THE BETWEEN AND WITHIN EFFECTS OF ELECTION POLLS: EXPERIMENTAL EVIDENCE FROM MEXICO'S 2018 PRESIDENTIAL CAMPAIGN

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Abstract

This paper distinguishes two ways in which published polls can influence electoral preferences. First, we compare the preferences between exposed and unexposed individuals to the polling results. This comparison accounts for the *between*-subject effect. Second, we compare the respondents' answers before and after providing them the polling information, allowing us to estimate a *within*-subject effect. We test both effects by implementing a survey experiment during the 2018 presidential campaign in Mexico. The findings do not support any *between*-subject effect on the declared support for the candidates. In fact, exposure to polling results increases the confidence of the vote choice of those already supporting a specific candidate. By contrast, respondents who identified themselves as undecided at the beginning of the survey are more likely to change their answer after they are exposed to the polling results by the end of the questionnaire. The paper talks to the growing concern of governments, scholars, and the general public about the effects of publishing pre-election poll results.

1 Introduction

Polling is an inherent part of modern elections. Media and pundits center the campaign coverage around polls and their variations over time (Weimann, 1990; Littlewood, 1988; Patterson, 2005; Traugott, 2008; Holt-Bacha and Strömbäck, 2012). Candidates, in turn, obsessively follow every new poll to adjust their campaign strategies accordingly (Bauman and Herbst, 1994; Medvic, 2003; Greenberg, 2009). The relevance of election polls often pushes politicians and pollsters themselves into a "polling war," whew each side publicizes favorable results and discredits adverse ones (Bischoping and Schuman, 1992; Moreno, 1997; Jacobs and Shapiro, 1999).¹ Such strategic of information has given rise to a recent spread of fake election polls across the world (Buendía, 2018; Anspach and Carlson, Forthcoming).²

The use of polling by media and politicians prompts collateral concerns about the ultimate effect of election polls on voters' behaviors. Specifically, the concerns center around the possibility that election polls are not only a snapshot of voters' preferences but also a tool to influence those preferences. The fear of that possibility has pressured governments to ban the publication of polls during the eve of Election Day in about half of the countries worldwide. In some cases, the blackout period extends for more than two weeks (Chung, 2012).³

¹See also, Ellsworth, Brian and Eyanir Chinea, "Venezuela 'poll wars' rage as presidential race heats up," *Reuters*. June 6, 2012. (https://www.reuters.com/article/us-venezuela-election-polls/venezuela-poll-wars-rage-as-presidential-race-heats-up-idUSBRE85512920120606).

²See also Enten, Harry. "Fake Polls Are A Real Problem." FiveThirtyEight. August 22, 2017. (https://fivethirtyeight.com/features/fake-polls-are-a-real-problem/); Harrison, Paul. "Italy's vote: Fake claims attempt to influence election." BBC. March 3, 2018. (https://www.bbc.com/news/world-europe-43214136); Goel, Vindu. "In India, Facebook's WhatsApp Plays Central Role in Elections," The New York Times, May 14, 2018. (https://www.nytimes.com/2018/05/14/technology/whatsapp-india-elections.html).

³Countries with a blackout period longer than 14 days include Argentina, Greece, Italy, or South Korea. See also: "Poll-gaged," *The Economist*, December 1, 2018. p. 47.

But while the scholarly research documents numerous effects of polls on vote choice (Jackson, 1983; McAllister and Studlar, 1991; Rickershauser and Aldrich, 2007; Gaskins, Barabas and Jerit, Forthcoming) or political engagement (Delli Carpini, 1984; Patterson, 2002; Groand Schram, 2010), it offers fewer clues to understand the inconsistent results across studies (Mutz, 1992; Hardmeier, 2008; Moy and Rinke, 2012). Filling this gap would validate the worries about election polls as potential misinformation tools (Stokes, 1998) and help governments and election authorities to regulate the publication of polls based on empirical rather than normative grounds (Traugott, 1992; Donsbach, 2001).

This paper evaluates the effects of exposing individuals to polling results. We do so by leveraging an experiment embedded in a nationally representative survey during the 2018 presidential campaign in Mexico. The experiment exposes respondents to information about previous polling results at different stages of the survey, allowing us to analyze two pathways of potential influence. First, we compare the preferences of the respondents assigned to the information and control conditions. We expect that this *between-subject* effect should be stronger among those voters with weak or absent pre-attitudes towards the candidates. Second, we compare the answers of the respondents before and after exposing them to the treatment. This *within-subject* comparison explores the interaction between exposing respondents to the information and priming them about the importance of the election as they answer the survey.

Our findings show that the mere exposure to polls has little impact in swaying citizens' support among candidates. In fact, among those supporting a trailing candidate, exposure to polling results increases their confidence on their vote choice. We do find, however, a significant variation in the share of respondents identifying themselves as "undecided." This variation depends on when the respondents were exposed to the information about previous polls. When the information is provided at the beginning of the survey, respondents are more likely to declare that they are still undecided about their vote choice. By contrast, for those respondents who identify themselves as "undecided"

without looking first at the polling results, they are more likely to declare their preference for a candidate after they inspect the information at the end of the survey. This variation illustrates the cognitive response process in which respondents mentally rehearse the arguments for or against the candidates while answering other questions of the survey (Petty and Cacioppo, 1986; Mutz, 1992). This process illustrates a common property of mass political preferences, where respondents gradually crystallize their preferences as the questionnaire help them to think about the election (Zaller, 1992).

This study contributes to the existent literature on the electoral effects of polls in two ways. First, we delineate the general conditions under which citizens will objectively elaborate on the polling information. This framework allows us to harmonize the inconsistent findings that the literature on the topic presents across studies. Second, we provide experimental evidence from a real election to document the effects of polls in a context outside consolidated democracies. As recent examples in Kenya (Cheeseman, 2008), Uganda (Carlson, 2018), or Colombia (Atkenson and Alvarez, 2018, p. 1) illustrate, polls have been accused of misinforming the electorate as they inaccurately predicted the electoral outcome. We try to assess the real effect that polls have on the electorate and document its potential threats and limitations.

The rest of the paper is organized as follows. We review the existent debates in the literature on the topic in Section 2. We explain our theoretical argument in Section 3 and describe our research design in Section 4. Section 5 presents the main empirical results and discusses potential alternative mechanisms. Section 6 concludes and proposes future research avenues.

