

Voter Choice in the 2006 Mexican Presidential Election

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Abstract

Until recently, a popular explanation of voter choice in Mexico was that voter decisions were driven by attitudes toward the hegemonic PRI regime. However, political conditions changed in Mexico after the victory of PAN's candidate Vicente Fox in 2000. In this article, we use survey data from the 2006 Mexico Panel Study to analyze the determinants of voter choice in Mexico's new democracy, using statistical methodologies appropriate for modeling voter choice in multiparty elections. We find that different to what is often found in more stable democracies, region and party identification are the most important factors for explaining voter choice, although demographic factors, retrospective evaluations of the economy and assessments of candidate-specific traits also have considerable impacts on voter decisions.

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Introduction

In 1995, two scholars started their analysis of the 1988 and 1991 Mexican elections asking “How do citizens who have long been governed by the same party in an authoritarian regime vote when there seems to be a chance that they could turn the incumbent out of office?” (Domínguez and McCann 1995, page 34); their analysis revealed that the main force driving voter choice were attitudes towards the PRI regime. However, by 2006, the situation had changed. The 2006 Mexican presidential election was the first held after the transition towards a multi-party regime that started in the late seventies and culminated in the election of Vicente Fox in 2000. This election was different relative to previous ones as defeating the old regime was no longer the main electoral issue (Domínguez 2009a; Klesner 2007, 2009; Lawson 2009; Moreno 2006). Unlike Fox in 2000, Felipe Calderón did not run under a slogan of institutional change, but under a promise of continuity and stability (Domínguez 2009a; Klesner 2007; Lawson 2009; Moreno 2009). The main purpose of this paper is to study the determinants of voter choice in a new democracy, using novel statistical methodologies well suited for studying voter behavior in multiparty elections.

How do citizens vote in a new democracy, and how well do existing academic theories of political behavior account for voter behavior in such a context? First, it may be the case that existing socio-psychological theories might apply to account for how voters decide which candidate to support in the 2006 Mexican contest, meaning that we should look to factors such as social and demographic characteristics, geographic region, and partisanship to study voter choices (Lawson 2006; Klesner 2006, 2007, 2009; Moreno 2007). Second, to what extent are Mexican voters motivated to choose a presidential

candidate based on spatial issues or ideology, and thus to what extent does the standard spatial model of elections account for voter choices in this election? (Alvarez and Nagler 1995, 1998; Downs 1956; Enelow and Hinich 1984). And third, perhaps it is the case that Mexican voters apply theories of retrospective voting to their decision-making in the 2006 election, evaluating the incumbent candidate according to the recent evolution of the national economy (Alvarez and Nagler 1995, 1998; Fiorina 1978, 1981; Kiewiet 1981; Kinder and Kiewiet 1981); or conversely, perhaps they only care about their personal economic conditions, and behave in line with pocketbook explanations of voter behavior (Markus 1988)? Finally, given recent episodes of electoral corruption and voter fraud in Mexico (Aparicio 2002; Cornelius 2002; Bruhn 2009; Díaz-Santana 2002; Eisenstadt 2007; Infante 2005; Lawson 2007b; Schedler 2004), is voter choice affected by citizen's trust in the cleanness of the electoral process? In this paper we test these theories using survey data from the 2006 Mexico Panel Study (Lawson 2007; Lawson and Moreno 2007).

In this article we build upon previous research on voter behavior in Mexico to further our understanding of the effects of voter confidence on voter choice. In previous studies of Mexican elections, scholars have found that voter choice varies by region, socio-demographic factors, incentives for Duvergerian strategic voting, as well as risk attitudes and uncertainty about candidate abilities (Magaloni 2006b; Morgenstern and Zechmeister 2001; Poiré 2000). However, there has been relatively scant attention paid to testing the spatial theory of elections in the Mexican context, or how confidence in the cleanness of the electoral process might influence voter choice. Of course, related questions have been investigated in the past (McCann and Domínguez 1998), but we believe the relevance of the problem justifies a more in depth and careful analysis.

Furthermore, as there have been great advances in political methodology in recent years that allow us to model voter choice in a multi-candidate context like the 2006 Mexican presidential election, we take into account issues like sampling uncertainty and how non-response affects explanatory variables. As discussed below, we use Bayesian methods for conducting multiple imputations (van Buuren and Groothuis-Oudshoorn 2009), and for the estimation of flexible discrete dependent variable voter choice models (Imai and van Dyk 2005a,b). As we demonstrate below, application of these new methodologies sheds new light on voting behavior in Mexican presidential elections.

Elections in Mexico are ideal for our study for a number of reasons. First, the country recently experienced a democratic transition after 70 years of hegemonic government by the Partido de la Revolución Institucional (PRI) (Craig and Cornelius 1995; Diaz-Cayeros and Magaloni 2001; Diaz-Cayeros et al. 2003; Klesner 2001; Klesner and Lawson 2001; Lawson 2007b, Magaloni 2006a; Schedler 2000). Second, the 2006 presidential race—which was hotly contested between a member of the incumbent Partido de Acción Nacional (PAN) and a candidate from the opposition Partido de la Revolución Democrática (PRD)—was preceded by criticisms of the fairness of the electoral process and followed by a challenge of the official election outcome (Bruhn 2009; Eisenstadt 2007; Estrada and Poiré 2007; Klesner 2007). Also, the 2006 election coincided with the emergence of strong left-wing presidential candidates in several Latin American countries, resulting in the media portraying political behavior in these elections in ideological terms (Bruhn 2009; Bruhn and Greene 2007, 2009; Greene 2009; Lawson 2009; McCann 2009; Moreno 2006, 2007). Finally, in recent years there has been increasing attention paid to

elections in Mexico by scholars, and there has been a concerted effort to collect quality voter survey data in Mexican national elections.

In line with previous studies, we find that region and party identifications remain important factors for explaining voter choice in 2006. However, region and party identification do not account for all the variation in voter behavior in the 2006 election. We found that retrospective evaluations of the economy, as well as evaluations of candidates' abilities and honesty are all factors contributing to the decision. Differently, candidate-specific variables such as ideological distances and opinions about commercial relationships with the US only have small and insignificant effects on voter choice. Finally, we found that there are considerable effects of voter confidence (although these effects go in an unexpected direction), but not so much of voters' willingness to participate in protests against official election outcomes.

The rest of the article is structured as follows. First, we discuss the main hypothesis of our study. After that, we describe the data used to estimate our model and the distribution of explanatory variables across respondents as a function of voter choice. In the following section, we present the results of our empirical analysis. Subsequently, we close with a discussion of our main findings and implications for further study. Finally, The appendix contains detailed descriptions of the statistical methodology applied in this paper, multiple imputation method, and the procedure used to simulate choice probabilities.

Hypotheses

In previous studies of the 2006 Mexican election, regional and demographic factors were considered among the main explanations of voter choice (Klesner 2006, 2007, 2009; Lawson 2006, 2009; Moreno 2007). Our first two hypotheses are constructed based on these results as well as regular findings in the Mexican politics literature.

(1) Support for Calderón (PAN) was higher in the industrial- and export-oriented North and Center of the country; support for López Obrador (PRD) was higher in Mexico City and the agriculturally-oriented; and support for Madrazo (PRI) was relatively higher in the South compared to the North, Center and Mexico City.

(2) Support for Calderón was higher in urban locations, among female, young, religious, educated and wealthy citizens; support for López Obrador was higher in urban locations, among men, middle-aged, non-religious and educated citizens; and support for Madrazo was higher in rural locations, among older, non-religious and less educated citizens.

Another variable considered important for explaining voter choice in the 2006 Mexican presidential election is party identification (Klesner 2007; Moreno 2007). Also, it is often argued that PAN and PRD voters behaved more faithfully, relative to PRI supporters. Since the beginning of the campaign PRI's candidate Madrazo was perceived negatively by most voters, including those identified with the PRI (Lawson 2009). Additionally, Madrazo ran third during most of the campaign and this might have motivated PRI identifiers to behave

strategically. In this article we test whether voters used partisan cues, as well as whether people with old partisan attachments were less likely to desert Madrazo.

(3) Citizens voted for the candidate who shares their party identification, and those with older partisan attachments were more likely to support Madrazo.

Ideology and issue positions have been found to have impacts on voter choice in elections in other countries (Alvarez 1997; Alvarez and Nagler 1995, 1997; Alvarez et al. 1999, 2000). The 2006 presidential election in Mexico coincided with the emergence of strong leftist figures in several Latin American countries, and Mexican presidential candidates were perceived as having polarized policy preferences on issues such as continuation of previous economic policies, privatization of government-owned companies and commercial relations with the U.S. In particular, López Obrador was depicted as offering a populist message and was compared to Venezuela's Hugo Chavez, while Calderón was perceived as a more conservative candidate who would continue the policies of the previous PAN government (Klesner 2007, Lawson 2009, McCann 2009, Moreno 2007).

Still, some scholars argue that voters were not as polarized as elites (Bruhn and Green 2007, 2009; Green 2009). Specifically, while PAN and PRD politicians differed substantially in their opinions about the role of government, abortion, and privatization of the electric sector, voters located themselves closer to the center of the issue spectrum—except for relations with the U.S. where voters exhibited negative positions relative to politicians. Still, Moreno (2007, page 16) claims that “the election represented a struggle of left against right, of state against market.” Thus, since ideology seemed to be an important

feature of the 2006 presidential race, we test whether voters behaved according to spatial model of voting like those introduced by Downs (1956) or Enelow and Hinich (1984):

(4) Voters supported the candidate closest to them in the left-right ideological dimension, as well as on issue positions such as commercial relations with the U.S.

Retrospective assessments of the economy are another factor which have influenced voter behavior in other countries (Alvarez and Nagler 1995, 1997; Alvarez et al. 1999, 2000; Duch and Stevenson 2008; Lewis-Beck and Stegmaier 2000, 2006). Thus, another possible explanation for voter choice in the 2006 Mexican election is that citizens decided based on a retrospective evaluation of the national and personal economy. In the year before the election, there was a considerable increase in economic growth and decrease in the inflation rate, and Fox was perceived as successful in achieving macroeconomic stability (Klesner 2007; Moreno 2007, 2009). Also, some scholars point out that one of the main PAN campaign messages was that this stability could be compromised if López Obrador won the election (Lawson 2009). Moreno (2007) argues that “assessments of the economy are, in fact, one of the strongest explanatory factors of presidential vote in 2006.”

Accordingly, we formulate the following hypothesis:

(5) Support for Calderón was larger among those voters making positive retrospective evaluations of national and personal economic conditions.

Also, scholars have pointed out that voters exhibited varying judgments about the honesty of the different candidates, as well as their ability to manage the economy, crime and poverty. At the beginning of the campaign López Obrador exhibited an advantage in voters' evaluations due to his recent experience as mayor of the Federal District and relative anonymity of PAN's candidate Calderón. However, by the end of the campaign Calderón managed to improve in voters' evaluations and to raise doubts about López Obrador's ability to maintain macroeconomic stability (Lawson 2009, Greene 2009). Our next hypothesis is that candidate evaluations like the ones described above may have had an impact on voter choice:

(6) Voters decided based on candidate evaluations such as honesty, or ability to manage the economy, poverty and crime.

