



UC3M Working papers
Economics
16-04
March, 2016
ISSN 2340-5031

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The Last Shall Be the First: Failed Accountability Due to Voters Fatigue and Ballot Design*

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March 9, 2016

Abstract

We show how an institutional provision designed to increase accountability of local legislature officials can lead to a distribution of power within the legislature which is not consistent with voters' true preferences. The cause of this inconsistency is the ballot design which asymmetrically affects the officials listed on it. We analyze the case of the Lima's 2013 city legislature recall referendum and show that, controlling for the legislators' individual characteristics, the design of the referendum ballot had adverse and significant effects on the composition of the Lima's city legislature, and examine the counterfactuals of different ballot designs. We show that the election results with more "neutral" ballot designs would have been significantly different, and the composition of the new council would have been more representative of voters' preferences.

* We want to acknowledge the assistance of Fabio Mejías, and the comments from I. Clots, A. Looper and B. Schmidpeter.
All errors are ours.

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1 Introduction

In 2000, Al Gore lost a significant amount of votes to Patrick Buchanan in Palm Beach Country, Florida. Due to a confusing ballot design, around two thousand voters may have voted for the latter by mistake (Wand et al., 2001). Later on, George W. Bush won the election in the state of Florida by a thousand votes and became president of the United States. If a voter's behavior may be affected by the way in which the alternatives are presented to him in strong democracies, we should pay attention to less developed ones as well. It may be the case that the layout of ballots have a more pervasive influence in younger democracies, either because of unintentional or deliberate manipulation.

In this paper, we use polling-booth level data to show that the ballot's design explains around 3% of the variation of the votes in a (removal) referendum in Lima in 2013. Moreover, we show that different layouts would have led to completely dissimilar electoral results, changing the composition of Lima's local legislature in a significant way. Furthermore, we show that the final political outcome may not have been representative of the preferences of the electorate due to ballot-induced "choice fatigue", i.e., when voters are faced with many options they are more likely to cast a vote in the elections listed first than for the ones listed last (Augenblick and Nicholson, 2015).

In 2013, in an unprecedented measure to increase political accountability, Lima's citizens had the opportunity to remove each of the forty local legislators, voting them out one by one. However, due to a combination of poor ballot design and voters' fatigue, rather than reinforcing accountability, this removal referendum penalized disproportionately the majority coalition, whose legislators were placed first in the ballot.

This removal referendum allows us to investigate the effect of choice fatigue on aggregate outcomes cleanly because voters' preferences are uncorrelated with the candidates' positioning in the ballot. Our identification follows from the (quasi) random allocation of voters to polling booths, and the location of the legislators in the ballot, which did not depend on their popularity or other observable characteristics. Thus, controlling for precinct unobservables and candidates observables, we can estimate the causal effect of voters' fatigue (due to the legislator's position in the ballot) on the removal referendum.

Our linear model specification shows the presence of choice fatigue: the share of blank votes increases rapidly and continuously between the first and fortieth candidate. Moreover, since candidates where listed in two columns, we also identify a large jump of blank votes between the last candidate in the first column and the first one in the second column.

We then estimate the effect of the existing fatigue on the probability that any given candidate is removed from the local council. With that aim, taking into account that voters face three alternatives which do not need be independent of each other – YES, NO and BLANK – we also explore the voters' choice with a multinomial probit. Using the yes, no and blank shares by polling booth (that is, 170 voters on average) we show that, not only the ballot design had an effect on the vote shares, but also, more reasonable designs would have had completely different outcomes. For instance, in a ballot with random order of legislators, everybody but the mayor

would have been removed from office.

As a result, a constitutional provision meant to increase accountability, the removal referendum, combined with a poor implementation that does not take into account (predictable) choice fatigue might have had counterproductive consequences. Since the twenty legislators listed first in the ballot, representing almost the whole majoritarian coalition, had to be replaced with a by-election, the removal referendum may have caused Lima's council to be less representative of voters preferences: after the new council was put together, around 46% of politicians came from the main opposition party (PPC - *Partido Popular Cristiano*), which saw its seats to increase from 9 to 16, even though its maximum share of votes obtained in this period was less than 30%¹.

The paper is organized as follows: in Section 3 we discuss the institutional background, in Section 4 we explain our econometric strategy, in Section 5 we show evidence of voters' fatigue and we quantify the effect of the ballot design on the electoral results by exploring the effects of using alternative ballots. Finally, in Section 6, we discuss the implication of our results and we conclude.

2 Literature

Our findings indicate the presence of a political “Peltzman effect” (Peltzman, 1975): the introduction of a provision meant to increase accountability may have the opposite consequences if combined with poor implementation. In our case, the unintended consequences arise due to a poorly designed ballot, which did not take into account documented evidence about choice fatigue (Augenblick and Nicholson, 2015) and other behavioral anomalies related to the order in which the options are presented to consumers (Rubinstein and Salant, 2006).

More generally, the puzzle of voting has caught the economists' attention since Downs (1957): if voting is costly, why do people vote in large elections when the probability of being pivotal is arguably zero? The early theories of the calculus of voting Riker and Ordeshook (1968); Downs (1957); Enelow and Hinich (1981) draw on voters' heterogeneity to explain abstention decisions. Feddersen and Pesendorfer (1996) highlights that a comprehensive theory of turnout and abstention should also explain the phenomenon of *roll-off*². Closer to the point in our paper, ballot design is not innocuous as it may favor the candidates ranked first - priming effect (Esteve-Volart and Bagues, 2012; Meredith and Salant, 2013)), or ranked last - anti-priming effect (Alvarez et al., 2006). Augenblick and Nicholson (2015) suggests the presence of voting fatigue using a natural experiment in California, and they show that when an election appears sooner in a ballot, there is a significant lower number of abstentions.

There is much evidence about the effect of the set and order of alternatives on consumers' choice outside political economy. Among others, Feenberge et al. (2015) show that the order in

¹ And *Peru Posible*, another opposition party, moved from 1 to 7 legislators, even though it obtained only 11% of the votes.

² As explained in Feddersen and Pesendorfer (1996): “Roll-off occurs when voters who are already at the polls decide not to vote on a race or issue”.

which papers appear at a NBER mailing list affects the short run number of citations, Liu and Simonson (2005) show that pairwise comparison of products leads to more consumption than a sequential one, and Glejser and Heyndels (2001) show that participants who perform later in a music contest are more likely to get more positive evaluations from the jury.³

3 Institutional Background

3.1 Political background.

Perú is a federal representative democracy subdivided into 25 regions and the capital city, Lima. Each region is composed by provinces and municipalities. Institutionally and politically, the Municipality of Lima has the status of a region rather than a city, despite its name. It is also the largest city of Peru with 8.5 million inhabitants and hosts the executive, judiciary and legislative branches of the national government of Peru. In 2010, Susana Villaran runs for mayor of Lima as the leader of a center-left coalition of parties. In October of that same year, Villaran is the first elected woman to become mayor of Lima.

3.1.1 Institutional setting

The city is run by a mayor (the maximum administrative authority of the executive branch) and thirty nine city legislators - *regidores*.⁴ These forty politicians are chosen in a municipal election every four years by popular vote with a closed-list proportional rule that gives an automatic majority (twenty out of forty regidores) to the party with most votes. All remaining seats are assigned proportionally.⁵

3.1.2 Removal referendum

The Constitutional reform of 1993 added the possibility of calling for a removal referendum, known as *Consulta Popular de Revocatoria* (CPR). This provision, meant to keep politicians accountable, implies that all subnational politicians holding office can be exposed to a non-confidence vote at (almost) any time of their mandate.

A removal referendum takes place only after a formal request by the citizens that live in the jurisdiction of the politician under scrutiny. In the case of Lima 400 thousand signatures are needed to proceed with a removal referendum.

The electoral rule used is simple majority rule: if the non-confidence votes to a politician are more than the confidence ones, then he is recalled and he must be replaced. If more than thirteen legislators are recalled, a new election takes place to replace them. Otherwise, they

³From a theoretical perspective, Rubinstein and Salant (2006) point out that an increasing number of choices are made out of list sets, and study the conditions under which the independence of irrelevant alternatives axiom (IIA) can be extended to a list-IIA. Kamenica (2014) shows that choice overload can be exploited by a profit-maximizing monopolist by introducing a premium loss leader product.

⁴As stipulated in *Ley Organica de Municipalidades*.

⁵Closed-list proportional rule implies that each party proposes a pre-defined list of 40 candidates and his substitutes, and citizens choose a party, without any interference on the list composition.

are substituted by a party member who was on the closed list presented by the party in the original election. If needed, in the by-election, the new legislators are elected by a closed-list proportional rule (without a bonus to the winner).

3.1.3 Ballot design

The ONPE (“Oficina Nacional de Procesos Electorales”) is an independent body in charge of organizing and administering the elections and referenda in Peru. It was created in 1993, and among other tasks, is in charge of designing the ballot papers. For the removal referendum of March 17th 2013, when forty candidates were up for removal, the final ballot design stucked to the following rules: parties are ordered downward according to the number of legislators and, within the party order, legislators are ordered according to their order in the 2010 closed list, which was determined by the parties. Hence, the ballot used in 2013 had the forty candidates listed in two columns without including any partisan identification or picture, as shown in Figure B.1.