2 The Endogenous Shaping of Respondents' Preferences

Whether election surveys not only reflect but also shape voters' preferences is a common concern among governments, pollsters, and scholars. As early as 1940, Gallup and Rae

(1940) mitigated such concerns, arguing the little power of published polls to determine their political attitudes and behaviors in comparison to everyday life experiences of voters. The authors also highlighted two main drawbacks to answering this question empirically: pulling apart the causal mechanisms for public opinion shifts and generalizing the results obtained in non-realistic situations. Almost three decades later, Donald Campbell (1968) proposed a way to test for the exposure to poll results by using an experimental design that involved 38,400 interviews and a budget of more than half million of today's dollars.⁴

While the question about the effects of election polls has been revisited multiple times, scholars have not reached a consistent conclusion. Some studies, for example, suggest that polls gives rise to a "bandwagon effect," where voters rally candidates to the alternative leading the poll (Fleitas, 1971; Marsh, 1985; McAllister and Studlar, 1991; van der Meer, Hakhverdian and Aaldering, 2016). Other works suggest an "underdog effect" that sways preferences in the direction of the trailing candidate (Laponce, 1966; Ceci and Kain, 1982; Chatterjee and Kamal, 2019). Additional findings include those where voters support the least disliked top-two candidate (Bartels, 1988; Blais, Gidengil and Nevitte, 2006; Rickershauser and Aldrich, 2007) or those documenting no change on electoral preferences at all (Tuchman and Coffin, 1971; Daschmann, 2000). Such ambivalent findings do little to regulatory bodies when deciding about the optimal regulation for the publication of polls (Hardmeier, 2008)

One potential explanation for the ambivalent findings is the lack of a general explanation for the observed effects. Most of the evidence on the topic derives from a process-oriented account rather than a more a theoretical framework that helps us deduce its empirical implications (Moy and Rinke, 2012). As a result, we are unable to identify the conditions in which each of these effects should appear (Hardmeier, 2008). For instance, in one of the first experimental studies on the topic, Navazio (1977) finds no movement

⁴Campbell (1968) estimates a budget for his project of \$75,000 (in 1968 dollars).

within the aggregated preferences, yet he finds evidence for the bandwagon effect in one reference group and evidence for the underdog effect in another group. Such contradictory effects may be overlooked in the analysis without a theoretical framework distinguishing each voter group (Traugott, 1992).

Another explanation for the ambivalent findings centers on the inconsistent methods across studies (Marsh, 1985; Moy and Rinke, 2012). There is a variety of research designs to explore the effects of polls, using either observational (Sudman, 1986; McAllister and Studlar, 1991) or experimental evidence (Ansolabehere and Iyengar, 1984; Sonck and Looveldt, 2010; Sinclair and Plott, 2012). These go from manipulating the content of a vignette (Morwitz and Pluzinski, 1996; van der Meer, Hakhverdian and Aaldering, 2016; Kuru, Pasek and Traugott, 2017) to changing the wording of a question (Mutz, 1992). Moreover, the literature has instrumented the effects of polls by using questions regarding vote intention (Sonck and Looveldt, 2010), expectations of the result (Meffert et al., 2011), or feelings toward political issues (Marsh, 1985; Rothschild and Malhorta, 2014; Castro Cornejo, 2018). Despite the merits of each approach, many of them provide unrealistic situations in which the campaign dynamics are hard to isolate or disentangle (Gallup and Rae, 1940; Traugott, 1992).

This paper advances the research on this question by addressing the limitations described above. We first elaborate on a framework to conciliate the competing explanations on the electoral effects of published polls. We do so by building on a general theory that can help us derive our expectations from the evidence. We later discuss the conditions under which these effects should be observable and then provide a research design that can help us distinguish the potential conditions across groups.

3 The Mechanic, Biased, and Unbiased Persuasion Routes of Election Polling

Our theoretical expectations stem from the Elaboration Likelihood Model (ELM) (Petty and Cacioppo, 1986). According to this model, a message can persuade individuals through either the peripheral or central route. When it goes through the peripheral route, subjects use the message only as a cue without scrutinizing its content. In contrast, when the message passes through the central route, individuals carefully evaluate the merits of the information.

Whether a message travels through the central route depends on the individual's motivation and ability to elaborate on the information. By motivation, Petty and Cacioppo (1986) refer to the individual's incentives to consciously process the message. These incentives are contingent on, for example, the expected consequences for having a specific opinion about the message's topic (Lodge and Taber, 2000). Meanwhile, the individual's ability in this context denotes her capacity to scrutinize the relevant parts of the message and provide a critical evaluation. This ability hinges on the relevant knowledge of the individual on the topic as well as the absence of distractions to evaluate the message. Both motivation and ability are necessary for a message be processed throughout the central route. Otherwise, the message will pass through the peripheral route, making the individual skim along the surface of the message.

To better interpret our hypotheses, we put forward a few details of our research design, which is fully described in Section 4. This design allows us to test for whether polling results travel throughout the central or peripheral route. Within a real election poll, we embedded a survey experiment that varied the time in which voters were exposed to information about the electoral support for the candidates. Early in the survey, we show the information to a random set of respondents and then ask everyone for whom they would vote if the election were today. Respondents could also identify themselves

as undecided or provide no answer at all. This first treatment assignment allows us to measure the *between*-subject effects of polling information. Before concluding the questionnaire, those respondents who did not receive the information at the beginning of the survey are exposed to the information and asked again about their electoral preferences. We did this to measure the *within*-subject effect of receiving the information after answering most of the survey. The description of the hypotheses below follows the order in which each of the effects should appear in the survey.

We first set out our *between*-subject expectations for exposing citizens to polling results. If voters process the information via the peripheral route, respondents avoid elaborating on the contents of the message and mechanically align their preferences with the information treatment. In this case, we expect that the lack of information processing leads to a bandwagon effect, where polling results sway voters' preferences toward the most popular candidate. Bandwagoneers, instead of evaluating the reasons behind the candidates' popularity, follow the "wisdom of the crowds" to solve the cognitive dissonance between their preferences and the polling results (Mutz, 1992; Rothschild and Malhorta, 2014). This effect is more likely observable among voters with little interest or information on the election, for they have neither the ability nor the motivation to process the information (Mutz, 1992; Boudreau and McCubbins, 2010; Rothschild and Malhorta, 2014). We should then expect that, if citizens do not process the information from polls, exposure to polling results increases the support for the leading candidate.

Hypothesis 1 (No Information Processing): In comparison with individuals in the control group, respondents who were exposed to polling results would be more likely to support the leading candidate.

