

Exogenous Shocks and Misattribution of Responsibility for Economic Performance: Results From Survey Experiments*

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Abstract

The economic vote can work as mechanism of democratic accountability as long as voters are able to properly assign responsibility for economic performance. Whereas most models assume this ability, recent empirical work suggests that this assumption does not always hold. In Latin America, in particular, it has been shown that voters often attribute to the president economic outcomes beyond her control. This paper presents two survey experiments that use alternative strategies to attempt to correct this misattribution. Our results suggest that providing information, raising awareness, and increasing motivation to correct biases affect individuals' misattribution of responsibility for economic performance, but this effect is limited to the more sophisticated individuals, and substantively small. Misattribution bias, therefore, seems to be a very resilient phenomenon that is not easily corrected.

A condition for the economic vote to work as a mechanism of democratic accountability is that voters are capable of correctly assigning responsibility for economic performance. With economies progressively more integrated, this entails recognizing and discounting factors that influence economic outcomes but are beyond governments' responsibility. Recent theories suggest that voters develop this capacity by observing their country's economic performance over time and comparing it to other countries that experience common cycles (Duch & Stevenson 2008). Relative performance works, in that sense, as a *proxy* for government's competence.

Numerous studies, most of them in OECD countries, indicate that voters actually behave in accordance with these expectations. Duch & Stevenson demonstrate that economic voting is less likely to be observed in small open European economies, in which voters perceive governments as limited in their capacity to influence domestic economic outcomes. Along the same lines, Kayser & Peress (2012) show that voters punish and reward governments based on their country's relative economic performance, and contend that the media may play a key role in this process. Hellwig &

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Samuels (2007) find that greater economic integration weakens economic voting in a large sample of countries, and Ebeid & Rodden (2005) demonstrate that the connection between macroeconomic performance and incumbent governor success is weak in states in the U.S. whose economy is based on natural resources and farming, but strong elsewhere in the country.

Yet more recent research has shown that voters' are not always capable of properly assign responsibility for economic performance. For example, Campello & Zucco Jr. (Forthcoming) show that in the low-savings-commodity-exporting (LSCE) countries of Latin America voters systematically reward presidents that rule under high commodity prices and low U.S. interest rates, and punish those who govern in the opposite scenario, even though these factors are unquestionably exogenous to policymaking.¹ The authors conjecture that low exposure to information about global outcomes — associated with a tradition of inward-looking development strategies, relatively low economic and political integration and limited access to media — likely explains Latin Americans' tendency to misattribute economic outcomes caused by exogenous shocks, and therefore to overestimate the impact of government policies.² Still, the exact mechanisms that explain voters' incapacity to discount exogenous factors — a crucial element to understand voting behavior and democratic accountability — as well as the means to correct this misattribution have yet to be established.

In this paper, we report the results of two survey experiments aimed at testing alternative mechanisms through which citizens may distinguish competence from exogenous factors when assessing their governments' performance. In the first study, conducted in Brazil, we examine whether the evaluation of the competence of the president is affected by receiving information about the relative performance of the country's economy.

The second study differs from the first in two aspects. First, instead of providing information on relative performance, we inform participants about variation in commodity prices. Second, we build on the psychology literature to explore whether voters' misattribution of responsibility for economic performance results from failure to know or apply normative rules of inference (informational issues), or from mental contamination (cognitive issues), defined as the process whereby a person has an unwanted response because of mental processing that is unconscious or uncontrollable (Wilson & Brekke 1994).³ We posit that if this is a case of "failure of rule knowledge and

¹Novaes & Schiumerini's (2015) finding that commodity shocks enhance the probability of reelection of incumbent mayors in Brazil has recently reinforced these results.

²Alcañiz & Hellwig (2011) also show that, even though economic integration is associated with an increased propensity to blame non-elected agents for economic performance, government policies are still largely perceived as the most important determinant of economic outcomes in the region.

³In that sense, we propose that attributing chance to competence is an unconscious unwanted response that distorts the incentives for good policymaking, and therefore suppose that voters would prefer not to act in such way if they were aware of it.

application” (p.118), misattribution can be corrected by the provision of adequate information. If it results from mental contamination, however, correction requires not only that individuals access the appropriate information, but also that they become aware of the bias and motivated to correct it, and is therefore less likely to happen.

Study #1 is conducted in Brazil, and Study #2 in Brazil and in Ecuador. This design enables us to compare the effects of alternative debiasing mechanisms in a single country, as well as to observe whether the visibility of exogenous shocks, which varies between countries, affect citizens’ capacity to debias. Both the Brazilian and the Ecuadorean economies are largely affected by commodity price shocks, but whereas Brazil relies on a basket of commodity exports, Ecuador is basically an oil exporting economy. For this reason, we expect Brazilians to be far less aware of price shocks than Ecuadoreans; if so, once primed about these shocks it should be easier for Ecuadoreans to discount them. Finally, in addition to providing information, there are treatments in Study #2 designed to raise respondents’ awareness of their potential bias and motivate them to correct it. This allows us to better discriminate whether biases result just from faulty information or whether they are a case of “mental contamination.”

Our results offer some evidence that providing proper information — both about relative performance and about commodity price shocks — and to some measure raising awareness of biases contribute to reduce voters’ misattribution. Yet this effect is restricted to sophisticated voters, and quite limited considering the size of the bias suggested by macro research (Campello & Zucco Jr. 2015). We devise two potential explanations for these findings; one is simply that, consistent with psychologists’ assertion, once biases are formed, correction is very unlikely. Another alternative is that debiasing may only happen through learning over time, which is very different from being informed. In the future, we plan to test these hypotheses by exploring whether respondents are able to discount exogenous shocks in settings in which they do not have any prior about government competence, and in within-subjects experiments to which relevant information is provided over a long period of time.

This paper is organized as follows. The next section reviews political science research on attribution of responsibility for economic performance, and in the subsequent one we examine the problem from the standpoint of psychological theories on misattribution. The following two sections report each of the experimental studies, and the final section discusses tentative conclusions and explores potential venues for advancing this research.

