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How Important are Abstainers in Presidential Elections? A Comparative Analysis between Africa and Latin America

Christian Henning
Daniel Diaz
Andrea Lendewig
Svetlana Petri

Department of Agricultural Economics
University of Kiel

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About the authors:
Prof. Christian Henning has the professorship of the Chair of Agricultural Policy at the Institute of Agricultural Economics in the University of Kiel (Germany). Before he joined the faculty in Kiel he did research at the University Mannheim, Stanford University and at the "Mannheimer Zentrum für Europäische Sozialforschung". He also operated as a consultant for the FAO, the European Union and further international and national organizations.
Daniel Diaz is doctoral student in the Department of Agricultural Policy at the Agricultural Economics Institute in the University of Kiel (Germany). He studied business administration and he acquired an MSc in international business economics. His main research interests are probabilistic voter models and modelling capture and accountability for central Governments.
Andrea Lendewig is doctoral student in the Department of Agricultural Policy at the Agricultural Economics Institute in the University of Kiel (Germany). She studied accountancy and she acquired an MSc in international business economics. Her main

research interests are probabilistic voter models and modelling capture and accountability for central Governments.
Dr. agr. Svetlana Petri is a post doctoral researcher at the Department of Agricultural Policy at the Agricultural Economics Institute in the University of Kiel (Germany). Among her research interests are: Election Models of local and central Governments, Decentralisation of Infrastructure Delivery in Developing Countries, Determination of Capture and Accountibility Factors in Developing Countries, and Influence of Elite-Networks on the political decision Process in Developing Countries.
Corresponding author: chenning@ae.uni-kiel.de, ddiaz@ae.uni-kiel.de, alendewig@ae.uni-kiel.de, spetri@ae.uni-kiel.de

Abstract

Even in countries with well functioning democracies, not all people with the right to vote in a presidential election decide to cast a vote. In order to study the importance of abstention in presidential elections in Africa and Latin America, data from Senegal and Honduras was analyzed. These countries have experienced a decline in the voter turnout over the past elections, which means that the party systems are somehow failing to engage voters in recent years. The purpose of this paper is to understand how people choose a certain party or candidate, as well as, how they decide to either vote or abstain. Moreover, we are looking to determine whether non-voters could motivate the governments to design and implement efficient policies. To achieve this, we estimated nested multinomial logit models including the alternative Abstention. Then, to evaluate government performance, we derived indicators for accountability and capture. Also, to determine the optimal policy positions for the governmental parties, First Order Condition (FOC) and Second Order Condition (SOC) were estimated for different issues. We concluded that, in these two developing countries, one of the factors that voters take into account when they decide to either vote or abstain, is their level of satisfaction with the performance of the president. Additionally, the incumbent is held more accountable when all non-government supporters are considered. Furthermore, since in both countries, the incumbents' voters are being captured by all other groups within the electorate, we could argue that abstainers, as well as, those who have chosen an opposition party/candidate can motivate the incumbent to choose the policies that better match the specific country needs in order to reduce poverty and undernutrition and promote economic growth. Finally, we found that the ruling parties BBY and PNH could increase their probabilities of being re-elected, if they choose policies that are more left oriented.

Keywords: probabilistic voter model, capture, accountability, agricultural policy, Africa, Latin America

JEL classification:Q18, C31, C35, C38

1 Introduction

To reduce poverty and undernutrition and increase economic growth in a country, the quality of governance is important as it can guarantee the implementation of efficient policies. To achieve this, electoral competition in democratic systems should promote a high performance of the incumbent by reflecting the interests of the whole society and serving to control the government. However, in reality, electoral competition often leads to policy failure due to low government accountability and government capture.

Even in countries with well functioning democracies, not all people with the right to vote in a presidential election decide to cast a vote. Some people consider voting as a civic duty of every citizen in a democratic country. On the other hand, others think that voting is often inconvenient, time-consuming and may even seem pointless, because the probability that the vote of one person will make a difference in the outcome is infinitesimally small. According to Solijonov [2016], even though the voter population has been growing globally and the number of countries that hold elections have increased, the global average voter turnout has decreased significantly over the past decades. Furthermore, Stockemer [2015] found that developed countries have a higher citizens' participations at elections than developing countries, which implies that development by itself leads to higher turnout. These statements correspond to the situation in Senegal. Despite the fact that Senegalese electoral processes have been considered relatively fair compared to its neighbor countries, there has been a decline in the voter turnout over the past elections. Similarly, in Honduras the level of abstention has increased during the past years. One of the reasons seems to be that many people do not trust the political parties and candidates. Also, the country has experienced a massive international migration. The purpose of this research study is to evaluate the importance of abstainers in the policy making process in Africa and Latin America. More specifically, we are looking to determine whether non-voters could motivate the governments to design and implement efficient policies. To this end, data from Senegal and Honduras was used for the analysis.

Serious scholarly attention has been given to the study of voter behavior, for example Downs [1957], Campbell et al. [1960], Lazarsfeld et al. [1968] and Lipset and Rokkan [1967] are among the main authors addressing this issue. Other important amount of research have been devoted to the analysis of government performance, for instance Bailey [1999] and Stevens [2005]. There is also a few amount of research studies combining both topics such as, Henning et al. [2014] and Seide [2014], as well as, Keefer and Khemani [2005] and Bardhan and Mookherjee [2002], who argue that less electoral competition implies incentives for the government to implement policies that do not correspond to the needs and desires of the majority in the society. However, the incorporation of the aspects of abstention/participation in voter behavior study is not very common. Downs [1957] explained that citizens choose the party they believe will provide them a higher

utility. However, if the party differential is equal to zero, they will abstain. Later, Riker and Ordeshook [1973] conceptualized the citizen's choice as a two-stage process, where the voter first identifies a preferred candidate and then decides to vote or abstain. Further, Thurner and Eymann [2000] proposed a model where they consider the simultaneous choice among parties and the option abstention. The latter, as well as, Plane and Gershtenson [2004] have also studied, by means of spatial models of voting, indifference and alienation towards the candidate or party as reasons affecting the individual probability of voting.

This paper proceeds as follows: First, we shortly review some literature regarding the paradox of voting. Second, we present the developed nested multinomial logit model originally proposed by McFadden [1977] as a generalization of the multinomial logit model based on the idea that some alternatives may be joined in several groups or nests. Then, we give an overview of the datasets and a description of the variables used. The following section shows the empirical estimations and results for the abstention/participation models of the multi-party systems in Senegal and Honduras. In the next section, to determine the optimal policy positions for the governmental parties, FOC and SOC were estimated for different issues. Finally, we present a summary and our conclusions of the research.

