Political parties, candidate selection, and quality of government

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February 2013

Abstract

This paper explores empirically the relation between political parties' institutions and quality of government. I focus on procedures used to nominate presidential candidates given the importance of candidate selection in party politics. Using a panel dataset of Latin American countries, I find robust evidence of a positive relation between the use of democratic procedures, such as primaries, and quality of government. To shed light on the mechanism, I examine why parties use primaries. I find evidence suggestive that the results are mostly driven by the increase in political competition and candidates' pre-electoral incentives.

Keywords: institutions; governance; political parties; Latin America.

JEL classification: H11, H80.

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Good governance and sound policies are considered as important pre-requisites for economic development. What determines them is, however, still not well understood. This paper contributes to this debate by exploring the role of political parties' institutions on quality of government.

Political parties are considered key political actors. They connect politicians to voters, provide organizational support, and have the potential to shape politicians' incentives (Duverger, 1965; Caillaud and Tirole, 2002; White, 2006). There is, however, little empirical evidence regarding the role of political parties on governance and economic policy.[1]

This paper focuses in an important party institution —namely the procedures to nominate candidates. As I discuss below, theory suggests that differences in nomination procedures may shape candidates' pre-electoral incentives as well as political selection, and through those channels affect economic policies and quality of government.

I explore the relation between nomination procedures and quality of government using the case of Latin American presidents. For each president, I obtain information of the nomination procedure used by her party. The available data distinguish two broad nomination procedures: primaries (open and close) and non-primaries. As a measure of quality of government, I use an index of government anti-diversion policies, similar to the one used by Hall and Jones (1999). The index combines three indicators of political risk from the International Country Risk Guide (ICRG): quality of bureaucracy, corruption in government, and rule of law. I complement this index with a measure of popular trust in the president. The resulting panel dataset covers 18 Latin American countries from early 1980s to 2005.

The main empirical challenge is dealing with omitted variables that may affect both quality of government and use of primaries. In that case, differences in quality of government between primary and non-primary nominated presidents may just reflect unobserved heterogeneity, not the effect of the nomination procedure.

Ideally, we would like to have a source of quasi-experimental variation on party insti-

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[1]In a recent paper, Cruz and Keefer (2010) study the role of programmatic parties (i.e., parties with a well defined ideology) on the effectiveness of countries to implement public sector reforms.

tutions. This variation is not, however, available in the case I study. Instead, I reduce the scope for omitted variables by including country fixed effects. This strategy effectively control for time-invariant country characteristics, such as history and quality of institutions. In addition, I control for several party and country covariates that may affect primary adoption, such as party size, age, coalition status, and quality of democracy. While I cannot rule out possible bias due to other time-varying omitted variables, I perform several falsification tests to explore this concern.

I find robust evidence of a positive relation between the use of primaries and quality of government. The most conservative estimate suggests that the quality of government is 0.38 standard deviations higher during the mandate of primary-nominated presidents. For the average country, this represents an increase of 12 percent in the measure of quality of government. This result is explained mainly by increases in quality of bureaucracy and reduction of corruption in government. I also find that primary-nominated presidents enjoy higher rates of popular trust, a variable highly correlated with popular approval.

The relation between primaries and quality of government is driven by the nomination procedure of the elected president, not by the nomination procedure used by other politicians. There is, for example, no significant difference in quality of government associated to the use of primaries by the main opposition party. This falsification test increases credibility in the results and reduces concerns that the results are just picking up the effect of election-specific shocks, such as changes in the electoral environment or temporal raise of democratic values.

A relevant question is why primaries would affect quality of government. The political economy literature suggests at least two reasons. First, primaries may allow parties to select a better candidate (Adams and Merrill, 2008; Serra, 2011). Second, primaries may allow parties to regulate internal competition and increase candidates' pre-electoral incentives, for example to invest in policy design or recruit policy advisors (Caillaud and Tirole, 2002; Castanheira et al., 2010).[2]

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[2]I discuss these arguments in more detail in Section 4.