Another way in which polling results may influence the voter is throughout a biased elaboration on the information. This biased processing is more likely to occur among highly-informed individuals who are able to counter-argue a contradicting message (Zaller, 1992). Such counter-arguing demands a cognitive effort to make sense of the respon-

dents' preferences towards candidates and the polling results. When individuals strongly prefers a candidate, they are more likely to resist any attitudinal change; they can do so by, for example, discrediting the impartiality of the information and discounting its content (Kuru, Pasek and Traugott, 2017). This biased processing helps partisans to keep attitude stability.

Although the biased processing should not reflect any change on individuals' reported preference, it can affect the intensity of their original attitudes. This expectation is in line with Petty and Cacioppo (1986, p. 112), who predict that informed individuals are more likely polarize their processing of any contradicting information towards their original attitude. We expect to observe this polarization on the respondents' confidence of their vote choice. Moreover, the effect should be particularly stronger among supporters of trailing candidates, who require to exert an additional effort to adjust their attitude to the contradictory information (Morwitz and Pluzinski, 1996; Redlawsk, 2002). We then expect that exposure to poll results strengthen the preferences of those voters who already defined their vote choice.

Hypothesis 2 (Information Biased Processing): *In comparison with individuals who were not exposed to the polling results, respondents supporting a trailing candidate declare themselves more confident about their vote choice.*

The last two hypotheses set up the observable implications for processing the polling results through the central route. In this case, respondents carefully elaborate on the information and update their preferences in an accurate way (Bartels, 1988; Blais, Gidengil and Nevitte, 2006). The literature expects to find an unbiased processing among sophisticated voters (Meffert et al., 2011; Moy and Rinke, 2012) and those who are voting on issues that they consider as important (Rickershauser and Aldrich, 2007). Given the relevance of a presidential election, our study focuses on the unbiased processing among those voters still undecided for whom to support. We expect these respondents to elaborate on the

information and to adjust their declared preferences according to the additional information they have at hand.

Our *between*-subject expectation for a central processing is that, when respondents inspect the polling results early in the survey, they take the message as a "stop-and-think" call to evaluate their original attitude. In the absence of any additional information or time to make up their mind, these respondents should be more likely to describe themselves as undecided until they can elaborate on the message they were exposed. Therefore, we expect published polls to not shift preferences across candidates, but rather to increase the amount of undecided voters in the survey.

Hypothesis 3 (Information Unbiased Processing I): In comparison with individuals in the control group, respondents who were exposed to polling results early in the survey are more likely to describe themselves as undecided.

The unbiased information processing should also be observable when the polling results are provided later in the survey. The expected outcome, however, should differ from what is described in Hypothesis 3. This should be the case because respondents are exposed to the information after answering other questions that primed them about the election. To test for this change, we use our *within*-subject comparison, where the polling results are provided to respondents later in the survey. In particular, we expect that polling results help respondents to crystallize their initially ambivalent preferences only if they got the opportunity to deliberate the reasons to support or to oppose the candidates (Mutz, 1992).

Once the survey questions primed voters about the election, the exposure to polling results should help individuals make an informed response to those who originally described themselves as undecided. Respondents gradually make up their minds over a topic as they respond the survey, influencing their subsequent answers in the questionnaire (Zaller, 1992). When these respondents are exposed to the polling results at the end of the survey, they are more likely to declare their electoral preferences because the

preceding questions allow them to mentally rehearse their support towards the candidates. Therefore, we expect that the rate of undeclared preferences should decrease if the respondents are exposed to poll results after being primed by the survey.

Hypothesis 4 (Information Unbiased Processing II): Respondents who did not declare a preference for a candidate at the beginning of the survey are more likely to change their answer after being exposed to the polling results.

Therefore, the exposure effects of polling results should depend on the contextual and personal traits of the individual. If voters have neither the ability nor the motivation to process the information from the polls, then they will use the message as a cue and will lean their support towards the most popular candidate. If voters already had a preference towards a candidate, then they will process the information in a biased way, making them less likely to change their vote choice. Finally, if citizens deliberate on the contents of the message, their response depends on whether they had the opportunity to mentally deliberate the reasons behind supporting a given candidate.

4 Analysis

4.1 Contextual Information

Mexico held its most recent presidential election on July 1st, 2018. The candidates in the contest were Andrés Manuel López Obrador of the National Regeneration Movement (MORENA), Ricardo Anaya of the National Action Party (PAN), José Antonio Meade, of the incumbent Institutionalized Revolutionary Party (PRI), and Jaime Rodríguez, as an independent candidate. The official results gave López Obrador 53.3% of the votes, well ahead of Anaya (22.3%), Meade (16.4%), and Rodríguez (5.4%). These results resemble those reported by the polls throughout the campaign.

The clear lead of López Obrador over the rest of the candidates allows us to test for a potential bandwagon effect, where polling results persuade voters to sway their support toward the leader of the race. This is possible because a third voters still identify as undecided about their vote choice a week before the election.⁵ This share of persuadable voters is similar to what registered for previous presidential campaigns in the country (Flores-Macías, 2009; Greene, 2015). On the other hand, we are unable to verify whether the polling results lead voters to behave in a strategic way. This limitation is due to little incentives for voters to strategically coordinate behind any of the trailing candidates (Cox, 1997).

Similar to other democracies, polling in Mexico has gradually become an integral aspect of the pre-electoral stage. Media and pundits often use polling results to provide horse-race journalism of the campaign (Castro Cornejo, 2018). Similarly, candidates often react to polling numbers by adjusting their campaign strategies (Moreno, 2018). Election polls are regulated by the National Electoral Institute (INE) to ensure that published results reflect the collected data. Pollsters are obliged to report specific methodological information and to make the survey questionnaire publicly available. Also, Mexico's electoral code imposes a blackout on publishing new survey results from three days previous to election day to the close of polling stations in the country. Between March and June of 2018, the INE registered 60 nationally representative pre-electoral polls, all of them published in different media outlets.

4.2 Experiment

We evaluate the electoral effects of published polls using a survey experiment fielded between June 18-27, 2018—the last two weeks before Election Day. The survey is representative at the national level, and it randomly interviewed 3,250 respondents using

⁵"Encuesta Reforma: Ven país dividido," *Reforma*, June 27, 2018. p. 6.

⁶Instituto Nacional Electoral, "Ley General de Instituciones y Procedimientos Electorales." Art 213. Mexico City, 2017.

a multistage sampling design. See Section B in the Appendix for a description of the methodology and sampling design used in the survey.

