes

Pure Control

Imagine que você vive num bairro como o seu, mas numa cidade diferente do Brasil. Vamos chamar o Prefeito dessa cidade em que você mora de Carlos. Agora imagine que o Prefeito Carlos está concorrendo à reeleição. Durante os quatro anos em que foi Prefeito a cidade teve várias melhorias, com crescimento econômico e melhores serviços públicos de saúde e transporte.

No Corruption

[Pure control plus] Também nessa cidade, todo mundo diz que o Prefeito Carlos não aceitou suborno para fechar contratos com fornecedores da Prefeitura.

Corruption without Source

[Pure control plus] Também nessa cidade, todo mundo diz que o Prefeito Carlos aceitou suborno para fechar contratos com fornecedores da Prefeitura.

Credible Source / Specific Accusations

[Pure control plus] Também nessa cidade, uma auditoria do governo federal diz que o Prefeito Carlos aceitou suborno para fechar contratos com fornecedores da Prefeitura.

Less Credible Source / Specific Accusations

[Pure control plus] Também nessa cidade, o partido de oposição diz que o Prefeito Carlos aceitou suborno para fechar contratos com fornecedores da Prefeitura.

Credible Source / Less Specific Accusations

[Pure control plus] Também nessa cidade, uma auditoria do governo federal diz que ocupantes de cargos na Prefeitura aceitaram suborno para fechar contratos com fornecedores da Prefeitura.

Less Credible Source / Less Specific Accusations

[Pure control plus] Também nessa cidade, o partido da oposição diz que ocupantes de cargos na Prefeitura aceitaram suborno para fechar contratos com fornecedores da Prefeitura.

Main Follow Up Questions

Na sua opinião, qual a chance de você votar para o Prefeito Carlos? Grande chance; alguma chance; pouca chance; ou nenhuma chance?

Agora que nota de 1 a 7 você daria para o Prefeito Carlos, sendo que 1 significa que você acha ele “um Prefeito muito ruim” e 7 significa que você acha ele “um Prefeito excelente”?

Sampling Procedure

Our survey was included as the second module of the May 2013 IBOPEBus survey.

The IBOPEBus is a monthly omnibus survey that uses a probabilistic sample of geographic areas to obtain a representative sample of the over-16-years-old Brazilian population. The sampling frame is based on the 2010 census, the 2011 *Pesquisa Nacional por Amostra de Domicílios* (National Household Survey), and 2012 data from the *Tribunal Superior Eleitoral* (National Electoral Tribunal).

140 cities were sampled using a probability-proportional-to-size (PPS) method within 25 strata that are defined by 25 of Brazil's 27 states. (The survey rotates on a monthly basis among three small states in the northern region of the country.) Census tracts were selected using PPS with stratification across zones of major metropolitan areas. Enumerators recruited individual respondents in public or semi-public places according to a quota scheme designed to produce a representative sample of the national population in terms of age, gender, and employment characteristics (sector of the economy and employment status).

Interviews are conducted face-to-face during working days, evenings, and weekends.

Randomization Procedure and Balance Checks

The seven vignettes were to be randomly assigned to survey respondents within each sampling strata. Since seven respondents were sampled from each census tract, each vignette was to be assigned once per census tract.

Unfortunately, rather than assigning the vignettes in random order, they were assigned in the same order – from the first through the seventh – within each of the sampled census tracts. If different types of respondents were recruited earlier in the day as compared to later in the day, this failed randomization could imply a correlation between observable or unobservable characteristics of respondents and their treatment status.

While we cannot comment on correlations between treatment status and unobservable characteristics, we examine here whether or not any observable pre-treatment characteristics predict selection into the treatment categories. To do this, we use two methods. Both indicate a degree of variation in observed characteristics across treatment groups that is consistent with what could be generated by chance. We nonetheless replicate results reported in Tables 3 and 4 in the paper using regression analyses controlling for possible confounding covariates and report those below. In both cases, the results are substantively unchanged from the simpler difference-in-means tests reported in the text.