1 Misattribution of Responsibility for Economic Performance

Voters' capacity to evaluate and sanction elected politicians is a central topic in the study of democracy. This debate has been traditionally anchored on two conflicting perspectives. The Michigan school, on the one hand, asserts voters' lack of both knowledge about political issues and coherent ideological structure (Campbell, Converse, Miller & Stokes 1960, Converse 1969). In contrast, the retrospective voting literature (Ferejohn 1986, Fearon 1999, Torsten, Roland & Tabellini 1997, Canes-Wrone, Herron & Shotts 2001) posits that, by using information at hand and shortcuts from like-minded citizens and parties, voters are capable of sanctioning and selecting the most competent and honest leaders. As Healy & Malhotra (2013) point out, recent research suggests real voters occupy a "middle ground" where they sometimes, but not always, make mistakes when observing economic outcomes, assigning responsibility for them, and deciding to punish or reward incumbents accordingly. Arguably, these mistakes only matter as long as they distort the incentives for good policymaking.

In this context, scholarly work has progressively focused on establishing the conditions under which the economic vote can actually work as a mechanism for improving democratic accountability. Along these lines, the literature on clarity of responsibility proposes that economic voting is more likely to promote accountability the more citizens can identify the party responsible for economic conditions (Powell & Whitten 1993). In the particular case of presidential systems, scholars have explored how electoral laws (Benton 2005) and separation of powers (Samuels 2004, Johnson & Schwindt-Bayer 2009) affect voter's capacity to attribute responsibility and hold politicians accountable, and have concluded that the presidency is the arena where the economic vote most often manifests in the region (Samuels 2004).

Increasing levels of economic internationalization motivated another strand of the literature to investigate the conditions that allow voters to punish and reward governments exclusively for economic outcomes they can control or influence. For this to happen, voters should be able to identify (and discount) exogenous components of their country's economic performance. Alesina & Rosenthal (1995) offered a theoretical foundation for this process by modeling economic growth as a function of a natural rate plus unanticipated shocks that are caused either by incumbents' competence or by an exogenous element. In this model, voters cannot directly identify the components of economic shocks but, by discounting the variance of these shocks, they can correctly assess incumbent competence.

Duch & Stevenson (2008) elaborated on this model by stressing that both elected and non-elected decision makers influence the domestic economy. The voters' conundrum, thus, is to identify and separate competence shocks — those associated with elected officials — from everything else

that can be considered exogenous shocks. In countries where non-elected decision makers have relatively large influence over economic outcomes, the observed variance of exogenous shocks is substantially larger than that of competency shocks. In these settings, voters should not evaluate their governments based on the state of the economy, a proposition that finds support in a sample of European countries. Yet whereas Alesina & Rosenthal assume that voters know the distribution of exogenous shocks, Duch & Stevenson stress that they learn it by “observing global economic outcomes” (p. 150). This means that, even when the competence shock is substantial, voters can only extract the information necessary to reward or punish leaders by making a relative assessment of their country’s economic performance.

The logic that relatively large economic shocks weaken the economic vote finds echo in the results of several other recent studies. Hellwig & Samuels (2007), for instance, find that greater exposure to trade and capital flows decreases economic voting in a large sample of countries. Alcañiz & Hellwig (2011) show that economic integration is also associated with an increase propensity to blame non-elected agents (such as the IMF) for economic performance in Latin America. Ebeid & Rodden (2005) demonstrated that the connection between macroeconomic performance and incumbent governor success is weak in states in the U.S. whose economy is based on natural resources and farming, but strong elsewhere in the country. Finally, Kayser & Peress (2012), show that voters punish and reward governments mostly based on their country’s *relative* economic performance, which works as a proxy for government competence. Based on data from the U.K., Kayser & Peress further contend that the media may play an important role in enabling this process.

Nevertheless, the same rationale that explains Europeans’ capacity to assess relative performance suggests that voters not exposed to the same levels of economic integration, and therefore to information about global economic outcomes, should be less capable of discounting exogenous shocks. In such a context, voters should overestimate the impact of policymaking on economic outcomes, punishing and rewarding incumbents for factors they can not control. In the low-savings-commodity-exporting countries of Latin America, for example, where economies are heavily reliant on commodity exports and on foreign savings, Campello & Zucco Jr. (2015) have shown that presidents that govern in periods of high commodity prices and low U.S. interest rates are far more popular and successful in electing their successors than those that preside under opposite conditions. Considering that neither factor falls under executives’ control, this evidence reveals voters’ assessment of government performance are biased – i.e., they systematically misattribute responsibility for economic outcomes. These results find echo in Novaes & Schiumerini (2015), and are similar of those reported by Leigh (2009) in a sample of 268 countries, in which citizens are

shown to vote according to *absolute*, not *relative* economic performance.

Campello & Zucco Jr. conjectured that voters' misattribution might result from incomplete information. Due to the prevalence of inward-looking developing models during much of the 20th century, very limited levels of economic or political integration, and citizens' low access to media,⁴ voters might not have enough information to benchmark their country' economic performance. This, in turn, would lead them to overestimate the impact of policymaking on economic outcomes. Yet another possibility, in particular in countries that rely on a single commodity export such as oil in Venezuela and Ecuador, or copper in Chile, is that voters are aware of exogenous shocks (presidents' "good" or "bad" luck), but can not help but think higher of those who deliver better outcomes. In that case, misattribution happens not due to lack of information, but to what the psychology literature denominates "mental contamination."

Scholarly work has documented numerous instances in which irrelevant events such as shark attacks and droughts (Achen & Bartels 2006), severe weather damage (Gasper & Reeves 2011, Cole, Healy & Werker 2012) and college games (Healy, Malhotra & Mo 2010) seem to have a substantial impact on voting behavior, and authors concluded that a sense of well being at the moment of the vote tends to influence support for incumbents.⁵ Healy, Malhotra & Mo (2010) go a step further and examine the mechanisms that could contribute to debiasing such behavior. Based on Schwarz & Clore's (1983) findings that the effect of externally-induced mood on political judgments can be eliminated when subjects are explicitly exposed to the irrelevant information, the authors prime respondents into thinking about the results of the games before asking them about support for the government, and find that the treatment reduces the impact of wins on support for the government. Huber, Hill & Lenz (2012) obtain similar results in experimental settings, but find that misattribution persists even when respondents are explicitly informed about it.