Our information treatment consists of a card showing the estimated preferences for the candidates at the moment of the survey. This estimation is a weighted average of all the pre-electoral polls registered at the INE according to its sample size, pollster, and date. Note that this treatment attempts to summarize real information provided by multiple pollsters. We do it in this way to present a credible treatment to individuals and mitigate any concern about respondents discrediting the source (Chia and Chang, 2017; Kuru, Pasek and Traugott, 2017). Figure 1(a) illustrates the card provided to respondents showing the estimated electoral support for the candidates at the moment of the survey.⁷ The interviewer read the following statement: "This card shows the estimated electoral support for the presidential candidates, according to the main pollsters in the country. Please take some time to review the card." We then ask respondents about their electoral preferences using the following question: "If the election were held today, who would you vote for?" We recorded the answers to this question using a simulated ballot with the candidates' names and party logos, like the one displayed in Figure 1(b). Respondents could also refuse answering the question (No Response) or declare that they are still undecided about their vote choice (*Undecided*).

We assigned the treatment to all respondents at different stages of the survey by combining the two research designs illustrated in Figure 2. The first one is a two-group, post-test randomized design at the beginning of the survey. This design compares the reported preferences between the 1,000 respondents who examined the card with the

⁷van der Meer, Hakhverdian and Aaldering (2016) suggest two sources for the bandwagon effect: size (how wide the advantage of the leading candidate is) and momentum (a fast increase in electoral support). We tried to decompose both sources by showing respondents two variations of the treatment. The first one shows them only the estimated support for the candidates at the moment at which the survey was fielded. The second one showed the estimated monthly support for the candidates between January and June 2018. The Appendix displays the dissagregated results and shows no significant differences between the treatment types.

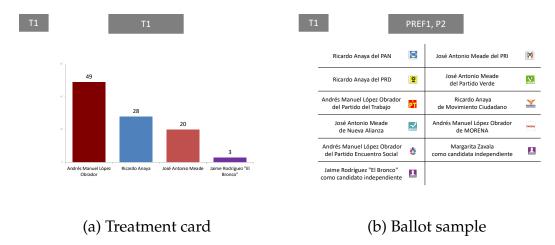


Figure 1: Examples of treatment card and ballot samples for the experiment

polling results and the remaining 2,250 subjects in the sample. Table 1 shows the result of the balance test between subjects in both groups. We find no significant differences in our battery of covariates, which includes respondents' age, gender (Female), region, education, partisan identification, and an index indicating their socioeconomic status.⁸

The second design is a single-group, pre-test and post-test design. This test only includes the 2,250 respondents who did not receive the treatment at the beginning of the survey. We gave to this group the same treatment procedure described above at the end of the survey. After inspecting the card with the polling results, they had to declare again their vote choice for a second time. This design allows us to check for changes within subjects and compare the effect of the treatment when it is provided at the end of the survey.

We test our hypotheses by using two dependent variables. The first one is a vector

⁸Our measurement of socioeconomic status uses a hierarchical classification of the respondents' ability to access a set of goods and lifestyles, according to the Mexican Association of Market Research and Public Opinion (AMAI). The index is composed of the answers to 13 standardized questions regarding the education level of the family's head, the number of lightbulbs at home, the number of rooms, and the number of baths with showers, as well as the possession of a car, water heater, hard floor, computer, microwave oven, washing machine, bread toaster, and DVD player. The answers to those questions are sorted into six socioeconomic levels. For technical details, see http://www.amai.org/nse/wp-content/uploads/2018/04/Nota-Metodolo%CC%81gico-NSE-2018-v3.pdf

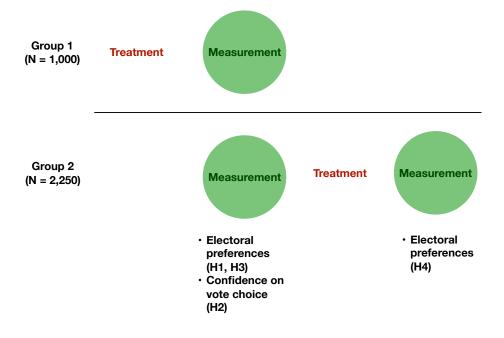


Figure 2: Research Design

of bivariate variables indicating the vote choice of the respondent. Our second dependent variable measures voters' confidence in their vote choice with following question: "With what you know and have seen about the presidential candidates, are you already convinced or still uncertain about your vote choice?" Respondents chose between the following options: "I am certain of my vote" and "I am uncertain about my vote choice." This question was posed immediately after asking respondents about their vote choice for the first time.

5 Results

We start by showing the results of our two-group post-test randomized design. This test gets as close as possible to what we would observe when citizens were informed about polling results by the media. If the information mechanically lures voters to support the

Table 1: Balance Test Results

| | Mean values | | | | |
|------------------------|-------------|---------|---------|------------|---------|
| | Total | Control | Treated | Difference | p-value |
| | | Group | Group | in Means | |
| Female | 0.41 | 0.41 | 0.41 | -0.01 | 1.00 |
| Age | 42.48 | 42.55 | 42.46 | 0.15 | 0.88 |
| Education | 3.25 | 3.26 | 3.25 | 0.15 | 0.88 |
| Socioeconomic index | 3.85 | 3.85 | 3.85 | -0.13 | 0.89 |
| North | 0.22 | 0.22 | 0.21 | 0.61 | 0.54 |
| South | 0.23 | 0.23 | 0.24 | -0.35 | 0.73 |
| West | 0.25 | 0.26 | 0.25 | 0.50 | 0.61 |
| Centre | 0.31 | 0.30 | 0.32 | -0.81 | 0.42 |
| PAN | 0.14 | 0.14 | 0.14 | 0.45 | 0.65 |
| PRI | 0.13 | 0.12 | 0.13 | -0.68 | 0.50 |
| PRD | 0.02 | 0.02 | 0.03 | -1.90 | 0.06 |
| MORENA | 0.18 | 0.18 | 0.18 | -0.08 | 0.94 |
| Attention to Campaigns | 2.60 | 2.62 | 2.59 | 0.74 | 0.46 |

Notes: This table shows the group means and mean difference of the covariates between the treatment group (N=1,000) and the control group (N=2,250).

leading candidate (Hypothesis 1), we would expect a significant sway in the preferences from the trailing candidates to the leading candidate. Conversely, if voters use the information as an opportunity to mentally rehearse their arguments toward the candidates, we will expect an increase in the number of undecided voters (Hypothesis 3).