2 Voting Paradox

Voting implies a benefit and a cost to the voter. A benefit is obtained when the voter changes the outcome of the election to what he desires. However, the probability that one vote would change the outcome of the election (the voter's pivot probability) is very low so the expected benefit is also small. On the other hand, the costs of the act of voting itself include time, money and resources. Additionally, voters have to become sufficiently informed to vote in line with their own interests and this is also costly. Looking at this, if voters act rationally, they should abstain. However, according to the voting paradox, electoral turnout is relatively high even though the costs will normally exceed the expected benefits. One explanation for this is the sense of civic duty.

Many researchers have been studying the paradox of voting. Riker and Ordeshook [1968] developed a calculus of voting in which it is rational for those who vote to do so and it is equally rational for those who do not vote not to do so. To this end, they included an additional component in the utility function that contains positive effects on the expected utility of voting. Then, they concluded that "the behavior of most people can be described by a theory of rational decision-making". According to, Owen and Grofman [1984] in a supposed scenario where all voters assign positive costs to voting, if all decide to vote, each will find their vote useless as it is highly unlikely to affect the outcome. On the other hand, if no one votes, then the vote becomes extremely valuable and thus, the paradox occurs. The implications of non-voting for democracy have been

studied by authors like Bennett and Resnick [1990] who found that non-voting has an impact on some domestic policies in the United States, especially spending on welfare state programs. Additionally, Kirchgässner [1992] deals with voting decisions, which he considers to be individual decisions that are irrelevant for the individual. However, the collective decision is relevant for all individuals. Further, he argues that following social (moral) rules, when they are deviated from the self-interest, implies a cost that is rather low in voting decision. Later, Grofman [1995] shows that the correlation between turnout and closeness of the elections can be positive or negative. This depends on the assumptions about the way voters form their expectations regarding whether or not their vote will be decisive. However, Myerson [1997] considered an example of a large voting game to illustrate the advantages of using a Poisson model of population uncertainty. He found that the expected turnout cannot be large if the act of voting is costly for all voters. On the contrary, Blais [2000] concluded that the rational choice model of voting does not appear to work. People who are aware that the probability of their vote being decisive is tiny should rationally abstain. However, most people vote in national elections, and most of them vote regularly.

Kooreman and Haan [2003] identified another voting paradox where, due to free riding of potential voters facing voting costs, the alternative with the highest number of supporters could lose a binary election. Bannon [2003], on the other hand, explains that political parties may target the less motivated voters with campaign techniques to encourage participation. This in turn could make campaigns more efficient and effective. Furthermore, Krajina and Prochazka [2017] studied the reasons and motives for voting and found that people decide to vote mainly to affect the outcome and to express a political view.

3 Methodology

3.1 Probabilistic Voter Model and Nested Multinomial Logit Model

It is well known that not all voters decide to participate in electoral processes. Thus, to analyze such decision, the alternative Abstention must be included in the choice set. In this sense, voter behavior can be modeled based on the rational choice approach, where the voter's decision depends on the alternative differential $V_{iA} - V_{iB}$. Furthermore, to include all unknown factors involved in the decision process, a probabilistic voter model is estimated. This allows the inclusion of an individual-specific stochastic component (μ_{ik}) in the utility function (U_{ik}) comprising these unknown factors.

$$P_{iA}(A, B) = Prob(U_{iA} \geq U_{iB}) \text{ where } U_{ik} = V_{ik} + \mu_{ik},\ k = A, B \tag{1}$$

Probabilistic voter models are estimated with Discrete Choice models, which are commonly used in political science research to analyze how voters decide between two or more alternatives in an election. More specifically, these models answer to the questions: Who?, what? and how?. Furthermore, the choice set fulfills three requirements: It must be *collectively exhaustive*, *mutually exclusive* and have a *finite number of alternatives*.

In order to derive the Discrete Choice model, a Random Utility Maximization (RUM) model is usually applied. Here, if the voter i acts rationally, he chooses the alternative k among K alternatives only if it provides him the highest utility U_{ik}. In other words, the greater the utility of an alternative, the more likely is that the voter will choose it.

The random unknown part μ_{ik} of the utility function U_{ik} is assumed to be independently, identically extreme value distributed (iid), and then a logit model was derived. Since Senegal and Honduras have multi-party systems and we also considered the alternative abstention, the model was extended to a multi-alternative estimation. The logit model was derived based on McFadden [1974, 1982] as:

$$P_{ik}(K) = \frac{e^{V_{ik}}}{\sum\limits_{k=1}^{K} e^{V_{ik}}} \tag{2}$$

We were looking to assess the importance of abstainers in presidential elections in Senegal and Honduras. Therefore, following the approach of Thurner and Eymann [2000] we proposed a model that simultaneously combines the choice among several parties and the alternative abstention. To this end, we combined the probabilistic voter model of party/candidate choice with the participation/abstention choice in a single nested multinomial logit model based on Croissant [2012] and Greene [2008]:

$$P_{ik}(K) = P_{ik|m} P_m \tag{3}$$

with

$$P_{ik|m} = \frac{e^{V_{ik}}}{\sum\limits_{k} e^{V_{ik}}} \text{ where } V_{ik} = \alpha_k + \beta x_{ik} + \delta_k r_i \tag{4}$$

and

$$P_m = \frac{\left(\sum\limits_{k} e^{V_{ik}}\right)^{\lambda_m}}{\sum\limits_{m}^{M} \left(\sum\limits_{j} e^{V_{ij}}\right)^{\lambda_m}} \tag{5}$$

where α_k is an alternative specific constant, x_{ik} is an alternative specific variable with a generic coefficient β, and r_i is an individual specific variable with an alternative specific coefficient δ_k. The alternative specific coefficients are estimated with one of them set to zero and the remaining coefficients are interpreted with respect to the alternative

whose coefficient was set to zero. On the contrary, generic coefficients are constant for all alternatives.

The conditional probability (equation 4) is the exponential expected utility of voter i from alternative k divided by the sum of the exponential expected utilities of all the alternatives within a nest m. In other words, it is the probability that voter i chooses alternative k that belongs to a nest m. The marginal probability (equation 5) is the sum of the exponential expected utilities of all the alternatives within a nest to the power of λ_m (elasticity of nest m), divided by the sum of the exponential expected utilities for all nests. Finally, the probability that voter i chooses alternative k (equation 3) is calculated by multiplying the conditional probability of choosing alternative k if the nest m is chosen times the marginal probability of choosing the nest m. For this model to be compatible with the RUM, all the nest elasticities have to be in the interval from 0 to 1.