3.1.4 Voters

Voting is mandatory in Peru. When citizens turn 18 years old, they are issued a national I.D. (D.N.I.) and they are assigned an “electoral number” that determines the polling booth where they have to vote. This number is assigned according to the order in which citizens got their I.D. As we discuss later, a direct implication of this mechanism is that within a polling center, any two polling booths, have the same ex-ante distribution of votes.

3.2 The Data

In 2010, there was a city-wide election to choose the municipal authorities. Six parties or coalitions had managed to elect at least a legislator (see Table B.3). In 2013, the forty legislators were put up for a confidence vote, in which citizens had to decide, for each legislator, whether to remove him/her (e.g. vote YES), or not (e.g. vote NO). In November 2013, a by-election to elect the substitutes of the recalled candidates was held. We use the electoral data of these elections and of each of the candidates subjected to the removal referendum. Except for the electoral data by polling booth – which was provided by ONPE after our request – all the data is available at ONPEs website (www.onpe.gob.pe), unless stated otherwise.

3.2.1 Electoral data and candidates characteristics

The mayor and twenty one legislators belonged to coalition *Fuerza Social* (FS), thirteen to coalition *PPC - Unidad Nacional*, two from party *Restauracion Nacional*, one from party *Cambio Radical*, one from party *Somos Peru*, and one from party *Siempre Unidos*.

There are 36,740 booths divided in 888 centers throughout Lima’s 43 districts. Polling booths do not all have the same number of registered voters, but they cannot be larger than 300 voters, by constitutional design. In 2013, the total number of the eligible voters was 6,357,243,

with a turnout rate of 83,7%. Figure B.3 shows that the blank votes for each candidate display a large variance, which increases with the position of the candidates in the ballot. Figure B.4, the actual votes for Yes and No for each candidate, summarizes the results from the referendum: the mayor was kept in her place, while candidates in positions 2 to 21, from *Fuerza Social* were recalled. Also candidates in position 26 and 31, both from *PPC - Unidad Nacional* were recalled (discussed below).

The support for all the parties is relatively stable across districts (see Table B.3), with the noticeable exception of *PPC - Unidad Nacional*, with the largest standard deviation among the parties that have won a seat. This party obtained large support in less populated areas, with an average of 40%, even though the total actual share was 37.5%.

Candidates characteristics. Table B.2 shows the candidates observable characteristics, ordered by their position in the ballot. The median legislator is a 49 years old male politician with college degree, who had won a local election once, but with no experience in national politics. As it can be seen by media exposure, the median candidate is almost unknown to the voters. This variable is constructed with the mentions of the forty legislators or *regidores* in the period between 2010 and March 2013, in the five most important newspapers from Perú (El Comercio, La República, Perú 21, Gestión and Correo). Although it is the variable with the most disparity, the median candidate has been mentioned only three times in the three years previous to the removal referendum. The candidates with the most mentions are the mayor (Villarán, with 1068 mentions), and Luis Castañeda Jr, the son of a previous mayor⁶.

4 Empirical strategy

To examine the relationship between the results of the removal referendum for a legislator and her position in the ballot, we estimate two models, described below.

4.1 Estimation strategy

To analyze the effect of candidates positioning in the ballot on his electoral performance, we begin by analyzing the following linear model:

$$Y_{idl} = \alpha\theta_d + \beta X_l + \gamma Z_l + \varepsilon_{idl} \quad (1)$$

In Equation 1 we explain the share of blank votes of legislator in position l in polling booth i in precinct d , Y_{idl} , as a result of the politicians individual characteristics, X_l , and the position on the ballot, Z_l . θ_d captures the precincts characteristics, either as a fixed effect or as other variables such as poverty, depending on the specification. More importantly, precincts refer to the geographical location of the polling booth, either the polling center or the district, depending

⁶Castañeda Jr., who was allegedly behind the call for a removal referendum, may also be confused with Luis Castañeda Sr., so we may be overstating his media exposure). Incidentally, Castañeda Sr. was elected mayor when Villaran finished her mandate

on the specification. To show the robustness of our results, we also explore the effect of the ballot design on the share of blank votes per candidate with a non-linear probability model with aggregate data. In all specifications we cluster the standard errors by official and polling center (*Center* \times *Order*), and in all estimations of Equation 1, the precinct fixed effects are at the polling center level.⁷

We also run a multinomial probit to explore non-linear effects on the share of YES and NO votes in our specification. Our approach to the multinomial estimation is based on a model of voting with additive noise, a la Banks and Duggan (2005), explained in detail in the Appendix in Section A.2. Moreover, these estimates are the main input for building the counterfactuals in the next section.

Even though precincts fixed effects control for unobserved heterogeneity, there might be other confounding voters or candidates characteristics. Both can be ruled out by design, as we explain in the next section. Regarding the former, within a polling center, the allocation of voters to polling booths is (quasi) random, hence in any two polling booths within a polling center we should expect similar outcomes. Regarding the latter, the position of the politicians in the ballot does not depend on individual characteristics, but the parties.

4.2 Identification strategy

Our identification relies on two sources of exogenous variation: the (quasi) random allocation of voters to polling centers and polling booths, and the pre-determined order of candidates in the ballot during the 2013 removal referendum.

In first place, the citizens' political preferences are orthogonal to the voters' allocation to polling booths, by design: as citizens turn 18 years old and get their I.D.s, they are automatically registered as voters in a given polling booth and center. Thus, this allocation only depends on the order in which citizens get their I.D. Concerns about cohort effects - if voters ideology depends on age - are taken care of with the inclusion of polling-center fixed-effects, which controls for heterogeneity across centers.

In second place, the candidates order in the ballot is determined jointly by the performance of their party/coalition in the 2010 elections, and their position in the closed list for that same election. Hence, the main determinant of the legislators position of the ballot, specially the column, is not determined by his personal characteristics but by the party's popularity (nonetheless, we will also control for the candidates' characteristics). Moreover, since *Fuerza Social* and *PPC-Unidad Nacional* were coalitions of parties, a politician's position within the coalition would depend more on his party bargaining power rather on his own skills or electoral potential.

Finally, to reinforce the idea that the votes for a politician in 2013 and his position in the ballot cannot be jointly determined, we argue that the voters' information on the candidates is very poor. The ballot design does not include any other information than the candidates'

⁷Even though it should not be concern in our case due to the lack of information about the legislators, we also use multiway clustering a la Cameron and Miller (2015). As we will show below, the standard errors increase – as expected – but all our main coefficients are statistically significant at the 1% level.

names, and except for notable exceptions (the mayor and the son of the former mayor), all these local legislators are relatively unknown to the population (except for Villaran – in the first position – and Castañeda Jr. – in position thirty one, as commented above).

4.2.1 Validity of the identification strategy

As shown in Figures B.1 (the actual ballot) and B.2 (the ballot with party identification), at the time of voting, citizens have no information about the candidates except for their last names. Concerns with our identification strategy may arise if voters knowledge about the seating legislators was correlated with their position in the ballot. Nonetheless, these local politicians are not only unknown, but also they lack significant previous political experience (see Table B.4).

Moreover, if voters had used other informational cues, e.g. being first within the closed-party list, we should observe jumps in the number of blank votes. In Figure B.5, that shows the change in blank vote shares between any two consecutive candidates in the ballot, we can see that the only jumps in that variable occur for the mayor, with the change of column and with Castañeda. In all other cases, including the *jump* from one party to the other, the increase in blank shares is steady.

Last, despite Lima’s large population density, it could be argued that within a polling center, across polling booths, there could be selection of voters, undermining our identification strategy. Fortunately, we can even add polling booth fixed effects to account for this possible source of bias due to omitted variables. While in the appendix we show that our results would not change, confirming that there is no such problem of endogeneity – the coefficients are statistically identical to our main regressions – we prefer the polling center fixed effects.

5 Results

5.1 Determinants of voting blank

The effect of order, column and the candidates’ characteristics on the share of blank votes per candidate are reported in Table B.6. Remarkably, in all specifications the signs of our estimates are the same, even when we omit the polling center fixed-effects, suggesting that our estimates do not depend of the distribution of preferences within a polling center.