Figure 3 reports the differences-in-means between the control and treatment groups for each of the alternatives on the ballot. On the vertical axis, we have plotted the average treatment effect estimates with the 95 percent confidence interval. The overall results fail to support the expectation that voters do not elaborate on the polling results (Hypothesis 11). In other words, the information treatment has no significant effect on the electoral preferences towards the leading candidate, nor does it decrease the support for the rest of the candidates. The only significant difference in the analysis is in the share of undecided voters. In this case, individuals exposed to the poll results were about three percent more likely to declare themselves "undecided." Consistent with our Hypothesis 3, exposing

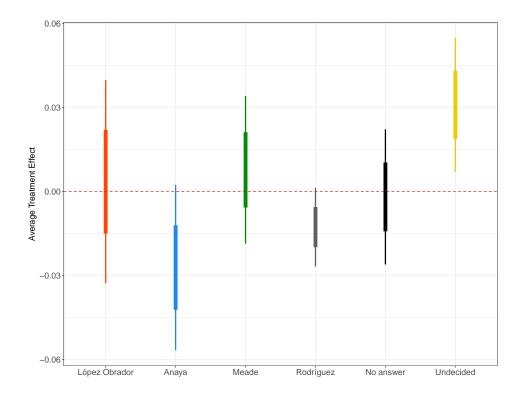


Figure 3: Average Treatment Effects for the Exposure to Poll Results *Notes*: Average treatment effects represent the difference on the answers to each of the alternatives on the ballot between the treatment and control group. Thicker lines represent the one standard deviation confidence intervals (68%) and thin lines represent the 1.96 standard deviation confidence intervals (95%).

respondents to poll results early in the survey will decrease their likelihood of declaring their electoral preference.

To evaluate the effect of poll results on a candidate's support, Table 2 separately compares the vote shares between treatment and control groups. This table shows the separate ordinary least squares (OLS) coefficients and standard errors for each alternative on the ballot. The insignificant coefficients on *Treatment* for the first four models indicate that exposure to poll results has no effect on the responses of those with a predisposed vote choice, confirming Hypothesis 2. Column 5 confirms the significant positive effect of the treatment on the undecided voters. In short, exposure to the treatment information

⁹We choose an OLS model to present the results as we want to estimate a treatment effect via a difference in conditional expectations. The Appendix shows the estimation using a multinomial logit model and confirming the results of Table 2.

increases about 3 percent the probability of identifying as undecided.

Overall, when the information is provided early in the survey, the results fail to provide evidence of a swing of the preferences toward candidates. Instead, exposure to poll results increases the number of undecided voters without affecting the preferences of those who have already decided their vote choice.

Table 2: Main Regression Results

| | | | Depend | lent variable: | | |
|----------------|---------------|--------------|--------------|----------------|--------------|--------------|
| | López Obrador | Anaya | Meade | Rodríguez | Undecided | No Response |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Treatment | 0.006 | -0.028 | 0.006 | -0.013 | 0.031** | -0.001 |
| | (0.018) | (0.015) | (0.013) | (0.008) | (0.011) | (0.012) |
| Constant | 0.338*** | 0.232*** | 0.152*** | 0.016 | 0.158*** | 0.104** |
| | (0.047) | (0.040) | (0.034) | (0.020) | (0.030) | (0.032) |
| Controls | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark | \checkmark |
| Observations | 3,242 | 3,242 | 3,242 | 3,242 | 3,242 | 3,242 |
| \mathbb{R}^2 | 0.034 | 0.008 | 0.009 | 0.021 | 0.036 | 0.021 |

Notes: Standard errors are shown in parentheses. All models include as control variables at the age, gender, education, socioeconomic level, and the auto-reported attention to the campaigns. p<0.05; **p<0.01; ***p<0.001.

We now test Hypotheses 2, which predicted that exposure to polling results among supporters of a trailing candidate should increase the confidence in their vote choice. Table 3 shows the results of an OLS model coding the dependent variable with the value of 1 when the respondent selected "I am certain about my vote choice" and 0 otherwise. Columns (1) and (2) show that the treatment increases the confidence of the vote choice for those respondents supporting any of the candidates.

To check whether the effect is stronger among those supporting a trailing candidate, columns 3 and 4 unpack the effects for the support of each candidate in the race. The results show that those supporting either Anaya or Meade became more certain about their vote choice after being exposed to the poll results. By contrast, and consistent with Hy-

pothesis 2, the treatment has no effect on those respondents supporting López Obrador, the leading candidate in the race. The effect only appears among supporters of candidates placed below the leading position in the polls because they exert an additional effort to adjust their attitude to the contradicting information (Morwitz and Pluzinski, 1996; Redlawsk, 2002).

The exception to our hypothesis regards Rodríguez's supporters, whose effect is non-statistically different from zero. Given the small number of supporters for this candidate in our sample, the noise in the data limits the possibility to estimate meaningful interaction coefficients. In general, we can say that citizens supporting a candidate are less likely to change their vote choice after receiving information from polls as they process the information in a biased way.

Finally, we check for an inter-subject change of the preferences towards candidates when respondents are exposed to the treatment at the end of the survey. Following Hypothesis 4, we expect observing an increase in the share of respondents declaring their vote choice *after* the survey primed them about the election. As a recall, the inter-subject analysis involves the 2,250 subject originally assigned to the control group, who were exposed to the treatment at the end of the survey and declared their vote choice for a second time.

Figure 4 shows the *within*-subject differences in the answers before and after being exposed to the information treatment. The comparison indicates a drop in the voters providing no response or declaring themselves as undecided. On average, the treatment decreases the consistency of the answers for those who originally did not give an answer on about 4 percent and those who declared themselves as undecided for about 5 percent. Moreover, and in contrast to the results of the randomization early in the survey, the information about the poll results has a positive effect on the declared support of the leading candidate. In other words, the number of declared supporters for López Obrador increased after being exposed to the treatment by about 6%. The effects for the rest of the