The nested multinomial logit model estimated in this paper includes three components or voting motives: non-policy oriented (V_{ik}^{NP}), policy oriented (V_{ik}^{P}) and retrospective oriented (V_{ik}^{R}). The voter's utility function is now as follows:

$$V_{ik} = V_{ik}^{NP} + V_{ik}^{P} + V_{ik}^{R} \tag{6}$$

Not all voters are well informed and aware of policies, especially in developing countries. Therefore, voters might apply non-policy indicators to estimate their expected utility, such as their socio-demographic characteristics x_{ij}, as well as, their level of trust on the incumbent y_{ig}. Another variable included in the utility function is party identification PI_{ik} that works as an intensifier in the preferences of voters towards a candidate.

$$V_{ik}^{NP} = \sum_{j}^{J} \alpha_k x_{ij} + \alpha_k y_{ig} + \alpha PI_{ik} \tag{7}$$

On the other hand, if voters are well informed and interested in politics, they might decide based on the policy platforms proposed by the candidates. In this sense, the policy oriented voter's utility function is calculated based on the spatial voting model [Davis et al., 1970, Enelow and Hinich, 1984], as the squared distance between a voter's position x_{id} on a specific issue d and the perceived position taken by the party or candidate y_{ikd} on the same issue:

$$V_{ik}^{P} = -\sum_{d}^{D} \beta_d (y_{ikd} - x_{id})^2 \text{ where } (y_{ikd} - x_{id}) = D_{ikd} \tag{8}$$

The coefficient β is always negative, because the greater the distance between the voter's position and the party/candidate's position, the less is the utility. We considered the minimal negative distance for the alternative abstention. Then, the greater the distance

to the closest party/candidate, the greater is the benefit from abstaining, which agrees with the voting paradox.

As regards the retrospective voting motive [Fiorina, 1981], voters can express a general assessment of the past performance of a party/cantidate or the government. They use observable welfare indicators Z_{ir} determined by governmental policies (γ_G).

$$V_{ik}^{R} = \sum_{r}^{R} \delta_{kr} Z_{ir}(\gamma_G) \tag{9}$$

Note that in the estimation of our model, we assumed that the assessment of the economic performance of the government also has an impact on the voters' evaluation of the opposition parties, as well as, on the decision of refraining from voting.

3.2 Government Performance

Political parties choose their policy platforms in order to maximize their probability of winning the elections. Nevertheless, the implementation of efficient policies by the government can only take place if voters choose politically and retrospectively oriented. Therefore, in order to evaluate government performance, we derived the indicators for accountability and capture. In this sense, we estimated marginal effects (ME) for the three voting components because they show how sensitive are the voters to changes in policy, non-policy and retrospective voting motives.

- For the variables with generic coefficients ME were estimated as follows:

$$\frac{\partial P_{ig}}{\partial D_{igd}} = \left| P_{ig}\left(1 - P_{ig}\right)\beta_d \left[\frac{\left(1 - P_{ig|m}\right)}{\left(1 - P_{ig}\right)} + \lambda_m \frac{\left(P_{ig|m} - P_{ig}\right)}{\left(1 - P_{ig}\right)} \right] \right| \tag{10}$$

- For the variables with alternative specific coefficients ME were estimated as follows::

$$\frac{\partial P_{ig}}{\partial Z_{ir}} = \left| P_{ig}\left(\delta_g - \sum_{k}^{K} \delta_k P_{ik}\right) \left[\frac{\left(P_m \delta_g - \sum_k^K \delta_k P_{ik}\right)}{P_m\left(\delta_g - \sum_k^K \delta_k P_{ik}\right)} + \lambda_m \frac{\left[1 - P_m\right] \sum_k^K \left(\delta_k P_{ik}\right)}{P_m\left(\delta_g - \sum_k^K \delta_k P_{ik}\right)} \right] \right| \tag{11}$$

where g refers to the government party.

These marginal effects point out the extent to which the probability P_{ig} changes when there is a one-unit change in the independent variables.

To evaluate the relative importance of the different motives, the relative marginal effects (RME) are calculated for each voter:

$$RME_i^{NP} = \frac{ME_i^{NP}}{ME_i^{NP} + ME_i^{P} + ME_i^{R}} \tag{12}$$

$$RME_i^P = \frac{ME_i^P}{ME_i^{NP} + ME_i^P + ME_i^R} \tag{13}$$

$$RME_i^R = \frac{ME_i^R}{ME_i^{NP} + ME_i^P + ME_i^R} \tag{14}$$

3.2.1 Government Accountability

Based on the RME, a government accountability index (GA) was estimated to verify whether electoral competition encourages governments to develop and implement efficient policies that would increase the welfare of the society. Responsible actions by the government can only take place if people choose more policy and retrospectively oriented. Therefore, the assumption is that, when voters choose more non-policy oriented, the government has a lack of incentives, which in turn results in low accountability.

$$RME^{NP} = \sum_{i=1}^{n} RME_i^{NP} \tag{15}$$

$$RME^{P} = \sum_{i=1}^{n} RME_i^{P} \tag{16}$$

$$RME^{R} = \sum_{i=1}^{n} RME_i^{R} \tag{17}$$

$$GA = \frac{RME^P + RME^R}{RME^{NP} + RME^P + RME^R} \tag{18}$$

where policy and retrospective RME can be added up in order to compare policy vs. non-policy motives.

3.2.2 Government Capture

There is government capture when more consideration is given to the political interests of a minority group at the expense of the majority. This implies that a small group of people has comparatively greater insights on political events. In this sense, we assume that the more policy oriented a voter chooses, the more importance he has for political parties. Therefore, to look at the extent to which a group is more important to the governmental party than the other, we first calculate the individual relative political weights:

$$g_i = \frac{ME_i^P}{\sum_{i=1}^{n} ME_i^P} \tag{19}$$

Then, to identify which group from the electorate has a greater weight in the political process, we developed the following government capture index (GC):

$$GC_{1vs2} = \frac{\frac{\sum_{i\in 1} g_i}{a_1}}{\frac{\sum_{i\in 2} g_i}{a_2}} \tag{20}$$

where a_1 and a_2 are the share of voters in group 1 and 2 respectively.

3.3 Nash Equilibrium

We intended to identify the equilibrium policy positions where the party in power has no incentive to move away from. Since we were estimating a logit model where the error terms were assumed to be Type I extreme value distributed, a Local Nash Equilibrium (LNE) could be found [Schofield, 2007]. In this sense, based on the approach of Petri and Henning [forthcoming], to find the point where the probability P_{ig} is maximized, the following FOC was derived:

$$\frac{\partial P_{ig}}{\partial y_{igd}} = \frac{\partial P_{ig}}{\partial D_{igd}} \frac{\partial D_{igd}}{\partial y_{igd}} \tag{21}$$

$$\frac{\partial P_{ig}}{\partial y_{igd}} = P_{ig}(1-P_{ig})\beta_d \left[\frac{\left(1-P_{ig|m}\right)}{(1-P_{ig})} + \lambda_m \frac{\left(P_{ig|m}-P_{ig}\right)}{(1-P_{ig})} \right] 2(y_{igd}-x_{id}) \tag{22}$$

where the absolute political weight g_{igd} of voter i for the governmental party g for the issue d is:

$$g_{igd} = P_{ig}(1-P_{ig})\beta_d \left[\frac{\left(1-P_{ig|m}\right)}{(1-P_{ig})} + \lambda_m \frac{\left(P_{ig|m}-P_{ig}\right)}{(1-P_{ig})} \right] \tag{23}$$

FOC for all voters:

$$\sum_{i=1}^{n} \frac{\partial P_{ig}}{\partial y_{igd}} = 0 \tag{24}$$

$$\sum_{i=1}^{n} g_{igd}\, 2(y_{igd}-x_{id}) = 0 \tag{25}$$

$$\sum_{i=1}^{n} g_{igd}(y_{gd}^{*}-x_{id}) = 0 \tag{26}$$

$$\sum_{i=1}^{n} g_{igd}\, y_{gd}^{*} = \sum_{i=1}^{n} g_{igd}\, x_{id} \tag{27}$$

$$y^*_{gd} = \sum_{i=1}^{n} \left[x_{id} \left[\frac{g_{igd}}{\sum g_{igd}} \right] \right] \tag{28}$$

where y^*_{gd} is the optimal political position for the governmental party g for the issue d and $\frac{g_{igd}}{\sum g_{igd}}$ is the relative political weight of voter i for the governmental party g for the issue d.

