Candidate Nomination Procedures and Political Selection: Evidence from Latin America*

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Abstract

This paper explores empirically the role of party nomination procedures in political selection. Using a new data set of Latin American parties, I find evidence of a positive relationship between the use of primaries, electoral performance and quality of government. I interpret these results as evidence of primaries improving political selection. To address relevant identification concerns, I use an instrumental variable approach based on determinants suggested by a model of endogenous primaries, which I test on the data. The results highlights a channel for inter-party political competition to improve political selection by creating incentives to adopt democratic nomination procedures.

Keywords: political selection, party primaries, quality of government.
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1 Introduction

Political parties are considered one of the key political actors in modern democracies. They create a link between voters and politicians and provide the organizational infrastructure needed to enter and participate in political life (Hazan and Rahat, 2006; White, 2006). However, despite their role as gatekeepers of the political arena, little is known about the effect of party institutions on political selection and the implications for economic and policy outcomes (Besley, 2005).

This paper explores empirically the relationship between internal party nomination procedures and the quality of politicians. It uses a new data set of Latin American political parties containing detailed information on the procedures used to select presidential candidates, electoral outcomes and politicians' characteristics. This data is complemented by several measures of quality of government at the country level.

The main empirical challenge in addressing this research question is the presence of omitted variables which might drive both policy outcomes and institutional party decisions. In most countries, parties are free to choose a nomination procedure and hence it may be endogenous to the political process itself (Katz, 2001; Serra, 2007). To address this concern, I first develop a model to understand a party's decision to adopt a particular nomination procedure. Then I test the model predictions on the data and use the suggested institutional determinants as instruments for the observed candidate nomination procedure.

In the model, more democratic nomination procedures - such as party primaries - provide party members with the option of replacing the incumbent candidate with a better politician and enhance the party electoral performance. They can do it because they have inside information and observe the quality of the politicians. The cost of adopting primaries comes from the possibility of replacing the incumbent leader, to whom party members may have a loyalty attachment.[1]

The model predicts that primary-nominated candidates will obtain higher

[1]The model stresses the role of primaries as selection devices in presence of perfect information within the party. Complementary explanations focus on the signalling or screening role of primaries. For example Meirowitz (2005) develops a model in which primaries offer voters an early opportunity to signal their preferences to candidates. Serra (2007) proposes a model of endogenous primary adoption in which parties use primaries as devices to obtain information about the campaigning skills of candidates.

vote shares and have a better expected quality than candidates selected in less contested procedures, like nomination by a party leader. Regarding primary determinants, the model predicts that inter-party political competition increases the likelihood of adopting primaries. However, the effect of political competition is attenuated by the incumbency advantage, which in the model comes from the loyalty bias of party members.

I test the model predictions in three steps. First, I exploit within-party variation to evaluate the determinants of primary adoption. I find a positive and significant relationship between measures of political competition and the likelihood of primary adoption. This effect becomes insignificant when the candidate is also the party founder. I interpret this finding as evidence of the incumbency advantage offsetting the incentives created by political competition.

Second, I explore the relationship between nomination procedures and electoral performance. I find evidence that primary-nominated candidates obtain a larger vote share. On average, the increase in vote share is 6% - a sizeable gain considering that the average vote share is 33%. This result is similar to previous studies in Latin America (Carey and Polga-Hecimovich, 2006). More interestingly, the vote premium is decreasing in the size of the party - measured as the seat share obtained in legislative elections. Following the model, I interpret these findings as evidence of primaries improving the candidate's quality and attracting non-partisan voters.

Finally, I investigate the relationship between selection methods and quality of government using a sample of appointed presidents. The empirical strategy exploits between-party variation and uses an instrumental variables approach to address relevant identification concerns. Based on the model and on the empirical results of primary determinants, I use political competition, the status of a candidate as party founder and the interaction term as instruments for the nomination procedure used by the president's party. For measures of the quality of government, I use assessments of government efficiency (e.g. corruption and bureaucracy quality), measures of the size of the public sector and economic outcomes such as real income per capita and the growth rate of the economy.

I find robust evidence of systematic differences in government performance associated with the nomination procedure used to select the ruling president. In particular, during the mandate of primary-nominated presi-

dents there is an improvement of more than one standard deviation in the measures of government efficiency, real income per capita and government revenues. However, I find no evidence of a significant effect on the growth rate of the economy.

Taken together, these results support the claim that parties - through the choice of more democratic nomination procedures - can improve political selection. The quality differences do not only translate into better electoral performance, but seem also to affect government efficiency and economic outcomes.

This paper contributes to the literature on political selection. This literature stresses the role of formal compensation as a factor to attract good politicians. For example, Caselli and Morelli (2004) argue that low rewards from office attract low-quality citizens and deteriorate the quality of the pool of available politicians. Ferraz and Finan (2009) exploit a quasi-experiment in Brazil and find evidence that increase on wages improve the observable quality of legislators and measures of performance. Besley et al. (2005) find evidence in U.S. consistent with the argument that parties respond to political competition by improving the quality of their candidates. However, to the best of my knowledge there are not empirical studies relating party nomination procedures to the quality of politicians.

This paper also contributes to the literature on primary adoption. Similar to the argument proposed in this paper, this literature emphasizes the trade-off between the cost of increasing internal competition and the benefits of improving electoral performance. There are, however, very few empirical studies of primary determinants. For example, Castanheira et al. (forthcoming) develop a model in which the quality of the party platform depends on a candidate's effort. In their view, primaries provide a better signal to voters and enhance the pool of candidates the party can choose from, but they reduce candidates' incentives to improve the policy platform. The cost of adopting primaries are augmented by inter-party political competition and internal ideological polarization. Serra (2007) proposes a model in which primaries help party leaders to assess the candidates' campaigning skills but may be costly by inducing candidates to adopt extreme ideological views. Lundell (2004) evaluates empirically the determinants of candidate selection methods using a cross section of political parties in developed countries. He finds that smaller parties -measured by the vote share in the previous

election- tend to adopt more decentralized selection methods. This result is consistent with my empirical findings.

The rest of the paper proceeds as follows. Section 2 presents some background on Latin America parties and candidate selection methods. Section 3 develops the analytical framework. Section 4 explores the determinants of primary adoption. Section 5 uses the insights from the previous sections to evaluate the effect of candidate selection methods on the quality of government. Section 6 provides some concluding remarks. All proofs are in the Appendix.

2 The Latin American Case

Latin American democracies share many institutional and historical features.[2] Their colonial heritage is reflected in their language and their legal institutions. They all have civil law systems, proportional electoral systems and strong presidential governments in which the executive plays a central role in shaping national politics.[3]

Since the late 1970s, most Latin American countries have experienced a new wave of democratization. The transition to democracy was not uniform, and in same cases it was delayed several years. For example, Guatemala's first elections after the military junta lead by Efrain Ríos Montt were held in 1986, while post-Pinochet Chile started having contestable elections again in 1990. After returning to democracy, most of the power transitions have been peaceful and have involved contested elections (Valenzuela, 2004). There have been some cases of limited democracy, but they have been more the exception than the rule. For example, during late 1990s, Ecuador suffered a series of coups and military-appointed presidents. In Peru, democracy deteriorated considerably during the 1990s after Alberto Fujimori took power, and the 2000 presidential elections were tainted by suspicions of rigging.

Latin American political parties have used different methods to nominate presidential candidates. The procedures have ranged from nominations by party leaders and conventions to party primaries (Alcántara Sáez, 2002). This institutional heterogeneity makes Latin America an interesting testing ground for the effect of party institutions on political selection. The use of

[2]In defining Latin America, I only consider sovereign countries where Spanish or Portuguese is the official language.

[3]The only exception is Chile which uses a majoritarian system

primaries has increased over time, in particular during the 1990s (see Figure 1). However, their adoption has been partial, with only some parties using primaries in a given election (see Table 1). In practice, this means that in a given election, not all candidates are primary-nominated.