In all models, the position of the legislator on the ballot has a very strong effect on his share of blank votes: the coefficients of *Order*, *Column* and their interaction are all statistically significant at the 1% level. While *Order* and *Column* are positive, indicating that being further down the ballot leads to more blank votes, the interaction coefficient is negative. Across all specifications, being ten positions further away implies an increase in blank votes by 1.3 percentage points. Furthermore, being in the second column increases the blank votes in 4.4 percentage points. This evidence indicates that citizens follow the order in which candidates appear in the ballot, instead of jumping across columns.⁸

⁸One could think that voters begin by looking at the first two candidates in the first row – candidate 1 and

Some remarks are in order: although the effect of the order in which the legislator is placed is an important predictor of the share of blank votes, this effect decreases in the second column. The blank share is increasing at a lower rate compared to the first column. One possible interpretation of this result is that voters who keep voting in the second column may have a lower cost of voting, i.e., there is a selection of voters. Hence, the rate at which they stop voting is smaller. This interpretation may have implications beyond the decision to abstain: if voters “self-select” into the second column, their preferences and their voting behavior may be differ in comparison to the set of voters in the first column. It could be worrying that the cost of voting is correlated with preferences. A first attempt to correct this issue is in column (3) of the same table, where we control for the voters preferences in the previous election (the variable “Party share in 2010”). We observe no change in our estimates, which suggests that the above mentioned correlation does not take place here.⁹

Both the coefficients of for Villaran (position 1 - *Mayor*) and *Castañeda* are significant with a negative sign, showing that controlling for ballot effects, party affiliation and other individual characteristics voters were more likely to express their opinion about these two compared to the remaining ones. These findings are consistent with what we see in Figure B.3.

Focusing in column (3), where we have the extended set of covariates of individual characteristics we see that none of them has a great effect on the blank vote behavior, in comparison to *Order* and *Column*. This is also in line with our identifying assumption: with the exception of the two famous faces of the campaign (Villaran and Castañeda) the public cannot distinguish among different officials in the ballot. Nonetheless, if anything, exposure has a negative effect: having been a candidate in a previous national election, won or not, and having won a local election, decreases the blank shares. We find the same effect with the number of mentions in national newspapers (the variable “media exposure”).

Finally, belonging to the right-wing coalition (*PPC - Unidad Nacional*) further increases the share of blank votes by 4.4 percentage points. Table B.7 shows the squared semi-partial correlation coefficients for the linear estimation of column 3 of Table B.6. *Order* and *Column* account for most of the variance in the model. Columns (4) to (6) indicate that our results do not depend on the linearity imposed in the first three columns.¹⁰

5.2 Analysis of the probability of being removed from office

Table B.8 depicts the results of the multinomial probit in which the probability of voting blank is the baseline. The upper table shows the results for the NO and the lower part the YES ones, always with respect to blank. Our preferred specification is in the third column, where we

²¹ – instead of the first two candidates in the first column – candidates 1 and 2. This is ruled out by the data.

⁹We also address this issue in our multinomial specification.

¹⁰Even though our identifying assumptions are not too demanding, it could be argued that within a polling center, there may be significant differences across polling booths that may be biasing our results. In Column (2) of Table (B.10), we show the results with polling booth fixed effects, and the coefficients are identical. Moreover, in the first column of that table we cluster the standard errors in a different way, following Cameron and Miller (2015) multiway clustering. This clustering is more demanding and increases the standard errors, but still all our coefficients of interest are significant at the 1% level.

control both for *District* fixed effects and the extended set of covariates, but the three estimated models are qualitatively similar. The effect of *Order*, *Column* and their interaction are in line with our previous results: the share of YES and NO decreases with respect to the blank votes as the candidates are further down in the ballot. Interestingly, while both coefficients for *Mayor* are positive, indicating a relatively divided opinion about keeping her or not, the coefficients on *Castañeda* are negative for NO vote and positive for YES. This result shows a large level of agreement on removing him from the local council in Lima, in line with Figure B.4. The effects of *Party Share in 2010 elections* have the expected signs: the higher the party share of an official, the more likely that this official receives a no vote compared to a blank one, which is also more likely compared to a no one.

Since the coefficients of YES and NO vote of each covariate are often quite similar, pairwise statistical comparisons were in order. In the third column all coefficients, with the exception of the ones of *Order*, *College*, *Candidate in national elections* and *Media Exposure*, are statistically different between the YES and NO equations.¹¹ Finally, “media exposure” generally decreases the share of blank votes favoring the NO votes over the YES votes. Hence, if anything, more mentions in national newspapers augments the probability of being kept in office. The opposite is true for legislators that held a national office before. The difference in model fitness between the first column and the other two may indicate the presence of heterogeneity among the districts which we address below.

Analysis by district. Table B.9 shows the results of the multinomial probit in two districts: Villa El Salvador and San Isidro. Villa El Salvador is the district where “Fuerza Social” (the incumbent party) obtained their highest share in the 2010 election, whereas San Isidro is the district where “PPC-Unidad Nacional” got their highest share, which is the same district where Fuerza Social got their lowest share. Although all the coefficients are consistent with our previous results, some very interesting patterns emerge. The effects of *Order* and *Column* are larger in column (1), a left-wing district, than in column (2), a right-wing one. Hence, the design of the ballot seems to have more pervasive effects in the district where the mayor was elected with the largest share. Although this results does not threaten our identification strategy, in order to make policy recommendations we have to take into account the districts’ heterogeneity of preferences, as we do in the next section.¹²

5.3 Counterfactual Analysis and Discussion

Based on our previous results, we analize what would have happened in Lima if the design of the ballots were different. Since the legislators’ location is the main explanatory variable, we

¹¹In the second column the test cannot reject the null hypothesis only in the case of the coefficients of *Minor Parties*. However, in the first column it is only the the coefficients of *Mayor*, *Castañeda* and the constant that the null hypothesis is rejected.

¹²Related, but less surprising is the fact that the share of NO votes for *Villaran*, the mayor, is larger with respect to the blank votes in the left-wing district than in the righ-wing one (San Isidro). Similarly, *Castañeda* has larger support in San Isidro, while the voters in Villa El Salvador do not show any differential treatment of this candidate.

explore designs that change their position in the ballot: in particular, we randomize the order of the legislators and/or we eliminate the columns.

Since we have to incorporate the districts' heterogeneity to provide the most accurate counterfactuals, we do the analysis by district (for the 43 districts, as with El Salvador and San Isidro above), we collect the estimated coefficients and, taking into account the districts size, we perform our exercises. Figure B.6 shows the fitted values of the multinomial probit model (run by district). Comparing with the actual results in Figure B.4 we see that the model does a good job reproducing the referendum results.

In order to see how the ballot design affected the referendum result we force the *Column* and *Order* coefficient to be zero for all officials. Hence we obtain the predicted values as if the ballot design had no effect: Figure B.7 shows this result.¹³ For all officials except the mayor, the YES votes are a majority, meaning that everybody except the mayor would have been recalled. In practical terms, this result shows what the outcome would have been if every voter received a different single-column ballot where the order of the officials was completely randomized.

In order to be more precise, we simulate the elections varying the order and the columns. First, we assigned each district a different random order in the ballot, calculated the referendum result predictions, and repeated this process one thousand times. Then we collected the results of the repetitions and calculated the share of recalls for each official. Figure B.8 shows the result of this process when assuming a two-column ballot and Figure B.9 shows the result assuming a single column. Starting with the latter, we see that in almost all repetitions, it is only the mayor who is not getting recalled. On the other hand, with two columns in almost all repetitions it is only the mayor who survives the recall from her coalition. As for the opposition, Castañeda gets recalled almost always, while the rest of the officials of the right-wing coalition get recalled some of the time.

The predicted values and the simulations point into the same direction: the ballot design had given an “unfair” advantage to all the legislators located in the second column. A proper randomization, even keeping two columns, would have ended up in completely different electoral outcomes. For simplicity of interpretation, let us focus on the case with a single column. If all legislators had been recalled, the final composition of the city council after the by-election for the new members would have ended up having only less than a third of legislators from the *Partido Popular Cristiano* (PPC). Instead, because the ballot design gave a safer position to the legislators located in the second column, as it was the case for the PPC ones, these legislators were not removed. As a result, the final composition of the council included the new seven legislators elected in the by-election plus the other nine elected in the 2010 election. The sixteen legislators from PPC represent 41% of the council, even though this party never obtained more than 30% of the votes. Hence, the possibility of the recall referendum, intended to keep politicians accountable during their term, ends up having adverse effects on the representativity of the political institutions.

¹³The figure where we shut down only the column differs from Figure B.7 only in the sense that both YES and NO vote lines have a negative trend without intersecting.

6 Conclusion

On one hand, Peru’s Constitution allows for an ad-hoc recall of politicians during their tenure. This provision, together with regular elections, makes politicians more accountable to their citizenry. In particular, it is meant to address the issue of moral hazard by increasing the instances in which citizens can remove politicians from office. Moreover, as instance of direct democracy, it also allows for a more direct supervision of the politicians activities and decisions.

On the other hand, we showed that the implementation of this provision and the “removal referenda” have to be taken very seriously. A poorly designed ballot may have consequences that go against the spirit of the rule of law, as it may have been the case in Lima’s 2013 referendum. Rather than their performance, the order in which legislators were listed in the ballot and the column in which they were placed were the main determinants of being removed from office: the legislators position and column are better predictors of the electoral results than education, partisan affiliation, political experience, and presence in media – jointly, they are two thousand times better predictors than the other variables (see Tables B.6 and B.7). As a result, the politicians listed in the second column were more likely to be confirmed in office, only due to their position in the ballot.