Previous studies have found that voter confidence in the fairness of the electoral process has a significant impact on other dimensions of voter behavior in Mexican elections, such as political engagement and turnout (Hiskey and Bowler 2005; McCann and Dominguez 1998; Klesner and Lawson 2001). Thus, it is possible that voter confidence also affected voter choice in 2006. Specifically, we expect voters who thought the election would be unfair to punish both the incumbent party and the opposition candidate with antecedents of committing electoral fraud—Madrazo.¹ Also, we expect support for López Obrador to be higher among those voters willing to participate in post-electoral conflicts.

¹ Madrazo had been accused of electoral fraud in the 2004 Tabasco gubernatorial election.

(7) Voters who thought the electoral process would be clean and who were not willing to participate in post-electoral protests supported Calderón. Also, support for Madrazo was lower among those voters with lower confidence in the cleanness of the electoral process. Differently, support for López Obrador was higher among those exhibiting lower confidence in the cleanness of the electoral process and who were willing to demonstrate against official election outcomes.

Data and Methodology

Mexico Panel Study 2005-2006

We use data from the Mexico Panel Study (MPS) 2005-2006, a project conducted by the Grupo Reforma and Massachusetts Institute of Technology (Lawson et al. 2007), consisting of in-person interviews to Mexicans 18 years old or older. The study consists of three survey waves: one conducted in October 2005 (approximately 9 months before the election), another conducted in April-May 2006 (approximately 2 months before the election) and a third one conducted in July 2006, after the election.² In this article, we consider those individuals who provided an affirmative answer to the turnout question, answered the voter choice question in the 3rd wave, and preferred one of the three main candidates (approximately 76% of the 3rd wave sample). Table 1 shows the proportion of respondents supporting each candidate, according to regional indicators, socio-

² The first wave contains 2,400 interviews, including a national sample of 1,600 individuals as well as over-samples of the Federal District and rural locations of 500 and 300 individuals, respectively. Then, during the 2nd and 3rd waves researchers re-interviewed 1,776 and 1,594 of the 1st wave respondents, respectively.

demographic variables, political attitudes and candidate evaluations. Also, Table 2 shows the proportion of missing values for each explanatory variable, as well as means of imputed values for each imputed data set.³

Dependent variable: The objective of our multivariate analysis is to explain voter choice based on 3rd wave post-election survey responses. The original wording of the question is: “For the purposes of this survey, I will give you a sheet where you can mark how you voted on the last presidential elections, without my seeing you, and then deposit it in this bag. For whom did you vote for president?” In total, 1,218 of the 3rd wave respondents answered this question and chose one of the three main candidates. Among them, 20% chose Madrazo, 42% chose López Obrador and 38% chose Calderón (see Table 1). If we compare these figures with the observed 3-party election outcome, where Madrazo obtained 24% of the vote, López Obrador obtained 38% of the vote and Calderón obtained 38% of the vote, then it follows that the 3rd wave sample is not completely representative of the Mexican electorate—it overrepresents López Obrador supporters and underrepresents Madrazo supporters.

Explanatory variables: The first set of variables we use are indicators of region, urbanization and partisanship of state government. Figure 1 shows how official vote shares varied across states, and Table 1 shows the regional distribution of voter choice according to the 3rd wave MPS survey. While Calderón was stronger in the industrial- and

³ The appendix at the end of the paper contains details about the procedure used to impute missing values and about the wording and coding of all variables used in our analysis.

export-oriented North and Center, López Obrador was relatively more popular in Mexico City and the agriculturally oriented South. Differently, Madrazo was very unpopular in Mexico City but obtained a substantial share of the vote in the South. As expected, López Obrador and Calderón obtained a majority of the votes in states with PRD or PAN governorship, respectively. However, Madrazo barely obtained an average of 23% of the vote in states with PRI government.

The second set of explanatory variables are socio-demographic characteristics like age, race, gender, education, church attendance, income and whether the individual ever received benefits from the Oportunidades or Progresa anti-poverty programs. Table 1 shows that Calderón was relatively more popular among young citizens, those with white skin, female voters, highly educated individuals and those with a high monthly income. Differently, López Obrador received relatively more support from middle-aged citizens, with light- or dark-brown skin, male voters, those with middle and high levels of education, with middle and low levels of monthly income, who never received benefits from anti-poverty programs, as well as those with low levels of church attendance. Finally, Madrazo received relatively more support among old citizens, with dark brown skin, female voters, individuals with low levels of education, low levels of monthly income, those who received benefits from anti-poverty programs, as well as those who attend church very often.

As mentioned in the previous section, as a result of the regional political context, the 2006 presidential election was often portrayed in ideological terms. The third set of explanatory variables included in our model corresponds to ideology indicators, issue positions, approval of president Fox, and party identifications measured eight to nine

months before the election.⁴ According to Table 1, Calderón and Madrazo received relatively more support among right-of-center voters, and López Obrador received more support among left-of-center voters. Regarding foreign policy positions, while those preferring an increase in commercial relations between Mexico and the United States preferred Calderón relatively more often, those preferring a decrease in commercial relations between both countries tended to prefer López Obrador relatively more often. Regarding social policy positions, Madrazo was relatively more popular among those who did not support abortion in case of rape, and the opposite happened with López Obrador. In addition, as regards to party identifications, PAN and PRD voters overwhelmingly voted for Calderón and López Obrador, respectively. However, only 55% of PRI respondents voted for Madrazo. Also, independent respondents split their vote evenly between Calderón and López Obrador, and approximately 1 in 10 voted for Madrazo. Finally, Madrazo was relatively more popular among respondents with old partisan attachments, and the opposite happened with López Obrador.

⁴ Note that all explanatory variables were taken from the 1st or 2nd waves of the MPS.

Whenever possible and appropriate, we used 2nd wave responses. The variables intentionally taken from the 1st wave of the MPS were: party identification, evaluations of the national and personal economy and candidate evaluations. The reason we did so is because 2nd wave respondents may already have a well-formed idea of their voter choice in the forthcoming election, and this might affect their 2nd wave answers to these questions. Other explanatory variables taken from the 1st wave are: reception of benefits from anti-poverty programs and church attendance, because these questions were not included in the 2nd wave of the MPS.

The fourth and last set of explanatory variables included in our model are candidate evaluations—specifically, judgments of candidates’ ability to manage the economy, reduce crime and poverty and their honesty—evaluations of the national and personal economy, voter confidence in the fairness of the electoral process, and attitudes toward post electoral conflicts. Table 1 shows that voters perceiving an improvement in the national or personal economy voted for Calderón more frequently, while those perceiving deterioration in economic conditions voted more frequently for López Obrador or Madrazo. As regards to voter confidence, those thinking that the election would be somewhat or totally fair voted more often for Calderón, while the opposite pattern is observed in support for López Obrador. Finally, support for López Obrador was substantially higher among those willing to participate in a post-electoral conflict, and the opposite is observed in the case of Calderón vote shares.

Modeling Voter Choice in Mexican Presidential Elections

In the Mexican elections literature, some authors study voter choice using binary logistic regressions (Cortina et al. 2008; Dominguez and McCann 1998). This approach is problematic because it rests upon implausible assumptions about voter behavior (Alvarez and Nagler 1998). For instance, Cortina et al. (2008) use a multilevel logistic regression to explain voter choice between Calderón and Obrador in the 2006 presidential election, disregarding the preferences of 20% of the electorate who supported Madrazo. Implicitly, this procedure assumes that if the latter were forced to choose between Calderón and López Obrador the conditional probability of voting for one or the other would be similar to that of voters observed choosing Calderón or López Obrador, which—as we show

later—is not necessarily the case. Differently, Dominguez and McCann (1998) consider the binary choice between support for the incumbent PRI party and opposition voting in the 1988 presidential election. This approach is also problematic because it implies an inaccurate coding of the dependent variable. Suppose, for instance, that PAN voting in 1988 was positively explained by female gender, while the opposite happened with PRD voting; then the model specification of Dominguez and McCann (1998) may lead to meaningless estimates because gender effects go in different directions for different opposition parties.

Still, the most common approach for modeling voter choice in Mexican elections employs multinomial logit (Dominguez and McCann 1995; Lawson 2006; Magaloni 2006; Moreno 2007). The primary limitation of the MNL model is that it assumes disturbances are uncorrelated across alternatives, and therefore forces the condition of Independence of Irrelevant Alternatives (IIA) whereby adding or removing one of the candidates does not affect the relative probabilities of choosing among the remaining candidates. This is an implausible assumption in the context of multicandidate elections; in the Mexican case, this assumption requires that voter decisionmaking be unaffected by changes in the set of candidates who are running for office.

Therefore, modeling voter choice in multiparty elections requires a representation accommodating potential correlation between disturbances across alternatives, such as the multinomial probit model (MNP, Hausman and Wise 1978). Morgenstern and Zechmeister (2001) estimate a MNP model of voter choice in the 1997 Mexican legislative election. Still, their specification is limited because it does not include choice-specific right hand side

variables.⁵ In this article, we estimate a MNP model considering choice-specific variables such as ideology distances, issue distances and pre-election candidate evaluations. More formally, our model specification can be written as follows:

$$U_{ij} = X_{ij}\beta + a_i\psi_j + v_{ij}, \text{ for } j=1,2,3$$

where X_{ij} is a vector of alternative-specific covariates, a_i is a vector of individual-specific covariates, and v_{ij} is a normally distributed error term. Also, while X_{ij} is associated with a vector of coefficients β which does not vary by candidate or individual decision maker, a_i is associated with a choice-specific vector of coefficients ψ_j which take different values for each of the three candidates. As in other random utility specifications, we assume voters are rational and choose the candidate who maximizes their utility.

In addition to improving the model specification relative to previous studies of voter choice in Mexican elections, we estimate our MNP model using Bayesian estimation, which exhibits advantages relative to the simulated likelihood approach used in previous studies (Albert and Chib 1993; Imai and Dyk 2005a; McCulloch and Rossi 1994; McCulloch et al.

⁵ In addition, even though Morgenstern and Zechmeister (2001) consider individual positions on issues, they disregard other variables that may affect both voter choice and issue positions – such as regional dummies or party identifications – and this may result in omitted variable bias.

2000).⁶ Specifically, Bayesian estimation has computational advantages relative to simulation methods, and does not rely on asymptotic approximation. In a Bayesian framework a Markov chain based sampler “can be used to draw directly from the e posterior distribution and perform finite sample likelihood inference to any degree of accuracy” (McCulloch and Rossi 1994, 208). In this article, we fit our voter choice model using R's MNP package (Imai and Dyk 2005b). Details of the specification and estimation of our voter choice model can be found in the appendix.