Table 3: Main Regression Results

| | Dependent variable: | | | | |
|-----------------------------------|---------------------|------------|-------------|-------------|--|
| | Со | nfidence i | n vote cho | oice | |
| | (1) | (2) | (3) | (4) | |
| Treatment | -0.078* | -0.074* | -0.078* | -0.075* | |
| | (0.035) | (0.035) | (0.035) | (0.034) | |
| Vote Candidate | 0.431*** | 0.421*** | | | |
| | (0.023) | (0.023) | | | |
| Treatment \times Vote Candidate | 0.103^{*} | 0.099* | | | |
| | (0.040) | (0.039) | | | |
| López Obrador | | | 0.520*** | 0.502*** | |
| | | | (0.025) | (0.025) | |
| Anaya | | | 0.333*** | 0.338*** | |
| | | | (0.028) | (0.028) | |
| Meade | | | 0.351*** | 0.349*** | |
| | | | (0.032) | (0.031) | |
| Rodríguez | | | 0.385*** | 0.384*** | |
| | | | (0.048) | (0.048) | |
| Treatment × López Obrador | | | 0.058 | 0.060 | |
| | | | (0.044) | (0.043) | |
| Treatment × Anaya | | | 0.203*** | 0.190*** | |
| | | | (0.052) | (0.051) | |
| Treatment \times Meade | | | 0.117^{*} | 0.114^{*} | |
| | | | (0.056) | (0.055) | |
| Treatment × Rodríguez | | | -0.097 | -0.088 | |
| _ | | | (0.095) | (0.094) | |
| Constant | 0.275*** | 0.245*** | 0.275*** | 0.242*** | |
| | (0.020) | (0.031) | (0.020) | (0.031) | |
| Controls | | ✓ | | ✓ | |
| Observations | 3,250 | 3,242 | 3,250 | 3,242 | |
| \mathbb{R}^2 | 0.159 | 0.194 | 0.181 | 0.212 | |
| Adjusted R ² | 0.158 | 0.192 | 0.179 | 0.208 | |

Notes: Standard errors are shown in parentheses. All models include as control variables at the age, gender, education, socioeconomic level, and the auto-reported attention to the campaigns. p<0.05; **p<0.01; ***p<0.01.

candidates are not significantly different from zero.

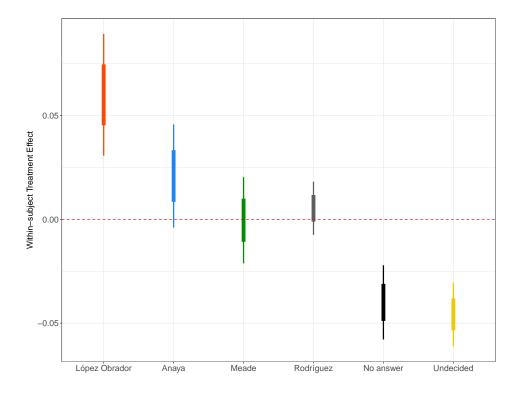


Figure 4: *Within-*Subject treatment effect for the exposure to poll results *Notes*: The *Within-*Subject treatment effect is the main difference of the responses for each of the alternatives of the ballot. Average treatment effects represent the difference on the answers to each of the alternatives on the ballot between the treatment and control group. Thicker lines represent the one standard deviation confidence intervals (68%) and thin lines represent the 1.96 standard deviation confidence intervals (95%).

We interpret the rise in support for López Obrador as the result of informing respondents about the electability of the candidate after they got the opportunity to mentally rehearse the arguments for or against the candidates. Given the specific context of the election, however, we are unable to infer whether we would observe a similar outcome with a narrower the margin between the top two candidates.

In sum, our findings fail to show that voters only use polling results as a cue to determine their vote choice. Instead, the information treatment produces different results depending on the citizens' original attitudes. On the one hand, polling results reinforce the preferences of those who already support a candidate. On the other hand, information

from polls helps them to crystallize their preferences of those with weak attitudes toward the candidates. For this group, the observed outcome depends on the priming level of the citizens when the information is provided. The mere exposure to polling results make respondents more likely to identify themselves "unsure" about their vote choice. This outcome denotes the willingness for this type of voters to process the information from polls before declaring their electoral support. By contrast, respondents are more likely to declare their preference toward a candidate when they have the opportunity to rehearse arguments for each of the candidates.

6 Discussion

This paper began by looking at the possibility that measuring voters' attitudes affects those attitudes themselves. This concern is legitimate given the recent explosion of fake polls and their strategic use during campaigns. While scholars have explored this question since the beginning of election polling, the inconsistent findings have limited the implications of this research to influence the decisions of politicians and regulatory bodies.

This paper first takes a step back and proposes the conditions by which polls can alter the electoral preferences of citizens. We argue that polls are unlikely to produce a mindless reaction in the electorate. Rather, they are useful information tools that help undecided voters to crystallize their preferences only after they can mentally rehearse arguments for and against the candidates.

This study enables us to test the conditions in which polls can affect electoral preferences in the context of a real election, and the contextual characteristics of our study case raise a few open questions to be explored in the future. One of them is to distinguish the ways in which the survey helps voters assess their opinions toward candidates. While our results show the differential effects of providing poll results at different stages

of the survey, the potential effect of the in-between questions remains unclear. Also, it would be interesting to test the effects in a context with more volatile electoral preferences throughout the campaign. Given the sizeable advantage of the leading candidate in the 2018 presidential election, we are unable to identify the conditions in which voters can instrumentally abandon their support for hopeless candidates.

The results, then, bring some relief to the most important worries about the consequences of fake poll results. Our findings show that the information form polls is insufficient to shift voters' preferences among candidates. The paper also demonstrates that the largest effects appear only as a byproduct of the survey itself. In this case, respondents are more likely to change their answer after they were first primed about the candidates. Such effects should not worry professional pollsters, as the standard practice in election polls is to inquiry electoral preferences early in the questionnaire. This practice follows a developed research on the importance to measure respondents' preferences without the contaminating effects of the preceding questions (Dickinson and Kirzner, 1985; Schwarz, Strack and Mai, 1991; Vannette and Krosnick, 2014).

On the other hand, the evidence is similar to what expected on the "push polls," which simultaneously try to measure and influence voters' preferences when administering the survey (Burton and Shea, 2010, p. 100). Although this strategy results economically prohibitive to affect a significant share of the electorate, the evidence of this paper invites regulatory bodies to concentrate their efforts to regulate against this practice while mitigating their concerns about the effects of publishing polls.