There is also variation in the institutional setup within parties. It is possible to observe parties switching nomination procedures between elections. In Argentina, for example, the *Unión Cívica Radical* (UCR) used primaries in the presidential elections of 1989, 1995 and 2003, but not in 1999. In contrast, the *Partido Justicialista* (PJ) used primaries only in 1989, but stopped using them afterwards. In Mexico, the *Partido Revolucionario Institutional* (PRI) started holding primaries in 2000. Before that, the candidate was directly nominated by the incumbent president.

In most countries there is no legal requirement to use primaries or any specific nomination procedure (Alcántara Sáez, 2002; Freidenberg, 2003). Only recently have some countries like Uruguay, Paraguay and Panama included a legal obligation to use primaries in their electoral legislation. However, this requirement has not been fully enforced (see Table 1). In practice, choosing the selection method has been a party decision. This endogeneity of primary adoption confounds the evaluation of the relationship between parties' nomination procedures and economic and electoral outcomes.

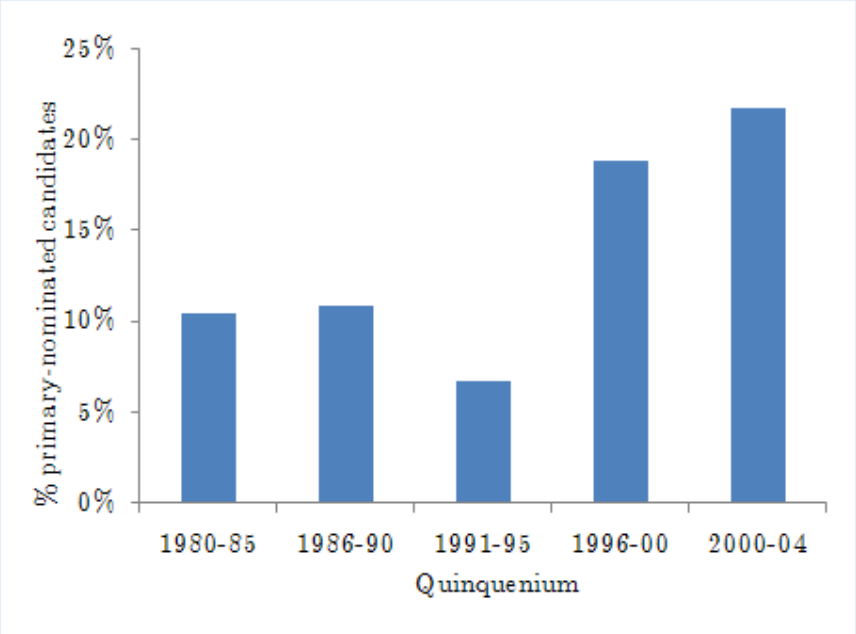
Table 1: Use of Primaries to Nominate Presidential Candidates

Country	Legal obligation	Use of primaries in practice
Argentina	No	Partial (1989, 1995, 1999, 2003)
Bolivia	Yes, since 1999	No
Brazil	No	Partial (2002)
Chile	No	Partial (1993, 1999)
Colombia	No	Partial (1978, 1986, 1990, 1994)
Costa Rica	Yes	Partial (1978, 1982, 1986, 1998, 2002)
Dominican Rep.	No	Partial (1982, 1986)
Ecuador	No	No
El Salvador	No	Partial (2004)
Guatemala	No	Partial (2003)
Honduras	Yes	Partial (2001)
Mexico	No	Partial (2000)
Nicaragua	No	Partial (1996, 2001)
Panama	Yes, since 1997	Partial (1999)
Paraguay	Yes, since 1996	Partial (1993, 1998, 2003)
Peru	No	No
Uruguay	Yes, since 1996	All parties (1999, 2004), partial (1989)
Venezuela	No	Partial (1978, 1993)

Notes: 'Partial' means that only some parties used primaries. The year of the presidential election in which primaries were used appears in parentheses. The sample considers presidential elections in Latin America during the period 1978-2004.

Sources: Alcantara (2002), Freidenberg (2003) and Carey and Polga-Hecimovich (2006)

Figure 1: % primary-nominated candidates, by quinquennium



3 Analytical Framework

The aim of this section is to develop an analytical framework to guide the empirical exercise. Motivated by the Latin American cases, it treats the candidate selection method as an endogenous outcome and links it to electoral incentives and party characteristics. In the empirical section, I use the model's insights about why parties adopt a particular procedure to identify the relation between nomination procedures, electoral performance and quality of government.

Consider a political party whose only role is to nominate a candidate to run in a presidential election. The party is composed of a rank and file and professional politicians, one of them acting as the party leader. In the status quo, the party leader is also the party candidate.[4] However, the final decision depends on the selection method chosen by the party.

The party members can choose between two alternative nomination procedures: a caucus or a primary. In a caucus, the status quo is maintained

[4]This status quo is equivalent to a situation with an office-seeking leader in charge of party nomination.

and the leader is ratified as the party candidate. In contrast, in a primary the leader's nomination is challenged by a randomly selected party politician and the rank-and-file then chooses the party candidate from both contestants. The main difference between both procedures is the degree of participation by the party members and the degree of contestability. Specifically, primaries provide the option for the rank and file to challenge the status quo and to replace the incumbent candidate.[5]

Politicians behave as office seekers maximizing only their probability of holding office. This happens, for instance, if the benefits of holding office are sufficiently high. I abstract from enforceability concerns by assuming that all the politicians affiliated with a party can credibly commit to implementing the party's preferred ideology.[6]

Politicians are heterogenous and differ in terms of their quality q_i which is uniformly distributed on the support $[0, 1]$. The quality of the party leader q_l is exogenously determined. Following Caselli and Morelli (2004) and Besley (2005), I interpret quality as honesty or competence, but it can reflect any characteristic valued by all voters regardless of their political ideology.[7]

The rank and file is composed of heterogenous risk-neutral individuals. They have a common interest in maximizing the party candidate's vote share but differ on their degree of loyalty or attachment to the party leader. In particular, their utility is increasing in:

$$v + \sigma_i + \delta \tag{1}$$

where v is the party vote share, σ_i is a party member's i individual attachment toward the leader and δ is a common popularity shock. I assume that both parameters are non-negative and $\sigma_i \sim U\left[0, \frac{1}{\psi}\right]$ while $\delta \sim U\left[0, \frac{1}{\phi}\right]$. In this model, the party leader enjoys an incumbency advantage since the rank and file has some degree of loyalty toward her. In turn, this feature makes it more difficult to replace her as party candidate.

Like Besley et al. (2005), I introduce inter-party political competition by

[5]These nomination procedures resemble the procedures used in most Latin America cases. In particular, *primary* refers to closed primaries in which only party members can vote, while *caucus* refers to the less inclusive method in which the party leader (or group of leaders) decides the nomination.

[6]A possible motivation for this assumption is that politicians choose to join a party that shares their preferred ideology, as in Snyder Jr. and Ting (2002).

[7]In the political science literature, this concept of quality corresponds to valence.

considering two types of voters: partisan and non-partisan. Partisan voters have a preference bias towards the party's ideological stance, although they do not participate in party decisions. For simplicity's sake, I assume that the ideological bias is strong enough for partisan voter always to prefer voting for the party candidate. In contrast, non-partisan voters care only about the president's quality. The proportion of partisan voters is $\lambda \in (0,1)$ and I define the political competition faced by the party as $(1-\lambda)$.

Politician's types are perfectly observed inside the party, but only imperfectly observed by voters. The underlying assumption is that party members have inside information due to more frequent social interaction or more personal contact with party politicians. During the electoral campaign voters observe the candidates' types with probability ρ. With complementary probability they remain completely uninformed about politicians' types and the party's selection method.