Results

In table 3 we present the estimated parameters of our multivariate model. The estimation was done setting Madrazo as the baseline alternative, so coefficients should be interpreted in terms of propensities to vote for López Obrador or Calderón, relative to Madrazo. The first column shows the names of the explanatory variables included in our model. If we focus on individual-specific covariates (from the “intercept” row to the “personal economy” row) then the second, third and fourth columns show the means and 95% confidence intervals (CI) for López Obrador relative to Madrazo, and the fourth, fifth and sixth columns show the means and 95% CI for Calderón relative to Madrazo. Then, if we focus on the set of candidate-specific variables (from the “ideology distance” row to the “shares governor party ID” row), then the first, second and third columns give the means and 95% CI for the the coefficients. Finally, the last three rows show the mean and 95% CI for the

⁶ Morgenstern and Zechmeister (2001) estimate their MNP model using simulated maximum likelihood.

normalized value of Lopez-Obrador's variance, correlation between López Obrador and Calderón's variance.⁷

We use the results of the model to compute the probability that each individual, conditional on his own characteristics and other explanatory variables, votes for the different candidates. As mentioned previously, the observed proportions in our sample are: 20.0% for Madrazo, 41.5% for López Obrador and 38.4% for Calderón. If we compute predicted probabilities of voting for each candidate and then use them to predict individual choices, then predicted proportions are 19.7% for Madrazo, 44.8% for López Obrador, and 35.5% for Calderón.⁸ Overall, our model correctly classifies 72.5% of the individuals who responded having voted for Madrazo, López Obrador or Calderón. This suggests that our model contributes to explaining individual behavior, although it slightly under-estimates the proportion of voters supporting Calderon, and over-estimates the proportion of voters supporting López Obrador.⁹

⁷ The trace of the variance covariance matrix is set to 1 (see methodological appendix).

⁸ Average probabilities are 20.9%, 45.5% and 33.6% for Madrazo, López Obrador and Calderón, respectively.

⁹ In particular, it performs substantially better than model-free classification criteria such as assuming individuals have equal chance of supporting any of the candidates (which would correctly classify approx. 1/3 of our sample), assuming individuals have 50% chance of voting for López-Obrador or Calderón (which would correctly classify approx. 40% of our sample), as well as assuming everyone would vote for either López Obrador or Calderón (which would correctly classify 41.5% and 38.4% of our sample, respectively).

Region, urbanization and state government. According to Table 3, regional indicators were significant for explaining voter choice, and effects are in the expected directions, with individuals in the Center and Mexico City being more likely to support López Obrador relative to Madrazo, and individuals in the South being less likely to support Calderón relative to Madrazo. Also, respondents living in urban locations were more likely to support Calderón relative to Madrazo, compared to respondents living in rural or mixed locations. Finally, we find no evidence suggesting that voters were more likely to support a candidate sharing his or her governor's party identification.

Socio-demographic characteristics. At conventional levels of significance (>90%), race was the only socio-demographic variable significant for explaining voter choice. In particular, we find that people with white skin were less likely to support López Obrador relative to Madrazo, compared to respondents with light- or dark-brown skin. The remaining socio-demographic variables were not significant, although signs went in the expected direction—with women being less likely to support López Obrador over Calderón but more likely to support Calderón over Madrazo—and more affluent individuals being more likely to support Calderón relative to Madrazo.

Ideology distance, issue positions and party identifications. We do not find that individuals were more likely to support candidates closer to them in the ideological scale, Still, the proportion of correctly classified individuals varies by alternative. Specifically, this proportion was 63.1% for Madrazo, 79.1% for López-Obrador and 70.3% for Calderón.

or that they based their choice on differences in opinions about commercial relationships between México and the US. Also, individual positions on the issue of abortion in case of rape were not significant for explaining voter choice. Moving to party identifications, we find that PRD and PAN partisanship significantly affected voter choice in the expected direction—with PRD and PAN identifiers being more likely to vote for López Obrador and Calderón over Madrazo, respectively. Differently, we find that people with PRI partisanship were not more likely to vote for Madrazo relative to López Obrador or Calderón, a very surprising finding. Still, we do find that respondents with older partisan attachments were more likely to vote for Madrazo relative to both López Obrador and Calderón. A probable explanation of the latter two results is that while recent PRI partisans were likely to desert their party's nominee and vote for an opposition candidate—perhaps based on strategic motivations—old PRI partisans were more likely to follow party cues and support their party nominee. Last, in line with expectations, individuals approving of president Fox were significantly more likely to support Calderón relative to Madrazo.

Candidate evaluations and the economy. Regarding retrospective evaluations of the national economy, we find that higher evaluations had a positive and significant effect on the probability of voting for Calderón over Madrazo. Differently, evaluations of personal economic conditions were not significant for explaining voter choice. In addition, evaluations of candidates' ability to manage the economy and poverty, as well as evaluations of candidates' honesty, had a positive and significant effect on voter choice. Evaluations of candidates' ability to fight crime were not significant, although signs went in the expected direction.

Voter confidence and attitudes towards post-electoral confidence. Our model includes both separate indicators of voter confidence and willingness to participate in post-electoral conflicts, as well as an interaction between both variables. At conventional levels of significance (>90%), none of these variables had a significant direct effect on voter choice. Also, signs contradict our seventh hypothesis—individuals with more confidence in the cleanness of the electoral process were less likely to vote for Calderón over Madrazo.

In addition, the estimated value of the normalized covariance between voting for López Obrador and voting for Calderón is positive and significant. This is evidence of violation of the condition of Independence of Irrelevant Alternatives (IIA), and implies that if Madrazo were to drop-out from the race, then the relative probabilities of choosing between López Obrador and Calderón would not remain the same. Therefore, it would be inappropriate to model voter choice in the 2006 presidential election using specifications which assume the IIA assumption is satisfied – such as multinomial logit regressions.

Finally, we note that when the model is estimated within the different data sets standard deviations are usually smaller. Therefore, some coefficients are significant within imputations but not after pooling results across imputed data sets. For instance, receiving benefits from anti-poverty programs, PRI partisanship, voter confidence, willingness to participate in protests, as well as the interaction between the last two variables are all significant for explaining voter choice within several of the imputed data sets, but not after computing the overall results. This suggests that the multiple imputation procedure indeed reflects the uncertainty about the missing values, and this uncertainty translates into lower levels of significance for some model parameters.

Marginal effects

The multinomial probit specification assumes that voter choice is non-linear on the explanatory variables. Even though the separate analysis of the coefficients presented in Table 3 may provide an idea of the direct effect of right-hand-side variables on voter choice, it does not provide an accurate idea of the total impact or magnitude of these changes. For this purpose, it is better to compute the change in the probability of supporting the different candidates as a result of marginal changes in each of the explanatory variables. In Table 4 we show estimated marginal effects for a hypothetical voter.¹⁰ The probabilities that this individual supports Madrazo, López Obrador or Calderón are 12.6%, 43.0% and 43.6%, respectively.

Effects of region, urbaneness, demographic variables and party identifications

The magnitude of regional effects suggests that this is one of the most important factors for explaining voter choice. Specifically, when the location of our hypothetical voter changes

¹⁰ Our hypothetical individual is female, has brown skin, has 41 years old, lives in an urban location in Mexico City, has completed middle or technical school, attends church once a month, perceives between 2,600 and 3,900 pesos per month, receives or has received benefits from anti-poverty programs, supports abortion in case of rape, is somewhat confident in the cleanness of the electoral system, is unwilling to participate in protests against the official election outcome, approves a little of Fox, is an independent voter, is located at the center of the ideology spectrum, and believes that both the state of the national and personal economy have stayed the same.

from Mexico City to South there is a 17 percentage point increase in the probability of supporting Madrazo, and 10 and 8 percentage point decrease in the probability of supporting Calderón and López Obrador, respectively. Also, changing location from Mexico City to Center causes a 10 percentage point decrease in the chance of voting for López Obrador. Finally, changing location from Mexico City to North causes 13 and 8 percentage point increases in the probability of voting for Calderón and Madrazo, respectively, and a 21 percentage point reduction in the probability of voting for López Obrador. In addition, urbanness effects reflect that when our hypothetical voter changes from an urban to a rural or mixed location, the chance of supporting Madrazo increases by 5 percentage points.

Moving to the impact of socio-demographic variables, we find that race, gender and receiving benefits from anti-poverty programs have considerable effects on voter choice. Specifically, having white instead of brown skin causes a 10 percentage point decrease in the probability of voting for López Obrador. Regarding gender, a male hypothetical voter is 11 percentage points more likely to vote for López Obrador and 10 percentage points less likely to vote for Calderón, compared to a female voter. Last, switching current or past reception of anti-poverty benefits to having never received these types of benefits decreases the probability that our hypothetical voter supports Calderón by 7 percentage points, and increases the probability that she supports López Obrador by 6 percentage points (although these effects are not significant at conventional confidence levels).

Next, the other set of variables causing large changes in voting probabilities are those related to party identification. When our hypothetical voter is a PRI identifier instead of independent, the chance that she votes for Madrazo is 7 percentage points higher, and the chances that she votes for López Obrador or Calderón decline by 5 and 2 percentage

points, respectively (although these effects are not 90% significant). Also, in line with the findings of Table 3, being a PRD or PAN identifier, instead of an independent voter, greatly increases the probabilities of voting for López Obrador and Calderón by 41 and 23 percentage points, respectively, while it significantly decreases the likelihood of voting for other candidates.

Effect of the economy and candidate evaluations

Changes in retrospective evaluations of the national have small but significant effects in the behavior of our hypothetical voter. In particular, increasing the evaluation of the national economy from “stayed the same” to “improved a little” raises the probability of supporting Calderón by 5 percentage points. On the other hand, assessments of personal economic conditions had small and non-significant effects on voter choice. Moving to assessments of candidate-specific traits, we find that evaluations of candidates’ abilities to manage the economy and poverty have significant effects on the chances of voting for the different candidates. Since coefficients associated with these evaluations do not change across candidates, we only show the impact of these effects for López Obrador, although effects should go in similar directions for Calderón and Madrazo. Table 5 shows that when evaluations go from “not at all capable” to “very capable” of managing the economy, crime or poverty, the probability of voting for López Obrador increases between 7 and 10 percentage points. Most importantly, when the honesty evaluation changes from “not at all honest” to “very honest” the probability of voting for López Obrador increases by 21 percentage points, showing that perceptions honesty are also a very important for explaining voter choice.

Effect of changes in ideology distances

To measure the effect of candidate movements in the ideology scale, we computed the probabilities of voting for López Obrador and Calderón for different levels of candidate ideology, leaving constant the ideology position of our hypothetical individual—who is located at the center of the ideology scale—as well the position of other candidates and the level of all other explanatory variables (see Figure 2). Everything else constant, choice probabilities are maximized when the candidates move to the center of the ideology spectrum. Specifically, if López Obrador moves from “center-left” to “center” his choice probability increases from approximately 43.0% to 44.7%, and something similar happens when Calderón moves from “center-right” to “center.” Still, the magnitude of these movements is statistically indistinguishable from zero, and are small compared to the impact of other variables such as region or party identifications.

Effect of voter confidence and attitudes toward post-electoral conflicts

According to Table 4, when our hypothetical voter changes from being somewhat confident in the cleanness of the electoral process to being totally confident, the probability she supports Calderón decreases significantly by 6 percentage points, while the probability that she supports López Obrador increases by a similar magnitude. This suggests that it is not the case that higher levels of voter confidence increase support for the incumbent. In addition, when our hypothetical voter changed from being unwilling to participate in demonstrations against official election outcomes to being willing to participate in protests, the chance that she supports López Obrador increases by 6 percentage points and the

chance that she supports Calderón or Madrazo decreases by 4 and 2 percentage points, respectively. Still, the impact of willingness to participate in protest is not significant at conventional confidence levels (90%).