Here, we explain our two methods for checking balance. First, we run two multinomial logit models where the seven categories of treatment assignment defined the outcome variable.¹ We compare a null model with no predictors to a model with predictors for gender, age, education, social class, income, an indicator for whether or not the respondent is catholic, a variable measuring how often the respondent talks about politics, a variable measuring how often the respondent reads the news, a variable representing the respondent's score on a two-question measure of political knowledge, and a set of indicators for whether or not the respondent identifies with one of the three major political parties in Brazil, the PT, the PSDB, or the PMDB.

The table below presents the results of the multinomial logit model. The chi-squared statistic indicates that the model with the set of predictor variables is not statistically distinguishable from a null model without any predictor variables at all ($p < 0.85$).

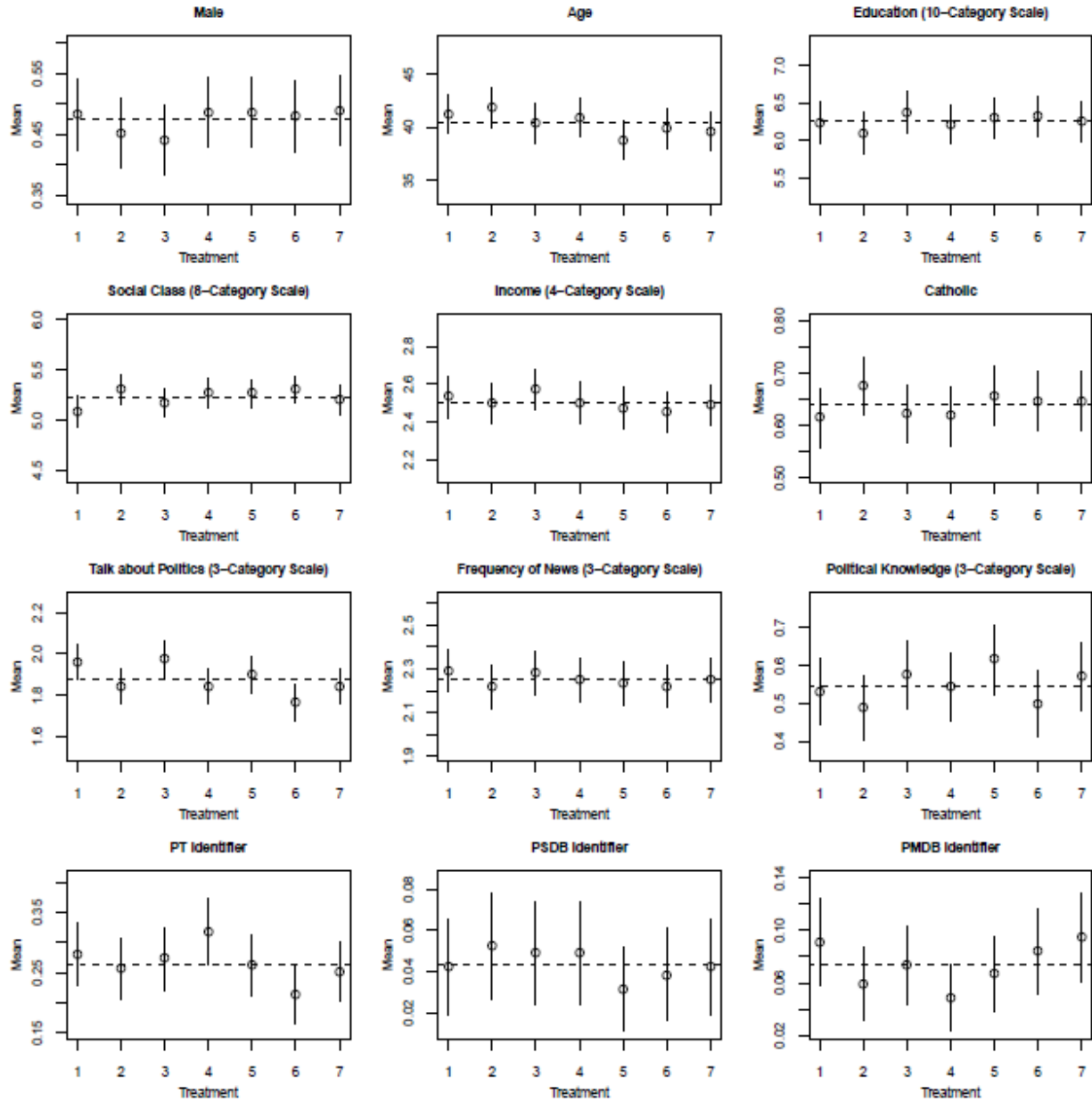
Outcome	Vignette 1	Vignette 3	Vignette 4	Vignette 5	Vignette 6	Vignette 7
Male (0/1)	0.07 (0.18)	-0.11 (0.18)	0.13 (0.18)	0.11 (0.18)	0.15 (0.18)	0.15 (0.18)