There are neither re-elections nor inter-temporal decisions in this model and all individuals live for one period. These assumptions diverge from previous models where parties are long-lived organizations (Alesina and Spear, 1988; Harrington, 1992), but they allow us to focus on the role of political competition and nomination procedures rather than reputation, re-election incentives or commitment devices.

The timing of the game is as follows:

1. (Party constitution) Both σ and δ are realized, and the rank and file observe q_l and vote between adopting a primary or a caucus.

2. (Candidate selection) The party nominates its candidate using the chosen selection method. Simultaneously, the opposition party nominates a random politician to run in general elections.

3. (General election) Voters observe the types of both candidates with probability ρ and cast their votes.

The equilibrium concept is sub-game perfect Nash equilibrium and the game can be solved using backward induction.

General election Let us denote the quality of the candidate from the party as q_p, and the quality of the opposition party' candidate as q_p^o. Due to the strong ideological bias, partisan voters will always vote in favor of the

party, but non-partisan voters will only vote for the party if $q_p > q_p^o$. The tie-breaking rule is tossing a coin.

Given these responses, the expected vote share the party candidate can obtain conditional on q_p before the election is

$$v(q_p) = \rho[q_p + (1 - q_p)\lambda] + (1 - \rho)\left(\frac{1+\lambda}{2}\right) \tag{2}$$

where I use the property that $\Pr\left(q_p^o < q_p\right) = q_p$. Note that the candidate's vote share is increasing in both q_p and λ, reflecting the two sources of votes: non-partisan voters attracted by a high quality candidate and the support of ideologically motivated voters.

Candidate selection When the party uses a caucus, the incumbent leader is the default candidate and thus $q_p = q_l$. In contrast, in a primary the incumbent leader faces a randomly drawn challenger with quality q_c and the nomination is decided by the rank and file.

From equation (1) we obtain the condition for a party member to prefer the challenger:

$$v(q_c) > v(q_l) + \sigma_i + \delta \tag{3}$$

where $\sigma_i + \delta \geq 0$. Since $v(\cdot)$ is increasing in q_p, condition (3) implies that $q_p \geq q_l$. Thus a party member will only vote to replace the leader as the party candidate if the quality of the challenger is sufficiently high.

In order to avoid a corner solution I assume that:

Assumption 1 $\frac{1}{2\psi} + \frac{1}{\phi} < \rho(1 - \lambda)(1 - q_l)$

This assumption states that the loyalty of party members towards the party leader is not too large. It guarantees that there is always a value of q_c such that even a leader with a maximum popularity shock can be replaced if a challenger of sufficiently high quality appears.

Let $\Delta q \equiv Eq_p - q_l$ represent the expected quality gains from using a primary. Then under assumption 1, we can prove that:

Proposition 2 *Primaries improve the expected quality of the party candidate ($\Delta q > 0$). The expected gains in quality are decreasing in q_l.*

Proposition 3 *A primary-nominated candidate has a higher expected vote share. The expected vote premium is* $\rho(1-\lambda)\Delta q$ *which is decreasing in the size of partisan voters* λ

These findings highlight the role of primaries as an option for party members to improve the quality of incumbent candidates. In this setup, the desire of the rank-and-file to appeal to non-partisan voters and increase the party's vote share creates incentives to enhance candidate selection. The expected electoral benefit from using primaries increases when the partisan support (λ) is smaller, since attracting non-partisan voters becomes more important for the party's success. However, the gains from political selection are smaller when the incumbent leader is already of high quality.

Party constitution At the first stage, the rank-and-file vote between adopting a primary or adopting a caucus. A party member prefers a primary if:

$$v(Eq_p) > v(q_l) + \sigma_i + \delta \tag{4}$$

Note that party members with a strong attachment to the party leader prefer not to adopt a primary because of the possibility that the leader will be replaced.

Replacing (3) in equation (4) we can identify the party member indifferent between a primary and a caucus:

$$\overline{\sigma} = \rho(1-\lambda)\Delta q - \delta > \sigma_i$$

Given the distributional assumption about σ_i and δ, the proportion of party members preferring a primary is:

$$\pi_p = \psi\overline{\sigma}$$

while the probability of primary adoption p is:

$$p = \Pr\left(\pi_p > \frac{1}{2}\right) = \phi\left[\rho(1-\lambda)\Delta q - \frac{1}{2\psi}\right] \tag{5}$$

Expression (5) reflects the cost and benefits of using a primary. On the one hand, the leader may be replaced by a better candidate. This is costly for party members who have an attachment or loyalty towards her. For that

reason, the probability of primary adoption is decreasing in $\frac{1}{2\psi}$, the average loyalty towards the leader.

On the other hand, primaries provide the option of improving the quality of the party candidate and attracting non-partisan voters. In that case, the party obtains an electoral benefit $\rho(1-\lambda)\Delta q$, which increases with political competition but decreases with the quality of the party leader. Thus, primaries are more likely when the party faces high political competition or when the quality of the party leader is relatively low.

Both benefit and cost are scaled up by ϕ, the density of the popularity shock δ. We can interpret this parameter as an inverse measure of the incumbency advantage. To see this, note that the expected bias of the median party member towards the leader before the popularity shock is $\frac{1}{2\psi} + \frac{1}{2\phi}$. Thus everything else equal, the higher the values of ϕ, the smaller the leader's incumbency advantage.

Calculating comparative statics from (5), we can summarize the effect of political competition on primary adoption:

Proposition 4 *Political competition increases the probability of primary adoption. The effect of political competition is decreasing in the leader's incumbency advantage.*

Propositions 2, 3 and 4 summarize the model's main empirical predictions. They formalize the argument that political competition increases the need to attract non-partisan voters and also creates incentives to adopt quality-enhancing procedures such as contestable internal elections. A direct implication of this model is that primary-nominated candidates obtain larger vote shares and are of better quality. However, the incentives from political competition can be attenuated by the incumbency advantage, which in the model comes from the loyalty of party members towards the party leader.

4 Choosing a Nomination Procedure

In this section, I explore empirically the determinants of adopting a particular nomination procedure using a data set of Latin American political parties. Following the model's insights, I focus on the role of political competition and incumbency advantage as the main explanatory variables. In

the next section I use these primary determinants as instruments to identify the effect of nomination procedures on the quality of politicians.

4.1 Data

I use a panel of political parties from 17 Latin American countries. The unit of observation is the party's presidential candidate identified by both party name and electoral process. The data set includes only contested elections held during the period 1978 to 2004.

For each party, I have information about the method used to select its candidate in each presidential election. The data on nomination procedures comes from Carey and Polga-Hecimovich (2006). I extent it with data on electoral outcomes and party characteristics from the Political Database of the Americas as well as the websites of the parties in the sample.[8]

The data set excludes some cases. First, I consider only parties that obtained a vote share in presidential elections higher than 5% and which were among the top four runners up. The reason for this exclusion is that many Latin American democracies have multi-party systems with a plethora of parties, some of them very small. These smaller parties may not have an office-seeking motivation but may pursue other political objectives. This different strategic behavior may affect the motivations for adopting primaries and the parties' responsiveness to political competition. Second, I also exclude cases of presidents seeking immediate re-election. The reason for this exclusion is that in Latin America, presidential re-election is very rare and requires constitutional changes. Thus these cases may reflect abnormally popular or influential politicians.[9]

In total, the sample consists of 47 political parties that participated in at least two elections (See Table 2). The number of candidates selected by the parties in the sample is 179, which implies that, on average, I observe 3.8 candidate selection processes per party. The sample represents 73% of the votes cast in presidential elections during the period of analysis, and covers a significant proportion of the parties and candidates participating in presidential elections.

[8] See Appendix B for further details on variables' definitions and data sources.

[9] In the period of analysis, there are four cases of incumbent presidents seeking re-election: Alberto Fujimori (Peru), Hugo Chávez (Venezuela), Carlos Menem (Argentina) and Henrique Cardoso (Brazil). All four presidents were re-elected.