Our case is in many ways comparable to those mentioned above. On the one hand, the effects of exogenous shocks on the economy are harder to disentangle, or discount, than the well-being effects of college games or shark attacks, since they have an effect on incumbent *observed performance*.⁶ Yet like these "irrelevant" events, exogenous shocks are arguably unrelated to incumbent *competence*. Conceiving voters' attitude of not discounting exogenous factors as a specific case of misattribution allows us to tap into a vast body of scholarly work in psychology that has examined

⁴Average circulation of daily newspapers in the region is only about 54 per 1,000 people, compared to 289 in the United Kingdom, 267 in Germany, and 313 in the Netherlands (*Total average circulation per 1,000 inhabitants*, UIS Data Centre and UNESCO Institute for Statistics, available at <http://data.un.org/>). Internet usage in Latin American countries stands, on average, at 48% of the population whereas in the European Union this figure is at 75%, and reaches 90% in some Western European countries (*Internet users per 100 inhabitants*, World Development Indicators, available at <http://databank.worldbank.org>).

⁵Based on that, Healy, Malhotra & Mo (2010) conjectured that maybe it is the sense of well-being that connects economic outcomes and the vote.

⁶These shocks affect governments' capacity to deliver public and private goods to constituencies.

sources and possible solutions to cognitive biases, which we discuss in the next section.

2 Correcting Misattribution

In a comprehensive categorization of the literature on cognitive biases, Wilson & Brekke (1994) distinguish biases that arise from not knowing or not applying some established inferential rule from those that arise from “mental contamination,” a situation in which a person ends up with an “unwanted judgement, emotion, or behavior because of mental processing that is unconscious our uncontrollable” (p.119).

The first type of bias can be dealt with by providing information about the rule that should apply to the situation at hand. Granted, simply knowing the rule does not guarantee that it will be used correctly, but knowledge of the rule alone should reduce the incidence of misattribution. The second type of error, however, is harder to deal with because avoiding contamination implies clearing successive hurdles that are hardwired into the basic nature of the cognitive system. In the words of the authors,

Some studies have shown that an increase of people’s awareness eliminates mental contamination; some have found that awareness causes people to adjust insufficiently, leading to under correction; some have indicated that awareness causes people to adjust their responses too much, leading to overcorrection; and some have shown that awareness does not cause people to adjust their responses (Wilson & Brekke 1994, p. 130).

Overall, the authors express pessimism about people’s ability to avoid mental contamination: “due to lack of awareness of mental processes, the limitations of mental control, and the difficulty of detecting bias, it is often very difficult to avoid or undo mental contamination” (p.117).

In this paper, we hypothesize that voters’ misattribution of responsibility for economic performance results from two alternative mechanisms. In the simplest case voters do not have information necessary to correct their misattribution but, once they do, this correction should happen. In a second alternative, however, voters might not be able to dissociate the state of the economy from presidential competence irrespective of knowing that economic performance largely depends on factors that presidents do not control (such as international oil prices). In that case debiasing becomes very unlikely; even if an individual realizes that some share of economic outcomes is caused by factors beyond governments’ control, how relevant this share is, how to discount it, and even whether discounting is worth the effort, are much more complex processes than those required in the case of irrelevant events. This is even more true if, as Healy, Malhotra & Mo (2010) suggest,

the “strong correlation between economic performance and the probability of incumbent reelection may be that voters’ general sense of well-being serves as a conduit between the state of the economy and electoral outcomes” [p.4].

In order to determine the micro foundations of Latin America voters’ behavior, we conducted a two “debiasing studies,” in which the goal is to reduce the misattribution in subjects’ reasoning. As Wilson & Brekke (1994) point out, debiasing studies are more likely to succeed when they help participants clear all the said hurdles. In other words, when “they make people aware of the unwanted processing, motivate people to resist it,” when people become “aware of the direction and magnitude of the bias and have sufficient control over their response to correct for it” (Wilson & Brekke 1994, p. 133). Additionally, it is easier to correct biases that arise from decisions subject to conscious mental processes.⁷ In our case, the assessment of presidents’ job performance is clearly within the realm of conscious information processing, and therefore we do not worry about it.

We designed our studies to examine the mechanisms described above, which can be divided into informational and cognitive bias. We explore the two alternatives identified in the literature for the debiasing process — information on relative performance and on the occurrence of exogenous shocks. Study #1 deals with the informational side, and hypothesizes that a country’s economic performance, when compared to other countries that experience common economic cycles, can function as a *proxy* for competence. In this study, we provided respondents with information (both positive and negative) about the relative economic performance of their country (Brazil), and observed whether this information influenced respondents’ assessment of the president’s competence.

The second study takes advantage of the fact that economic performance in the commodity-exporting countries of Latin America is closely related to fluctuations on commodity prices. Rather than relative performance, thus, we informed respondents about president’s “luck” — the impact of exogenous shocks that largely affected countries’ economic outcomes in the past few years. Positive and negative cues were given using different periods of time, as in both countries export prices grew dramatically in the past decade but fell sharply in the past couple of years.

Moreover, in addition to information, this study attempts to identify whether misattribution is a result of “mental contamination.” To do so, we experimented with manipulations that should help respondents clear the hurdles described in Wilson & Brekke (1994). In general, becoming aware of unwanted mental processing requires relatively strong and credible manipulations. We sought to make people aware of biases by (1) informing about the impact of the behavior of commodity prices on the country’s economy, (2) raising awareness about the fact that voters often evaluate governments for things they can not control, and, at last (3) motivating respondents to correct

⁷Examples of subconscious process are racial and gender discrimination (Fiske & Krieger 2011).

their biases indicating that specialists consider this misattribution harmful to democracy. These cues provided people with the “direction” of the possible bias and some notion of its magnitude. These manipulations were implemented cumulatively, as psychological research suggests that all possible hurdles in the cognitive process (i.e. awareness, motivation, direction) have to be cleared in order for debiasing to be possible.