¹ We do not use the test proposed by Hansen and Bowers (2008) because that is appropriate only for dichotomous treatments. For experiments with multiple treatments, using multinomial logit as described here is the preferred method (Bowers, personal communication, 2014). For consistency with balance tests reported elsewhere in the literature, we also report the results of difference of means tests below.

Age Category	0.01 (0.06)	-0.06 (0.06)	0.00 (0.06)	-0.09 (0.06)	-0.04 (0.06)	-0.04 (0.06)
Education	-0.05 (0.10)	-0.05 (0.10)	0.01 (0.10)	-0.08 (0.10)	0.09 (0.10)	0.00 (0.10)
Social Class	0.44** (0.17)	0.09 (0.17)	0.05 (0.17)	0.19 (0.17)	0.10 (0.17)	0.10 (0.17)
Income	-0.13 (0.12)	0.03 (0.13)	-0.03 (0.12)	-0.16 (0.13)	-0.16 (0.13)	-0.13 (0.13)
Catholic (0/1)	-0.29 (0.19)	-0.27 (0.19)	-0.33* (0.19)	-0.18 (0.19)	-0.14 (0.19)	-0.12 (0.19)
Talk about Politics	0.18 (0.13)	0.19 (0.13)	-0.04 (0.13)	0.12 (0.13)	-0.12 (0.13)	-0.03 (0.13)
Read the News	-0.00 (0.11)	-0.02 (0.11)	-0.01 (0.11)	-0.05 (0.11)	-0.01 (0.11)	0.02 (0.11)
Political Knowledge Index	-0.04 (0.14)	0.09 (0.14)	0.02 (0.14)	0.21 (0.14)	0.03 (0.14)	0.14 (0.14)
PT Identifier (0/1)	0.10 (0.21)	0.02 (0.21)	0.31 (0.20)	-0.05 (0.21)	-0.16 (0.21)	-0.02 (0.21)
PSDB Identifier (0/1)	-0.35 (0.42)	-0.27 (0.41)	-0.02 (0.40)	-0.66 (0.46)	-0.28 (0.42)	-0.26 (0.42)
PMDB Identifier (0/1)	0.46 (0.34)	0.16 (0.37)	-0.15 (0.40)	0.17 (0.36)	0.37 (0.35)	0.47 (0.35)
Constant	-0.77 (0.48)	-0.14 (0.48)	0.06 (0.48)	0.29 (0.48)	0.37 (0.48)	0.13 (0.48)
N	1,795					
Pseudo R ²	0.01					
Chi-Squared	59.65					
p-value for H ₀ : No difference between the models	0.85					

Second, we examine balance on these same observable covariates by calculating the mean value of each covariate in the overall data and the mean value and 95 percent confidence interval of each covariate for each of the seven treatment categories. These results are plotted below.

Looking at the extent to which the value of each by-treatment mean is different from the overall mean in the data, we find that three out of the 84 tests indicate differences significant at the 0.05 level or better; this is no more than what we would expect to see by random chance.



Replication of Results using Regression Analysis

Our examination of variation on observable covariates detailed above suggests that, in spite of the failure of our randomization procedure, differences on observable characteristics across treatment groups are no greater than we would expect by random chance. Nonetheless, we replicate the analysis in Tables 2, 3, and 4 from the paper using regression analyses that control for covariates. As can be seen below, the results are extremely similar and substantively equivalent in all three cases.