Table 2: Dataset of Political Parties

Country	Nr. Electoral processes	Nr. Parties	Nr. Candidates	Cumulative % vote share
Argentina	5	3	9	0.60
Bolivia	5	4	16	0.68
Brazil	4	2	7	0.53
Colombia	7	2	13	0.76
Costa Rica	7	3	14	0.91
Dominican Rep.	8	3	23	0.93
Ecuador	7	4	14	0.44
El Salvador	5	3	12	0.87
Guatemala	5	4	11	0.57
Honduras	5	2	10	0.96
Mexico	2	2	4	0.79
Nicaragua	3	2	5	0.76
Panama	3	2	5	0.57
Paraguay	4	2	7	0.72
Peru	5	4	10	0.59
Uruguay	4	3	11	0.89
Venezuela	4	2	8	0.80
Total	83	47	179	0.73

Notes: Sample considers only candidates from top four parties running in contested elections in the period 1978-2004. Sample excludes presidents running for immediate re-election and candidates who obtained less than 5% of the vote share.

Candidate selection methods I classify the selection methods as follows: primary and non-primary. Primary includes both open and closed primaries. In contrast, non-primary includes less democratic methods such as party conventions and nominations by party leaders. It corresponds to the *caucus* procedure defined in the analytical section.

The type of selection method used by a party in a given election is captured by the variable *primary*, a binary variable equal to 1 if the party used a primary and 0 otherwise. The variable *primary* exhibits variations both between and within parties. I exploit this feature of the data in the empirical exercise. In addition, I construct binary variables to indicate if the party used a primary in the previous presidential election and whether other parties used primaries in the same electoral process.

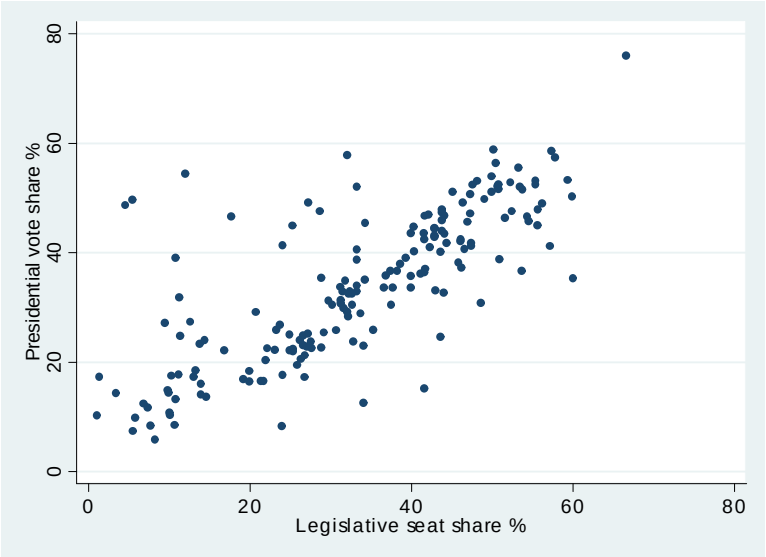
Political competition I construct measures of inter-party political competition at the party level. Recall that in the model, the political competition faced by a party $(1 - \lambda)$ is inversely related to the size of its partisan support. To obtain a proxy for the size of partisan voters, I use the outcome of legislative elections. In the countries studied, the legislative and presidential elections are separated electoral events, even though both elections may occur simultaneously. The vote share obtained by the presidential candidate and the proportion of parliamentary seats obtained by a party (seat share) are highly correlated, but not identical (see Figure 2).

Using seat share as a proxy for partisan support, I define political competition faced by party i in presidential election j as $\widehat{t_j} - seat\ share_{ij}$ where *seat share* is the proportion of parliamentary seats obtained by the party in the legislative election held simultaneously or immediately before the presidential election. In the case of bi-cameral parliaments, I use the proportion of seats in the lower chamber (*Cámara de Diputados*). $\widehat{t_j}$ is the second highest seat share obtained by any party in that legislative election.

This measure of political competition captures the size of partisan support relative to an election-specific threshold $\left(\widehat{t_j}\right)$ and is easily derived from the model's definition of political competition.[10] Intuitively, the reason for using the second highest seat share as a threshold is that under majority rule, a candidate needs at least as many votes as the second runner up to win the election.

[10]For a formal derivation of the index of political competition, see Appendix C.

Figure 2: Vote share and seat share



The proposed measure resembles the Ranney Index, a widely used index of political competition (King, 1989), but differs in two aspects. First, it measures distance to an election-specific threshold, while the Ranney index measures distance relative to 0.5. Second, it uses only legislative seat share, while the Ranney Index also includes other electoral results.[11]

Incumbency advantage I use the variable *founder* as a proxy for the candidate's incumbency advantage. This variables is a binary indicator equal to 1 if the candidate was one of the party founders, and 0 otherwise. The rationale for using this variable is that party founders may have a particular charisma, popularity or reputation which facilitated their creation of a new party. These same characteristics may give them a political advantage inside the party. In terms of the model, being a party founder would correspond to having a small ϕ.

There is anecdotal evidence suggesting that party founders enjoy a greater

[11] In American politics, the Ranney Index is constructed using the proportion of seats in the lower and upper chambers of the state legislature held by the Democratic party, the Democratic proportion of the gubernatorial vote, and the proportion of terms of office for governor and each chamber of the state legislature during which the Democratic party had control (King, 1989). An index of political competition based on the Ranney Index (RI) is of the form $1 - |RI - 0.5|$.

ability to influence party constitutions. For example, in the Dominican Republic, Joaquín Balaguer created the *Partido Reformista Social Cristiano* (PRSC) and controlled it throughout his lifetime, resisting internal pressures to democratized the party. In Peru, Alberto Fujimori changed his party's name several times and was able to control it even during his exile in Japan. In a more extreme case, a politician can create a party to support his own candidacy and accommodate party institutions to that purpose. That is the case of Hugo Chávez, who founded the party *Movimiento V República* in 1997 to back his presidential campaign. A similar case is the one of Álvaro Uribe, Colombia's current president, who first ran for president in 2002 with the *Colombia Democrática* (CD), a party he created after separating from the *Partido Liberal* (PL).

Table 3 presents some summary statistics. In the sample, we see that around 17% of presidential candidates were primary-nominated. The average candidate obtained around 34% of the votes and a similar proportion of parliamentary seats. Elections involved several parties, average one having as many as nine presidential candidates. However, as previously mentioned, I consider only the four largest parties in each election. There is a significant proportion of party founders politically active. Around 30% of candidates in the sample were also party founders. Note that there is within-party variation on all the variables.

Table 3: Summary Statistics

Variable	Obs.	Mean	Standard Deviation	
			Overall	Within party
Sample of political parties				
Primary	179	0.168	0.375	0.277
Primary in previous election	174	0.115	0.320	0.257
Primary any other	179	0.223	0.418	0.298
Seat share	179	0.335	0.152	0.098
Vote share	179	0.340	0.139	0.095
Political competition	179	-0.032	0.131	0.099
Founder	179	0.291	0.455	0.251
Number of candidates	179	9.587	4.835	3.262

4.2 Primary Determinants

The model suggests that the likelihood of using a primary increases with political competition. Additionally, the model predicts a heterogenous effect with the effect of political competition decreasing in the leader's incumbency advantage (Proposition 4).

To test these hypotheses, I estimate the following model:

$$\begin{aligned} primary_{ij} = \alpha_1 X_{ij} + \alpha_2 (X_{ij} \times founder_{ij}) + \\ \alpha_3 founder_{ij} + \alpha_4 \mathbf{W}_j + \eta_i + \varepsilon_{ij} \end{aligned} \tag{6}$$

where $primary_{ij}$ is the selection method used by the party i in the presidential election j, X_{ij} is the measure of political competition, $founder_{ij}$ is the proxy for the leader's incumbency advantage, $\mathbf{W}_j$ is a set of control variables and η_i is the party fixed effect. Note that the hypotheses stated in proposition 4 imply $\alpha_1 > 0$ and $\alpha_2 < 0$.