Unfortunately, this case shows yet another instance in which institutional design has unintended consequences. The old adagio – institutions matter – may still be true, but institutional reform has to be accompanied with a thoroughly thought implementation. Furthermore, our evidence indicates that electoral transparency scholars and international electoral observers may also need to devote attention to ballot design. If these “details”, like ballot design, may tilt elections in developed and strong democracies, younger democracies’ accountability mechanisms may be threaten by a greater exposure to manipulation.

Last, we also proposed an under-exploited identification strategy: the combination of polling-booth level data with a deep understanding of the assignment of voters to polling booths – in our case according to the I.D. number. Yet, beyond the purposes of this paper, this strategy can be used in different countries and contexts in which this disaggregation of data is available.

References

- Alvarez, R. M., B. Sinclair, and R. L. Hasen (2006). How Much Is Enough? The "Ballot Order Effect" and the Use of Social Science Research in Election Law Disputes. *Election Law Journal* 5(1), 40–56.
- Augenblick, N. and S. Nicholson (2015). Ballot Position , Choice Fatigue , and Voter Behavior. *Review of Economic Studies*, 1–27.
- Banks, J. S. and J. Duggan (2005). Probabilistic Voting in the Spatial Model of Elections: The Theory of Office-motivated Candidates. *Social Choice and Strategic Decisions: Essays in Honor of Jeffrey S. Banks*, 15–56.
- Cameron, A. and D. Miller (2015). A practitioner's guide to cluster-robust inference. *Journal of Human Resources* 50(2), 317–372.
- Downs, A. (1957). An Economic Theory of Political Action in a Democracy. *Journal of Political Economy* 65(2), 135.
- Enelow, J. and M. J. Hinich (1981). A New Approach to Voter Uncertainty in the Downsian Spatial Model. *American Journal of Political Science* 25(3), 483–493.
- Esteve-Volart, B. and M. Bagus (2012). Are women pawns in the political game? Evidence from elections to the Spanish Senate. *Journal of Public Economics* 96(3-4), 387–399.
- Feddersen, T. and W. Pesendorfer (1996). The swing voter's curse. *The American economic review* 86(3), 408–424.
- Feenberg, D., I. Ganguli, P. Gaule, and J. Gruber (2015). It's Good to be First: Order Bias in Reading and Citing NBER Working Papers.
- Glejser, H. and B. Heyndels (2001). Inefficiency in the ranking in competitions: The case of the Queen Elisabeth Music Contest. *Journal of Cultural Economics* 25(2), 109–129.
- Kamenica, E. (2014). Contextual Inference in Markets : On the Informational Content of Product Lines. *American Economic Review* 98(5), 2127–2149.
- Liu, W. and I. Simonson (2005). Take It or Leave it?"-The Effect of Explicit Comparisons on Commitment to Purchase. *Advances in Consumer Research* 32(1), 453.
- Meredith, M. and Y. Salant (2013). On the Causes and Consequences of Ballot Order Effects. *Political Behavior* 35(1), 175–197.
- Peltzman, S. (1975). The Effects of Automobile Safety Regulation. *The Journal of Political Economy* 83(4), 677–726.
- Riker, W. H. and P. C. Ordeshook (1968). A Theory of the Calculus of Voting. *American Political Science Review* 62(01), 25–42.

Rubinstein, A. and Y. Salant (2006). A model of choice from lists. *Theoretical Economics* 1, 3–17.

Wand, J. N., K. W. Shotts, J. S. Sekhon, W. R. Mebane, M. C. Herron, and H. E. Brady (2001). The Butterfly Did It: The Aberrant Vote for Buchanan in Palm Beach County, Florida. *The American Political Science Review* 95(4), 793–810.

A Appendix

A.1 Institutional background

According to the *Ley organica de Elecciones*, Law number 26859, the following articles define how voters are allocated to polling booths. Article 52 states that there must be between 200 and 300 voters per polling booth¹⁴, and Article 53 states that they are allocated according to their order of registration in the district¹⁵.

A.2 Multinomial Probit

Having found an influence from the location in the voting ballot on the decision to not make a decision (blank vote), we also try to study whether the location can also affect the decision to finally mark a yes or no in the ballot. We do not expect an influence of location on preferences, but since the latter can be correlated with unobserved characteristics of the voters (different motivation to participate in this particular electoral process by political leaning, for example), there could be an influence into the actual voting. On the other hand, while this model (under its own assumptions) can also help to generate counterfactual scenarios of voting behavior under different configurations of the ballot, it has to be taken as a guidance of the empirical work rather than a literal explanation of the voting behavior.

We follow the discrete choice framework. In this formulation we consider a voter that has to choose between three alternatives for each candidate: vote in favor of the recall (yes), vote against (no), or express no preference (voting blank). We denote the voter as i , who is located in the district d (in the estimations we use district, polling center or polling booth, but here for simplicity we call it district generically). His or her choice for candidate c is denoted by j , where:

$$j = \begin{cases} 2 & \text{if the vote is YES} \\ 1 & \text{if the vote is NO} \\ 0 & \text{if the vote is BLANK} \end{cases}$$

We assume that the drivers behind this decision are the utilities that the voter enjoys from taking each decision, which we call U_{ijcd} . The indexes indicate that this is the utility that voter i , who votes in district d , enjoys for choosing alternative j for candidate c . This utility can be affected by several characteristics of the candidates, as well as the preferences of the voter. Some of the candidates characteristics are observed, like their location in the ballot (the order and/or the column) so we include them in vector x_c (we also add here a dummy variable for the major Villarán and candidate 31, Castañeda Jr., who were particularly salient during the whole process). Another set of utility drivers could be unobserved, for example, electoral preferences: left wingers (the majors political leaning), or voters that were distrustful of the main sponsor of

¹⁴ Artículo 52º En cada distrito político de la República se conforman tantas mesas de sufragio como grupos de 200 (doscientos) ciudadanos hábiles para votar como mínimo y 300 (trescientos) como máximo existan. El número de ciudadanos por mesa de sufragio es determinado por la Oficina Nacional de Procesos Electorales.

¹⁵ Artículo 53º Las mesas tienen un nmero que las identifica y las listas de electores por mesa se hacen sobre la base de los ciudadanos registrados en la circunscripción, en orden numérico.

the whole recall process (Castañeda, the father of the candidate 31 and former major), would probably obtain higher satisfaction from alternative NO, and conversely. To capture the influence of additional unobservables we also include two random drivers of the utility. The first is the random variable θ_d , which captures the average preferences in district d . The final term, ϵ_{ijc} is a zero mean shock that captures any idiosyncratic preference for option j for candidate c for voter i . Finally, we assume a linear shape, so that the utility takes the form:

$$U_{ijcd} = x_c \beta_j + \theta_{jd} + \epsilon_{ijc} \quad (2)$$

for $j = \{0, 1, 2\}$. The voter i will pick option j if this option gives greater utility than any other. That is, the probability that voter i picks option j for candidate t is:

$$P_i(y = j) = Prob(U_{ijcd} \geq U_{ij'cd}, \forall j' \neq j).$$

Let $\epsilon_{ij} = (\epsilon_{i2}, \epsilon_{i1}, \epsilon_{i0})$ be the vector of idiosyncratic utility terms for the alternative of voting yes (2), no (1) or blank (0) of voter i . Let $\phi(\epsilon_2, \epsilon_1, \epsilon_0)$ be its multivariate normal distribution, so we can estimate a multinomial probit. Finally, let $V_{jcd} = x_c \beta_j + \theta_{jd}$ be the mean utility obtained from choice j , given that the ϵ terms has a zero mean. Hence

$$P_i(y = j) = \int I(V_{jcd} - V_{j'cd} \geq \epsilon_{ijc} - \epsilon_{ij'c}) dF(\epsilon_{ij}), \forall j' \neq j,$$

For simplicity, we write V_{jcd} for yes (2), no (1) and blank (0) as follows: v_2 , v_1 and v_0 , and similarly with the random variables ϵ_2 , ϵ_1 and ϵ_0 . Hence the probability of voting YES is

$$P_i(y = 2) = \int_{\epsilon_2=-\infty}^{\infty} \int_{\epsilon_1=-\infty}^{v_2-v_1+\epsilon_2} \int_{\epsilon_0=-\infty}^{v_2-v_0+\epsilon_2} \phi(\epsilon_2, \epsilon_1, \epsilon_0) d\epsilon_2 d\epsilon_1 d\epsilon_0$$

Minimizing the observed YES and NO shares observed for each candidate in each table with the ones predicted according to the previous equations we identify estimates for the sets of parameters β and θ for YES and NO, with respect to blank. That is, we identify the terms in parenthesis in the equations below.

$$V_{2cd} - V_{0cd} = x_c(\beta_2 - \beta_0) + (\theta_{2d} - \theta_{0d}) \quad (3)$$

$$V_{1cd} - V_{0cd} = x_c(\beta_1 - \beta_0) + (\theta_{1d} - \theta_{0d}) \quad (4)$$