Effect of changes in the number of candidates running for office

In this section we address the following question: What would have happened if the third candidate, Madrazo, had dropped out from the race? Would the relative probabilities of choosing Calderón over Madrazo have remained the same? Or would the odds have shifted decisively in favor of one of the remaining candidates? One of the advantages of estimating a multinomial probit model—compared, for instance, to the multinomial logit specification usually employed in the Mexican politics literature—is that it allows error terms to be correlated across choices, and enables the simulation of changes in choice probabilities as a result of a change in the set of candidates running for office.¹¹ In this paper, we used estimated coefficients and components of the variance-covariance matrix of normalized error terms to simulate changes in individual choice probabilities under a hypothetical scenario where Calderón and López Obrador are the only two candidates running for office.¹²

¹¹ In the multinomial logit specification, relative probabilities are assumed to be unaffected by changes in the choice set. This assumption is often termed “Independence of Irrelevant Alternatives.” For details about how the multinomial probit specification relaxes IIA, see Alvarez and Nagler 1995.

¹² The appendix contains a detailed explanation of the simulation procedure.

Figure 3 shows the distribution of the normalized odds of voting for Calderón, relative to López Obrador under two different scenarios: one where PRI's candidate Madrazo is running for office (black lines); and another one where Madrazo drops out from the race (grey lines).¹³ These densities are computed including all voters, as well as for groups of respondents who reported voting for a specific candidate: Madrazo (upper right plot), López-Obrador (lower left plot) and Calderón (lower right plot). Overall, the distribution of odds is very similar under both hypothetical scenarios, and there is no significant change in mean or median values of these distribution. However, a visual examination of the distribution of preferences of Madrazo voters suggest that these individuals are less certain about their preferences for López-Obrador and Calderón after Madrazo drops out from the race—in that scenario, there is a larger mass of individuals located closer to the center of the distribution. In addition, while the distribution is clearly multimodal when Madrazo takes part in the contest (with one set of voters preferring López Obrador relative to Calderón, and another one with opposite preferences), the mode located to the left of the scale is smoothed when Madrazo drops out from the race, suggesting that there are fewer voters feeling highly certain about their preference for Calderón over López Obrador. Even though we do not find significant changes in the predicted vote shares received by the different candidates, Figure 3 suggests that a scenario where Madrazo dropped out from the race would have been somewhat more challenging for Calderón.

¹³ Higher numbers correspond to higher probability of voting for Calderón relative to López Obrador.

Conclusion

The purpose of our analysis was to use survey data from the 2006 Mexican presidential election to learn about how citizens vote in a new democracy. Similar to previous studies, we found that region and party identification are central for explaining presidential choice, followed by socio-demographic characteristics such as race, gender and reception of anti-poverty benefits. To a lower degree, we found that retrospective evaluations of the national and personal economy, as well as evaluations of candidates' ability to manage economic policy and crime, also have significant impact on voter decisions. Regarding ideology distances, even though effects were small, we found that movements of any candidate to the center of the ideology scale could have caused decisive changes in the election outcome—given the closeness of the race. Finally, we found that voter confidence and attitudes towards post-electoral conflicts had substantial effects on voter choice, suggesting that, even after the fall of the old regime, voter choice was affected by citizens' perception of the quality of the electoral process.

How should we interpret the finding that geography looms so large on voter decisions? We discard the proposition that the unequal distribution of socio-economic factors across the country explains the spatial distribution of voter choice. Our model controlled for a diverse set of socio-economic indicators, including household income, educational attainment, and reception of anti-poverty benefits; and even then, region remained significant for explaining voter choice. A second proposition that we do not find support for is that the larger industrial development in the North, and strong commercial relationships with the US in that region, drive differences in voter choice between northern and southern regions of the country. Our model controlled for individual positions on

Mexico-US commercial relationships, as well as whether the respondent lived in an urban location—which should be positively correlated with industrial employment, and negatively correlated with rural employment such as peasantry—and even then, region remains an important factor for explaining voter choice. In a similar way, we do not find evidence in favor of alternative explanations of the importance of region based on ideology, on differences in distributions of party identifications, on confidence in the cleanness of the electoral process, as well as economic explanations of the effect of region. After controlling for all of these factors, the direct effect of region on voter choice remains strong and significant. This leads us to conclude that geographic representation is of outmost importance in Mexico's new democracy.

The other variable which was found to have a large impact on voter choice, is party identification. This result stands in contrast to recent trends in advanced democracies, where researchers have found a decrease in the importance of party identification as an explanation of voter choice—to the extent that independent voters have been found to be more consistent in their partisan choice than party identifiers (Clarke and Stewart 1998, 362). A possible explanation of this difference is that partisan attachments may not have the same meaning in Mexico as they do, for instance, in the United States. In particular, partisanship in Mexico may not be a long-term attitude toward one particular party, but a short-term feeling developed during the electoral period, indistinguishable from voter choice—it may be indeed the case that some “cognitive and attitudinal constructs are so proximate to vote choice that they constitute part of what is to be explained” (Evans 2000, 401). In addition, Magaloni (2006, 209) writes that the concept of party identification is problematic in Mexico, when researchers use cross-sectional data, because respondents do

not distinguish the difference between preferences for the different candidates and voting intentions. If that were the case, the inclusion of party identification in our model would be somewhat questionable.

Still, the party identification measure used in our model was taken from the first wave of the Mexico Panel Study, conducted approximately nine months before Election Day, when some of the candidates were still largely unknown to parts of the population.¹⁴ Therefore, we are confident that the measure of party identification used in our analysis is not equivalent to voter choice. Moreover, the phrasing of the partisanship question used in the MPS is similar to that use in ANES studies in the US. According to Clarke and Stewart (page 361) “it is argued that the ANES question prompts long-term thinking,” compared to alternative phrasings such as that used by Gallup which asks about party identification “as of today.” Since more than 39% of our sample reports having relatively old partisan attachments (older than 11 years), excluding party identification from our model would be problematic, because we would not be able to distinguish between determinants of voter choice and determinants of partisan attachments. Still, since party identification has such a strong impact on voter choice, even after controlling for a broad set of socio-economic variables and political attitudes, we believe it is important that future studies focus on exploring the determinants of party identification in Mexico. One possible explanation of the impact of party identification is that local politics determine preferences for presidential candidates. We reject this proposition because our model contained an indicator of the party identification of the state governor, and we found that sharing the

¹⁴ Actually, all explanatory variables included in our model were measured two to nine months before the election, while the dependent variable was measured after Election Day.

same party identification as the state governor has no impact on the probability that voters choose a given candidate.

Overall, our results do not break with previous findings in the Mexican literature, but add novel and interesting insights about the causes of political behavior. Therefore, our results should be relevant to scholars of Mexican politics as well as those interested in voter behavior in new democracies. Moreover, our analysis is also important for its methodological contributions, including: use of multiple imputation to incorporate our uncertainty about the nature of the non-responses; specification of a statistical model appropriate for studying voter choice in multi-candidates elections; considering the effect of candidate-specific variables such as ideology distances useful to test for the spatial theory of voting or for the effect of strategic movements by candidates or parties. Therefore, this article should also be pertinent to a more general audience interested in statistical models of voter choice. We found that our multiple imputation procedure affected both the magnitude and significance of our parameters; that there is positive and significant correlation between voting for López Obrador and Calderón, suggesting a violation of the IIA condition; and we also found that several candidate-specific variables were significant for explaining voter choice. These results suggest that our methodological advances were worthwhile and indeed necessary to gain an accurate understating of voter behavior in the 2006 Mexican presidential election.

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APPENDIX

A1. Tables and Figures

Table 1: Summary Statistics

		Madrazo	López Obrador	Calderón
	Overall	20	42	38
Region	Center	21	29	51
	Mexico and DF	9	62	30
	North	25	15	59
	South	32	39	28
Urbanness	Rural or mixed	33	33	34
	Urban	13	46	41
Income	0 a 1,299	32	43	25
	1,300 a 1,999	24	39	37
	2,000 a 2,599	17	46	37
	2,600 a 3,999	26	42	32
	4,000 a 5,199	15	40	45
	5,200 a 6,499	20	45	36
	6,500 a 7,899	18	48	34
	7,900 a 9,199	13	40	48
	9,200 a 10,499	19	39	42
	10,500 or more	6	32	62
Benefit antipoverty program	No	15	47	38
	Yes	31	32	36
Age	younger than 30	18	38	44
	30 to 44 years old	20	42	37
	45 to 59 years old	20	44	36
	older than 59	28	39	33
Race	Dark brown	27	42	31
	Light brown	18	43	39
	White	19	33	48
Gender	Male	19	47	34
	Female	23	36	42
Education	Has no schooling	30	33	38
	Incomplete elementary	30	33	36
	Complete elementary	26	39	35
	Incomplete middle/technical	13	60	28
	Complete middle/technical	24	42	34
	Incomplete high	11	45	44
	Complete high	15	45	40
	Incomplete college	8	52	40
	Complete college or more	12	40	48
Church attendance	Never	19	54	26
	Only on special occasions	18	46	36
	Once a month	16	44	40
	Once a week	21	37	42
	More than once a week	29	34	37
Abortion	No	27	32	41
	Yes	18	46	36
Protest	Not willing	22	36	42
	Willing	20	48	31

Table 1: Summary Statistics (cont.)

		Madrazo	López Obrador	Calderón
	Overall	20	42	38
Voter Confidence	Not at all	24	52	23
	A little	20	46	33
	Somewhat	21	39	40
	Totally	20	35	45
Fox approval	Disapproves a lot	25	68	8
	Disapproves a little	23	64	14
	Neither	36	32	32
	Approves a little	22	36	43
	Approves a lot	12	18	71
Party ID (short)	None	13	43	44
	PAN	5	17	78
	PRD	4	89	8
	PRI	55	19	27
Party ID (long)	None	13	43	44
	Strong PAN	5	10	85
	Strong PRD	2	93	5
	Strong PRI	63	17	20
	Weak PAN	4	20	75
	weak PRD	5	87	9
	Weak PRI	47	20	33
Length of partisanship	None	13	43	44
	less than two years	9	56	36
	between 2 and 5	14	46	40
	between 5 and 11	14	41	45
	more than 11	39	30	31
National economy	Worsened a lot	24	67	9
	Worsened a little	22	55	23
	Same	19	48	32
	Improved a little	20	30	49
	Improved a lot	14	21	65
Personal economy	Worsened a lot	23	62	15
	Worsened a little	21	61	18
	Same	20	43	38
	Improved a little	19	29	52
	Improved a lot	19	26	55
Ideology	Strong left	6	73	21
	Somewhat left	16	62	22
	Center-left	15	53	33
	Center-center	19	41	40
	Center-right	23	31	45
	Somewhat right	29	25	46
	Strong right	34	17	49
Mexico-US relations	Decrease	20	50	30
	Stay the same	19	43	39
	Increase	21	38	41
State Government	PAN	22	20	58
	PRD	16	59	25
	PRI	23	32	44