<i>How likely are you to vote for the mayor?</i> (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)	-1.28 (0.07) [p < 0.01]	-0.05 (0.09) [p < 0.57]	-0.24 (0.07) [p < 0.01]
Less Credible Accusations (N=547)	2.37 (0.05)	-1.02 (0.07) [p < 0.01]	0.21 (0.09) [p < 0.02]	--
No Source of Corruption Accusations (N=278)	2.18 (0.07)	-1.22 (0.08) [p < 0.01]	--	--
Pure Control/Control with Clean Mayor (N=560)	3.38 (0.04)	--	--	--

Replication of Table 2 with Controls

Note: Cells in columns 2-4 present point estimates on treatment indicators defined by the row and column titles that are included in linear regressions also controlling for *male, age, education, social class, income, catholic, talk about politics, attention to the news, political knowledge, PT identity, PSDB identity, and PMDB identity*. Robust standard errors in parentheses. p-values in brackets.

<i>How likely are you to vote for the mayor?</i>	Illiterate / less than primary	Complete primary; incomplete middle	Complete middle; incomplete secondary	Complete secondary	At least some tertiary
Coefficient on Treatment Indicator for Credible versus Less Credible Accusations	-0.08 (0.25) [p < 0.75]	-0.08 (0.14) [p < 0.55]	-0.33 (0.14) [p < 0.03]	-0.25 (0.14) [p < 0.09]	-0.53 (0.17) [p < 0.01]

Replication of Table 3 with Controls

Note: Cells present point estimates on a treatment indicator from linear regression models for each group controlling for *male, age, social class, income, catholic, talk about politics, attention to the news, political knowledge, PT identity, PSDB identity, and PMDB identity*. Robust standard errors in parentheses. p-values in brackets.

<i>How likely are you to vote for the mayor?</i>	No Questions Right	One Question Right	Two Questions Right
Coefficient on Treatment Indicator for Credible versus Less Credible Accusations	-0.24 (0.09) [p < 0.01]	-0.10 (0.16) [p < 0.54]	-0.53 (0.17) [p < 0.01]

Replication of Table 4 with Controls

Note: Cells present point estimates on a treatment indicator from linear regression models for each group controlling for *male, age, social class, income, catholic, talk about politics, attention to the news, political knowledge, PT identity, PSDB identity, and PMDB identity*. Robust standard errors in parentheses. p-values in brackets.

Replication of Main Results using Only Vignettes that Specifically Accuse the Mayor

As reported in the text, for the analysis presented there, the credible and less credible conditions include vignettes that explicitly mention the mayor (specific vignettes) as well as those that mention municipal officials (less specific vignettes). Here, we replicate the results from Tables 2, 3, and 4 using only those vignettes that mention the mayor.

The results from the replicated Table 2 are almost identical, and in fact somewhat stronger, than those presented in the text.

In the replicated Table 3, we once again see no significant difference in mayoral support among respondents with the lowest level of education and significant differences in support among the rest of respondents. As compared to the table presented in the main text, however, there is not a clear monotonic increase in differentiation across education categories. The conditional average treatment effect for three of the education groups is marginally significantly different from the conditional average treatment effect for the lowest education group.

In the replicated Table 4, we see the same pattern as in the main text, where the group that answered only one political knowledge question correctly has the smallest difference between how they react to the more and less credible accusations, while the group that answered no questions right is in the middle, and the group that answered both questions right has the largest difference (as we would expect). As in the main text, the differences between the CATEs are not statistically significant.

<i>How likely are you to vote for the mayor?</i> (N)	Average Response (Standard Error)	Estimated Difference from Control Conditions	Estimated Difference from Unsourced Accusations	Estimated Difference from Less Credible Accusations
Credible Accusations (N=279)	1.97 (0.06)	-1.41 (0.07) [p < 0.01]	-0.21 (0.09) [p < 0.03]	-0.38 (0.09) [p < 0.01]
Less Credible Accusations (N=278)	2.36 (0.07)	-1.02 (0.07) [p < 0.01]	0.18 (0.10) [p < 0.07]	--
No Source of Corruption Accusations (N=278)	2.18 (0.07)	-1.20 (0.07) [p < 0.01]	--	--
Pure Control/Control with Clean Mayor (N=560)	3.38 (0.04)	--	--	--

Replication of Table 2 with Specific Vignettes Only

Note: Cells in columns 2-4 present difference-in-means tests among the means reported in column 1. Standard errors in parentheses. p-values from a t-test of the null hypothesis of no difference in means between the two groups in brackets.