In a related paper, Aragón (2011) shows that partisan support (i.e., proportion of voters who always vote for the party) is a determinant of primary adoption. Moreover, it can be informative of which of these two mechanisms (incentives or selection) is more important.[3]

Based on this insight, I use a measure of strength of partisan support as an instrument for primary adoption. While far from conclusive, the results using an IV approach confirm the positive correlation between primaries and quality of government. Moreover, the first stage suggests that primaries may improve quality of government by increasing political competition among presidential candidates.

This paper relates to a political economy literature studying the effect of nomination procedures on economic policy.[4] Theoretical work suggests that nomination procedures may matter by changing political representation (Jackson et al., 2007), candidate's incentives (Caillaud and Tirole, 2002; Castanheira et al., 2010) or political selection (Adams and Merrill, 2008; Serra, 2011). Consistent with these arguments, Gerber and Morton (1998) find that open primaries in U.S. are associated to policies closer to citizen's ideology. In the same context, Besley and Case (2003) also document differences in size and composition of state government spending associated to open primaries. Nonetheless, to the best of my knowledge, there is no evidence of the effect of nomination procedures on quality of government.

This work also relates to the literature on political institutions and economic performance. Most of this literature focuses on the effect of macro level institutions, such as democracy, electoral rules, or form of government.[5] This paper complements this

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[3]In particular the relation between partisan support and primary adoption would be *negative* if improving selection is the main reason of using primaries, and *positive* instead if primaries are used to increase political competition and candidates' pre-electoral incentives.

[4]There is, of course, a large literature examining the effect of nomination procedures on other outcomes such as information dispersion and acquisition (Meirowitz, 2005), legislators' ability to compromise (Alvarez and Sinclair, 2011), or party polarization and loyalty (Ansolabehere et al., 2006; Ansolabehere et al., 2010). Other papers focus on the sequentiality associated to the use of primaries, specially in the U.S. case. For example, Knight and Schiff (2010) explore the effect of sequential voting on social learning, while Klumpp and Polborn (2006) develop a model to examine the effect of primaries on the effectiveness of campaign spending.

[5]For some recent evidence on the effect of democracy on growth and well-being see Barro (1996), Rodrik and Wacziarg (2005), Papaioannou and Siourounis (2008) and Kudamatsu (forthcoming). The

literature by studying the contribution of party institutions to governance.[6]

The plan of the paper is as follows. Section 1 provides some background of the Latin American case and discusses some arguments why nomination procedures may affect governance. Section 2 explain the data and empirical strategy. Section 3 presents the main results while section 4 explores possible mechanisms linking primaries to quality of government. Section 5 concludes.

1 Background

1.1 Presidential primaries in Latin America[7]

The empirical analysis focuses on the nomination procedures to select presidential candidates in Latin American democracies. These countries have presidential regimes in which the executive holds significant power, and presidency is the most important public office. In this context, selecting the presidential candidate is an important party decision.

Latin American parties use different procedures to nominate presidential candidates. For example, between early 1980s and 2005, around 20 percent of Latin American presidents were nominated in a primary, and a third of elections involved at least one primary-nominated candidate.

The data I use distinguish nomination procedures in two broad categories: primaries and non-primaries. Primaries include both open and closed primaries. In a primary, either voters or affiliated party members vote to select the candidate. In contrast, non-primaries include less democratic procedures such as nomination in party conventions or by party leaders. While this measure may be quite coarse, it captures a key distinction in nomination procedures: the degree of intra-party competition.[8]

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effect of electoral rules and form of government is thoroughly studied in Persson and Tabellini (2003) and Persson et al. (2003).

[6]For a more comprehensive discussion of the role of domestic political institutions on policies in Latin America, see Scartascini et al., eds (2008).

[7]See Carey and Polga-Hecimovich (2006) for a more detailed discussion of primaries in Latin America.

[8]The political science literature refers to this feature of selection methods as internal democracy or inclusiveness (Hazan and Rahat, 2006).

In most countries, there is not a legal requirement to use primaries (Alcántara Sáez, 2002; Freidenberg, 2003). Only since mid 1990s some countries —such as Uruguay, Paraguay and Panama— have included mandatory primaries in their electoral codes. This situation raises relevant identification concerns given that the use of primaries is a party decision, and may be influenced by other factors also related to the subsequent government performance.