Table 2: Multiple Imputation: Summary Statistics

	Missing Values		Means				
			data set 1	data set 2	data set 3	data set 4	data set 5
Center	0.0%	(0)	---	---	---	---	---
South	0.0%	(0)	---	---	---	---	---
Mexico City	0.0%	(0)	---	---	---	---	---
Urban	0.0%	(0)	---	---	---	---	---
Age	13.7%	(219)	41.2	41.2	41.1	41.2	41.1
White	13.8%	(220)	20.6%	20.9%	20.8%	21.1%	21.2%
Female	13.6%	(216)	48.8%	49.1%	49.4%	48.7%	49.3%
Education	13.9%	(221)	5.2	5.2	5.2	5.2	5.2
Church	0.9%	(15)	3.2	3.2	3.2	3.1	3.2
Abortion	20.6%	(329)	63.1%	63.6%	63.3%	63.1%	63.7%
Income	22.3%	(355)	4.1	4.1	4.1	4.1	4.1
Benefit antipoverty program	8.2%	(130)	20.9%	21.0%	20.5%	20.8%	20.2%
Voter confidence	17.6%	(281)	2.7	2.7	2.7	2.7	2.7
Protest	18.1%	(289)	35.6%	34.8%	34.8%	34.7%	34.9%
Fox approval	18.3%	(291)	3.4	3.4	3.4	3.4	3.4
PRI	3.7%	(59)	22.2%	21.3%	28.8%	15.6%	25.7%
PAN	3.7%	(59)	5.7%	12.7%	8.3%	8.1%	6.1%
PRD	3.7%	(59)	16.2%	9.9%	8.1%	15.8%	5.0%
Length partisanship	5.3%	(85)	1.5	1.5	1.6	1.4	1.4
National economy	3.5%	(55)	3.4	3.5	3.4	3.4	3.4
Personal economy	2.5%	(40)	3.3	3.3	3.3	3.3	3.3
Ideology	33.2%	(530)	4.0	4.0	4.0	4.0	4.0
MX-US	21.1%	(336)	0.3	0.3	0.3	0.3	0.3
MX-US distance AMLO	19.0%	(303)	0.2	0.2	0.2	0.2	0.2
MX-US distance Calderon	23.2%	(370)	0.3	0.3	0.3	0.3	0.3
MX-US distance Madrazo	20.7%	(330)	0.2	0.3	0.2	0.3	0.3
Evaluation economy AMLO	11.9%	(190)	2.4	2.4	2.4	2.4	2.4
Evaluation economy Calderon	24.2%	(386)	2.3	2.3	2.3	2.3	2.3
Evaluation economy Madrazo	14.1%	(224)	2.1	2.1	2.1	2.1	2.1
Evaluation poverty AMLO	11.4%	(182)	2.3	2.3	2.3	2.3	2.3
Evaluation poverty Calderon	22.8%	(363)	2.4	2.4	2.4	2.4	2.4
Evaluation poverty Madrazo	13.7%	(218)	2.0	2.1	2.0	2.0	2.0
Evaluation crime AMLO	12.0%	(191)	2.3	2.3	2.3	2.3	2.3
Evaluation crime Calderon	22.8%	(363)	2.2	2.2	2.2	2.2	2.2
Evaluation crime Madrazo	13.7%	(219)	2.0	2.1	2.0	2.0	2.0
Evaluation honesty AMLO	13.4%	(214)	2.3	2.3	2.3	2.3	2.3
Evaluation honesty Calderon	24.5%	(391)	2.4	2.4	2.4	2.4	2.4
Evaluation honesty Madrazo	14.0%	(223)	2.0	2.0	2.0	2.0	2.0
PRI state government	0.0%	(0)	---	---	---	---	---
PRD state government	0.0%	(0)	---	---	---	---	---
PAN state government	0.0%	(0)	---	---	---	---	---

Means corresponds to the average of the last 250 iterations

N= 1594

Table 3: Bayesian Multinomial Probit Coefficients

	López Obrador/Madrado			Calderón/Madrado		
	β	90% C.I.		β	90% C.I.	
Intercept	0.14	-0.71	1.00	-0.90	-1.84	0.00
Center	0.35	0.05	0.68	0.00	-0.30	0.30
South	0.10	-0.22	0.44	-0.53	-0.83	-0.24
Mexico City	0.64	0.31	0.98	0.05	-0.27	0.36
Urban	0.08	-0.17	0.31	0.32	0.09	0.57
Age	0.00	-0.01	0.01	0.00	-0.01	0.00
White	-0.27	-0.51	-0.03	0.00	-0.26	0.27
Female	-0.15	-0.34	0.04	0.18	-0.02	0.39
Education	-0.02	-0.07	0.03	0.01	-0.04	0.07
Church	-0.03	-0.12	0.05	-0.02	-0.10	0.07
Abortion	0.04	-0.17	0.25	-0.01	-0.22	0.19
Income	0.03	-0.02	0.07	0.04	0.00	0.09
Benefit antipoverty program	-0.04	-0.28	0.20	0.17	-0.07	0.40
Voter confidence	0.05	-0.12	0.21	-0.14	-0.29	0.02
Protest	0.44	-0.28	1.13	-0.59	-1.49	0.26
Voter confidence * Protest	-0.09	-0.34	0.16	0.20	-0.09	0.51
Fox approval	-0.05	-0.14	0.04	0.19	0.09	0.30
PRI	-0.28	-0.68	0.12	-0.25	-0.67	0.16
PAN	0.46	0.05	0.87	0.99	0.58	1.41
PRD	1.30	0.86	1.77	0.16	-0.34	0.65
Length partisanship	-0.18	-0.29	-0.07	-0.11	-0.22	0.01
National economy	0.01	-0.11	0.13	0.14	0.01	0.27
Personal economy	-0.01	-0.13	0.12	0.06	-0.07	0.18
Ideology (distance from voter)		-0.04	-0.11	0.03		
Mexico-US relations (distance from voter)		0.02	-0.07	0.11		
Ability manage economy		0.09	0.01	0.17		
Ability manage poverty		0.07	0.00	0.14		
Ability manage crime		0.06	-0.02	0.15		
Honesty		0.18	0.11	0.25		
Shares governor party ID		0.05	-0.04	0.13		
$\tilde{\sigma}_{AMLO}^2$		0.94	0.67	1.21		
$\tilde{\sigma}_{AMLO,CALD}^2$		0.40	0.15	0.61		
$\tilde{\sigma}_{CALD}^2$		1.064	0.79	1.34		

N=1,218

Table 4: First Differences

Variable	Change with respect to hypothetical voter	Madrazo			López Obrador			Calderón		
		5%	50%	95%	5%	50%	95%	5%	50%	95%
Baseline probability of support		5.6	12.6	23.2	28.4	43.0	58.3	29.4	43.6	58.6
Region: Mexico City to	south	9	17	27	-17	-8	1	-19	-10	0
	center	-2	4	12	-19	-10	-1	-4	5	15
	north	1	8	18	-32	-21	-12	2	13	23
Urban: urban to	rural or mixed	0	5	11	-3	5	14	-18	-10	-2
Age: 41 to	54	-1	0	3	-3	1	4	-5	-2	2
Race: brown to	white	-2	3	11	-18	-10	-3	-2	7	15
Gender: female to	male	-4	0	4	4	11	17	-17	-10	-4
Education: complete middle to	complete high	-2	0	3	-6	-2	1	-1	2	6
Church attendance: once a month to	once a week	-1	1	3	-4	-1	2	-3	0	3
Abortion: yes to	no	-4	0	5	-9	-2	5	-6	2	9
Income: 2,600-3,999 to	5,200-6,499	-3	-1	0	-3	0	3	-1	2	5
Benefit antipoverty: yes to	no	-4	1	6	-3	6	15	-16	-7	1
Voter Confidence: somewhat to	totally fair	-2	1	5	0	6	11	-11	-6	-1
Protest: unwilling to	willing	-6	-2	2	-2	6	13	-10	-4	3
Fox: approves a little to	approves a lot	-4	-2	0	-10	-7	-4	6	9	12
Party ID: independent to	PRI	-2	7	17	-19	-5	9	-16	-2	11
	PAN	-19	-10	-4	-25	-13	-1	10	23	35
	PRD	-21	-11	-4	28	41	53	-42	-29	-17
Length of party ID: 2-5 years to	5-11 years	1	4	8	-8	-4	-1	-3	0	4
State of national economy: same to	improved a little	-4	-2	1	-8	-4	1	1	5	9
State of personal economy: same to	improved a little	-3	0	2	-6	-2	2	-2	2	7

Note: Each row shows changes in choice probabilities for a hypothetical voter, resulting from a marginal change in one variable, leaving everything else constant.

Table 5: Candidate evaluations and voter choice

	Ability to manage			
	Economy	Poverty	Crime	Honesty
Not at all	36	37	38	29
Little	40	40	41	36
Somewhat	43	43	43	43
Very	46	46	45	50

Note: The table shows choice probabilities for a hypothetical voter, for different levels of candidate evaluations, leaving everything else constant.

Figure 1: Regional cleavages in the 2006 Presidential Election

First Place Candidate



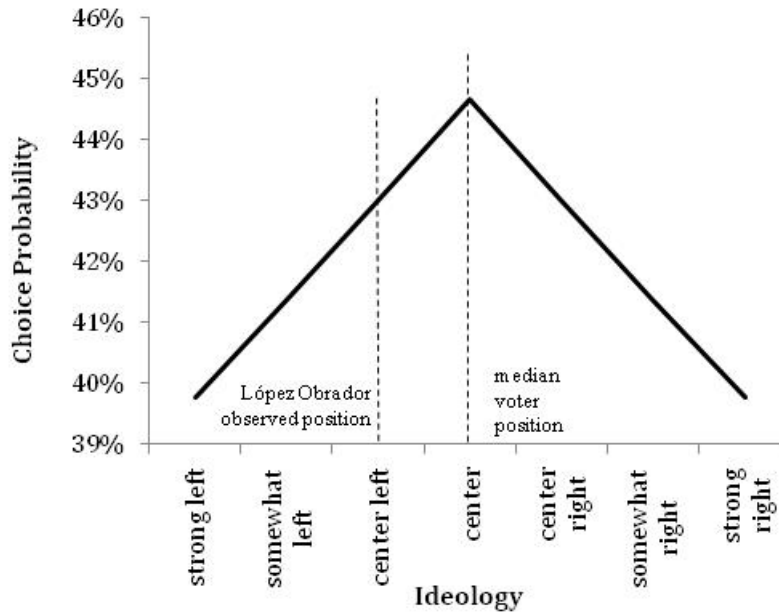
Second Place Candidate



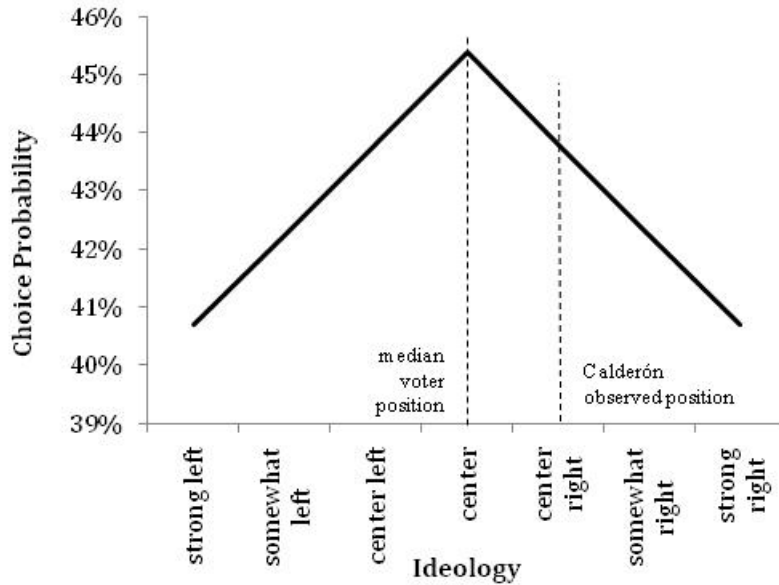
Note: blue indicates Felipe Calderón (PAN), yellow indicates Andrés M. López Obrador (PRD) and green indicates Roberto Madrazo (PRI). Source: Instituto Federal Electoral (IFE)