The FOC $\frac{\partial P_{igd}}{\partial y_{igd}} = 0$ was satisfied, where the probability that the governmental party wins the election is maximized.

After we found a Nash-Equilibrium, we confirmed whether the SOC was fulfilled, i.e. the Hessian matrix was negative semi-definite. In our study, this was true, which means that a LNE was estimated. The SOC was derived as follows:

if $d \neq p$, then

$$\begin{aligned} \frac{\partial P^2_{ig}}{\partial^2 y_{igd} y_{igp}} = \sum [4\beta_d \beta_p (y_{igd} - x_{id})(y_{igp} - x_{ip}) P_{ig} \\ [(\lambda_m - 1)(P_{ig|m})(1 - P_{ig|m}) + (\lambda_m (P_{ig|m} - 2P_{ig}) + (1 - P_{ig|m})) \\ ((1 - P_{ig|m}) + \lambda_m (P_{ig|m} - P_{ig}))]] \end{aligned} \tag{29}$$

if $d = p$, then

$$\begin{aligned} \frac{\partial P^2_{ig}}{\partial^2 y_{igd} y_{igd}} = \sum [4(y_{igd} - x_{id})^2 \beta_d^2 P_{ig} [(\lambda_m - 1) P_{ig|m} \\ (1 - P_{ig|m}) + (\lambda_m (P_{ig|m} - 2P_{ig}) + (1 - P_{ig|m})) \\ ((1 - P_{ig|m}) + \lambda_m (P_{ig|m} - P_{ig}))] + P_{ig} \beta_d^2 \\ ((1 - P_{ig|m}) + \lambda_m (P_{ig|m} - P_{ig}))] \end{aligned} \tag{30}$$

4 Data

In the case of Senegal, we designed a voter survey including questions on socio-demographic characteristics, voting behavior, policy positions and network characteristics. It was carried out on January 2019, just before the presidential elections, by the Senegalese Agricultural Research Institute. The interviews were conducted face-to-face in the respective dialect or language of the interviewees. The sample contains 1000 individuals from five different regions across the country. After data cleaning, 844 complete observations remained for the analysis of voters' behavior.

For Honduras, two sources of data were collected:

- Baseline household survey: as part of a food security project developed by the Government of Honduras and IFPRI (International Food Policy Research Institute), detailed data regarding the socio-economic and demographic characteristics of the households was collected in seven departments of Honduras.
- Voter survey: we designed a questionnaire to look at beliefs and political preferences of households. The data was collected through face-to-face interviews conducted in Spanish by O&M Estudios y Proyectos. The survey was carried out just before the general elections on November 2017 in four different departments.

The total sample size of the surveys is 1021 voters. However, after data cleaning, 811 complete observations were available to analyze voting behavior.

4.1 Dependent Variable

In a probabilistic voter model the dependent variable is usually the actual or intended vote choice. Nevertheless, given the approach of the nested multinomial logit model for this paper, the alternative Abstention was added. In the questionnaire, respondents were asked:

If a presidential election were held tomorrow, which party's candidate would you vote for?

The respondents showing an intended vote choice for the ruling party were considered to be part of the "Government" nest. On the other hand, the interviewees who did not show support for the incumbent party were considered members of the "Non-Government" nest. More specifically, within the latter are the voters who chose one of the opposition parties, as well as, those who decided not to participate in the electoral process. As pointed by Thurner and Eymann [2000], the number of people who revealed their intention of abstaining in an election is usually underestimated in surveys due to effects of social (un)desirability. Therefore, following the aforementioned approach we have considered the interviewees who answered "Don't know" and "Will not vote" as part of the Abstention alternative.

Table 1 shows the results of the survey carried out in Senegal, as well as, the official presidential election outcome. Even though the survey results are not very close to the actual election outcome, the party in power BBY (Benno Bokk Yaakaar) is a clear winner in both scenarios. For the analysis in the empirical section we consider all parties and

Abstention. Then, the whole set of alternatives is: K = {BBY, Rewmi, Pastef, PUR, Niang and Abstention}.

Table 1: Senegalese presidential elections results

	BBY	**Rewmi**	**Pastef**	**PUR**	**Niang**	**Abstention**
Presidential elections 2019	38.48%	13.55%	10.35%	2.69%	0.98%	33.95%
Own survey 2019	70.46%	3.72%	5.30%	1.13%	0.34%	19.05%

Source: [Constitutional Council of Senegal, 2019], own survey

As for Honduras, the results are displayed in table 2. Once again, the data provided by the Honduran survey does not resemble the election outcome. However, it confirms that the incumbent party PNH (Partido Nacional de Honduras) was the winner. For the empirical analysis, we took into account the two main parties PNH and PLH, the coalition party Libre + PINU-SD, as well as, the alternative Abstention.

Table 2: Honduran presidential elections results

	PNH	**PLH**	**Libre + PINU-SD**	**Others**	**Abstention**
Presidential elections 2017	24.10%	8.27%	23.23%	0.50%	43.90%
Own survey 2017	59.10%	19.90%	7.20%	0.00%	13.80%

Source: [Tribunal Supremo Electoral Honduras, 2017], own survey

It is worth noting that in general, people tend to lie when they are asked about their intended vote choice. According to Bannon [2003], only a small percentage of the electorate identify themselves as “non-voters". Furthermore, he argues that even if all identified as “don’t knows’" do not vote, this still does not represent the actual percentage of the electorate who actually abstains.

4.2 Independent Variables

The independent variables were divided into policy, retrospective and non-policy variables.