1.2 Why would nomination procedures matter?

Theory suggests several reasons why candidate nomination procedures would affect quality of government.[9]

A first channel is through their effect on political representation. Democratic nomination procedures –such as primaries— may change the selectorate and, hence, the identity of the median voter. In turn, this may affect the policies chosen by competing candidates or the set of candidates willing to run in internal elections.[10] To the extend that primaries increase representation of groups who prefer better government, they would be associated to an improvement in quality of government. This is the argument put forward by Gerber and Morton (1998) and Besley and Case (2003) to explain differences in U.S. state policies associated to open primaries.

A second channel is through the effect of nomination procedures on political competition. Primaries may increase the degree of (intra-party) political competition faced by candidates. In turn, this may shape candidates' incentives. For example, Caillaud and Tirole (2002) and Castanheira et al. (2010) develop models wherein candidates can exert some effort to improve policy design, and their electoral performance. In these models, parties use primaries to regulate political competition, and to elicit the optimal level of effort from candidates.

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[9]The discussion of possible channels in this section is not exhaustive. I focus the attention on the main arguments discussed in the political economy literature.

[10]This would depend of whether we use a standard Downsian electoral competition model or a citizen-candidate approach.

Competitive procedures, such as primaries, may also improve political selection. In this view, primaries act as screening devices giving parties an early opportunity to observe the quality of politicians, and to pick the best candidate. This argument is formally developed by Adams and Merrill (2008) and Serra (2011).

The previous discussion put forward arguments for primaries to increase quality of government. There are, however, several reasons why nomination procedures may not matter. First, the change in political representation may not be relevant for governance if non-economic issues are more salient. Second, there may be constraints in the ability of the president to affect policy. Third, other democratic checks and balances may attenuate the effect of nomination process. For example, electoral competition *between* parties may be more important in shaping candidates' incentives and selection. Finally, even if nomination procedures matter, their effect may be small and not translate into significant changes on the measures of quality of government.

2   Data and empirical strategy

2.1   Data

I use a panel dataset of 18 Latin American countries that covers the period since early 1980s to 2005.[11] The measure of nomination procedures is a dummy indicating whether a president was nominated as party candidate using a primary (open or close) or not (*primary*). I also obtain information regarding the nomination procedures used by other presidential candidates (*primary opposition)*. This dataset was collected by Carey and Polga-Hecimovich (2007) and has already been used by political scientists to study the effect of primaries on candidate's electoral performance, and primary determinants (Carey and Polga-Hecimovich, 2006; Kemahlioglu et al., 2009) This indicator varies at president-level, while other measures —such as quality of government— have an annual frequency.

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[11]This period corresponds to the re-introduction of democratic elections in many countries, after failed military dictatorships in the 1960s and 1970s.

To link both variables, I identify the years of a president's mandate and assign annual data to each year. In case there are two presidents in power (e.g., transition years) I assign the year to the president that ruled most of the time.

As a measure of quality of government, I construct an index of government anti-diversion policies using annual data from the International Country Risk Guide (ICRG). The index is composed of three indicators of political risk: quality of bureaucracy, corruption in government, and rule of law. All these indicators are constructed such that higher values represent better quality, less corruption, or better rule of law, respectively. I normalize these indicators using a minimax approach, so their values range between zero and one, and aggregate them using a simple average. I interpret larger values of the index of government anti-diversion policies as an indicator of better quality of government. This index is similar to the one used by Hall and Jones (1999) as a measure of the quality of "the institutions and government policies that determine the economic environment" (Hall and Jones, 1999, p. 97).[12] The components of this index have also been used in the political economy literature as measures of government efficiency (Knack and Keefer, 1995; La Porta et al., 1999).

In addition, I use a measure of popular perception of the president's performance from the Latinobarómetro. In particular, I use the proportion of population that, in a given year, reports having a lot or some trust in the president.[13] This variable is highly correlated with the president's approval (correlation=0.91) and has the advantage of having been collected for a longer period.[14] To control for general trust in politicians, I also construct a measure of trust in political parties.

Finally, I collect data on variables that may be correlated with the use of primaries and quality of government to include as control variables. These variables include country

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[12]Hall and Jones (1999) use the average of these three indicators plus risk of expropriation and an index of government repudiation of contracts. Data on these indices are, however, available only until 1997. This reduces the sample size by half. Nonetheless, including this information for the period when it is available produces similar results.