This specification exploits within-party variation and controls for time-invariant party characteristics. The identification of the effect of political competition on primary adoption comes from the comparison of the same party in different elections.

Table 4 presents the estimates of the baseline specification using a linear probability model. It includes as additional control variables a post-1990 dummy to capture the increased use of primaries and a dummy variable indicating whether other parties used primaries (*primary any other*). I cluster the standard errors by political party to correct for any serial correlation in the party use of a nomination procedure.

Column (1) shows the results without the interaction term. Consistent with the model predictions, there is a positive and significant correlation between political competition and primary adoption. This result highlights the importance of electoral incentives in the adoption of a candidate selection method. Column (2) explores the heterogenous effects of political competition by including the interaction term with $founder$. In this case, the estimate of α_2 is negative and significant, but the correlation with political competition alone (α_1) becomes insignificant. The differences on the effect of political competition by $founder$ are relevant. In particular, the effect of political competition is positive only when the candidate is *not* the party founder. This finding sheds light on the internal mechanism for adopting

primaries and suggests that the incumbency advantage may attenuate the electoral incentives created by political competition.

Column (3) estimates the baseline model restricting the sample to parties older than 10 years. The results are similar to the ones using the full sample and reduce concerns that $founder$ is picking up other characteristics associated with young parties that may hinder their ability to implement primaries, such as lack of organizational infrastructure, knowledge or financial resources. In all the cases, the probability of using a primary is larger if other parties are also using it. This result may indicate some strategic complementarities between parties or the existence of common factors driving the party decisions.

A first identification concern is the presence of omitted variables. In particular, the model suggests that the quality of the leader (q_l) is positively correlated with primary adoption. However q_l is unobserved and omitted in the regression.[12] This omission confounds the identification of the causal effect of political competition on primary adoption to the extent that q_l is correlated with the explanatory variables. To address this concern, the empirical specification includes party fixed effects. Under the assumption that any relevant omitted variable is time-invariant, the estimates would capture a causal relationship between political competition and primary adoption.

A second concern is reverse causality between primary adoption and the measure of political competition. For example, a party adopting a primary may increase its partisan support and obtain a larger seat share, in turn reducing the index of political competition. However in this case we could expect a downward bias on the estimates of α_1, which would make the obtained results even more conservative.

Table 5 presents the estimates of the baseline regression using alternative measures of political competition. In columns (1) and (2), I use 100% as a threshold $\widehat{t}$ instead of the second highest seat share. The resulting index more closely resembles the Ranney Index. In columns (3) and (4), in addition to changing the threshold, I replace the contemporaneous value of seat share with the value associated with the previous presidential election. In all cases, the results are similar to the baseline regressions.

[12]Other possible omitted variables stressed in the literature of primary determinants include party ideology and organization.

Table 4: Determinants of Primary Adoption

	(1) Primary	(2) Primary	(3) Primary
Political competition	0.453	0.714	0.901
	(0.261)*	(0.324)	(0.356)
Political competition		-0.888	-1.008
× founder		(0.344)**	(0.420)**
Founder	0.009	0.034	0.055
	(0.033)	(0.028)	(0.051)
Primary any other	0.237	0.249	0.232
	(0.099)**	(0.099)**	(0.103)**
Sample	Full	Full	Age>10 years
Observations	179	179	147
Number of parties	47	47	40
R-squared	0.09	0.11	0.12

Notes: Robust standard errors in parentheses. Standard errors are adjusted for clustering at party level. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include a post-1990 dummy. The measure of political competition is the second highest seat share in an election minus the party seat share. Column (3) uses a sub-sample of parties older than 10 years.

Table 6 presents the results of a falsification test. I use specification (6), replacing the dependant variable by its lagged value (*primary in previous election*). This variable adopts the value 1 if the party used a primary in the previous election, and 0 otherwise. In contrast to the baseline results, the effect of political competition is insignificant.

Table 5: Alternative Measures of Political Competition

	(1) Primary	(2) Primary	(3) Primary	(4) Primary
Political competition	0.481	0.754	0.358	0.607
	(0.253)*	(0.304)**	-0.221	(0.297)**
Political competition		-0.860		-0.688
× founder		(0.332)**		(0.323)**
Founder	0.016	0.636	-0.002	0.529
	(0.032)	(0.250)**	(0.046)	(0.251)**
Primary any other	0.242	0.250	0.275	0.284
	(0.099)**	(0.099)**	(0.111)**	(0.109)**
Measure of political competition	1 - party seat share		1 - party seat share in previous election	
Observations	179	179	158	158
Number of parties	47	47	47	47
R-squared	0.10	0.12	0.12	0.14

Notes: Robust standard errors in parentheses. Standard errors are adjusted for clustering at party level. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include a post-1990 dummy.

Table 6: Determinants of Primary Adoption - Placebo Test

	(1) Primary in previous election	(2) Primary in previous election
Political competition	0.075	0.102
	(0.218)	(0.305)
Political competition		-0.091
× no founder		(0.309)
No founder	0.026	0.029
	(0.030)	(0.033)
Primary any other	-0.021	-0.019
	(0.067)	(0.068)
Observations	174	174
Number of parties	47	47
R-squared	0.01	0.01

Notes: Robust standard errors in parentheses. Standard errors are adjusted for clustering at party level. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include a post-1990 dummy.

5 Nomination Procedures and Quality of Politicians

In this section, I explore the relationship between candidate nomination procedures and political selection in two steps. First, I evaluate the electoral performance of primary-nominated candidates using the data set of political parties explained in section 4. Then, I explore the relationship between primary nomination and the quality of government. I use a data set containing a list of appointed presidents as well as measures of government efficiency and economic outcomes at the country level.

5.1 Primaries and Electoral Performance

The model predicts that primary-nominated candidates will obtain higher vote shares. The reason is that they have a quality or attribute that attracts voters. These vote share increments are smaller for already large parties, since primaries broaden the party appeal among non-partisan voters.

To test these hypotheses, I estimate the following regression:

$$\begin{aligned} vote\ share_{ij} = \beta_1 primary_{ij} + \beta_2 seat\ share_{ij} + \\ \beta_3(primary_{ij} \times seat\ share_{ij}) + \beta_4 \mathbf{W}_{ij} + \eta_i + \varepsilon_{ij} \end{aligned} \tag{7}$$

where $vote\ share_{ij}$ is the proportion of votes obtained by the candidate of party i in presidential elections j, $seat\ share_{ij}$ is the proportion of legislative seats obtained by the party in the contemporaneous or more recent legislative election and $primary_{ij}$ is the selection method. $\mathbf{W}_j$ is a vector of control variables and η_i is the party fixed effect.

This specification uses *seat share* as a measure of partisan support λ and it is derived from the vote share equation (2).[13] Similar to (6), this specification exploits within-party variation and controls for time-invariant party characteristics. The parameters of interest are β_1 and β_3, which capture the vote premium for primary-nominated candidates and the heterogenous effect by size of partisan support, respectively. The model predictions imply $\beta_1 > 0$ and $\beta_2 < 0$.

Table 7 shows the estimates of equation (7) using as additional control variables the log of the number of candidates in the electoral process and *primary any other*. I cluster the errors by political party to correct for any serial correlation in the presidential vote share. Column (1) estimates the baseline regression without the interaction term to obtain the average vote premium. The evidence suggests that parties may benefit from using a primary. The magnitude of the electoral benefit related to the use of primaries is relevant. The average party obtains an additional 6% vote share above their partisan support when using primaries. To put this number in context, note that the average vote share of non-primary nominated candidates is 33%. Columns (2) and (3) estimate the full specification using the entire sample and restricting it to parties older than 10 years, respectively. In both cases, I find that primary-nominated candidates obtain larger vote shares and that the vote premium decreases with partisan support.