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Appendix

A Additional Tables and Figures

Table 4: Multinomial Logit Results

| | | Depe | Dependent variable: | • | |
|-------------------|--------------------------------------|---------------|---------------------|-----------------------------|----------------|
| | $	ext{L}	ilde{	ilde{A}}^3pezObrador$ | Anaya | Meade | RodrÁguez | Unsure |
| | (1) | (2) | (3) | (4) | (5) |
| Treatment | -0.134 | 0.015 | 0.054 | -0.337 | 0.290* |
| | (0.142) | (0.128) | (0.149) | (0.232) | (0.159) |
| Age | -0.025*** | -0.023*** | -0.013*** | -0.038*** | -0.011** |
|) | (0.004) | (0.004) | (0.005) | (0.007) | (0.005) |
| Education | 0.110 | 0.134** | -0.051 | 0.197* | -0.241^{***} |
| | (0.075) | (0.068) | (0.081) | (0.116) | (0.090) |
| Female | 0.059 | 0.342^{***} | 0.147 | 0.137 | -0.291^* |
| | (0.135) | (0.122) | (0.144) | (0.209) | (0.162) |
| SES | 0.017 | 0.070* | 0.007 | 0.234^{***} | -0.010 |
| | (0.046) | (0.041) | (0.049) | (0.072) | (0.053) |
| North | 0.639*** | 0.147 | 0.660*** | 0.539* | 0.967*** |
| | (0.182) | (0.167) | (0.194) | (0.293) | (0.212) |
| South | 0.531^{***} | 0.348^{**} | 0.629^{***} | 0.079 | 0.503** |
| | (0.178) | (0.160) | (0.189) | (0.317) | (0.217) |
| West | 0.547*** | 0.056 | 0.425^{**} | 0.953*** | 0.853*** |
| | (0.171) | (0.156) | (0.186) | (0.251) | (0.201) |
| Constant | 0.844^{**} | 1.212^{***} | 0.432 | -1.497*** | 0.559 |
| | (0.360) | (0.327) | (0.390) | (0.561) | (0.433) |
| Akaike Inf. Crit. | 10,084.240 | 10,084.240 | 10,084.240 | 10,084.240 | 10,084.240 |
| Note: | | | d _* | 'p<0.1; **p<0.05; ***p<0.01 | 5; ***p<0.01 |

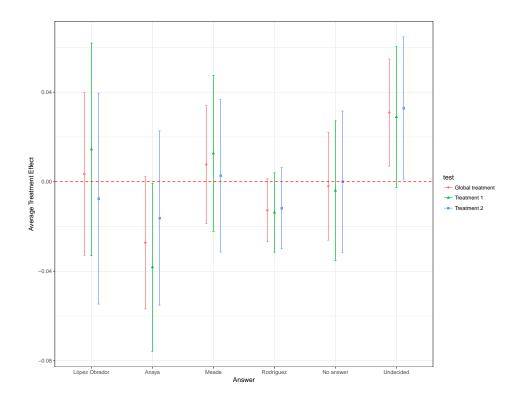


Figure 5: Average Treatment Effects for the Exposure to Poll Results

Notes: Average treatment effects represent the difference on the answers to each of the alternatives on the ballot between the treatment and control group. The graph distinguishes between the two treatment types in the survey: Treatment 1 showed respondents the estimated support for the candidates at the moment at which the survey was fielded. Treatment 2 showed the estimated monthly support for the candidates between January and June 2018. Lines represent the 1.96 standard deviation confidence intervals (95%).

Table 5: Logit Regression Results

| · | | | | | | Dependent variable: | variable: | | | | | |
|-------------------------------------|-------------------------|--------------------------|-------------------------|------------------------|-------------------------|-----------------------|-----------------------|-----------------------|-------------------------|--------------------------|-------------------------|-------------------------|
| | López Obrador |)brador | Anaya | ıya | Meade | de | Rodríguez | guez | No Response | ponse | Unsure | ure |
| | (1) | (2) | (3) | (4) | (5) | (9) | (2) | (8) | (6) | (10) | (11) | (12) |
| Treatment | 0.015 | 0.014 | -0.170 | -0.268* | 0.062 | 0.170 | -0.341 | -0.406 | 0.316** | 0.337** | -0.019 | -0.035 |
| Age | (0.078) | (0.096) -0.012^{***} | (0.096) | (0.120) $-0.011**$ | (0.107) | (0.140) -0.001 | (0.204) | (0.208) $-0.018**$ | (0.119) | (0.125) $0.010*$ | (0.118) | (0.123) $0.026***$ |
| Education | | (0.003) 0.150^{**} | | (0.004) $0.143*$ | | (0.004) -0.011 | | (0.007) 0.094 | | (0.004) -0.402^{***} | | (0.004) -0.068 |
| Homalo | | (0.051) | | (0.062) | | (0.076) | | (0.103) | | (0.072) | | (0.065) |
| Tornan | | (0.091) | | (0.112) | | (0.134) | | (0.184) | | (0.131) | | (0.119) |
| SES | | 0.039 | | -0.046 | | -0.070 | | 0.248 | | -0.030 | | -0.033 |
| | | (0.031) | | (0.037) | | (0.045) | | (0.063) | | (0.042) | | (0.039) |
| PRI | | -1.583*** | | -0.898*** | | 3.513*** | | -1.652*** | | -1.289*** | | -1.905*** |
| | | (0.179) | | (0.215) | | (0.147) | | (0.462) | | (0.221) | | (0.259) |
| PAN | | -1.905*** | | 2.987*** | | -0.300 | | -1.245*** | | -1.389*** | | -2.158*** |
| MORENIA | | (0.189) | | (0.134) | | (0.226) | | (0.352) | | (0.228) | | (0.290) |
| | | (0.160) | | (0.506) | | (0.368) | | (1.006) | | (0.301) | | (0.219) |
| PRD | | -0.064 | | 1.479*** | | 0.392 | | -1.866 | | -1.106* | | -1.552** |
| | | (0.250) | | (0.241) | | (0.385) | | (1.014) | | (0.473) | | (0.521) |
| Constant | -0.474*** | -0.891*** | -1.300*** | -1.507*** | -1.804*** | -2.251 *** | -3.037*** | -3.153*** | -2.253*** | -0.678* | -1.992*** | -2.151*** |
| | (0.043) | (0.231) | (0.051) | (0.282) | (0.061) | (0.344) | (0.101) | (0.467) | (0.072) | (0.325) | (0.065) | (0.298) |
| Observations | 3,250 | 3,242 | 3,250 | 3,242 | 3,250 | 3,242 | 3,250 | 3,242 | 3,250 | 3,242 | 3,250 | 3,242 |
| Log Likelihood Akaike Inf. Crit. | -2,165.388 4.334.775 | -1,543.984 3.107.968 | -1,650.713 3.305.425 | -1,135.750 $2.291.501$ | -1,337.568 2.679.135 | -853.699 1.727.399 | -563.274 1.130.547 | -494.724 1.009.449 | -1,085.676 2.175.351 | -962.310 1.944.620 | -1,188.502 2,381.005 | -1,050.358 2.120.717 |
| | | | | | | | | | , | | | |