B Tables and Figures

B.1 Figures

PROVINCIA DE LIMA

CONSULTA POPULAR DE REVOCATORIA DEL MANDATO DE AUTORIDADES MUNICIPALES DE LA MUNICIPALIDAD METROPOLITANA DE LIMA 2013

MARQUE CON UNA CRUZ O UN ASPA DENTRO DEL RECUADRO DEL SI O DEL NO

1 SUSANA MARIA DEL CARMEN VILLARAN DE LA PUENTE ¿Debe dejar el cargo de Alcalde?	<input type="checkbox"/> SI <input type="checkbox"/> NO
2 EDUARDO ARIEL ZEGARRA MENDEZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
3 MARIA CLAVE REINI ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
4 RAFAEL EDUARDO GARCIA MELGAR ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
5 PERFECTO VICTOR RAMIREZ CIFUENTES ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
6 ZOLA ELENA REATEGUI BARQUERO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
7 LUIS VELER CORONADO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
8 MARCO ANTONIO ZEVALLOS BUENO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
9 SIMEONE MARCIAL VELASQUEZ RAMOS ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
10 VICTORIA DE SOTOMAYOR COTACADO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
11 LUIS HERDEZ MARTINEZ CORNEJO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
12 DORA BEATRIZ HERNANDO SANCHEZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
13 INES CECILIA RODRIGUEZ VELASQUEZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
14 JOSE LIBORIO ESTEVEZ ROBLES ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
15 SONIA GISELLA ESCUDERO TRIVULIO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
16 MANUEL ABELARDO CARHUAS MUÑOZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
17 CAYO TITO GUILLAS ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
18 OLGA CELINA MORAN ARRIAU ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
19 RONALD RONALDES PAULINA ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
20 MARIA LIBERTAD ROJAS BRUCKMANN ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
21 PEDRO JAVIER LOPEZ TORRES TUBBS ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
22 HERNAN NUÑEZ GONZALES ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
23 WALTER ARMANDO GUILLEN CASTILLO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
24 JAIME EDUARDO VALINAS LOPEZ TORRES ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
25 EDUARDO RENAN DE POMAR VIDCARRA ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
26 JORGE ALBERTO UGARTE ORDORIZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
27 BONICA EMILYKUTZ SARAHIA SORIANO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
28 JONICE RAFAEL VILLENA LAREEA ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
29 LIZ MARGARITA PILAR FREITAS ALVARADO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
30 PABLO ALBERTO SECAO ELGUERA ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
31 LUIS MANUEL CASTAÑEDA PAVON ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
32 TERESA DE JESUS CANOVA SARANGO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
33 ALBERTO VALENZUELA SOTO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
34 OSCAR JAVIER IBANES YAGU ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
35 LUIS FELIPE CALVACHEZ BARRON ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
36 RUBEN SANTIAGO GAVINO SANCHEZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
37 IAM BECKERIS HURTADO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
38 GERMAN RICARDO APARICIO LEMBOKE ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
39 FERNAN ROMANO ALTUVE-FEBRES LORES ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
40 LUIS FELIPE CASTILLO OLIVA ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO

Figure B.1: Ballot as seen by the voters

Con esta cédula se definirá el futuro del municipio de Lima Metropolitana

Día de votación: Domingo 17 de marzo

Ref: FS Fuerza Social Restauración Nacional Cambio Radical
 PPC-Unitad Nacional Somos Perú Siempre Unidos

Partidos aliados: Movimiento Tierra y Libertad, Movimiento Nueva Izquierda, Movimiento Lima para Todos, Independiente.

Partidos aliados: Solidaridad Nacional, Perú Posible, Independiente.

PROVINCIA DE LIMA

CONSULTA POPULAR DE REVOCATORIA DEL MANDATO DE AUTORIDADES MUNICIPALES DE LA MUNICIPALIDAD METROPOLITANA DE LIMA 2013

MARQUE CON UNA CRUZ O UN ASPA DENTRO DEL RECUADRO DEL SI O DEL NO

1 SUSANA MARIA DEL CARMEN VILLARAN DE LA PUENTE ¿Debe dejar el cargo de Alcalde?	<input type="checkbox"/> SI <input type="checkbox"/> NO
2 EDUARDO ARIEL ZEGARRA MENDEZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
3 MARIA CLAVE REINI ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
4 RAFAEL EDUARDO GARCIA MELGAR ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
5 PERFECTO VICTOR RAMIREZ CIFUENTES ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
6 ZOLA ELENA REATEGUI BARQUERO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
7 LUIS VELER CORONADO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
8 MARCO ANTONIO ZEVALLOS BUENO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
9 SIMEONE MARCIAL VELASQUEZ RAMOS ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
10 VICTORIA DE SOTOMAYOR COTACADO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
11 LUIS HERDEZ MARTINEZ CORNEJO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
12 DORA BEATRIZ HERNANDO SANCHEZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
13 INES CECILIA RODRIGUEZ VELASQUEZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
14 JOSE LIBORIO ESTEVEZ ROBLES ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
15 SONIA GISELLA ESCUDERO TRIVULIO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
16 MANUEL ABELARDO CARHUAS MUÑOZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
17 CAYO TITO GUILLAS ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
18 OLGA CELINA MORAN ARRIAU ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
19 RONALD RONALDES PAULINA ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
20 MARIA LIBERTAD ROJAS BRUCKMANN ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
21 PEDRO JAVIER LOPEZ TORRES TUBBS ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
22 HERNAN NUÑEZ GONZALES ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
23 WALTER ARMANDO GUILLEN CASTILLO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
24 JAIME EDUARDO VALINAS LOPEZ TORRES ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
25 EDUARDO RENAN DE POMAR VIDCARRA ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
26 JORGE ALBERTO UGARTE ORDORIZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
27 BONICA EMILYKUTZ SARAHIA SORIANO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
28 JONICE RAFAEL VILLENA LAREEA ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
29 LIZ MARGARITA PILAR FREITAS ALVARADO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
30 PABLO ALBERTO SECAO ELGUERA ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
31 LUIS MANUEL CASTAÑEDA PAVON ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
32 TERESA DE JESUS CANOVA SARANGO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
33 ALBERTO VALENZUELA SOTO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
34 OSCAR JAVIER IBANES YAGU ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
35 LUIS FELIPE CALVACHEZ BARRON ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
36 RUBEN SANTIAGO GAVINO SANCHEZ ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
37 IAM BECKERIS HURTADO ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
38 GERMAN RICARDO APARICIO LEMBOKE ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
39 FERNAN ROMANO ALTUVE-FEBRES LORES ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO
40 LUIS FELIPE CASTILLO OLIVA ¿Debe dejar el cargo de Regidor?	<input type="checkbox"/> SI <input type="checkbox"/> NO

Sobre los votos

Votos válidos

21 SOMBRA NORBERTO APOLLO APELLIDO NO SI
21 SOMBRA NORBERTO APOLLO APELLIDO NO SI

Voto nulo

21 SOMBRA NORBERTO APOLLO APELLIDO NO SI
21 SOMBRA NORBERTO APOLLO APELLIDO NO SI

Voto en blanco

21 SOMBRA NORBERTO APOLLO APELLIDO NO SI
21 SOMBRA NORBERTO APOLLO APELLIDO NO SI

Mañana en **La República**, todos los escenarios de la revocatoria.

Figure B.2: Ballot as published in a newspaper

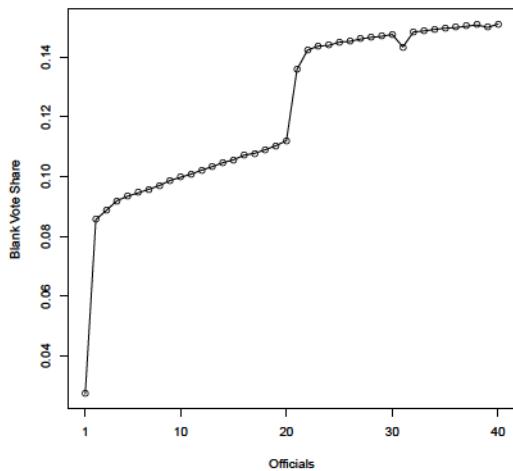


Figure B.3: Share of blank votes

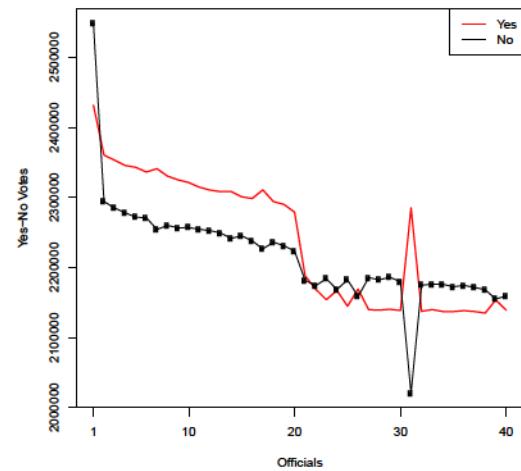


Figure B.4: Yes (red) and No votes

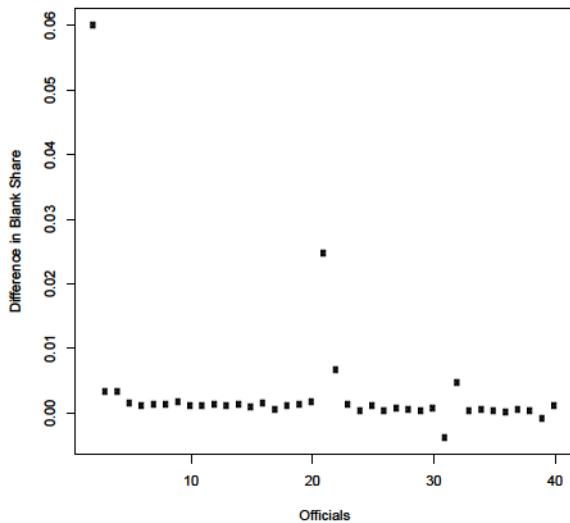


Figure B.5: Difference in blank shares obtained by official t and $t-1$.