3 Study #1: Information on Relative Performance

In this study, we examine whether providing information about a country’s economic performance relative to peer countries affects respondents’ assessment of the president’s management of the economy. We fielded this experiment in Brazil, embedded in two waves of the 2014 Brazilian Electoral Panel Study (BEPS), carried out during the 2014 presidential electoral campaign.⁸

3.1 Design of the Study

The study consisted of three simple experimental conditions, embedded at the end of a larger survey. The outcome variable was respondents’ rating of President Dilma Rousseff’s performance in managing the economy.⁹ Prior to answering this question, participants were randomly assigned to one of the following three different conditions in which we manipulated relative information about the country’s performance. Between the manipulation item and the outcome question, respondents answered filler items about media attention.

- Control: No information about relative performance was provided
- Negative: Respondents were asked whether they knew that in the previous three years the Brazilian economy had grown less than the economies of countries “such as Argentina, Chile, and Mexico”
- Positive: Respondents were asked whether they knew that in the previous three years, the unemployment rate in Brazil had been lower than in countries “such as Argentina, Chile, and Mexico”

One clear limitation of the study is the asymmetry between the type of information provided in the positive and in the negative manipulation, as respondents may care more about growth than unemployment (or vice-versa). However, it is impossible to provide truthful information, with

⁸The first wave of this survey was carried out with household interviews, in a nationally representative sample of 3,000 respondents. The follow-up waves interviewed subsets of this original sample over the phone.

⁹Actual wording was: “Como o(a) Sr.(a) avalia o desempenho da Presidente Dilma no que diz respeito apenas à política econômica do país? É ótimo, bom, regular, ruim ou péssimo?” (“How do you evaluate President Dilma’s management of the economy? Is it very good, good, regular, bad or very bad?”)

Table 1: Between Subjects Treatment Effects (Study #1)

Controls	Linear		Ordered Logit	
	No	Yes	No	Yes
Negative Manipulation	-0.175	-0.173	-0.303	-0.304
<i>p-value</i>	0.013	0.012	0.032	0.032
Positive Manipulation	-0.062	-0.048	-0.067	-0.040
<i>p-value</i>	0.365	0.491	0.351	0.382

Estimates are based on comparison of each treatment condition to the control condition. P-values are computed from robust standard errors.

negative and positive content, using the same indicator and the same countries as comparison. As we prioritized holding countries fixed and using only truthful information, we were forced to vary the particular aspect of the economy used in positive and negative primings.

3.2 Sample Descriptives

The sample consisted of 1,203 of the more than 3,000 interviewees in the BEPS. Participants were first interviewed in-person in June of 2014 as part of the initial round of the BEPS. The initial wave also included the same question used as the outcome variable in the experimental survey. In mid-July and late-August, respondents were interviewed once again, this time over the phone, and were subject to the manipulation described above. A total of 397 respondents were assigned to the control condition, 403 to the negative condition, and 402 to the positive condition. Balance statistics are reported in the Appendix. There were no observed differences between those that were re-interviewed in the July and those that were re-interviewed in August.

3.3 Results

Figure 1 reports both the between- and within-subjects results of the study. The effect of receiving relative information is limited to the negative manipulation in the between-subjects analysis. The positive manipulation yielded no effect, and neither manipulation generated any effect in the within-subjects comparison.

Table 1 makes these graphical results clearer. Regardless of whether we simplify the analysis by transforming the outcome variable to a linear five-point scale, or whether we employ an ordered logit approach, we find that the negative manipulation did yield significant effects on the assessment of the presidents job performance, while the positive manipulation did not. These effects, however, cannot be overstated. Although statistically significant, the negative between-subjects effect corresponds to less than 0.2 standard deviations of the dependent variable.

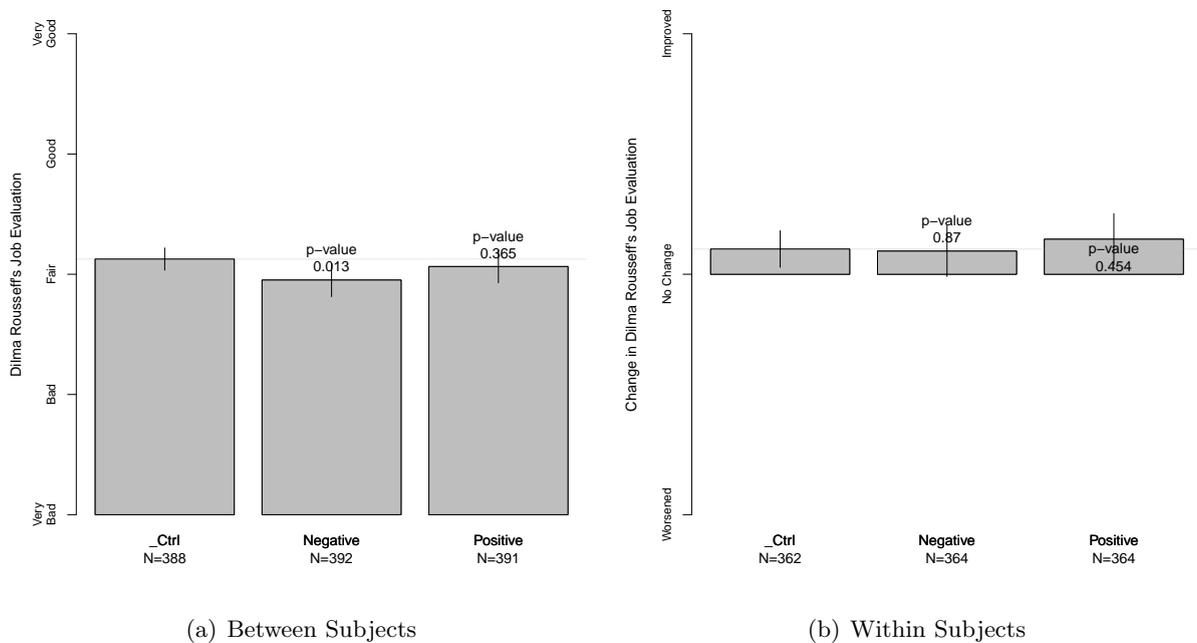


Figure 1: Treatment Effects (Study #1)

Robust standard errors are shown, and p-values refer to t-tests of each treatment condition relative to the control condition. The N is smaller in the within subjects because some respondents filed to answer the outcome question prior to treatment.