Policy Variables: Seven different policy issues were considered. The policy positions on these issues were asked based on a five-point scale. The interviewees had to indicate their own policy position, as well as, their perceived positions of the parties on the following issues:

1. 1-Agree with liberal policies, 5-Disagree with liberal policies (Social)
2. 1-Left (socialism), 5-Right (capitalism) (Ideology)

3. 1-Tax revenues should be used to provide public services, 5-Tax revenues should be used to further improve economic growth (PSvsEG)

4. 1-Public services expenditures should be mainly invested in improving education and health services, 5-Public services expenditures should be rather used to reduce insecurity and violence (EHvsIV)

5. 1-Economic growth shall be achieved through the development of the agricultural sector, 5-Economic growth shall be achieved through the development of the industrial sector (AGRvsIND)

6. 1-Increase productivity of food crops to guarantee food security, 5-Increase productivity of cash crops to guarantee greater farm income (FoodvsCash)

7. 1-Benefit the agricultural sector through technological progress, 5-Benefit the agricultural sector through better access to markets (TPvsAM)

These were used to calculate distances for parties as the difference between the voters' own policy position and the perceived policy position of the parties. For the alternative Abstention, the minimal negative distance was considered. Therefore, the utility of non-voting is greater than the utility of voting and hence the voting paradox is fulfilled.

Retrospective Variables: In the survey, questions of satisfaction with government performance were asked. More specifically, there were questions addressing the level of satisfaction of the interviewees with the performance of the current president, as well as, the implementation of agricultural policies by the government.

Non-policy Variables: A whole set of sociodemographic variables such as gender, age, marital status and education was included. Furthermore, to measure party loyalty, the variable Party ID was used. In particular, alternative specific dummies were created, where "1" indicates party affiliation for that specific party and "0" otherwise. In the case of the alternative Abstention, the variable was set to "0" since there is no such thing as party identification for Abstention. In addition, a set of questions was incorporated asking about the importance of the characteristics of the candidate, as well as, the trust in state institutions and media.

To estimate the nested multinomial logit model where we combined the party/candidate choice with the abstention/participation choice, we created the dummy Abstention, which is equal to "1" if the person decided not to vote and "0" otherwise.

5 Empirical Application and Results

5.1 Nested Multinomial Logit Model

Using the same variables, we estimated nested multinomial logit models (NML) to observe the factors that influence voting behavior, as well as, those that drive people's decision of abstaining in both countries, Senegal and Honduras. With the data previously described and to demonstrate robust statistics, we performed different model specifications including only the independent variables that, according to the p-value test, were significant. The goodness of fit was defined by means of the Log-likelihood function and, in this paper, only the best models are presented. Additionally, for each country, the corresponding ruling parties were taken as the reference alternative, meaning that the alternative specific coefficients are interpreted in comparison to them. Finally, to confirm that the independent variables were not highly correlated with one or more of the other independent variables, a test for multicollinearity was performed. This consisted in calculating the condition indices and variance decomposition proportions to check the intercorrelation among the independent variables. In our optimal models, we found no presence of multicollinearity.

Table 3: Nested Multinomial Logit Model Senegal

Variables	**Coefficients**	**Standard Error**	**z-value**	**Pr(>|z|)**	
Abstention:(intercept)	1.9671	0.9328	2.11	0.0350	*
Niang:(intercept)	-2.5489	20.6903	-0.12	0.9020	
Pastef:(intercept)	0.0804	1.1284	0.07	0.9432	
PUR:(intercept)	-0.3482	1.9651	-0.18	0.8594	
Rewmi:(intercept)	-0.2172	1.2012	-0.18	0.8565	
PSvsEG	-0.1374	0.0490	-2.80	0.0051	**
FoodvsCash	-0.0924	0.0526	-1.76	0.0789	.
Party_id	5.7989	0.6713	8.64	0.0000	***
Abstention:Satisfaction_president	-0.5719	0.2571	-2.22	0.0261	*
Niang:Satisfaction_president	-0.6346	6.8514	-0.09	0.9262	
Pastef:Satisfaction_president	-1.0428	0.4728	-2.21	0.0274	*
PUR:Satisfaction_president	-0.6536	1.3598	-0.48	0.6308	
Rewmi:Satisfaction_president	-0.8308	0.3125	-2.66	0.0078	**
Abstention:Trust_president	-0.4775	0.2437	-1.96	0.0501	.
Niang:Trust_president	-0.4377	7.1427	-0.06	0.9511	
Pastef:Trust_president	-0.7249	0.4278	-1.69	0.0902	.
PUR:Trust_president	-0.4615	1.0950	-0.42	0.6734	
Rewmi:Trust_president	-0.8861	0.3701	-2.39	0.0167	*
Abstention:Possibility_winning_elections	-0.0319	0.1032	-0.31	0.7573	
Niang:Possibility_winning_elections	0.2757	6.6716	0.04	0.9670	
Pastef:Possibility_winning_elections	0.7503	0.2639	2.84	0.0045	**
PUR:Possibility_winning_elections	-0.0962	0.4097	-0.23	0.8143	
Rewmi:Possibility_winning_elections	0.6648	0.2520	2.64	0.0083	**
iv:government	0.3086	0.0589	5.24	0.0000	***
iv:non_government	0.9253	0.3345	2.77	0.0057	**

*Significant coefficients: ***p<0.001, **p<0.01, *p<0.05, . p<0.10*

Log-Likelihood: -461

McFadden R^2: 0.383

Likelihood ratio test : χ^2 = 574 (p.value≤ 2e-16)

Source: Own estimation

Table 4: Nested Multinomial Logit Model Honduras

Variables	**Coefficients**	**Standard Error**	**z-value**	**Pr(>|z|)**	
Abstention:(intercept)	9.2130	2.6446	3.48	0.0005	***
Libre_PINU_SD:(intercept)	7.9609	2.7136	2.93	0.0034	**
PLH:(intercept)	5.2531	2.5916	2.03	0.0427	*
PSvsEG	-0.1171	0.0296	-3.96	0.0001	***
FoodvsCash	-0.0519	0.0282	-1.84	0.0653	.
Party_id	3.8115	0.3220	11.84	0.0000	***
Abstention:Satisfaction_president	-0.8393	0.3480	-2.41	0.0159	*
Libre_PINU_SD:Satisfaction_president	-1.0468	0.3746	-2.79	0.0052	**
PLH:Satisfaction_president	-0.6207	0.3729	-1.66	0.0960	.
Abstention:Trust_president	-0.8395	0.3419	-2.46	0.0141	*
Libre_PINU_SD:Trust_president	-0.9427	0.3737	-2.52	0.0117	*
PLH:Trust_president	-1.0896	0.3557	-3.06	0.0022	**
Abstention:Possibility_winning_elections	-1.3798	0.4435	-3.11	0.0019	**
Libre_PINU_SD:Possibility_winning_elections	-1.0589	0.5079	-2.08	0.0371	*
PLH:Possibility_winning_elections	-0.3204	0.4768	-0.67	0.5017	
iv:government	0.9345	0.1088	8.59	0.0000	***
iv:non_government	0.9588	0.2317	4.14	0.0000	***

*Significant coefficients: ***p<0.001, **p<0.01, *p<0.05, . p<0.10*
Log-Likelihood: -354
McFadden R^2: 0.598
Likelihood ratio test : χ^2 = 1050 (p.value $\leq$ 2e-16)

Source: Own estimation

Tables 3 and 4 show the optimal nested multinomial logit model estimations for Senegal and Honduras. In both models the significant alternative specific constants or intercepts, that absorb all information not explicitly included in the models, are positive. Further, two political issues (Public Services vs. Economic Growth and Food Crops vs. Cash Crops) resulted significant when voters make their decision. In both cases, the coefficients show the theoretically expected negative sign indicating, in the case of the political parties, that the greater the distance between a voter's position and the perceived position of a party, the less is the utility and thus the less is the probability to vote for that partys' candidate. On the other hand, for the alternative Abstention, as the variable has also a negative sign, the greater the distance between a voter's position and the perceived position of the nearest party, the higher is the utility and thus the higher is the probability to abstain. Furthermore, the last significant attribute in our models was Party Identification (PI) with positive coefficients. This implies that, when a voter has party affiliation for a specific party, he will clearly be very likely to support such party.