These results are similar to the estimates of Carey and Polga-Hecimovich (2006). Using a larger data set and a different empirical specification, they find that primary-nominated presidential candidates in Latin America obtained between 4% and 6% of additional vote share. The main difference

[13] See Appendix D for a formal derivation.

with their work here is the inclusion of party fixed effects and the use of *seat share* as a proxy for partisan support.

Table 8 shows the results of a falsification test. The specification is similar to the baseline regression (7) but uses *primary in the previous election* instead of *primary* as an explanatory variable. In both regressions, the estimates of β_1 and β_2 are not statistically significant. This evidence reduces concerns that primaries play a reputational role. If that were the case, the use of primaries would increase vote share, not only in the contemporaneous presidential election but also in future ones.

Taken together, these results provide supportive evidence of the electoral benefits of adopting primaries. The existence of these benefits is consistent with the electoral incentives to adopt primaries and the role of political competition. The benefit of adopting primaries increases with political competition, since attracting non-partisan voters becomes more important for the party's success.

Moreover, these results also suggest that nomination procedures play a relevant role in political selection. In particular, the results show that primary-nominated candidates have attributes which broaden party appeal among non-partisan voters. In this context, an important question to ask is whether these differences not only affect electoral outcomes, but also influence the quality of government.

5.2 Primaries and Quality of Government

5.2.1 Data

I use a data set of Latin American presidents appointed during the period 1978-2004. For each president, I obtain a dummy variable indicating whether he was selected as party candidate in a primary or not (*primary president*), the level of political competition faced by his party and the variable $founder$. These last two variables correspond to the drivers of primary adoption and are used as instruments for the selection method used by the president's party to nominate him.

As outcome variables, I use several proxies of the quality of government. Following La Porta et al. (1999), I consider variables related to government efficiency and size of the public sector. As measures of government efficiency I use political risk assessments from the International Country Risk Guide

Table 7: Primaries and Electoral Performance

	(1) Vote share	(2) Vote share	(3) Vote share
Primary	0.057	0.204	0.213
	(0.031)*	(0.078)**	(0.079)***
Seat share	0.638	0.731	0.726
	(0.121)***	(0.082)***	(0.106)***
Primary ×		-0.398	-0.439
seat share		(0.164)**	(0.172)**
Sample	Full	Full	Age > 10 years
Observations	179	179	147
Number of parties	47	47	40
R-squared	0.45	0.49	0.46

Notes: Robust standard errors in parentheses. Standard errors are adjusted for clustering at party level. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include party fixed effects and as control variables: *primary any other* and *Ln(number of candidates*. Column (3) uses a sub-sample of parties older than 10 years.

Table 8: Primaries and Electoral Performance - Robustness Checks

	(1) Vote share	(2) Vote share
Primary in previous	-0.033	0.097
election	(0.037)	(0.145)
Seat share	0.604	0.657
	(0.128)***	(0.093)***
Primary in previous		-0.319
election × seat share		(0.340)
Observations	174	174
Number of parties	47	47
R-squared	0.43	0.44

Notes: Robust standard errors in parentheses. Standard errors are adjusted for clustering at party level. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include as control variables: *primary any other* and *Ln(number of candidates*).

(ICRG) related to corruption in government and the quality of a country's bureaucracy.[14] To measure the size of public sector, I use the value of government expense and revenues (excluding grants) as a proportion of GDP from the World Development Indicators database. In addition, I use indicators of economic performance such as real income per capita and economic growth rate. These variables are obtained from the Penn World Table.[15]

The measures of the quality of government have annual frequency, while the political variables listed earlier refer to the mandate of a president. To link both sets of variables, I first identify the president ruling a country in any given year. In the case of two presidents in a year (i.e. transition years) I match the year to the president who held office for most of the time. Then I aggregate the measures of quality of government taking the average value during a given president's mandate.

The resulting data set contains information on 82 presidents. Table 9 presents some summary statistics. Note that the likelihood of being primary-nominated is 40%, a value higher than for the whole sample of candidates. However, the proportion of presidents also being party founders is similar for both samples, around 30%.

5.2.2 Empirical Strategy

The analytical framework predicts that primaries may improve political selection (Proposition 2). If the role of the president is relevant enough to shape government policies, a corollary of this prediction is that a country will have a better government under a primary-nominated president.

To test this hypothesis, I estimate the following model:

$$y_{cm} = \gamma_1 primary\ president_{cm} + \gamma_2 \mathbf{W}_m + \varepsilon_{cm} \tag{8}$$

where y_{cm} is a measure of the quality of government of country c during the mandate of president m, $primary\ president_{cm}$ is the method by which the ruling president was selected by his party and $\mathbf{W}_m$ is a vector of control variables including a post-1990 dummy and an annual trend. In all regressions,

[14] These variables were previously used by Hall and Jones (1999) to construct an index of government anti-diversion policies. They find a relationship between this indicator and improvements in productivity. I replicate the empirical exercise of this section using this alternative index and obtain similar results.

[15] See Appendix B for variable definitions and data sources.

Table 9: Summary Statistics of President's Data Set

Variable	Obs.	Mean	Standard deviation
Political variables			
Primary president	82	0.390	0.491
Primary in previous election	82	0.122	0.329
Other party uses primary	82	0.220	0.416
Political competition	82	-0.095	0.120
No founder	82	0.707	0.458
Quality of government			
Corruption	77	2.8	0.9
Bureaucracy quality	77	1.7	0.8
Government expense	43	18.1	6.3
Government revenue	43	18.8	5.7
Ln(GDP per capita)	76	8.6	0.4
Annual GDP growth	76	0.8	2.2

I use the values of y normalized to have mean zero and a standard deviation equal to one to facilitate comparison of results. In this specification, the parameter of interest is γ_1.

A simple inspection of equation (8) suggests that an OLS regression would lead to inconsistent estimates of γ_1. The main identification challenge is the presence of omitted variables that may drive both the quality of government and the president's party nomination procedure. For example, the analytical framework suggests that parties with already strong incumbent candidates will be less likely to adopt primaries. Since quality is unobservable and may positively affect the outcome variable, its omission may lead to a downward bias of the OLS estimates.

To address this identification concern, I use an instrumental variable approach based on the insights about the drivers of primary adoption identified in the analytical framework and tested in the previous empirical analysis (see Section 4). In particular, I instrument *primary_president* with the measure of political competition faced by the president's party, the variable $founder$ and the interaction term.

5.2.3 Main Results

Table 10 displays the estimates of equation (8) using different measures of government quality. As a benchmark, column (1) shows the estimates of an OLS regression. There is a positive correlation between primary-nominated presidents and all measures of government quality. However, with the exception of real income per capita, the correlation is not statistically significant.

Column (2) estimates the baseline regression using 2SLS. The estimates are larger than with OLS, which is consistent with the attenuation bias due to the omission of politician's quality in the regression. The results suggest that there are significant differences in the quality of government during the mandate of primary-nominated presidents. I find that having a primary-nominated president is associated with increments of more than one standard deviation in the perceptions of corruption, bureaucracy quality and size of government revenues. Countries with primary-nominated presidents also enjoyed higher levels of income, although I find no evidence of differences in the growth rate of the economy. Taken together, these results are consistent with the argument that parties enhance the quality of politicians by adopting more democratic selection methods.