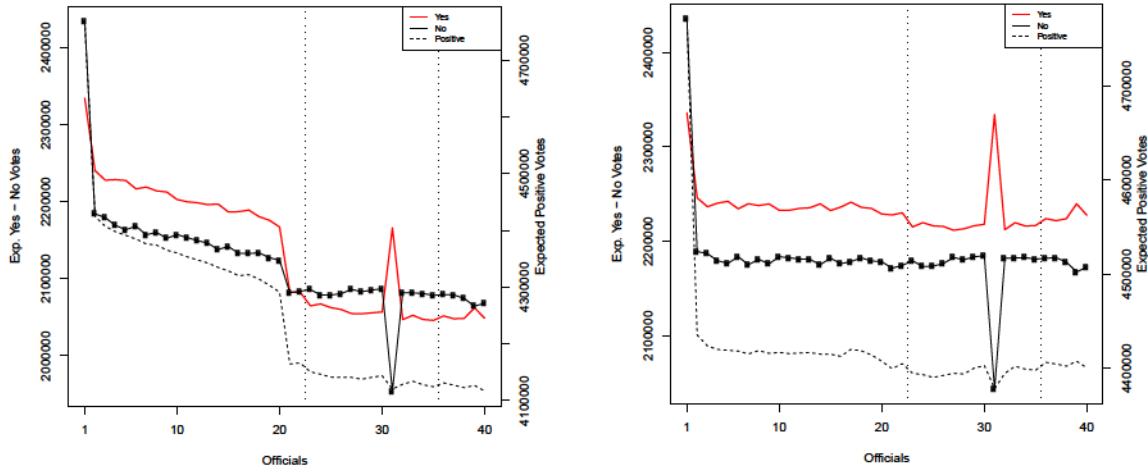


Figure B.6: By-District Multinomial Probit Expected Votes

Figure B.7: By-District Multinomial Probit, no column, no order effect

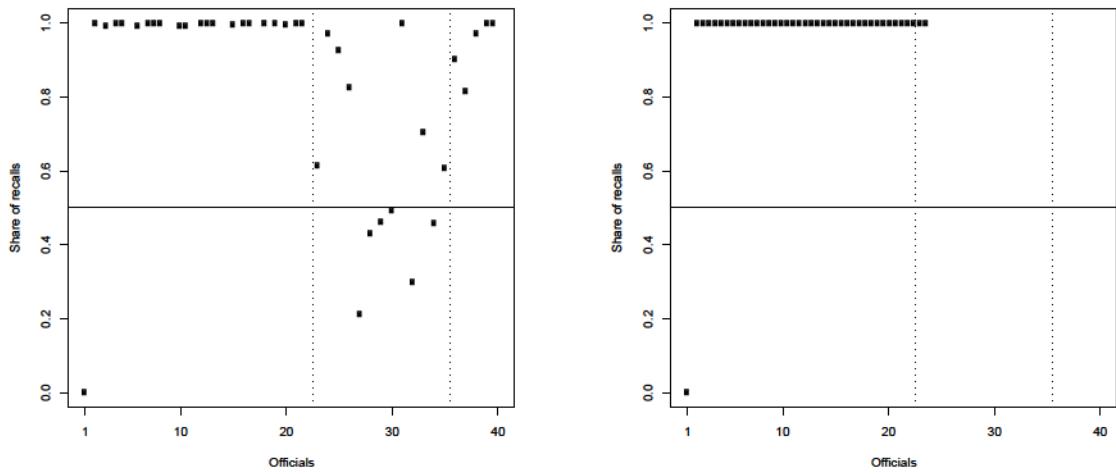


Figure B.8: Simulation Recall Shares: two columns, random order across districts

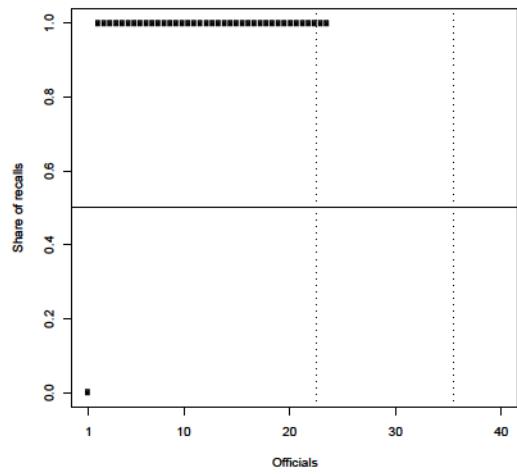


Figure B.9: Simulation Recall Shares: one column, random order across districts

B.2 Tables

Eligible Voters	6295952	Booths	36386	
Turnout	5273790	Centers	888	
Turnout %	83.8	Districts	43	
Relative Sizes	Min	Max	Average	Sd
Voters per Booth	112	240	173	28
Voters per Center	1088	52460	7090	4467
Booths per Center	7	242	41	25
Voters per District	1298	631100	146417	134506
Booths per District	7	3529	846	770
Centers per District	1	79	21	18

All numbers are calculated after we dropped all observations for which all votes cast for an official at a specific booth where coded as “null.”

Table B.1: Description of 2013 Lima Referendum Data

	Official	Party	Age	Gender	National Level			Local Level			Education Level	Media Exposure
					Times Run	Elected?	Times Run	Times Elected				
	SUSANA VILLARAN	FS	65	Female	1	No	1	1	1	Bachelor (not completed)	1068	
	EDUARDO ARIEL ZEGARRA MENDEZ	FS	51	Male	1	No	1	1	1	PhD (Economics)	111	
	MARISA GLAVE REMY	FS	33	Female	0	N/A	2	2	2	Secondary	41	
	RAFAEL EDUARDO GARCIA MELGAR	FS	59	Male	0	N/A	2	2	2	Bachelor (not completed)	4	
	PERFECTO VICTOR RAMIREZ CIFUENTES	FS	65	Male	2	No	2	1	1	Secondary	5	
	ZOILA ELENA REATEGUI BARQUERO	FS	34	Female	0	N/A	1	1	1	Bachelor (not completed)	4	
	LUIS VALER CORONADO	FS	61	Male	3	0	4	3	3	Technical School	16	
	MARCO ANTONIO ZEVALLOS BUENO	FS	40	Male	0	N/A	1	1	1	Master (not completed)	21	
	SIGIFREDO MARCIAL VELASQUEZ RAMOS	FS	54	Male	1	No	2	1	1	Post-graduate specialization	1	
	VICTORIA DE SOTOMAYOR COTRADO	FS	26	Female	0	N/A	1	1	1	Bachelor (in progress)	3	
	LUISA MERCEDES MARTINEZ CORNEJO	FS	33	Female	0	N/A	1	1	1	Bachelor	1	
	DORA BEATRIZ HERNANDO SANCHEZ	FS	53	Female	0	N/A	1	1	1	Bachelor	2	
	INES CECILIA RODRIGUEZ VELASQUEZ	FS	56	Female	0	N/A	1	1	1	Bachelor	1	
	JOSE LIBORIO ESTEVEZ ROBLES	FS	60	Male	0	N/A	2	1	1	Bachelor	2	
	MONICA GISELLA ERAZO TRUJILLO	FS	33	Female	0	N/A	1	1	1		2	
	MANUEL ABELARDO CARDENAS MUOZ	FS	52	Male	0	N/A	1	1	1		1	
	CAYO TITO QUILLAS	FS	54	Male	0	N/A	2	1	1	Post-graduate specialization	14	
	OLGA CELINDA MORAN ARAUJO	FS	50	Female	0	N/A	1	1	1	Bachelor	0	
	RONALD GONZALES PINEDA	FS	29	Male	0	N/A	1	1	1	Bachelor (not completed)	3	
	MAIA LIBERTAD ROJAS BRUCKMANN	FS	37	Female	0	N/A	1	1	1	Master	2	
	PEDRO JAVIER LOPEZ TORRES TUBBS	FS	36	Male	0	N/A	1	1	1	Master (in progress)	1	
	HERNAN NUEZ GONZALES	FS	29	Male	0	N/A	1	1	1	Bachelor (not completed)	1	
	WALTER ARCESIO GUILLEN CASTILLO	PPC	51	Male	0	N/A	3	3	3	Master	1	
	JAIME EDUARDO SALINAS LOPEZ TORRES	PPC	51	Male	3	No	4	1	1	Master	4	
	EDGARDO RENAN DE POMAR VIZCARRA	PPC	52	Male	1	No	3	1	1	Master	6	
	JOSE ALBERTO DANOS ORDOEZ	PPC	67	Male	0	N/A	1	1	1	Master	2	
	MONICA EMPERATRIZ SARAVIA SORIANO	PPC	45	Female	1	NO	1	1	1	Master	0	
	JORGE RAFAEL VILLENA LARREA	PPC	35	Male	0	N/A	1	1	1	Bachelor	4	
LUZ MARIA DEL PILAR FREITAS ALVARADO	PPC	63	Female	1	NO	1	1	1	Master	0		
	PABLO ALBERTO SECADA ELGUERA	PPC	43	Male	0	N/A	1	1	1	Master	55	
	LUIS MANUEL CASTAEDA PARDO	PPC	29	Male	0	N/A	2	2	2	Bachelor	237	
	TERESA DE JESUS CANOVA SARANGO	PPC	54	Female	0	N/A	1	1	1	Post-graduate specialization	8	
	ALBERTO VALENZUELA SOTO	PPC	43	Male	0	N/A	2	1	1	Master	26	
	OSCAR JAVIER IBAEZ YAGUI	PPC	37	Male	0	N/A	1	1	1	Master	3	
	LUIS FELIPE CALVIMONTES BARRON	PPC	48	Male	0	N/A	1	1	1	Bachelor	7	
	RUBEN SANTIAGO GAVINO SANCHEZ	RN	54	Male	1	No	1	1	1	Bachelor	2	
	IVAN BECERRA HURTADO	RN	42	Male	0	N/A	1	1	1	Master	3	
	GERMAN RICARDO APARICIO LEMCKE	SP	70	Male	0	N/A	5	5	5	Bachelor	3	
FERNAN ROMANO ALTUVE-FEBRES LORES	CR	46	Male	2	Yes	2	1	1	Master	21		
LUIS FELIPE CASTILLO OLIVA	SU	38	Male	0	N/A	1	1	1	Master	8		