It is also interesting to note that the variables Satisfaction with President and Trust President resulted significant for both countries. The negative sign of the coefficients imply that the higher the level of satisfaction/trust from voters, the lower is the probability to either abstain or vote for an opposition party, compared to the ruling parties. Concerning

the perception of voters about the winning possibilities of a party/candidate, the more important this characteristic is for voters in Senegal, the higher is the probability of voting for the opposition parties Pastef and Rewmi with respect to BBY. On the contrary, for voters in Honduras, the more important these characteristics of the parties/candidates are, the lower is the probability that they will abstain or choose the opposition coalition in comparison with PNH.

The nests in the models were: Government, if the voter supported the incumbent party and Non-Government, if the voter decided to either abstain or choose an opposition party. Furthermore, the significant lambda values (λ) are the nest elasticities (iv:government and iv:non_government). The correlation values ($1 - \lambda$) within the Government nest were 0.6914 and 0.0655 for Senegal and Honduras respectively, and within the Non_Government nest were 0.0747 and 0.0412.

Finally, with the optimal models we estimated the utilities and probabilities. Tables 5 and 6 show the mean probabilities for each alternative and country. For both models the government party is the one with the highest probability of winning the elections.

Table 5: Mean probabilities Senegal

Alternatives	**Mean Probabilities**
Abstention	18.14%
BBY	71.80%
Niang	0.35%
Pastef	4.97%
PUR	1.06%
Rewmi	3.67%

Source: Own estimation

Table 6: Mean probabilities Honduras

Alternatives	**Mean Probabilities**
Abstention	13.57%
PNH	59.56%
PLH	19.97%
Libre + PINU-SD	6.91%

Source: Own estimation

In table 7 we can see the groups of voters with higher tendency to abstain. More precisely, young, as well as, employed people have a greater probability of abstaining in

both countries. Also, in Senegal, women, non-married, non-farmers and educated voters, have lower incentives to cast a vote. Similarly, in most cases, people who less often obtain relevant political and economic information tend to abstain more. Here we could think that less informed voters are less motivated to participate in electoral processes. This, in turn, supports the findings of Feddersen and Pesendorfer [1999], who mentioned that the level of information of the electorate is also determinant regarding the level of participation. In their research, they showed that more informed voters are more likely to vote than their less informed counterparts.

Table 7: Probability to abstain

	Senegal			**Honduras**		
	mean	**mean**	**p-value**	**mean**	**mean**	**p-value**
Men vs Women	16.46%	19.75%	0.0030	13.47%	13.89%	0.8100
Young vs Old	19.09%	16.73%	0.0330	16.03%	12.48%	0.0350
Married vs Other	17.22%	21.67%	0.0029	14.42%	12.97%	0.3300
Employed vs Unemployed	18.25%	14.14%	0.0920	13.86%	7.83%	0.0038
Farmer vs NonFarmer	17.43%	19.59%	0.0700	13.43%	13.70%	0.8500
Educated vs Uneducated	24.00%	17.75%	0.0310	13.81%	13.55%	0.9300
Media (More_Inf vs Less_Inf)	17.08%	20.86%	0.0024	12.57%	19.58%	0.0060
Social Media (More_Inf vs Less_Inf)	22.02%	17.75%	0.0620	12.16%	13.64%	0.6200
Cellphone (More_Inf vs Less_Inf)	16.19%	18.75%	0.0640	10.96%	13.82%	0.1600
Friends and Family (More_Inf vs Less_Inf)	17.31%	22.06%	0.0011	12.58%	16.12%	0.0460
Word of Mouth (More_Inf vs Less_Inf)	17.48%	20.43%	0.0250	13.36%	13.89%	0.7300
Meetings (More_Inf vs Less_Inf)	17.12%	20.10%	0.0082	12.14%	15.28%	0.0340

Source: Own estimation

5.2 Government Performance Indicators

The coefficients estimated with the nested multinomial logit model allowed us to measure the direction of the impact. However, to evaluate the magnitude of such impact, marginal effects had to be calculated. Furthermore, in order to assess the importance of each voting component, the next step was to obtain the relative marginal effects (RME). The estimation of the RME, allows to see how sensitive voters are to changes in each voting motive. Unsurprisingly, as displayed in tables 8 and 9 all voters choose, in general, more non-policy oriented. However, it is worth noting that, in both countries, non-voters tend to choose more policy and non-policy oriented than those who voted for BBY and PNH respectively. Additionally, those who decided not to support the government parties choose more retrospectively oriented.

Table 8: Relative Marginal Effects Senegal

	Government			Government	Non-Government	
	Party	**Abstention**	**p-value**	**Party**	**Party**	**p-value**
Policy	2.20%	3.30%	0.0000	2.20%	1.45%	0.0000
Retrospective	22.22%	6.26%	0.0000	22.22%	29.16%	0.0000
Non-Policy	75.58%	90.44%	0.0000	75.58%	69.39%	0.0000

Source: Own estimation

Table 9: Relative Marginal Effects Honduras

	Government			Government	Non-Government	
	Party	**Abstention**	**p-value**	**Party**	**Party**	**p-value**
Policy	2.39%	3.03%	0.0000	2.39%	1.49%	0.0000
Retrospective	12.66%	6.36%	0.0000	12.66%	19.61%	0.0000
Non-Policy	84.94%	90.61%	0.0000	84.94%	78.89%	0.0000

Source: Own estimation

Governments act accountable when they implement policies serving the needs and desires of voters rather than favoring special interests of lobbying groups or intrinsic policy preferences of politicians. This is achieved when voters make their decision more policy and retrospectively oriented. Accordingly, we estimated accountability indices for both countries and the results in table 10 indicate that, although in general, the electorate does not hold the governments accountable, non-government supporters have a higher accountability index. Therefore, this group of people hold the government more accountable, meaning that, if the governments fail to achieve the goals that they committed to, these voters are more likely to abstain or choose an opposition party in order to punish the bad performance.