The sample size used in the 2SLS regressions ranges from 43 to 77 observations, and the F-statistic of the excluded instruments is 6.87 (see Table 11). These features raise relevant concerns about the presence of weak instruments which may bias the point estimates and the standard errors.[16]

To deal with this potential problem, I replicate the baseline regression using the Limited-Information Maximum Likelihood (LIML) estimator which is partially robust to weak instruments (Stock et al., 2002). In addition, I test significance using the Conditional Likelihood Ratio (CLR) test proposed by Moreira (2003). The CLR test provides a more reliable confidence interval and improves hypothesis testing in the presence of weak instruments (Andrews and Stock, 2005). Column (3) presents the estimates of γ_1 using the LIML estimator, while column (4) displays the p-values of the significance tests using the CLR. The pattern of results is consistent with the 2SLS findings, and suggests that weak instruments are not a serious concern in this application. Moreover, as shown by Stock et al. (2002), weak instru-

[16] A F-statistic above 10 is usually required to rule out weak instruments (Stock et al., 2002).

ments may produce a small sample bias toward OLS. Since in this case most OLS estimates are not significantly different from zero, a weak instrument problem would mean that the 2SLS estimates are too conservative.

Column (5) tests the exclusion restriction of the instruments using the Sargan-Hansen over-identification test. In all cases, the null hypothesis that the instruments are uncorrelated with the error term and thus correctly excluded from the main regression is not rejected. Under the assumption that at least one of the instruments is valid, this result provides evidence in favor of a consistent estimation of γ_1.

Table 11 displays the first stage and reduced-form regressions. I only report the first stage of the model with *corruption* as the dependent variable. The results are similar when using other outcome variables, although the sample size varies. The results from the first stage (column 1) resemble the findings about primary determinants obtained using the sample of the top presidential candidates in section 4. The likelihood that a president was primary-nominated increases with political competition, but only for politicians who were not also party founders.[17]

Columns (2) to (7) report the reduced form regressions. In all cases, the estimates are consistent with the 2SLS findings: the factors that increase the likelihood of primary adoption are also positively correlated with the measures of government quality. This evidence highlights the link between political competition, party institutions and political selection.

Finally, I set out a falsification test using two alternative explanatory variables: *primary any other* which indicates whether other party uses a primary in the same election, and *primary in previous election* which indicates whether the president's party used a primary before. For both explanatory variables, I obtain OLS and LIML estimates, using the same specification and excluded instruments as in the baseline regressions.

Columns (1) to (4) in Table 12 show the results. In contrast to the regressions using the president's selection method, the LIML estimates are all insignificant. Together, this evidence reduces concerns that common factors affecting parties' institutional decisions - such as a more democratic political environment - or party time-invariant characteristics - such as ideology - are driving the main results.

[17]The parameter associated to $founder$ is negative and statistically significant as predicted by the model.

Table 10: Primaries and Quality of Government

Dependent variable	Nr. obs.	(1) OLS	(2) 2SLS	(3) LIML	(4) CLR test p-value	(5) Overid. test p-value
Government efficiency						
Corruption	77	0.119	1.223	1.427	0.036	0.291
		(0.239)	(0.624)*	(0.732)*		
Bureaucracy quality	77	0.416	1.296	1.3	0.058	0.936
		(0.209)*	(0.730)*	(0.714)*		
Size of public sector						
Government expense	43	0.215	1.655	1.999	0.023	0.447
		(0.332)	(1.084)	(1.338)		
Government revenue	43	0.436	1.83	1.991	0.019	0.638
		(0.344)	(0.933)*	(1.016)*		
Economic outcomes						
Ln(GDP per capita)	76	0.508	1.037	1.046	0.118	0.858
		(0.243)**	(0.498)**	(0.491)**		
GDP growth	76	0.036	-0.01	-0.013	0.982	0.663
		(0.230)	(0.670)	(0.683)		

Notes: Robust standard errors in parentheses. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. The estimates correspond to the parameter associated to variable *primary president*. All regressions include a post-1990 dummy and a time trend. 2SLS and LIML regressions use *political competition*, *no founder*, and the interaction term as excluded instruments. 2SLS standard errors are corrected by small sample. Column (3) reports results using the Limited Information Maximum Likelihood (LIML). Column (4) shows the p-value of the LIML estimates using the Conditional Likelihood Ratio test. Column (5) shows the p-value of the Sargan-Hansen over-identification test.

Table 11: First Stage and Reduced-Form Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
				Reduced-form regressions			
Excluded instruments	First stage	Corruption	Bureaucracy quality	Gov. expense	Gov. revenue	Ln(GDP per capita)	GDP growth
Political competition	0.757	2.128	1.053	1.402	2.063	0.981	0.635
	(0.427)*	(0.783)***	(1.260)	(1.800)	(1.634)	(0.825)	(1.309)
Political competition	-2.188	-4.723	-3.269	-2.406	-3.366	-2.108	0.446
× founder	(0.938)**	(1.531)***	(1.943)*	(2.626)	(2.677)	(1.732)	(1.874)
Founder	-0.479	-0.556	-0.615	-0.961	-0.947	-0.536	0.052
	(0.107)***	(0.248)**	(0.312)*	(0.406)**	(0.363)**	(0.266)**	(0.302)
Observations	77	77	77	43	43	76	76
F-statistic	6.87						
R-squared	0.149						

Notes: Robust standard errors in parentheses. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include a post-1990 dummy and year trend as included instruments. Column (1) reports the first stage of the 2SLS regression with *corruption* as the outcome variable and the F-statistic and R-squared of the excluded instruments.

Table 12: Primaries and Quality of Government - Placebo Tests

Dependent variable	(1) OLS	(2) LIML	(1) OLS	(2) LIML
Government efficiency				
Corruption	0.446	2.497	-0.111	-4.688
	(0.261)*	(2.598)	(0.25)	(9.496)
Bureaucracy quality	0.129	1.916	0.617	-0.989
	(0.217)	(1.479)	(0.291)**	(4.862)
Size of public sector				
Government expense	0.577	4.221	0.5	-28.835
	(0.296)*	(3.048)	(0.467)	(429.161)
Government revenue	0.879	4.317	0.271	-11.13
	(0.275)***	(3.25)	(0.500)	(36.806)
Economic outcomes				
Ln(GDP per capita)	0.791	1.493	0.911	-1.052
	(0.296)***	(0.993)	(0.312)***	(7.629)
GDP growth	-0.055	0.383	-0.402	-0.877
	(0.339)	(1.195)	(0.376)	(1.466)
Explanatory variable	Primary any other		Primary in previous election	

Notes: Robust standard errors in parentheses. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. The estimates correspond to the parameter associated with the explanatory variable. All regressions include a post-1990 dummy and a year trend. LIML regressions use *political competition*, $founder$, and the interaction term as excluded instruments.

6 Concluding Remarks

Motivated by a simple model, this paper has provided empirical evidence linking parties' nomination procedures to political selection. The evidence supports that argument that party institutions play an important role in political selection and can affect the electoral outcomes and ultimately the quality of government. Moreover, the results highlight another channel for inter-party political competition to improve political selection by creating incentives to adopt more democratic nomination procedures.

By explicitly modeling party decisions, the model provides additional testable insights regarding the interaction of party characteristics and political competition. In particular, the evidence suggests that the incentives of political competition can be attenuated by the incumbency advantage of a politician. This bias makes it more difficult to adopt institutions that may challenge the status quo.

This paper shows how treating parties as organizations can enrich our understanding of the political process and its relationship to economic outcomes. However, I focus only on the candidate nomination process, assuming an office seeking party. In reality, parties have richer institutional setups and also have other motivations beyond just holding office. These features may be also relevant for understanding political selection and how electoral incentives shape policy making.