Figure 2: Ideology Distance and Voter Choice

López Obrador

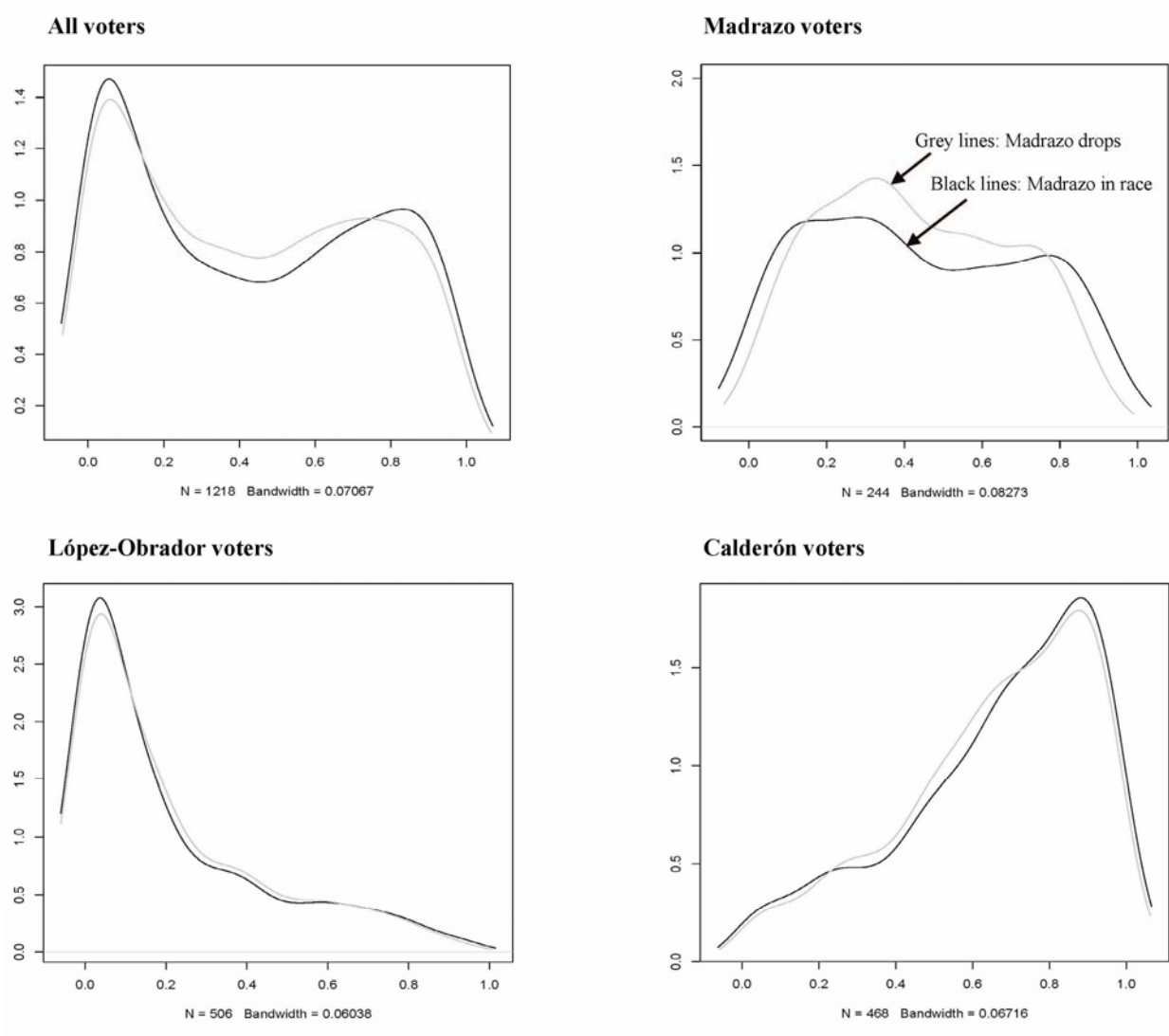


Calderón



Note: Plots shows probabilities of choosing López-Obrador (upper) and Calderón (lower), respective, for different levels candidate ideology positions. Simulations were done based on the characteristics of a hypothetical voter.

Figure 3: Two-Candidate Race (López Obrado vs. Madrazo)



A2. Multiple Imputation Procedure

One common problem when using complete data methods is the high incidence of missing values and non-responses in survey data. For instance, we find that most explanatory variables included in our voter choice model contain between 1% and 37% missing values (see Table 2). One possible “quick” solution for addressing this issue is to delete observations with missing values in one or more of the variables included in the complete data model (in this case, in the voter choice model). A drawback of this solution is that it is very inefficient – makes poor use of all the information available. For example, if we dropped all observations with missing values in the regressors, we would be left with only 432 observations (27% of the 3rd wave sample). Moreover, since the remaining observations are not representative of the original sample, this procedure might lead to biased estimates. Another common solution is to fill or impute non-responses with single values such as column means or predicted values computed using observed data. The problem of the single-imputation approach is that estimates computed using a single imputed data set will not reflect uncertainty about non-responses, and they may reduce or inflate relationships between variables (citations). No single-imputation method will exactly predict missing values – as stated by Rubin (1987, page X), “if one value were really adequate, then that value was never missing.”

Instead, we follow a multiple-imputation procedure that, on top of having similar advantages as single-imputation methods, allows us to account for the uncertainty about the origin of the non-response (Rubin 1987). In a few words, this method consists in replacing each missing value by several imputations, and then use each set of imputations to construct multiple imputed data sets. We carry out this step using the MICE software package in R, which estimates the imputed values using a Bayesian approach, and we monitor iterations to make sure imputed values converged across data sets. After that, we use each complete data set to estimate similar voter choice models, and follow an innovative procedure for obtaining overall estimates which reflect the uncertainty about the missing values. Specifically, instead of using Rubin’s (1987) rules for computing overall estimates and total variance based on within- and between- imputation variability, we take advantage of the fact that our voter choice model is estimated using Bayesian methods to

approximate the posterior conditional distribution of the coefficients taking into account both within- and between- imputation variability. We do so by first estimating three MCMC chains of model coefficients for each of the five imputed data set, each with different starting values; and then we pool the fifteen chains and use them to summarize the posterior conditional distribution of the coefficients.

More formally, we specify a probability model on the complete data set \mathbf{X} , where $\mathbf{X} = (\mathbf{X}^{obs}, \mathbf{X}^{mis})$ is $N \times K$ matrix of explanatory variables. In doing so, we assume that the non-response mechanism is “ignorable” (Rubin 1987), which is the same as assuming that the missingness is generated at random conditional on observables (MRA condition). The ignorability condition implies that we can specify a probability distribution over $\mathbf{x}_1 \dots \mathbf{x}_K$ and estimate parameters of the imputation-model using observed values. After that, we can use observed values in $\mathbf{x}_1 \dots \mathbf{x}_{K-1}$ and estimated parameters of the imputation-model to generate M imputations for missing variables in \mathbf{x}_K .

If non-response were explained by unobserved variables correlated with the outcome of interest or other explanatory variables, then the multiple imputation procedure would not preserve the relationship between the variables and would lead to biased estimates. Thus, a recommendation usually made is that the imputation-model includes all variables included in the complete-data model (in our case, all those variables included in the voter choice model), all other variables useful for explaining non-response, as well as any other variable explaining a substantive proportion of the variance which may help reduce our uncertainty about the missing values (citations). In this article the imputation-model includes all explanatory variables included in the complete-data model as well as 22 other variables which may help explain variability and non-response (see Table 2 and Table A.X).¹⁵

¹⁵ The variables which we include in the imputation-model but not in the voter-choice model are: participation in the 2000 presidential election; trust in the Federal Electoral Institute (IFE); evaluation of Mexico’s democracy; trust in family and friends; marital status; receiving remittances from the US; frequency with which the person speaks about politics; interest in politics; awareness of the campaign; watching the news; whether the person saw the presidential debate; time cost of voting; visit from a party representative; strength of partisanship; support for death penalty; women role in society; union membership status and occupation dummies (blue collar worker, white collar worker, peasant, student or housewife).

An important factor to take into account is that the missing data model should account for the different types of variables in \mathbf{X} (binary, ordered, continuous, and so on). Therefore, in choosing a probability model, assuming all variables are normally distributed may be unrealistic and lead to nonsensical imputations. In this article we compute the multiple imputations using “predictive mean matching” (PMM, Little 1988). As explained by Horton and Lipsitz (2001), PMM first specifies a linear model for each variable \mathbf{x}_k using the remaining variables in \mathbf{X} as regressors:

$$(A.1) \quad E[\mathbf{x}_k] = \theta_0 + \theta_1 \mathbf{x}_1 + \cdots + \theta_{k-1} \mathbf{x}_{k-1} + \theta_{k+1} \mathbf{x}_{k+1} + \cdots + \theta_K \mathbf{x}_K$$

After that, observed values of $\mathbf{x}_1 \dots \mathbf{x}_{k-1} \mathbf{x}_{k+1} \dots \mathbf{x}_K$ and draws from the distribution of the parameters are used to generate M predicted values $\hat{x}_k^{(1)} \dots \hat{x}_k^{(M)}$ for each observation with missing values in \mathbf{x}_k . Finally, PMM imputes the observed value in \mathbf{x}_k which is closest to $\hat{x}_k^{(m)}$, for $m = 1, \dots, M$. As a result, when using PMM, “imputed values have the same gaps as in the observed data and are always within the range of the observed data” (Buuren and Groothuis-Oudshoorn 2009, page X).¹⁶

Another important issue when conducting multiple imputations is the simultaneous occurrence of non-response in several variables in \mathbf{X} . In that case, estimating equation (A.1) is not straightforward. One possible solution is to specify a joint distribution over $\mathbf{x}_1 \dots \mathbf{x}_K$, $P(\mathbf{X} | \Theta)$, where Θ are the imputation-model parameters. A drawback of this approach is that when there are multiple types of variables in \mathbf{X} , $P(\mathbf{X} | \Theta)$ may have no known form. In this article we use an alternative solution, which consists in using a “fully conditional specification” (FCS). In particular, we conduct multiple imputation by chained equations using R’s package MICE (van Buuren and Groothuis-Oudshoorn 2009). The idea is to specify separate conditional distributions for each incomplete variable in \mathbf{X} ,

¹⁶ Alternative methods for computing imputed values are: simple linear regression, propensity score methods, logistic regression, polynomial regression, and discriminant analysis.