We also examined some heterogenous treatment effects, namely whether results held for partisans and non-partisans, and for respondents with different levels of political knowledge. Surprisingly, we found no effect of partisanship on the results, but found that for respondents with higher levels of political knowledge, both the positive and the negative manipulations had significant effects, on the expected direction, on voters' assessment of the president (Figure 2).¹⁰ While we would have expected that the marginal effect of information should be larger for respondents with less a priori information, higher levels of information might very well be capturing greater sophistication (and capacity to process information). In this sense, the results suggest that more sophisticated voters would be more capable of correcting misattribution when provided with information. This, in turn, implies that the prospects for such correction in the Latin American context are meager. It is important to keep in mind, however, that randomization was not performed conditional on knowledge levels, which means the study was not designed to answer this question.

¹⁰Political knowledge was assessed in the face-to-face wave of the BEPS, through factual questions about domestic and international politics. We produced a knowledge index based on the answers to these questions, used to various analyses embedded in the project.

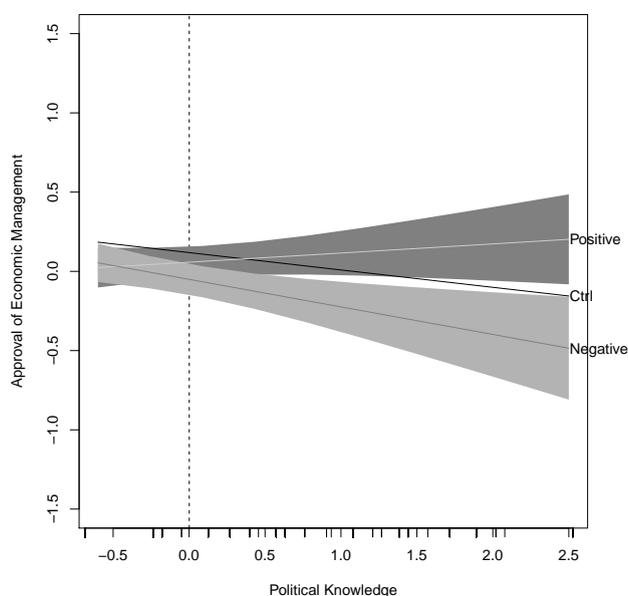


Figure 2: Treatment Effects (Study #1) - Sophisticated Voters

The political knowledge index is based on answers to factual questions about domestic and international politics asked in the face-to-face wave of the BEPS.

4 Study #2: Information about Exogenous Shocks

In this study, we explore the second potential mechanism for correcting voters’ misattribution of responsibility for economic performance, i.e. the provision of information about the effect of exogenous shocks — a proxy for presidents’ “chance” — on economic outcomes. Our expectation is that individuals discount good/bad luck, and change their assessment of presidents’ competence according to the following rationale: given observed economic outcomes, more “chance” implies less competence. Study #2 also considers the possibility that misattribution results from “mental contamination,” rather than just faulty information, and includes treatments designed to raise respondents’ awareness about their potential bias and to motivate them to correct it. We fielded these experiments in Brazil and Ecuador; in both cases, export prices have risen substantially over the previous decade, and dropped dramatically in the past few years. The drop in oil prices was more abrupt, and concentrated in the last 12 months.

4.1 Design of the Study

We implemented a seven-condition survey experiment which was produced by a simple 3x3 factorial design, where two conditions were eliminated for being logically inconsistent. There was one control group, that received neither a cognitive nor a informational manipulation, and which was simply

asked to evaluate the president’s competence. The other six conditions were implemented as a 2x3 factorial design, with two informational and three cognitive manipulations. The cognitive manipulations included one control (no manipulation), one awareness, and one awareness and motivational manipulation. The informational manipulations consisted of either reporting that oil prices had risen or that oil prices had fallen, as follows:

		Cognitive		
		No Manipulation	Awareness	Awareness+ Motivation
Informational	No Manipulation	A		
	Oil Increased	B	C	D
	Oil Fell	E	F	G

The manipulations implemented were the following:

- Informational:
 - *Control*: No informational manipulation
 - *Oil [Commodities] Increased* Have you heard or read any news relative to the following: In the past ten years, the economy of Ecuador [Brazil] has been benefitted by an unprecedented rise in international oil prices [boom in international commodity prices], which tripled [doubled] compared to the previous decade.
 - *Oil [Commodities] Fell* Have you heard or read any news relative to the following: In the last year [last four years], the economy of Ecuador [Brazil] has suffered with a more than 50% [almost 40%] drop in international oil [commodity] prices.
- Cognitive:
 - *Control*: No cognitive manipulation
 - *Awareness*: Recent studies suggest that one’s assessment of presidents’ performance is frequently influenced by factors they cannot control. Do you believe you make this same mistake?
 - *Awareness+Motivation* Recent studies suggest that one’s assessment of presidents’ performance is frequently influenced by factors they cannot control, and that this is harmful to democracy. Do you believe you make this same mistake?

4.2 Sample Descriptives

In Ecuador, we fielded the study between 2015-10-02 and 2015-10-15. The dataset downloaded from Qualtrics in 2015-10-26 contained a total of 3,544 responses. After eliminating those that

originated outside of Ecuador, under-age respondents, those that originated from repeat IP addresses, and those that that dropped out prior to answering the outcome question, we were left with 2937 responses. The median time to completion of these surveys was 4.6 minutes and 43.9% of respondents passed the attention screener. The screener was identical to the demanding screener employed in previous studies, but differently than before, we did not include a timer, and did not limit respondents time to answer. We focus on the subsample of 1288 respondents who passed the screener.