Table 10: Accountability indices

	Government Party	**Abstention**	**Non-Government Party**
Senegal	24.42%	9.56%	30.61%
Honduras	15.06%	9.39%	21.11%

Source: Own estimation

Nevertheless, the government in its quest to be reelected might still have incentives to please the interests of special groups at the expense of the majority of voters. This problem

of underrepresentation known as capture is common in electoral processes. To measure the political weight of certain groups of voters, different government capture indices were calculated. In table 11 it is evident that, in most cases, the groups of voters with a higher probability to abstain (see table 7) capture their counterparts. In addition, it is important to highlight that both, in Senegal and in Honduras, abstainers and non-government voters capture those who decided to support the incumbent parties. This implies, that they have a higher political weight and they could put pressure on the governments to choose and implement better policies, if they decided to vote for the latter. On the other side, BBY and PNH would prefer that these groups do not participate in the electoral process due to their higher political weights.

Table 11: Capture indices

	Senegal	**Honduras**
Men vs Women	0.8666	1.0494
Young vs Old	1.0584	1.2421
Married vs Other	0.8935	0.9526
Employed vs Unemployed	1.0711	1.0797
Farmer vs NonFarmer	0.9194	1.0132
Educated vs Uneducated	1.0675	0.9881
Media (More_Inf vs Less_Inf)	0.8389	0.9584
Social Media (More_Inf vs Less_Inf)	1.0619	0.8362
Cellphone (More_Inf vs Less_Inf)	0.8032	0.9708
Friends and Family (More_Inf vs Less_Inf)	0.7926	1.0508
Word of Mouth (More_Inf vs Less_Inf)	0.8441	1.1296
Meetings (More_Inf vs Less_Inf)	0.7930	1.0343
Government Party vs Abstention	0.6480	0.4976
Government Party vs Non-Government Party	0.7514	0.7334

Source: Own estimation

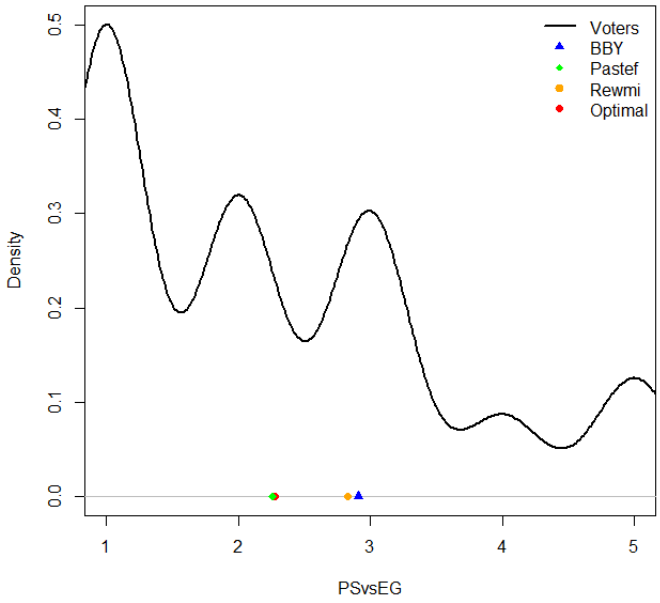
The analysis of the policy component is very important in our research study. Nevertheless, our results have already demonstrated that voters in Senegal and Honduras, choose more non-policy oriented. In this sense, the most relevant non-policy variable in our models was Party Identification. People who abstain usually do not have any party affiliation. On the contrary, people who take part in the electoral process and have PI mostly choose the party towards they have PI. In the case of Senegal, more than 50% of the people who said that would vote, do not have PI. Also, voters tend to lie about their intended vote choice. Therefore, based on the results of our survey compared to the

official election outcome (see table 1), we might presume that most people without party affiliation did not choose BBY, but instead they decided to abstain or vote for an opposition party. On the other hand, in the case of Honduras, approximately 80% of the voters have party affiliation. However, the actual election results show that more than 40% of the people did not cast a vote (see table 2). This supports the findings of Bannon [2003] who stated that having a political preference does not necessarily indicate someone's vote choice, because even voters with a political preference might refrain from voting.

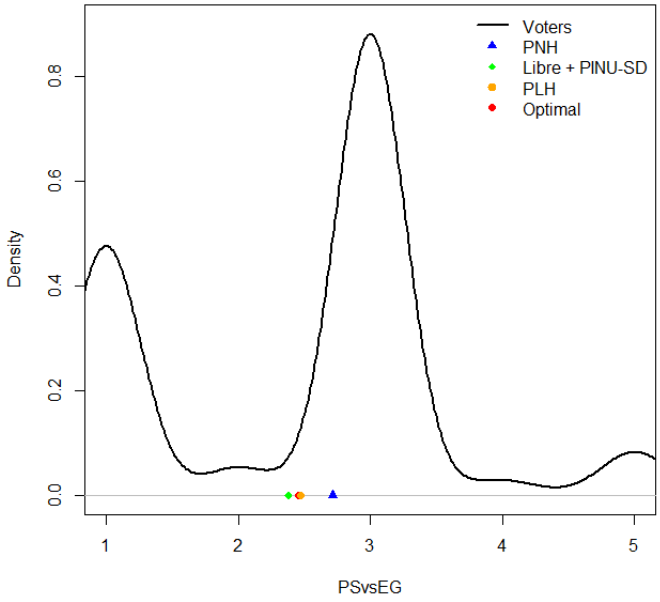
6 Nash Equilibrium

The last stage in our research study was to derive a FOC and a SOC to identify the optimal policy positions (Local Nash Equilibrium) for the issues PSvsEG and FoodvsCash. At these positions, the ruling parties have no incentives to move away from because their probabilities of winning the elections are maximized. In the following Kernel distributions 1 and 3 the optimal policy positions on each issue are displayed, along with the mean perceived policy positions of the main parties and the positions of all voters.