<i>How likely are you to vote for the mayor?</i>	Illiterate / less than primary	Complete primary; incomplete middle	Complete middle; incomplete secondary	Complete secondary	At least some tertiary
Less Credible Accusations	2.08 (0.21) N=35	2.34 (0.15) N=59	2.41 (0.14) N=68	2.44 (0.12) N=73	2.40 (0.18) N=43
Credible Accusations	2.25 (0.22) N=28	1.85 (0.13) N=69	1.97 (0.12) N=72	2.16 (0.11) N=77	1.58 (0.15) N=33
Difference	-0.16 (0.30)	0.48 (0.20)	0.44 (0.18)	0.28 (0.17)	0.47 (0.24)
p-value on H ₀ : No Difference	0.59	0.02	0.02	0.10	0.01
p-value on H ₀ : No Difference between CATE and CATE for Lowest Education Group	--	0.08	0.10	0.21	0.02

Replication of Table 3 with Specific Vignettes Only

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).

<i>How likely are you to vote for the mayor?</i>	No Political Knowledge Questions Right	One Political Knowledge Question Right	Both Political Knowledge Questions Right
Less Credible Accusations	2.31 (0.09) N=159	2.25 (0.15) N=56	2.56 (0.14) N=54
Credible Accusations	1.92 (0.08) N=174	2.31 (0.15) N=65	1.86 (0.14) N=49
Difference	0.39 (0.12)	0.06 (0.21)	0.70 (0.20)
<i>p-value on H0: No Difference</i>	0.01	0.79	0.01
<i>p-value on H₀: No Difference between CATE and CATE for No Questions Right Group</i>	--	0.17	0.20

Replication of Table 4 with Specific Vignettes Only

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).

Party Identification and Responses to Credibility

PT Sympathizers and Responses to Credibility

As discussed in the text, this table shows that PT partisans are not especially skeptical of information attributed to the opposition (less credible accusations).

<i>How likely are you to vote for the mayor?</i>	Not a PT sympathizer	PT sympathizer
Less Credible Accusations	2.36 (0.06) N=404	2.38 (0.09) N=143
Credible Accusations	2.12 (0.04) N=405	1.97 (0.08) N=148
Difference	.24	0.42
<i>p-value on H₀: No Difference</i>	0.00	0.00

Alternative Measure of Sophistication: Political Interest

In the text, we present results for more versus less sophisticated voters using education and political knowledge as measures of sophistication. Here we present results for an additional measure of sophistication, political interest. Political interest is a measure of how frequently a respondent reports discussing politics with her family and friends. Respondents had the option of answering “very frequently,” “frequently,” “rarely,” or “never.” For the purpose of analysis below, we group together “very frequently” and “frequently” responses into a single “high interest” category.

For this measure, we see the same overall pattern as presented in the main text: more sophisticated respondents differentiate more between the credible and less-credible treatments. Also as in the text, the effect seems to be driven primarily by more interested respondents being more forgiving of less credible accusations (H2b), rather than being more punitive of more credible accusations (H2a).

<i>How likely are you to vote for the mayor?</i>	Never Discuss Politics	Rarely Discuss Politics	Frequently Discuss Politics
Less Credible Accusations	2.18 (0.09) N=187	2.40 (0.07) N=232	2.60 (0.10) N=124
Credible Accusations	1.98 (0.07) N=205	2.13 (0.07) N=235	2.16 (0.11) N=104
Difference	0.20	0.27	0.43
p-value on H ₀ : No Difference	0.07	0.00	0.00
p-value on H ₀ : No Difference between CATE and CATE for Lowest Interest Group	--	0.64	0.20

Replication of Table 3/4 using Political Interest as a Proxy for Sophistication.