$P(\mathbf{x}_k | \mathbf{X}_{-k}, \Theta_k)$, where \mathbf{X}_{-k} are other variables in \mathbf{X} and Θ_k are imputation model parameters specific to variable \mathbf{x}_k . Then, Gibbs sampling can be used to repeatedly draw from the “chain” of univariate conditional distributions and generate M imputations for each missing value in \mathbf{X} . Let t be the iteration number, then the Gibbs sampler draws successively from the following conditional distributions (citations):

$$\begin{aligned} \hat{\Theta}_1^{(t)} &\sim P(\Theta_1 | \mathbf{x}_1^{obs}, \mathbf{x}_2^{(t-1)}, \dots, \mathbf{x}_K^{(t-1)}) \\ \hat{\mathbf{x}}_1^{(t)} &\sim P(\mathbf{x}_1 | \mathbf{x}_1^{obs}, \mathbf{x}_2^{(t-1)}, \dots, \mathbf{x}_K^{(t-1)}, \hat{\Theta}_1^{(t)}) \\ &\vdots \\ \hat{\Theta}_K^{(t)} &\sim P(\Theta_K | \mathbf{x}_K^{obs}, \mathbf{x}_1^{(t)}, \dots, \mathbf{x}_{K-1}^{(t)}) \\ \hat{\mathbf{x}}_K^{(t)} &\sim P(\mathbf{x}_K | \mathbf{x}_K^{obs}, \mathbf{x}_1^{(t)}, \dots, \mathbf{x}_{K-1}^{(t)}, \hat{\Theta}_K^{(t)}) \end{aligned}$$

Since we use PMM, $\mathbf{x}_k^{(t)} = (\mathbf{x}_k^{obs}, \tilde{\mathbf{x}}_k^{(t)})$ and $\tilde{\mathbf{x}}_k^{(t)}$ are the observed value in \mathbf{x}_k^{obs} closest to $\hat{\mathbf{x}}_k^{(t)}$.

As explained by Buuren and Groothuis-Oudshoorn (2009), previous iterations of $\hat{\mathbf{x}}_k^{(t)}$ only affect $\hat{\mathbf{x}}_k^{(t)}$ indirectly, “through it relationship with other variables” (page 7). This reduces the autocorrelation between imputations and allows quick convergence – according to Buuren and Groothuis-Oudshoorn (2009) 10 to 20 iterations may be enough. In our case most imputed values converged quickly (such as missing values in voter confidence, see figure A.2) although others required more than 50 iterations to converge (such as missing values in ideology distances for Calderón and Madrazo, see Table A.2). Conservatively, we decided to run the imputation-model with 250 iterations. Table 2 shows that mean of the imputed values was almost the same for all variables across the five complete data sets.

How many imputations are needed? According to Rubin (1987), efficient estimates can be achieved with only 3 to 5 imputations per missing value, where “efficiency” is a function of “how much more precise the estimate might have been if no data had been missing” (Schafer and Olsen, page 548). In our model, the fraction of missing data in the explanatory variables varies between 1% and 37% (see Table 2) and we set M=5. According to Rubin’s rule about the efficiency of the estimates, our results should be more than 90% efficient.

A3. Model Specification and Estimation

Random utility models assume voter choice is based on the relative utility voters perceive from each alternative. Specifically, when voters chose among three candidates, we assume observed choice Y_i depends on utility vector $U_i = (U_{i1}, U_{i2}, U_{i3})$, such that Y_{ij} equals one if $U_{i1} = \max(U_i)$ and zero otherwise, for $j=1,2,3$. Moreover, even though utilities are unobserved or latent, the multinomial probit specification assumes we can model them according to the following random utility system (Alvarez and Nagler 1995,1998):

$$U_{ij} = X_{ij}\beta + a_i\psi_j + v_{ij}, \text{ for } j=1,2,3$$

where X_{ij} is a vector of alternative-specific covariates, a_i is a vector of individual-specific covariates, and v_{ij} is a normally distributed error term. Also, while X_{ij} is associated with a vector of coefficients β which does not vary by candidate or individual decision maker, a_i is associated with a choice-specific vector of coefficients ψ_j which takes different values for each of the three candidates.

Note that voter choice is unchanged when we add a constant to both sides of these equations. Thus, the above model is unidentified. Following the convention in the literature, we solve this identification problem by rewriting the model in terms of the utility perceived from the third candidate, such that $\tilde{U}_i = (\tilde{U}_{i1}, \tilde{U}_{i2})$ with $\tilde{U}_{ij} = U_{ij} - U_{i3}$ for $j=1,2$ and

$$\tilde{U}_{ij} = \tilde{X}_{ij}\beta + a_i\tilde{\psi}_j + \tilde{v}_{ij}$$

where $\tilde{X}_{ij} = X_{ij} - X_{i3}$, $\tilde{\psi}_j = \psi_j - \psi_3$, $\tilde{v}_{ij} = v_{ij} - v_{i3}$, and $\tilde{v}_{ij} \sim N(0, \tilde{\Sigma})$.

According to this normalization, the voter chooses the third alternative when both \tilde{U}_{i1} and \tilde{U}_{i2} are negative, or otherwise chooses $j = \arg \max \tilde{U}_{ij}$. Thus, the probability of choosing the first alternative equals

$$P[(\tilde{U}_{i1} > 0) \& (\tilde{U}_{i1} > \tilde{U}_{i2})]$$

Estimating this probability requires high-dimensional integration, and is computationally demanding. However, the recent development of Markov Chain Monte Carlo (MCMC) methods enables us to do an efficient and accurate estimation of

multinomial probit models, using Bayesian simulation (Geweke et al. 1994; Imai and Dyk 2005; McCulloch and Rossi 1994; McCulloch et al. 2000; Nobile 1998; Rossi 2005). As explained by Imai and Dyk (2005), doing so requires use of a data augmentation algorithm to iteratively sample from the conditional distributions of U and $\theta = \{\beta, \psi_1, \psi_2, \Sigma\}$. Under certain regularity conditions and an adequate burn-in period (Gelman and Rubin 1992; Roberts 1996; Tierney 1994, 1996), the resulting Markov chain converges to the conditional distribution of U and θ , $P(U, \theta | Y)$.

However, the above model is still unidentified – rescaling each \tilde{U}_{ij} by a positive constant leaves voter choice unchanged. For instance, we can write each random utility equation as

$$\tilde{U}_{ij} = \alpha \tilde{U}_{ij} = \tilde{X}_{ij}(\alpha \beta) + a_i(\alpha \tilde{\psi}_j) + (\alpha \tilde{v}_{ij})$$

where α is a positive constant, and $\alpha \tilde{v}_{ij} \sim N(0, \alpha^2 \Sigma)$.

We say that $\tilde{\beta}, \tilde{\psi}_1, \tilde{\psi}_2$ and Σ are the identified parameters, while $(\alpha \tilde{\beta}), (\alpha \tilde{\psi}_1), (\alpha \tilde{\psi}_2)$ and $(\alpha^2 \Sigma)$ are the unidentified parameters. Solving the identification problem requires the specification of proper prior distributions (McCulloch and Rossi 1994; Imai and Dyk 2005a). In this paper, we follow the approach of Imai and Dyk (2005) who place a prior on the identified parameters, $\beta \sim N(\beta_0, A^{-1})$, setting $\alpha^2 = \sigma_{11}^*$, and obtain the unidentified parameters as $\beta^* | \Sigma^* \sim N(\sigma_{11}^* \beta_0, \sigma_{11}^* A^{-1})$, $\Sigma^* \sim \text{inverse Wishart}(v, S^*)$, where β_0 and A are the prior mean and variance-covariance matrix of β , v are the degrees of freedom of the inverse Wishart distribution, and S is the prior scale of Σ .¹⁷ This approach allows us to easily interpret prior distributions, as well as their impact on posterior results, as well as to specify flat priors. Thus, it improves upon the approach followed by McCulloch and Rossi (1994), who specify the prior of the unidentified parameters as $\beta^* \sim N(\beta_0, A^{-1})$, and obtain the prior of the identified parameters as a byproduct (see Imai and Dyk 2005a).

According to Imai and Dyk (2005a), their procedure improves upon the one proposed by McCulloch and Rossi (1994), Nobile (1998) and McCulloch et al. (2000) in terms of interpretability of the prior distributions, simplicity of the computation and speed

¹⁷ For an application of the algorithm developed by McCulloch and Rossi (1994), see Alvarez and Katz (2008).

of convergence. The last achievement is a result of the use of a fully marginalized data augmentation algorithm, whereby the distribution of the working parameters α is independent from that of the distribution of the identified parameters, and repeated sampling from conditional distributions is done averaging over α , *thus* reducing the autocorrelation between sampler draws. In this paper, we fit the model using the MNP package (Imai and Dyk 2005b), implemented through R, which executes scheme 1 of algorithm 1 introduced by Imai and Dyk (2005a).

A4.Simulation of Choice Probabilities

With Madrazo set as the baseline category, the variance covariance Matrix of the MNP model is:

$$\tilde{\Sigma} = \begin{bmatrix} \sigma_{MAD}^2 + \sigma_{AMLO}^2 - 2\sigma_{MAD,AMLO} & \\ \sigma_{MAD}^2 - \sigma_{MAD,AMLO} - \sigma_{MAD,CALD} + \sigma_{AMLO,CALD} & \sigma_{MAD}^2 + \sigma_{CALD}^2 - 2\sigma_{MAD,CALD} \end{bmatrix}$$

Further, to simplify notation we write: $\bar{\sigma}_{AMLO}^2 = \sigma_{MAD}^2 + \sigma_{AMLO}^2 - 2\sigma_{MAD,AMLO}$,

$$\tilde{\sigma}_{CALD}^2 = \sigma_{MAD}^2 + \sigma_{CALD}^2 - 2\sigma_{MAD,CALD}, \text{ and}$$

$\tilde{\sigma}_{AMLO,CALD} = \sigma_{MAD}^2 - \sigma_{MAD,AMLO} - \sigma_{MAD,CALD} + \sigma_{AMLO,CALD}$. Identification requires fixing one of the parameters of this matrix, or a linear combination of them. In this paper, we fix the trace equal to 1.