In Brazil, we fielded the study between 2015-10-13 and 2015-11-08. The dataset downloaded from Qualtrics on 2015-11-09 contained a total of 1794 responses. After eliminating those that originated outside of Brazil, under-age respondents, those that originated from repeat IP addresses, and those that that dropped out prior to answering the outcome question, we were left with 1586 responses. The median time to completion of these surveys was 4.5 minutes and 43.2% of respondents passed the attention screener. The screener we used departed from the demanding one employed in previous studies in that we did not include a timer and did not limit respondents time to answer it. We focus on the subsample of 685 respondents who passed the screener.

In prior pilot studies we found that, whereas a large percentage of Ecuadorean respondents were aware that oil is a key driver of economic outcomes, about half of them believed that the president is responsible for oil price fluctuations. We also discovered that respondents were not easily swayed to change their minds even after we explicitly told them that international commodity prices were not controllable by any particular president. Our conclusion is that we should treat this as a given characteristic of respondents than can be either “naive” (i.e. believe the president sets commodity prices) or “sophisticated” (i.e. understand commodity prices are exogenous), and we expected our manipulations to only produce an effect on the sophisticated respondents. This prompted us to explore the existence of heterogenous treatment effects across the types of respondents.

Therefore, after the experimental items in Study #2 we asked all respondents how much influence they thought their president had over commodity prices. Those that responded “no influence” were labeled sophisticated. The raw percentages of either type of respondent in both countries are reported in Table 2, which also reports some other factual questions that were asked only of those in the control group.¹¹

¹¹It would not make sense to ask the questions about the behavior of prices to all respondents, as these were the object of our manipulation. We decided not to ask the question about whether high commodity prices benefit the domestic economy because a large share of respondents in our pilot studies in Ecuador answered these positively. It turned out that this was not true in Brazil.

Table 2: Correct Answers to Knowledge Questions

	Ecuador		Brazil	
	Share Correct	N	Share Correct	N
President has no influence on prices	0.56	1288	0.29	685
High prices help the economy	0.70	177	0.24	101
Prices rose the previous decade	0.46	177	0.47	102
Prices fell in the recent years	0.84	179	0.24	105

Table shows shares of respondents that held “correct” beliefs in four questions. Prices, in all cases, refer to “commodity prices” in Brazil, and “oil prices” in Ecuador. The first question was asked for all respondents, after the experimental items. The other three questions were asked only of those in the control group.

4.3 Results

Figure 3 focuses on the main effects of the informational manipulation (i.e. ignoring the cognitive manipulation). The center bars present results for the whole sample, whereas the bars to the left and to the right in each panel examine heterogenous effects, by disaggregating the sample into naive and sophisticated respondents.

The patterns are quite clear. For the whole sample there are no effects in Ecuador, and very small effects in Brazil. However, there are larger differences in the expected directions among sophisticated respondents. We find statistically significant differences both between those primed with positive and negative information, as well as between those that were told that commodity prices decreased and the control group. Although significant, these differences are substantively small. The difference between receiving positive and negative information about commodity prices is equivalent to 0.4 st. deviations of the dependent variable in Brazil, and 0.2 st. deviations in Ecuador.

Interestingly, whereas naive voters in Brazil do not respond to informational primes at all, those in Ecuador do, but in a way opposite to what we expected; those who learn about price drops find president Correa less competent than those informed about price rises. We believe this reflects the fact that these naive respondents attribute the fall in oil prices to president Correa.

The center panels in Figure 4 shows the complete experimental results for all seven treatment conditions. The patterns are very similar to those described above but somewhat less clear due to smaller sample sizes in each condition. It is still quite clear, however, that on average, there is essentially no effect of any treatment on individuals’ assessments of presidents’ competence among attentive respondents.

Once again, when we examine heterogenous effects, and disaggregate the data into naive and sophisticated voters — left and right panels in Figure 4 — that it is possible to observe treatment effects. Both in Brazil and in Ecuador, sophisticated voters seem to be affected by information about exogenous shocks, in the expected direction, though in both cases the effects do not increase