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).

<i>How likely are you to vote for the mayor?</i>	Lowest Interest	Highest Interest	Difference	<i>p-value on H₀: No difference between lowest and highest education</i>
Less credible accusations	2.18 (0.08) N=187	2.60 (0.10) N=124	0.41	0.01
More credible accusations	1.99 (0.07) N=205	2.16 (0.11) N=104	0.18	0.17

Replication of Table 3a/4a using Political Interest as a Proxy for Sophistication.

Replication of Results Using Feeling Thermometer Outcome

As an alternative outcome variable, we measured respondent's attitudes toward the mayor using a feeling thermometer. In English, the question asked, "What grade, on a scale from 1 to 7, would you give to Mayor Carlos, where 1 means that you think he is a terrible mayor, and 7 means that you think he is an excellent mayor?" The original Portuguese question is reported in section 2 above.

The patterns that we observe are the same as with the vote intention variable. Across all of the treatment conditions, respondents express less enthusiasm for the mayor. All of these differences are statistically significant. The responses on the feeling thermometer between the more and less credible accusations and between the less credible accusations and the unsourced accusations are statistically distinguishable from each other, whereas the responses between the unsourced and the credible treatments are not statistically distinguishable.

Using education as the proxy for political sophistication, we again find that discernment between sources is increasing in education with statistically significant differences between the more and less educated groups observed for all groups below the least educated and with the difference being the largest in magnitude for the most educated group.

Using political knowledge as the proxy for political sophistication, we again find that the most and least knowledgeable do separate but that the respondents who answered a single political knowledge question right rated the mayors in the credible condition more highly in a way that makes their level of discernment appear lower.

<i>Feeling thermometer</i> (1=terrible mayor; 7=great mayor) (N)	Average Response (Standard Error) [95% CI]	Estimated Difference from Control Conditions	Estimated Difference from Unsourced Accusations	Estimated Difference from Less Credible Accusations
Credible Accusations (N=572)	3.56 (0.08) [3.41, 3.71]	-1.93 (0.10) [p < 0.01]	-0.03 (0.13) [p < 0.82]	-0.45 (0.11) [p < 0.01]
Less Credible Accusations (N=572)	4.01 (0.08) [3.85, 4.16]	-1.48 (0.10) [p < 0.01]	0.42 (0.13) [p < 0.01]	--
No Source of Corruption Accusations (N=286)	3.59 (0.11) [3.38, 3.80]	-1.90 (0.12) [p < 0.01]	--	--
Pure Control/Control with Clean Mayor (N=572)	5.49 (0.07) [5.36, 5.62]	--	--	--

Replication of Table 2 for Feeling Thermometer Outcome.

<i>Feeling thermometer</i> (1=terrible mayor; 7=great mayor)	Illiterate/Less than primary	Complete primary; incomplete middle	Complete middle; incomplete secondary	Complete secondary	At least some tertiary
Not credible	3.81 (0.25) N=64	3.98 (0.15) N=148	3.95 (0.16) N=130	4.18 (0.16) N=137	4.01 (0.18) N=93
Credible	3.90 (0.25) N=68	3.49 (0.15) N=132	3.48 (0.16) N=147	3.61 (0.15) N=148	3.42 (0.19) N=77
Difference	-0.08	0.48	0.47	0.56	0.59
p-value on H ₀ : No Difference	0.82	0.03	0.04	0.01	0.03

Replication of Table 3 for Feeling Thermometer Outcome

<i>Feeling thermometer (1=terrible mayor; 7=great mayor)</i>	No Political Knowledge Questions Right	One Political Knowledge Question Right	Both Political Knowledge Questions Right
Less Credible Accusations	3.94 (0.10) N=340	4.03 (0.17) N=125	4.21 (0.17) N=107
Credible Accusations	3.52 (0.09) N=368	3.80 (0.19) N=110	3.43 (0.19) N=94
Difference	0.41 (0.14)	0.23 (0.25)	0.78 (0.25)
<i>p-value on H0: No Difference</i>	0.01	0.36	0.01

Replication of Table 4 for Feeling Thermometer Outcome