 $^*p<0.05; ^{**}p<0.01; ^{***}p<0.001$

Note:

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Table 6: Logit Regression Results: Confidence on Vote Choice

| | | Dependen | t variable: | |
|----------------------------|-----------|-----------|-------------|-----------|
| | | conv | inced | |
| | (1) | (2) | (3) | (4) |
| Treatment | -0.436* | -0.472* | -0.436* | -0.472* |
| | (0.191) | (0.194) | (0.191) | (0.194) |
| Vote Candidate | 1.844*** | 1.871*** | | |
| | (0.114) | (0.118) | | |
| Freatment × Vote Candidate | 0.558** | 0.597** | | |
| | (0.214) | (0.218) | | |
| López Obrador | , | , | 2.325*** | 2.339*** |
| 1 | | | (0.132) | (0.136) |
| Anaya | | | 1.409*** | ` , |
| , | | | (0.138) | (0.142) |
| <i>M</i> eade | | | 1.485*** | 1.532*** |
| | | | (0.154) | (0.158) |
| Rodríguez | | | 1.635*** | 1.628*** |
| O | | | (0.232) | (0.238) |
| reatment × López Obrador | | | 0.320 | 0.370 |
| | | | (0.241) | |
| reatment × Anaya | | | 1.006*** | 1.020*** |
| 200002210210 / 1 221019 01 | | | (0.269) | (0.273) |
| reatment × Meade | | | 0.605* | 0.646* |
| readificate // Tyledde | | | (0.283) | (0.288) |
| reatment × Rodríguez | | | -0.288 | -0.250 |
| readificate × Roarigaez | | | (0.448) | (0.456) |
| .ge | | 0.318*** | (0.110) | 0.322*** |
| *8~ | | (0.045) | | (0.046) |
| ducation | | 0.266*** | | 0.256*** |
| addition | | (0.052) | | (0.053) |
| emale | | 0.325*** | | 0.304*** |
| cirtaic | | (0.083) | | (0.084) |
| ES | | 0.044 | | 0.041 |
| | | (0.028) | | (0.028) |
| onstant | -0.970*** | -1.273*** | -0.970*** | -1.258*** |
| onstant | (0.102) | (0.152) | (0.102) | (0.153) |
| Dbservations | 3,250 | 3,242 | 3,250 | 3,242 |
| Akaike Inf. Crit. | 3,841.470 | 3,739.983 | 3,770.469 | 3,677.149 |
| MAINE IIII. CIII. | 3,041.4/0 | 3,137.703 | 3,770.409 | 3,077.149 |

Note: *p<0.05; **p<0.01; ***p<0.001

Outcome identifies whether the individual reports being convinced about her vote choice. Sample includes all respondents in both treatment and control groups. Models (1), (2) do not specify the candidate that respondent supports; Models (1), (2) exclude control variables. *p < .05. **p < .01. ***p < .001

B Survey Information

B.1 Pre- and Post-Electoral Surveys

The pre-electoral poll was conducted by Buendía & Laredo—a survey and polling firm based in Mexico City. Mexico's electoral precincts were used as the Primary Sampling Units (PSUs). It is worth mentioning that the combination of geospatial and census data at the electoral precinct level provide the most complete and up-to-date sampling frame available in the country. These data come from the Federal Electoral Institute (IFE, by its Spanish acronym) and are continuously updated, providing a comprehensive assessment of the Mexican electorate—approximately 95 percent of Mexicans 18 years old or older are registered at the IFE. As of 2012, about 77.4 million voters were registered at the IFE. These citizens are dispersed across 64,934 electoral precincts.

In both surveys, respondents were randomly selected using a stratified multistage cluster sampling design. This drawing procedure was crafted to achieve a nationally representative sample of Mexican citizens, and required the careful implementation of the five methodological steps that we describe below.

- 1. **Stratification by Geographical Region and Type of Electoral Precinct:** The sample was allocated to five geographical regions—electoral circumscriptions, as defined by the IFE—in order to ensure territorial coverage. Strata were then defined based on a precinct's level of urbanization (urban, rural, or mixed) and party affiliation (i.e. the party that received the most votes in the 2012 presidential election).
- 2. Electoral Precinct Selection: Within each stratum, precincts (PSUs) were randomly selected according to a probability proportional to its size. The size of a electoral precinct is measured as the number of registered voters. In total, 100 precincts were drawn and proportionally distributed in each stratum. A total of 8 and 10 face-to-face interviews were conducted per precinct in the pre- and post-electoral surveys, respectively.
- 3. **Block Selection within Electoral Precincts:** Once electoral precincts in the sample were drawn, the next step was to select two blocks from the precinct using a table with random numbers. For instance, the PSU map shown in Figure 6 has 20 blocks, and the PSU number is 0320. A combination of the number of blocks and the last digit of the PSU number was used to determine which blocks are to be selected.
- 4. **Household Selection within Blocks:** Once blocks in the sample were identified, households per block were selected using a systematic random sampling method. Blocks were covered starting by the northeast corner using a systematic random start of 3 households. Blocks were walked clockwise. Once a questionnaire was completed, the interviewer had to move to the next side of the block.
- 5. **Respondent Selection within Households:** One respondent per household was selected using a random method (a numbered card). If the selected respondent was not available during the first visit, the interviewer returned up to three times. If

the respondent refused the interview, the interviewer moved using a systematic random start of 10 households in order to obtain the interview. In total, 3,250 face-to-face interviews with Mexicans 18 years old or older were conducted.

B Appendix Figures and Tables

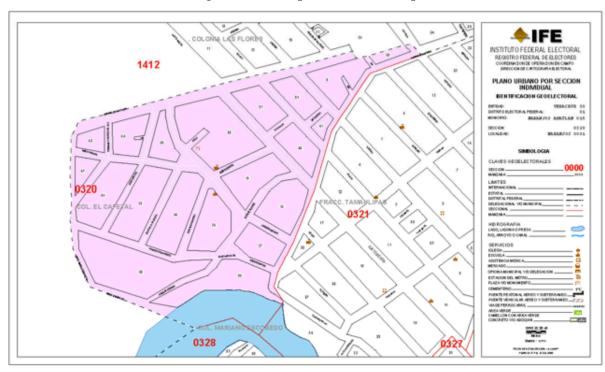


Figure 6: Example of a PSU Map