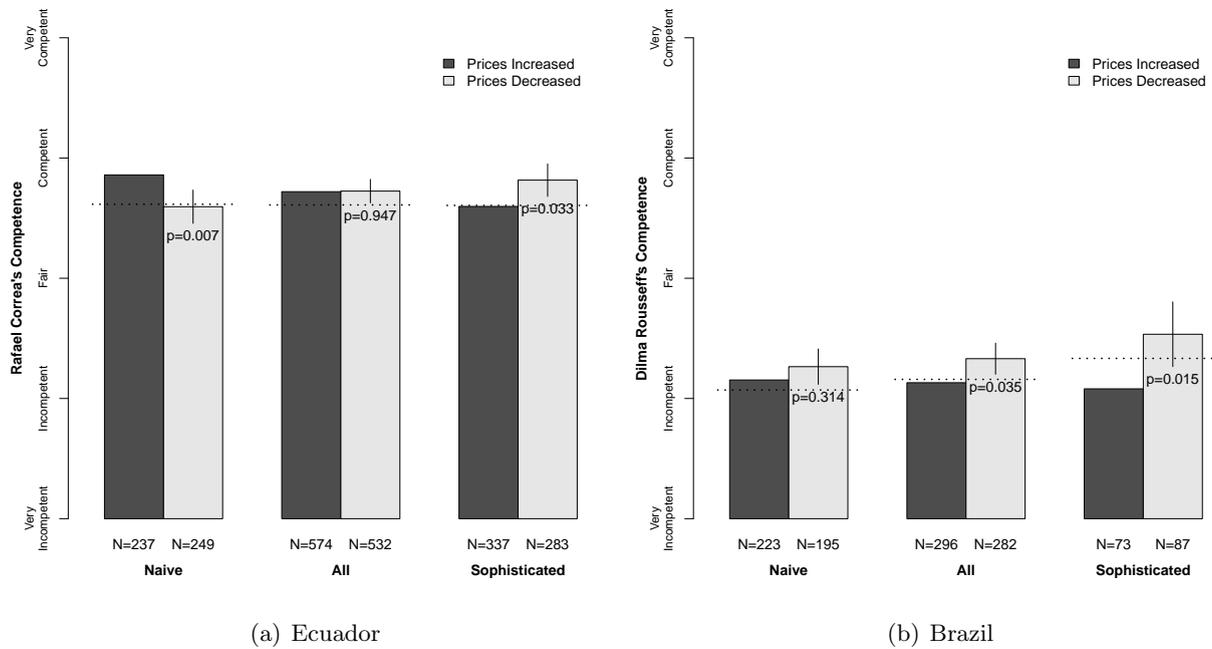
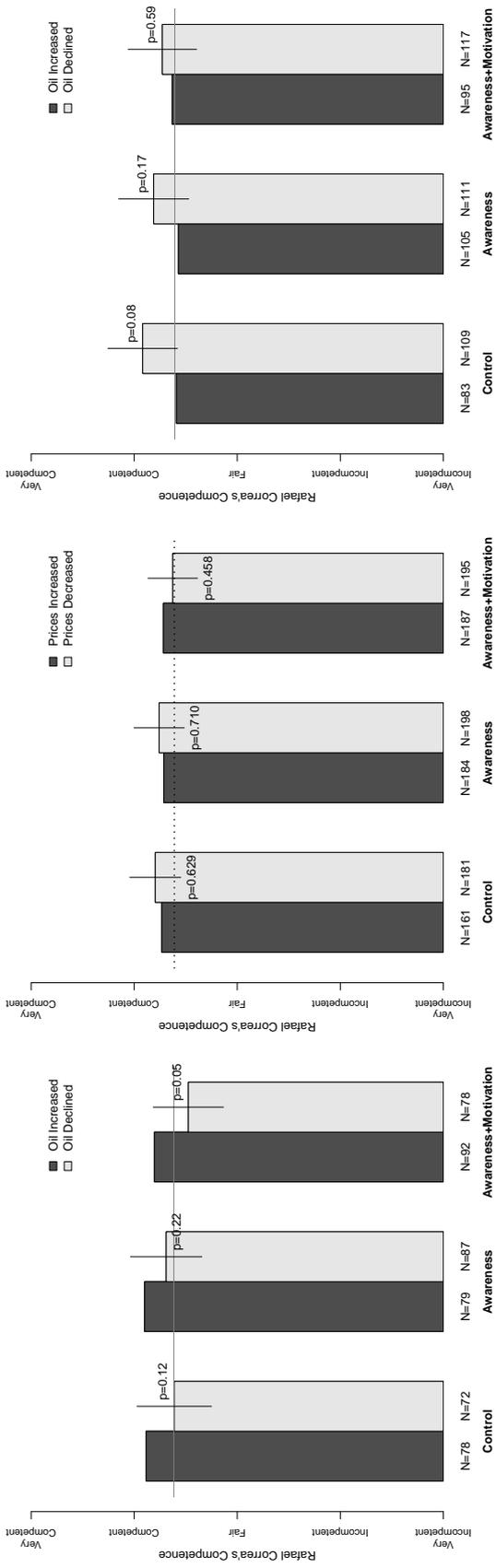


Figure 3: Government Evaluation by Type of Respondent and Informational Condition (Study #2)

Dotted lines refer to controls, and p-values to the differences of effects between treatments.

with the cognitive manipulations. This suggests that misattribution is probably driven mostly by informational issues, and not cognitive biases. Naive voters exhibit either no or opposite effects.

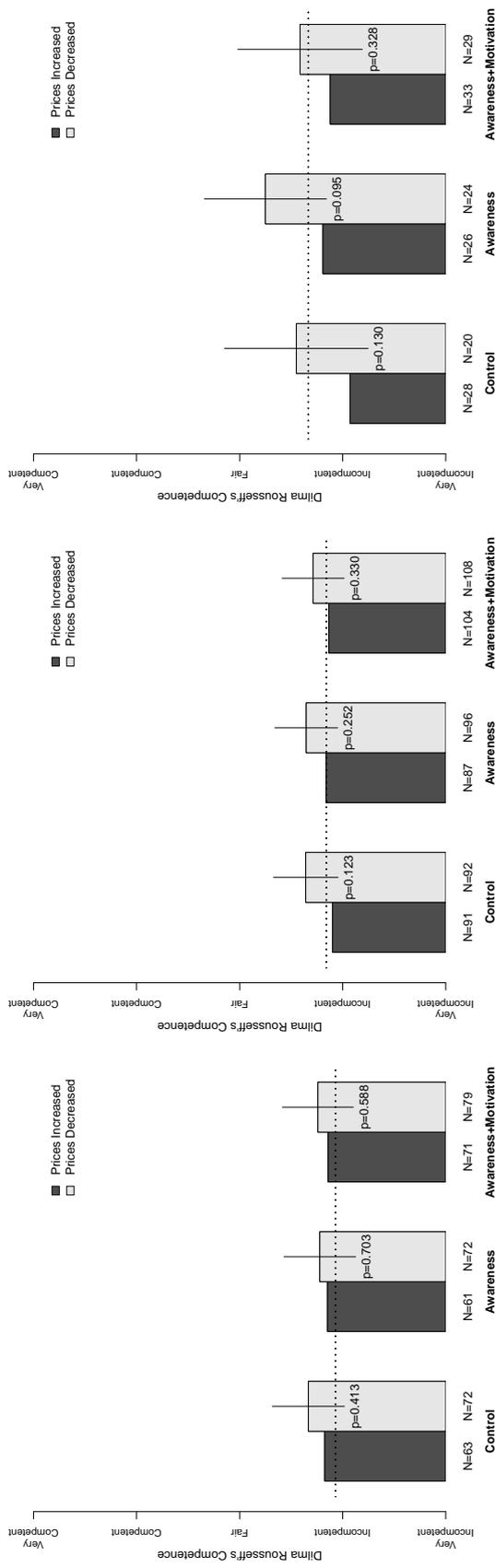
Finally, opening this information by treatment (Figure 4) indicates that whereas in Ecuador the bulk of the effect is associated with the informational treatment, in Brazil making individuals aware of their potential bias has a clearer effect. This suggests that in a country where individuals are less aware of commodity price shocks it takes more to correct misattribution than simply the provision of information. Still, these results should be taken with a grain of salt, since the study was not particularly designed to explore heterogeneous effects between naive and sophisticated respondents.