The “Run at” columns display how many times this official has run in local or national elections before the 2010 elections. The “Elected at National Level” column shows if an official had been elected at the national level before the 2010 elections, and the “Elected at Local Level” show how many times the official has been elected at the local level before the 2010 elections with N/A implying “Not Applicable”. Media Exposure is the total number the official was mentioned in the leading Peruvian newspapers from 2010 until the day of the election.

Table B.2: Individual Characteristics of Elected Officials

Party	Min. Share	Max. Share	Av. Share	Sd. of Shares	Seats
Fuerza Social	0.202	0.463	0.353	0.07	22
Partido Popular Cristiano - Unidad Nacional	0.239	0.665	0.404	0.113	13
Restauración Nacional	0.039	0.183	0.081	0.026	2
Somos Perú	0.017	0.115	0.044	0.021	1
Cambio Radical	0.008	0.192	0.043	0.032	1
Siempre Unidos	0.005	0.138	0.027	0.033	1
Acción Popular	0.012	0.118	0.024	0.016	0
Alianza Para el Progreso	0.001	0.111	0.016	0.021	0
Partido Fonavista del Perú	0.002	0.019	0.009	0.004	0

The second and third column refer to the maximum and minimum share a party got in a district. “Average Share” and “Sd. of share” give the average and standard deviation of the district shares. Seats gives us the number of seats the party got.

The first two “parties” are coalitions. Fuerza Social coalition includes: Fuerza Social, Movimiento Tierra y Libertad, Movimiento Nueva Izquierda, Movimiento Lima para Todos and independent candidates. PPC-Unidad Nacional coalition includes: PPC-Unidad Nacional, Solidaridad Nacional, Peru Posible, and independent candidates.

Table B.3: Results of 2010 Municipal Election of Lima

	Minimum	Maximum	Average	Median	Sd
Age	26	70	46.95	49	11.97
Times Candidate National	0	3	0.42	0	0.81
Times Candidate Local	1	5	1.57	1	0.98
Times Elected Local	1	5	1.27	1	0.78
Imputed Years of Education	11	20	15.47	15.5	1.94
Media Exposure	0	1068	42.35	3	171.3

The years of education have been imputed using the highest known educational level of the official, taking half of the duration if this educational level was not completed. Media Exposure is the total number the official was mentioned in the leading Peruvian newspapers from 2010 until the day of the election.

Table B.4: Summary Statistics of Elected Officials

Party	Min. Share	Max. Share	Av. Share	Sd. of Share	Seats
Partido Popular Cristiano	0.155	0.555	0.316	0.097	7
Somos Perú	0.168	0.515	0.268	0.06	6
Peru Posible	0.04	0.19	0.099	0.033	2
Siempre Unidos	0.021	0.335	0.092	0.08	2
Acción Popular	0.068	0.298	0.102	0.037	2
Tierra y Dignidad	0.033	0.11	0.075	0.015	2
Partido Humanista Peruano	0.04	0.19	0.099	0.033	1

The second and third column refer to the maximum and minimum share a party got in a district. Average Share and Sd of share give the average and standard deviation of the district shares. Seats gives us the number of seats the party got.

Table B.5: Results of 2013 Municipal By-Election of Lima

	(1)	(2)	(3)	(4)	(5)	(6)
Order	0.0013*** (0.000033)	0.0013*** (0.0000083)	0.0013*** (0.0000086)	0.0076*** (0.00018)	0.0076*** (0.000035)	0.0072*** (0.000039)
Column	0.044*** (0.0018)	0.044*** (0.00033)	0.042*** (0.00033)	0.23*** (0.0077)	0.24*** (0.0011)	0.22*** (0.0012)
Column × Order	-0.00084*** (0.000081)	-0.00084*** (0.000016)	-0.00077*** (0.000015)	-0.0054*** (0.00036)	-0.0054*** (0.000052)	-0.0048*** (0.000057)
Mayor	-0.061*** (0.00057)	-0.061*** (0.00053)	-0.031*** (0.0021)	-0.57*** (0.0070)	-0.58*** (0.0034)	-0.38*** (0.0092)
Castañeda	-0.0043*** (0.0011)	-0.0043*** (0.00027)	0.0026*** (0.00047)	-0.018*** (0.0049)	-0.018*** (0.00082)	0.025*** (0.0019)
Right Party	0.0041*** (0.00091)	0.0041*** (0.00017)	0.0044*** (0.00019)	0.018*** (0.0039)	0.018*** (0.00064)	0.019*** (0.00071)
Minor Parties	0.0030** (0.0015)	0.0030*** (0.00027)	-0.0051*** (0.00032)	0.014** (0.0063)	0.014*** (0.00088)	0.0032*** (0.0011)
Party Share in 2010 elections			-0.031*** (0.00038)			-0.036*** (0.0015)
College			-0.00071*** (0.000085)			-0.0034*** (0.00037)
Age			0.0000076** (0.000030)			0.000034*** (0.000012)
Gender			0.00014** (0.000071)			0.00065** (0.000029)
Candidate in national elections			-0.000023 (0.000056)			-0.00049** (0.00023)
Candidate in local elections			-0.000020 (0.000064)			0.00053** (0.00024)
Elected in national elections			-0.0015*** (0.00028)			-0.0032*** (0.00076)
Elected in local elections			-0.00021*** (0.000072)			-0.0012*** (0.00027)
Media Exposure			-0.000029*** (0.0000020)			-0.00019*** (0.0000081)
Constant	0.089*** (0.00038)	0.089*** (0.00012)	0.10*** (0.00022)	-1.35*** (0.0022)	-1.33*** (0.0048)	-1.31*** (0.0049)
FE	No	Center	Center	No	Center	Center
Method	LS	LS	LS	Probit	Probit	Probit
N	1451215	1451215	1451215	2902430	2902430	2902430
R ²	0.2354	0.3868	0.3882			
\bar{R}^2	0.2354	0.3864	0.3879			
Log-Likelihood	4474294.4	4794554.6	4797960.5	-76153626.0	-75668239.8	-75667520.4
ΔR^2	0.0282	0.0282	0.017			

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

All regressions are clustered at the Center × Order level. Minor Parties is a dummy that takes value 1 if the official belonged neither to the party of the Mayor neither to the right-wing coalition. College is a dummy variable that takes value 1 if the official had at least finished college. Gender is a dummy taking the value 1 if the official is a man. Party share in 2010 elections is the share that the party's official obtained in the 2010 elections in a district. Candidate variables count how many times the official was a candidate in the past and Elected count how many times an official was elected in the past. Media Exposure is the total number the official was mentioned in the leading Peruvian newspapers from 2010 until the day of the election. ΔR^2 shows the difference in R^2 between the full model and a restricted model without Order, Column and Column × Order.