Figure 1: Policy Positions for PSvsEG



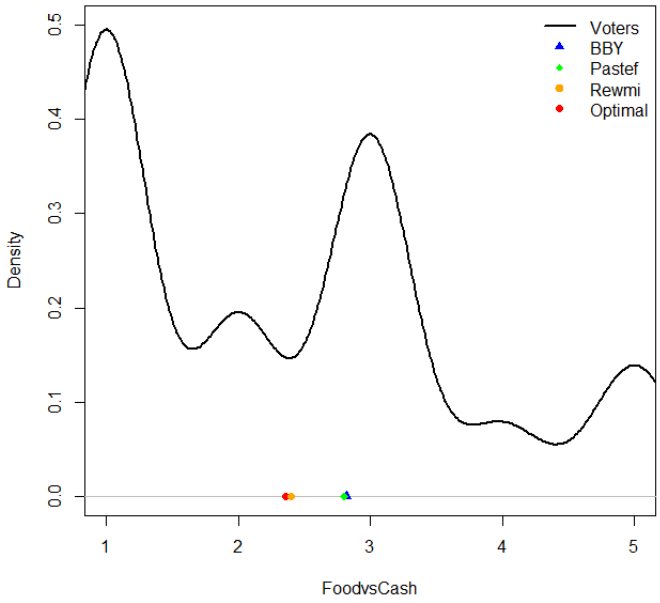
(a) Senegal



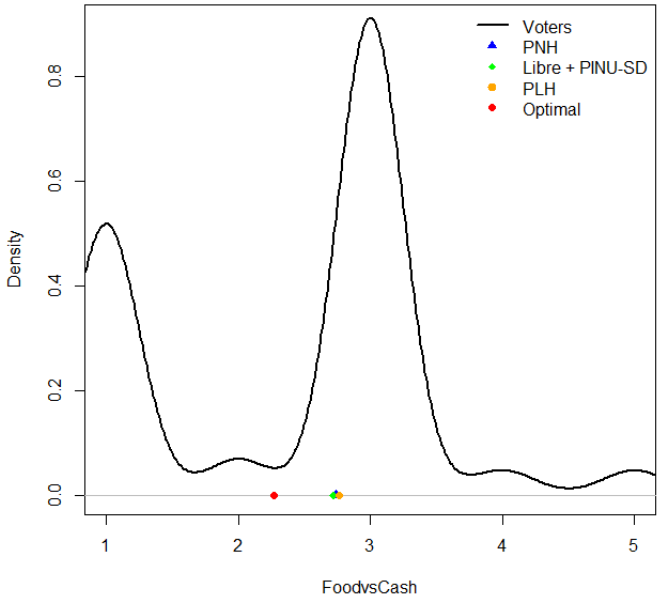
(b) Honduras

Source: Own estimation

Figure 3: Policy Positions for FoodvsCash



(a) Senegal



(b) Honduras

Source: Own estimation

For the incumbent parties BBY and PNH to be on their optimal policy positions for each issue, they have to move to the left in both cases. In other words, regarding the issue PSvsEG, the parties should design and implement policies where tax revenues are mainly used to provide public services like health, education or security, rather than promoting

economic growth. Likewise, concerning the issue FoodvsCash, the ruling parties should promote more policies looking to guarantee food security, instead of securing a greater farm income. Should the parties in power move to the optimal positions, they would increase their probabilities of winning the elections by approximately one percentage point.

On the other hand, it is interesting to highlight the fact that, for Senegal, the main opposition parties are perceived to be closer to the optimal policy position than BBY for both issues. In Honduras, the main opposition parties are closer to the optimal policy position than PNH, but only for the issue PSvsEG. For the issue FoodvsCash, all parties are equally distant from the optimal point. In both countries, this might be an advantage for the opposition parties as they could increase their probabilities of winning the elections, if abstainers decided to participate in the electoral processes.

7 Summary and Conclusions

In order to compare the importance of abstention in presidential elections between Africa and Latin America, data from Senegal and Honduras was analyzed. In both countries, the majority of the population is engaged in agricultural activities. Also, they face problems of corruption and high poverty levels. Both are presidential republics and have relatively stable democracies with multi-party systems. However, they have experienced a decline in the voter turnout over the past elections, which means that the party systems are somehow failing to engage voters in recent years.

In this study we evaluate the factors that influence voting behavior in Senegal and Honduras, as well as, those factors that influence people's decision of abstaining. More specifically, we assess the importance of non-voters in the policy making processes of these countries, to determine if they could motivate the governments to implement efficient policies. For this purpose we estimated nested multinomial logit models including the alternative Abstention in the choice set.

Our results suggest that, for both countries, policy issues, party identification, a variable related to the level of trust that voters have on the incumbent, their level of satisfaction with the performance of the president, as well as, their perception about the winning possibilities of a candidate/party are important when making an electoral decision. The estimations point at the ruling party of each country as the winner. We also found that, overall, voters with higher tendency to abstain are mostly young and employed people. Similarly, less informed voters are less motivated to participate in electoral processes. Additionally, in Senegal, women, non-married, non-farmers and educated voters, have lower incentives to cast a vote.

The evidence shows that most people have a tendency to make their decision more non-policy oriented. However, it is worth noting that non-voters tend to choose more policy and non-policy oriented than those who voted for BBY and PNH respectively. In addition,

those who decided not to support the government parties choose more retrospectively oriented than their counterparts. Further, despite the fact that the accountability indices are quite low in both cases, those who do not support the incumbent hold the government more accountable. Therefore, if governments fail to achieve the goals that they committed to, these voters are more likely to abstain or choose an opposition party to punish the bad performance. Moreover, abstainers and non-government voters capture those who decided to support the incumbent parties. This implies, that they have a higher political weight and they could put pressure on the governments to choose and implement better policies, if they decided to vote for the latter. On the other side, BBY and PNH would prefer these groups not to participate in the electoral process due to their high political weights.

Regarding the non-policy component, the most relevant variable in our models was Party Identification. People who abstain usually do not have any party affiliation. In the case of Senegal, more than 50% of the people who said that would vote, do not have PI. Therefore, since voters tend to lie about their intended vote choice, we might presume that most people without party affiliation did not choose BBY, but instead they decided to abstain or vote for an opposition party. On the other hand, in the case of Honduras, approximately 80% of the voters have party affiliation. However, the actual election results show that more than 40% of the people did not cast a vote. This suggests that even voters with a political preference might refrain from voting.

The next stage in our study was to identify the optimal policy positions (Local Nash Equilibrium) for the policy issues, where the governments maximize their probability of winning and have no incentives to move away from. Here, we observed that the main opposition parties are perceived to be closer to the optimal policy positions than the parties in power for both issues in the case of Senegal and for the issue PSvsEG in the case of Honduras. This might be an advantage for the opposition parties as they could increase their probabilities of winning the elections, if abstainers decided to participate in the electoral processes.

In conclusion, we can no longer affirm that people decide to abstain just because the act of voting is inconvenient and time-consuming, or that they decide to cast a vote because it is merely a civic duty. In these two developing countries, there are other factors that voters take into account when they decide to either vote or abstain, like their level of satisfaction with the performance of the president. Moreover, we found that less informed voters seem to be less motivated to cast a vote. In addition, the incumbent is held more accountable when all non-government supporters are considered. This means that they are important for the political process and, therefore should be taken into account. Furthermore, since in both countries, the incumbents' voters are being captured by all other groups within the electorate, we could conclude that abstainers, as well as, those who have chosen an opposition party/candidate can motivate the incumbent to choose the policies that

better match the specific country needs in order to reduce poverty and undernutrition and promote economic growth. We could also say that, voters in Senegal and Honduras behave similarly and seem to punish the bad performance of the government, not only by voting for an opposition party, but also by abstaining. Finally, our findings suggest that BBY and PNH could increase their probabilities of being re-elected, if they choose policies that are more left oriented.

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