3 Candidate Election

To compute the probability that López Obrador wins, we need to draw from the cdf of a bivariate normal with vector of means $[\tilde{U}_{i,AMLO} - \tilde{U}_{i,MAD} \quad \tilde{U}_{i,AMLO} - \tilde{U}_{i,CALD}]^T$ and variance-covariance matrix

$$\tilde{\Sigma}_{AMLO} = \begin{bmatrix} \sigma_{MAD}^2 + \sigma_{AMLO}^2 - 2\sigma_{MAD,AMLO} & \\ \sigma_{AMLO}^2 - \sigma_{MAD,AMLO} - \sigma_{AMLO,CALD} + \sigma_{MAD,CALD} & \sigma_{AMLO}^2 + \sigma_{CALD}^2 - 2\sigma_{AMLO,CALD} \end{bmatrix}. \text{ Since our}$$

model does not yield estimates of σ_{AMLO}^2 , σ_{CALD}^2 and $\sigma_{AMLO,CALD}$; but of $\tilde{\sigma}_{AMLO}^2$, $\tilde{\sigma}_{CALD}^2$ and $\tilde{\sigma}_{AMLO,CALD}$, we need to express σ_{AMLO}^2 , σ_{CALD}^2 and $\sigma_{AMLO,CALD}$ as linear combinations of the estimated parameters. Still, note that: $\sigma_{MAD}^2 + \sigma_{AMLO}^2 - 2\sigma_{MAD,AMLO} = \tilde{\sigma}_{AMLO}^2$,

$$\sigma_{AMLO}^2 + \sigma_{CALD}^2 - 2\sigma_{AMLO,CALD} = \tilde{\sigma}_{AMLO}^2 + \tilde{\sigma}_{CALD}^2 - 2\tilde{\sigma}_{AMLO,CALD}, \text{ and}$$

$$\sigma_{AMLO}^2 - \sigma_{MAD,AMLO} - \sigma_{AMLO,CALD} + \sigma_{MAD,CALD} = \tilde{\sigma}_{AMLO}^2 - \tilde{\sigma}_{AMLO,CALD}. \text{ So in terms of estimated}$$

$$\text{parameters, } \tilde{\Sigma}_{AMLO} = \begin{bmatrix} \tilde{\sigma}_{AMLO}^2 & \\ \tilde{\sigma}_{AMLO}^2 - \tilde{\sigma}_{AMLO,CALD} & \tilde{\sigma}_{AMLO}^2 + \tilde{\sigma}_{CALD}^2 - 2\tilde{\sigma}_{AMLO,CALD} \end{bmatrix}.$$

Similarly, to compute the probability that Calderón wins, we need to draw from the cdf of a bivariate normal with vector of means $[\tilde{U}_{i,CALD} - \tilde{U}_{i,MAD} \quad \tilde{U}_{i,CALD} - \tilde{U}_{i,AMLO}]^r$ and variance-covariance matrix

$$\tilde{\Sigma}_{AMLO} = \begin{bmatrix} \sigma_{MAD}^2 + \sigma_{CALD}^2 - 2\sigma_{MAD,CALD} & \\ \sigma_{CALD}^2 - \sigma_{MAD,CALD} - \sigma_{AMLO,CALD} + \sigma_{MAD,AMLO} & \sigma_{AMLO}^2 + \sigma_{CALD}^2 - 2\sigma_{AMLO,CALD} \end{bmatrix}. \text{ Again,}$$

note that: $\sigma_{MAD}^2 + \sigma_{CALD}^2 - 2\sigma_{MAD,CALD} = \tilde{\sigma}_{CALD}^2$,

$\sigma_{AMLO}^2 + \sigma_{CALD}^2 - 2\sigma_{AMLO,CALD} = \tilde{\sigma}_{AMLO}^2 + \tilde{\sigma}_{CALD}^2 - 2\tilde{\sigma}_{AMLO,CALD}$, and

$\sigma_{CALD}^2 - \sigma_{MAD,CALD} - \sigma_{AMLO,CALD} + \sigma_{MAD,AMLO} = \tilde{\sigma}_{CALD}^2 - \tilde{\sigma}_{AMLO,CALD}$. So in terms of estimated

parameters, $\tilde{\Sigma}_{CALD} = \begin{bmatrix} \tilde{\sigma}_{CALD}^2 & \\ \tilde{\sigma}_{CALD}^2 - \tilde{\sigma}_{AMLO,CALD} & \tilde{\sigma}_{AMLO}^2 + \tilde{\sigma}_{CALD}^2 - 2\tilde{\sigma}_{AMLO,CALD} \end{bmatrix}$.

2 Candidate Election

To compute the probability an individual votes for López Obrador if Madrazo drops out from the race, we need to draw from the following standard normal cdf:

$$P_{i,AMLO} = \Phi \left(\frac{\tilde{U}_{i,AMLO} - \tilde{U}_{i,CALD}}{\sqrt{\sigma_{AMLO}^2 + \sigma_{CALD}^2 - 2\sigma_{AMLO,CALD}}} \right)$$

Note that: $\sigma_{AMLO}^2 + \sigma_{CALD}^2 - 2\sigma_{AMLO,CALD} = \tilde{\sigma}_{AMLO}^2 + \tilde{\sigma}_{CALD}^2 - 2\tilde{\sigma}_{AMLO,CALD}$, so we can estimate $P_{i,AMLO}$ by drawing from the following normal cdf:

$$P_{i,AMLO} = \Phi \left(\frac{\tilde{U}_{i,AMLO} - \tilde{U}_{i,CALD}}{\sqrt{\tilde{\sigma}_{AMLO}^2 + \tilde{\sigma}_{CALD}^2 - 2\tilde{\sigma}_{AMLO,CALD}}} \right).$$

A5. Wording and Coding of Variables

Voter choice (3rd wave). For the purposes of this survey, I will give you a sheet where you can mark how you voted on the last presidential elections, without my seeing you, and then deposit it in this bag. For whom did you vote for president?

Region indicators. **North** if state equals Baja California, Baja California Sur", Sonora, Sinaloa, Nayarit, Chihuahua, Coahuila, Durango, Zacatecas, San Luis de Potosí, Nuevo León or Tamaulipas; **Center** if state equals Jalisco, Aguascalientes, Colima, Michoacán, Guanajuato, Querétaro, Morelos, Hidalgo, Tlaxcala or Puebla; **México State or Federal District** if state equals Estado de México or Distrito Federal; **South** if state equals Guerrero, Oaxaca, Chiapas, Veracruz, Tabasco, Yucatán, Campeche or Quintana Roo.

Urbanization. 1. Urban; 2. Rural or mixed.

Partisanship of state governor (in 2006). **PRI** if state equals Sonora, Chihuahua, Coahuila, Nuevo León, Tamaulipas, Sinaloa, Nayarit, Colima, Puebla, Estado de México, Veracruz, Hidalgo, Durango, Oaxaca, Tabasco, Campeche or Quintana Roo; **PAN** if state equals Baja California, San Luis de Potosí, Querétaro, Guanajuato, Tlaxcala, Jalisco, Aguascalientes, Morelos, or Yucatán; **PRD** if state equals Baja California Sur, Michoacán, Guerrero, Chiapas, Zacatecas or Distrito Federal.

Age (2nd wave). How old are you?

Female (2nd wave). Answered by the interviewer. 1. Female; 0. Male.

White (2nd wave). Answered by the interviewer. 1. White; 0. Light brown or dark brown.

Education (2nd wave). How many years of schooling have you had? 1. No schooling; 2. Incomplete elementary; 3. Complete elementary; 4. Incomplete middle/technical; 5. Complete middle/technical; 6. Incomplete high; 7. Complete high; 8. Incomplete college; 9. Complete college or more.

Church attendance (1st wave). How often do you attend religious services? 1. More than once a week; 2. Once a week; 3. Once a month; 4. Only on special occasions; 5. Never.

Abortion (2nd wave). In your opinion, should abortion in case of rape be legal or illegal? 1. Legal; 0. Illegal.

Income (2nd wave). I will show you a card with different income levels. Which one would your household monthly income fall in, counting all wages, salaries, pensions and other sources of income? (in Mexican pesos). 1. 0 to 1,299; 2. 1,300 to 1,999; 3. 2,000 to 2,599; 4.

2,600 to 3,999; 5. 4,000 to 5,199; 6. 5,200 to 6,499; 7. 6,500 to 7,899; 8. 7,900 to 9,199; 9. 9,200 to 10,499; 10. 10,500 or more.

Benefit from antipoverty programs (1st wave). Question A: Do you or a relative who lives in this household receive benefits from the program Oportunidades? Question B: Before, did you receive benefits from the program Progresa? 0. No I/we do not (question A) AND No, I did not receive (question B). 1. Yes, I/we do (question A) OR Yes, I received (question B).

Voter confidence (2nd wave). How fair do you think elections will be this year: totally fair, more or less fair, a little fair, or not at all fair? 1. Not at all; 2. A little; 3. More or less; 4. Totally fair.

Protest (2nd wave). Let's suppose the election is over and IFE announces that candidate you voted for has lost. Your candidate rejects the result and calls on his followers to join him in protest demonstrations. Would you join the demonstration to support your candidate or would you not join the demonstration? 0. No would not join it; 1. Yes I would join it.

Fox approval (2nd wave). In general, do you approve or disapprove of the way which Vicente Fox is doing his job as president? (Insist) A lot or little? 1. Disapprove a lot; 2. Disapprove a little; 3. Neither; 4. Approve a little; 5. Approve a lot.

Partisanship (1st wave). In general, would you say you identify with the PAN, the PRI or the PRD? (Insist) Would you say you identify strongly with the (party name) or only somewhat with the (party name)? **PAN coding**: 1. Strong PAN or weak PAN; 0. Otherwise; **PRI coding**: 1. Strong PRI or weak PRI; 0. Otherwise. **PRD coding**: 1. Strong PRD or weak PRD; 0. Otherwise.

Length of partisanship (1st wave). For how long have you identified with the (PAN/PRI/PRD)? 0. Independent; 1. Less than 2 years; 2. Between 2 and 5 years; 3. Between 5 and 11 years; 4. More than 11 years.

Evaluation of the national economy (1st wave). Since Fox became president, would you say the national economy has gotten better, has gotten worse, or stayed the same? (Insist) Would you say it has gotten a lot (better/worse) or a little (better/worse)? 1. A lot worse; 2. A little worse; 3. Stayed the same; 4. A little better; 5. A lot better.

Evaluation of the personal economy (1st wave). Since Fox became president, would you say your personal economic situation has gotten better, has gotten worse, or stayed the same? (Insist) Would you say it has gotten a lot (better/worse) or a little (better/worse)? 1. A lot worse; 2. A little worse; 3. Stayed the same; 4. A little better; 5. A lot better.

Ideology, respondent (2nd wave). In politics, would you consider yourself on the left, on the right, or in the center? (If left or right) Ver or somewhat on the left/right? (If center) Center-left, center-right, or center-center? 1. Very on the left; 2. Somewhat on the left; 3. Center-left; 4. Center-center OR None; 5. Center-right; 6. Somewhat on the right; 7. Very on the right.

Ideology, candidate (Comparative Study of Electoral Systems, México Survey, July 2006). In politics people often talk about “left” and “right”. Using the scale shown in the fourth card, where 0 means left and 10 means right, where would you locate (Felipe Calderón/Roberto Madrazo/Andrés Manuel López Obrador)? Coding: We use linear interpolation to translate responses from the original 11-point dimension, to a 7-point dimension comparable to the ideology coding in the MPS. Also, we compute the average standing of each candidate, among respondents who have finished primary school or achieved higher levels of education, and round to the closest integer. As a result, we assign an average standing of 3 to López Obrador, of 4 to Madrazo, and of 5 to Calderón, in a 7-point ideology dimension.

Mexico-US relations, respondent (2nd wave). What would you prefer: that commercial relations between Mexico and the United States increase, decrease, or remain the same? -1. Decrease; 0. Remain the same; 1. Increase.

Mexico-US relations, candidates (2nd wave). Do you believe (candidate name) will try to increase commercial relations between Mexico and the United States, decrease commercial relations between Mexico and the United States or keep relations between Mexico and the United States the same? -1. Decrease; 0. Stay the same; 1. Increase.

Candidate evaluations (1st wave). Now I’d like to ask your opinion about some presidential candidates. I’ll start with Felipe Calderón. In your opinion, how (capable of managing the economy/capable of reducing crime/capable of reducing poverty/honest) is Calderón; very, somewhat, not very or not at all? Now Andrés Manuel López Obrador. How (capable of managing the economy/capable of reducing crime/capable of reducing poverty/honest) is López Obrador; a lot, somewhat, a little or nothing? Now Roberto Madrazo. How (capable of managing the economy/capable of reducing crime/capable of reducing poverty/honest) is Madrazo; a lot, somewhat, a little or nothing? Coding for each candidate: 1. Not at all; 2. Not very; 3. Somewhat; 4. Very.