Table B.6: Estimations of blank share votes by table

Order	0.0040	College	0.00001
Column	0.0031	Age	0.00001
Column × Order	0.0004	Gender	0.00001
Mayor	0.0001	Candidate in national elections	0.00000
Castañeda	0.00001	Candidate in local elections	0.00000
Right Party	0.0001	Elected in national elections	0.00001
Minor Parties	0.0001	Elected in local elections	0.00000
Party Share in 2010 elections	0.0013	Media Exposure	0.00001

Table B.7: Squares of Semi-partial correlation Coefficients

	No Share	No Share	No Share
Order	-0.0096*** (0.00032)	-0.0096*** (0.00014)	-0.0092*** (0.00018)
Column	-0.29*** (0.015)	-0.29*** (0.0060)	-0.28*** (0.0067)
Column × Order	0.0071*** (0.00068)	0.0071*** (0.00028)	0.0063*** (0.00032)
Mayor	0.76*** (0.011)	0.77*** (0.0064)	0.51*** (0.038)
Castañeda	-0.036*** (0.0079)	-0.035*** (0.0036)	-0.094*** (0.0085)
Right Party	-0.019** (0.0074)	-0.019*** (0.0031)	-0.019*** (0.0036)
Minor Parties	-0.017 (0.012)	-0.017*** (0.0049)	0.016*** (0.0060)
Party Share in 2010 elections			0.11*** (0.0075)
College			0.0044** (0.0018)
Age			-0.000079 (0.000065)
Gender			-0.0023 (0.0015)
Candidate in national elections			0.00051 (0.0011)
Candidate in local elections			-0.0013 (0.0014)
Elected in national elections			0.00035 (0.0043)
Elected in local elections			0.0025 (0.0016)
Media Exposure			0.00025*** (0.000035)
Constant	1.16*** (0.0039)	1.25*** (0.0025)	1.20*** (0.0048)
	Yes Share	Yes Share	Yes Share
Order	-0.0098*** (0.00022)	-0.0098*** (0.00013)	-0.0093*** (0.00017)
Column	-0.31*** (0.0092)	-0.31*** (0.0059)	-0.29*** (0.0067)
Column × Order	0.0067*** (0.00044)	0.0067*** (0.00028)	0.0060*** (0.00032)
Mayor	0.69*** (0.0082)	0.70*** (0.0064)	0.46*** (0.037)
Castañeda	0.080*** (0.0059)	0.082*** (0.0042)	0.029*** (0.0087)
Right Party	-0.027*** (0.0047)	-0.027*** (0.0031)	-0.030*** (0.0036)
Minor Parties	-0.018** (0.0075)	-0.018*** (0.0049)	-0.030*** (0.0058)
Party Share in 2010 elections			-0.037*** (0.0068)
College			0.0041** (0.0017)
Age			-0.0000047 (0.000064)
Gender			0.00066 (0.0015)
Candidate in national elections			0.00075 (0.0011)
Candidate in local elections			-0.000068 (0.0014)
Elected in national elections			0.0075* (0.0042)
Elected in local elections			0.00041 (0.0015)
Media Exposure			0.00023*** (0.000035)
Constant	1.19*** (0.0028)	1.21*** (0.0023)	1.22*** (0.0045)
FE	No	District	District
N	4353645	4353645	4353645
Log-Likelihood	-199726345.0	-198379308.7	-198375258.8

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

All regressions are clustered at the Center × Order level. Minor Parties is a dummy that takes value 1 if the official belonged neither to the party of the Mayor neither to the right-wing coalition. College is a dummy variable that takes value 1 if the official had at least finished college. Gender is a dummy taking the value 1 if the official is a man. Party share in 2010 elections is the share that the party's official obtained in the 2010 elections in a district. Candidate variables count how many times the official was a candidate in the past and Elected count how many times an official was elected in the past. Media Exposure is the total number the official was mentioned in the leading Peruvian newspapers from 2010 until the day of the election.

Table B.8: Multinomial Probit estimations of structural model at the City Level

	Villa El Salvador	San Isidro
	No Share	No Share
Order	-0.011*** (0.0012)	-0.0080*** (0.0012)
Column	-0.30*** (0.045)	-0.27*** (0.040)
Column × Order	0.0072*** (0.0021)	0.0071*** (0.0019)
Mayor	0.54** (0.24)	0.31 (0.23)
Castañeda	-0.040 (0.054)	-0.23*** (0.048)
Right Party	-0.020 (0.057)	-0.11 (0.30)
Minor Parties	-0.0073 (0.12)	0.083 (0.12)
Party Share in 2010 elections	0.021 (0.38)	0.35 (0.70)
College	0.0077 (0.011)	-0.0015 (0.011)
Age	-0.00014 (0.00042)	-0.000066 (0.00041)
Gender	-0.00011 (0.0098)	-0.0094 (0.0093)
Candidate in national elections	0.0011 (0.0074)	-0.0010 (0.0073)
Candidate in local elections	-0.0013 (0.0091)	0.0010 (0.0080)
Elected in national elections	-0.0024 (0.033)	0.033 (0.023)
Elected in local elections	0.0019 (0.010)	-0.00065 (0.0096)
Media Exposure	0.00013 (0.00022)	0.00062*** (0.00021)
Constant	1.05*** (0.15)	1.37*** (0.13)
	Yes Share	Yes Share
Order	-0.011*** (0.0012)	-0.0090*** (0.00081)
Column	-0.32*** (0.047)	-0.26*** (0.038)
Column × Order	0.0074*** (0.0023)	0.0043** (0.0018)
Mayor	0.50* (0.26)	0.31* (0.19)
Castañeda	0.0027 (0.058)	0.15*** (0.044)
Right Party	-0.028 (0.060)	0.22 (0.31)
Minor Parties	-0.025 (0.13)	-0.25** (0.12)
Party Share in 2010 elections	-0.023 (0.40)	-0.84 (0.72)
College	0.0072 (0.012)	0.0014 (0.0080)
Age	-0.00016 (0.00045)	0.000046 (0.00035)
Gender	0.0016 (0.010)	-0.0046 (0.0080)
Candidate in national elections	0.00090 (0.0079)	-0.000054 (0.0059)
Candidate in local elections	-0.00045 (0.0097)	0.0053 (0.0080)
Elected in national elections	0.0035 (0.035)	0.0052 (0.025)
Elected in local elections	0.0013 (0.011)	0.000083 (0.0088)
Media Exposure	0.00013 (0.00024)	0.00044** (0.00017)
Constant	1.16*** (0.16)	1.43*** (0.13)
N	181416	47757
Log-Likelihood	-9138692.5	-1879681.3

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

All regressions are clustered at the Center × Order level. Minor Parties is a dummy that takes value 1 if the official belonged neither to the party of the Mayor neither to the right-wing coalition. College is a dummy variable that takes value 1 if the official had at least finished college. Gender is a dummy taking the value 1 if the official is a man. Party share in 2010 elections is the share that the party's official obtained in the 2010 elections in a district. Candidate variables count how many times the official was a candidate in the past and Elected count how many times an official was elected in the past. Media Exposure is the total number the official was mentioned in the leading Peruvian newspapers from 2010 until the day of the election.

Table B.9: Multinomial Probit estimations of structural model for Villa El Salvador and San Isidro

	(1)	(2)
Order	0.0013*** (0.000047)	0.0013*** (0.000058)
Column	0.042*** (0.0022)	0.042*** (0.0022)
Column × Order	-0.00077*** (0.000059)	-0.00077*** (0.000010)
Mayor	-0.031*** (0.0095)	-0.031*** (0.0014)
Castaneda	0.0026 (0.0021)	0.0027*** (0.00030)
Right Party	0.0044** (0.0020)	0.0044*** (0.00012)
Minor Parties	-0.0051** (0.0023)	-0.0051*** (0.00019)
Party Share in 2010 elections	-0.031*** (0.0033)	-0.031*** (0.00022)
College	-0.00071 (0.00065)	-0.00070*** (0.000056)
Age	0.0000076 (0.000013)	0.0000071*** (0.000020)
Gender	0.00014 (0.00030)	0.00014*** (0.000048)
Candidate in national elections	-0.000023 (0.00019)	-0.000019 (0.000037)
Candidate in local elections	-0.000020 (0.00023)	-0.000029 (0.000043)
Elected in national elections	-0.0015** (0.00064)	-0.0016*** (0.00014)
Elected in local elections	-0.00021 (0.00025)	-0.00020*** (0.000049)
Media Exposure	-0.000029*** (0.0000090)	-0.000030*** (0.0000013)
Constant	0.12*** (0.0016)	0.10*** (0.00014)
FE	Center	
Clustering	Center × Order (multiway)	Booth
N	1451215	1451215
r ²	0.39	0.88

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

College is a dummy variable that takes value 1 if the official had at least finished college. Minor Parties is a dummy that takes value 1 if the official belonged neither to the party of the Mayor neither to the right-wing coalition. Gender is a dummy taking the value 1 if the official is a man. Party share in 2010 elections is the share that the party's official obtained in the 2010 elections in a district. Candidate variables count how many times the official was a candidate in the past and Elected count how many times an official was elected in the past. Media Exposure is the total number the official was mentioned in the leading Peruvian newspapers from 2010 until the day of the election.

Table B.10: Blank Share of Votes: Additional Robustness Checks.