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A Proofs

A.1 Proof of Proposition 2

Under assumption 1, there is a positive probability that a challenger with sufficiently high quality will replace the leader as party candidate. To see this, recall that a party member votes for the challenger if:

$$v\left(q_c\right) > v\left(q_l\right) + \sigma_i + \widetilde{\delta}$$

where $\widetilde{\delta}$ is the realization of δ. Thus, the swing party member - indifferent between the party leader and challenger - is represented by:

$$\widetilde{\sigma} = v\left(q_c\right) - v\left(q_l\right) - \widetilde{\delta} \tag{9}$$

Using expression (2), we can rewrite (9) as $\widetilde{\sigma} = \rho\left(1-\lambda\right)\left(q_c - q_l\right) - \widetilde{\delta}$. Then, the proportion of party members voting for the challenger is $\psi\widetilde{\sigma}$ and the probability that the challenger is nominated can be written as:

$$\begin{aligned}
\pi_c &= \Pr\left\{\psi\widetilde{\sigma} > \frac{1}{2}\right\} \\
&= \Pr\left\{q_c > q_l + \frac{1}{\rho\left(1-\lambda\right)}\left(\frac{1}{2\psi} + \widetilde{\delta}\right)\right\} \\
&= 1 - q_l - \frac{1}{\rho\left(1-\lambda\right)}\left(\frac{1}{2\psi} + \widetilde{\delta}\right)
\end{aligned}$$

which is positive for any $\widetilde{\delta}$ under assumption 1.

Hence, we can write the expected quality gains before the primary election as:

$$\Delta q = \pi_c\left(q_c - q_l\right)$$

which is positive because the challenger is nominated only when $q_c > q_l$. In addition, note that for similar reasons, Δq is decreasing in q_l.

A.2 Proof of Proposition 3

Recall that $q_p = q_l$ if a party uses a caucus, and $Eq_p > q_l$ in the case of a primary. Using equation (2), we can write the difference in expected vote

share between a primary- and a caucus-nominated candidate as:

$$v(Eq_p) - v(q_l) = \rho\,(1-\lambda)\,\Delta q$$

which is strictly positive, increasing in Δq and decreasing in λ since $\Delta q > 0$ and $\lambda \in (0,1)$.

A.3 Proof of Proposition 4

Recall from equation (5) that:

$$p = \phi\left[\rho\,(1-\lambda)\,\Delta q - \frac{1}{2\psi}\right]$$

thus $\frac{\partial p}{\partial(1-\lambda)} = \phi\rho\Delta q$, which is positive by proposition 2. Similarly, $\frac{\partial^2 p}{\partial(1-\lambda)\partial\phi} = \rho\Delta q > 0$.

B Variables and Data Sources

Primary 1 if presidential candidate was nominated by primary (open or closed), 0 otherwise. Source: Carey and Polga-Hecimovich (2006)

Primary in previous election 1 if party used primary to select presidential candidate in the previous election, 0 otherwise. Source: Carey and Polga-Hecimovich (2006)

Primary any other 1 if other party used primary in the same electoral process, 0 otherwise. Source: Carey and Polga-Hecimovich (2006)

Seat share Proportion of seats obtained by candidate's party in lower chamber in the legislative election held simultaneously or immediately before the presidential election. Source: Center on Democratic Performance and Political Database of the Americas

Vote share Proportion of votes obtained by a presidential candidate. Source: Carey and Polga-Hecimovich (2006)

Founder 1 if candidate was one of the party founders, 0 otherwise. Source: Parties' websites and Political Database of the Americas

Number of parties Number of presidential candidates in a given election. Source: Carey and Polga-Hecimovich (2006)

Corruption Assessment of corruption within the political systems including: patronage, nepotism, secret party funding and close ties between government and business. Score ranges from 0 to 6, with higher values indicating lower corruption. Source: International Country Risk Guide

Bureaucracy quality Assessment of the strength and quality of the bureaucracy. Score ranges from 0 to 4, with higher values indicting a more autonomous and expert bureaucracy. Source: International Country Risk Guide

Government expense Government expense as % of the GDP. Source: World Development Indicators

Government revenue Government revenue excluding grants as % of GDP. Source: World Development Indicators

GDP per capita Real income per capita using Laspeyres index. Source: Penn World Table 6.1

GDP growth Annual growth rate of real GDP per capita. Source: Penn World Table 6.1 **?**

C Derivation of the Index of Political Competition

Consider n parties competing in a presidential election. All of them have a candidate of similar quality, and thus they rely on their partisan supporters to decide the election. Each party has a proportion of partisan supporters λ_i, such that $\sum_{i \in n} \lambda_i < 1$. λ_i is a random variable with a cumulative distribution function $F_i(\lambda_i)$. I assume that all F_i have an identical shape but different means.

Denote the realizations of λ_i as $\widehat{\lambda}_i$ and rank them by size such that $\widehat{\lambda}_1 \geq \widehat{\lambda}_2 \geq ... \geq \widehat{\lambda}_n$. Thus, we can write the ex ante probability that party i wins the election as $G_i\left(\widehat{\lambda}_2\right) \equiv 1 - F_i\left(\widehat{\lambda}_2\right)$. Since parties are competing for

one position, they need to surpass the votes obtained by the second highest candidate to win the election. In that case, the party becomes the one with the largest partisan support.

$G_i\left(\widehat{\lambda}_2\right)$ measures the ability of the party to win the election based purely on its partisan support. This measure corresponds to the concept of political competition used in the analytical framework.

Taking a first order Taylor approximation of $G_i\left(\widehat{\lambda}_2\right)$ around $E\left(\lambda_i\right)$ and using $\widehat{\lambda}_i$ as the best estimator of $E\left(\lambda_i\right)$, we obtain:

$$G_i\left(\widehat{\lambda}_2\right) \approx c_0 + c_1\left(\widehat{\lambda}_2 - \widehat{\lambda}_i\right)$$

where $c_0 = G_i(E\left(\lambda_i\right))$ and $c_1 = G_i'(E\left(\lambda_i\right))$ are positive constants.

Note that because of the assumption that all λ_i have distribution functions with identical shapes, both c_0 and c_1 are identical for all parties. Thus, to construct an empirical counterpart of $G_i\left(\widehat{\lambda}_2\right)$, we can focus only on the component $\left(\widehat{\lambda}_2 - \widehat{\lambda}_i\right)$, since c_0, c_1 can be pinned down during the econometric estimation.

D Empirical Specification of the Vote Share Regression

Recall from equation (2) that the expected vote share a party can obtain is:

$$v_i = \delta\left[q_p + \left(1 - q_p\right)\lambda\right] + \left(1 - \delta\right)\left(\frac{1+\lambda}{2}\right)$$

and that $q_p = \Delta q + q_l$ if the party uses a primary, and $q_{pi} = q_{li}$ otherwise.

Under the assumption that Δq are q_l are party-specific but time-invariant and using the definition of q_p, we can re-write the expected vote share of the candidate from party i in electoral process j as:

$$\begin{aligned} v_{ij} = \delta\Delta q_i primary_{ij} + \left(\frac{1+\delta}{2} - \delta q_{li}\right)\lambda_{ij} \\ -\delta\Delta q\left(\lambda_{ij} \times primary_{ij}\right) + \frac{1-\delta}{2} + \delta q_{li} \end{aligned} \tag{10}$$

Note that in expression (10), both the partisan support λ and the selection method can vary between elections.

Equation (10) resembles a random coefficient model. Assuming that $\Delta q_i = \overline{\Delta q} + \varpi_{1i}$ and $q_{li} = \overline{q_l} + \varpi_{2i}$ with ϖ_{1i}, ϖ_{2i} independent from $primary$ and λ, expression (10) becomes:

$$v_{ij} = \beta_1 primary_{ij} + \beta_2 \lambda_{ij} + \beta_3(\lambda_{ij} * primary_{ij}) + \eta + \varepsilon_{ij} \qquad (11)$$

where $\beta_1 = -\beta_3 \equiv \delta\overline{\Delta q}$, $\beta_{2i} \equiv \frac{1+\delta}{2} - \delta\overline{q_l}$, $\eta \equiv \frac{1-\delta}{2} + \delta\overline{q_l}$ and $\varepsilon_{ij} = \varpi_{1i}\left[\delta primary_{ij}\left(1-\lambda_{ij}\right)\right] + \varpi_{2i}\left[\delta\left(1-\lambda_{ij}\right)\right]$.

Expression (11) provides the motivation for the proposed empirical specification (7).