(a) Ecuador Naïve

(b) Ecuador All

(c) Ecuador Sophisticated



(d) Brazil Naïve

(e) Brazil

(f) Brazil Sophisticated

Figure 4: Government Evaluation by Respondent Type and Condition (Study #2)

Dotted lines refer to controls, and p-values to the differences of effects between treatments.

5 Discussion and Next Steps

The starkest regularity to emerge from our analysis is that we had only very meager success in debiasing respondents. There was some minor debiasing in Study #1, but only for the negative condition and only for the between-subjects analysis. In Study #2 no treatment revealed any effect in the full sample of attentive voters. In both cases, however, results differ quite clearly between naive and sophisticated voters, even if still with a limited size. Sophisticated voters respond as expected in all cases, whereas naive do not respond to treatment in Brazil (neither Study) and respond in a way opposite than expected (yet logical) in Ecuador — individuals who believe that Correa does control price fluctuations consider him less/more competent as they learn of price drops/rises.

Before considering the potential theoretical implications of these findings, which are plenty, it is necessary to engage in extra-careful scrutiny of the approach to determine whether some feature of the choice of cases, research design, or delivery medium might be preventing us from uncovering debiasing effects. Some limitations of our studies are rather obvious. First, we provide information to respondents in a fairly artificial setting. Theoretical models of signal extraction reviewed earlier assume that voters gather and observe information over time, embedded in context. It is possible, therefore, that true information acquisition and processing cannot be easily replicated in experimental settings, especially in a relative low-stake environment as the internet. This also applies to Study #1, which also failed to generate strong debiasing in a more personal form of interaction between researcher and subject. The intuition that voters' acquire by processing facts over time might just be too fundamentally different from their response to relevant information offered at once.

In addition, our next step will be to separate the rationale that leads to bias from the bias itself. One way to do it would be to conduct similar experiments in contexts in which bias has not yet formed. For example, to ask the same questions about the Ecuadorean president to Brazilians or Argentines. If we find that voters can discount exogenous factors in a situation in which they do not have a prior and are still forming their views, this means respondents can avoid misattribution, even though they cannot debias once it has already happened. This would point, once again, to the relevance of providing information that allows voters to discount exogenous factors — be that about relative performance or commodity price cycles — on a regular basis, so that citizens can form their views already based on that.

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Appendices

A Balance Across Experimental Conditions

In this appendix we report mean standardized differences on selected pre-treatment variables for each condition *relative* to the control group. These differences were computed by simply dividing the the difference in means by the pooled standard error of the two groups being compared. Although there is no clear cut test for balance, one rule of thumb often cited in the literature is to consider balanced a sample in which the largest mean standard difference is less than 1/4 of a standard deviation (Ho, Imai, King & Stuart 2007, Cochran 1968).

Randomization in the BEPS project (Study #1) achieved good balance on all socio-demographics available, excellent balance on missing responses, and excellent balance on actual answers given to vignettes (not reported), suggesting a similar level of information across conditions (Table A.3).

Table A.3: Balance on Selected Observable Attributes (Study #1)

	Negative	Positive
Positive Pre-Treatment Evaluation	-0.11	-0.10
PT ID	-0.08	0.05
Wealth Index	-0.01	0.07
Vote For Dilma	-0.00	-0.06
Gov. Responsible Econ.	0.06	-0.04
Political Knowledge	0.05	0.20

Table reports mean standard difference between each treatment condition and the control group

Table A.4: Balance of Selected Observable Attributes (Study #2)

	B	C	D	E	F	G
Age	0.03	0.03	-0.02	0.13	0.04	-0.01
Female	0.01	-0.00	0.06	0.03	0.09	-0.02
SESIndex	0.01	0.02	0.04	0.21	-0.01	0.08
FamilyAbroad	-0.06	-0.10	-0.07	-0.11	-0.18	-0.13
Attention	-0.13	-0.00	0.07	-0.02	0.04	0.03
N	429.00	419.00	395.00	420.00	433.00	427.00

Table reports mean standard difference between each treatment condition and the control group (condition A).

Table A.5: Mean Standard Difference Across Conditions on Selected Observable Attributes (Attentive Only)

	treatB	treatC	treatD	treatE	treatF	treatG
Attention	-Inf	-Inf	-Inf	Inf	-Inf	-Inf
Age<35	0.10	-0.11	-0.15	-0.08	0.01	-0.13
Female	0.15	0.07	-0.00	0.31	0.20	0.25
SESIndex	0.09	-0.05	0.06	-0.09	-0.01	0.08
FamilyAbroad	-0.10	0.15	0.16	-0.14	-0.05	-0.06
InfoNewspapers	0.28	0.21	0.14	-0.02	0.08	0.18
RegionSE	-0.03	0.31	0.28	0.09	0.07	-0.05
PartyID	-0.03	-0.19	-0.02	-0.03	-0.07	-0.10
N	91.00	87.00	104.00	92.00	96.00	108.00

B The Attention Screener

Figure A.5 shows a screen shot of the attention screener used in Studies #2, #3, and #4. The fake question was shown in bold, and the answer categories were completely compatible with it. In fact, one would be extremely tempted to guess what the question was simply from reading the answer options. For these reasons, we believe the attention screener was quite demanding, and respondents that succeeded were, in fact, paying significant attention to the study. In study #4 we removed the timer.

Algunas personas leen periódicos o ven muchos noticieros, otros no leen periódicos ni ven noticias. Esto es así en toda parte, pero nosotros sólo queremos chequear que Ud. esté leyendo estas preguntas hasta el final. Ignore la pregunta que sigue, y seleccione la opción "otra cifra", añadiendo el número cinco en el espacio proporcionado junto a esa opción. **Por favor indique ¿con qué frecuencia lee periódicos o ve noticieros?**

Nunca o muy raramente

Uno o dos días por semana

Casi todos los días

Todos los días

Varias veces por día

Otra cifra

Powered by Qualtrics

Figure A.5: The Attention Screener