[13]The survey question is: "How much trust do you have in the President? . There are four possible answers: a lot, some, a little, or none.

[14]Trust in president has been collected since 1997, while president's approval has been collected only since 2002.

characteristics —such as degree of democracy, and legal requirement to use primaries—
as well as party features, like ideology, age, and seat share.

Table 1 presents summary statistics of the main variables. Descriptions of all variables
and data sources are available in Appendix A.

Table 1: Summary statistics

Variable	Mean	St. Dev.
I. Nomination procedures		
Primary	0.222	0.418
Primary opposition	0.178	0.384
II. Quality of government and trust in politicians		
Index of gov. antidiv. policies	0.535	0.173
Quality of bureaucracy	0.576	0.251
Corruption in government	0.567	0.172
Rule of law	0.463	0.260
Trust in president	0.378	0.145
Trust in political parties	0.209	0.083
III. Additional control variables		
Democracy index	7.6	1.8
Mandatory primaries	0.156	0.364
Party age	49.8	46.6
Coalition party	0.159	0.368
Seat share	0.446	0.126
Previous seat share	0.256	0.211
Pre-electoral coalition	0.103	0.306
Centrist party	0.118	0.320

Note: See Appendix A for definition of variables
and data sources.

2.2 Empirical strategy

The aim of the empirical analysis is to estimate the relation between the use of pri-
maries and quality of government. More precisely, it involves assessing whether there is
a significant difference in the quality of government during the mandate of primary and
non-primary nominated presidents. Figure 1 depicts this relation. It plots the average
quality of government against the proportion of primary-nominated presidents for each
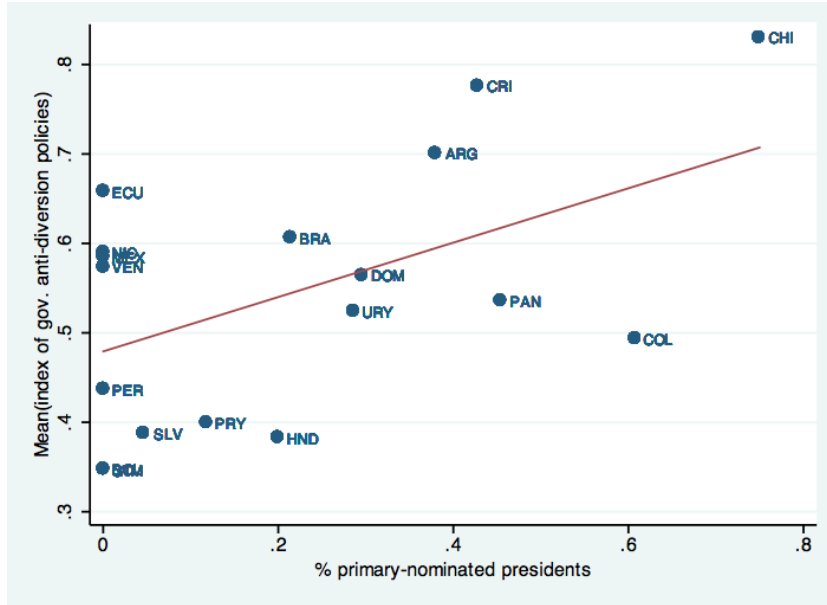
Figure 1: Presidential primaries and quality of government

country. The correlation is positive, which suggests that the use of primaries is associated to better governance.

Nonetheless, this simple cross-country correlation may not be informative. The main identification concern is the presence of omitted variables. There may be other factors that may affect both the party institutional choice and quality of government, such as a party ideology, political environment or a country's democratic traditions. In that case, we would not know whether a positive correlation, as the one depicted in Figure 1, reflects the the use of primaries or the influence of these other factors.

Ideally, we could address this issue by exploiting quasi-experimental variation in primary adoption. This source of variation is not, however, available in the case I study. As discussed in section 1, primary adoption in Latin America has been voluntary so there are no policy reforms that I could exploit. Even when there are legal mandates to use primaries, these requirements are hardly binding. Similarly, the lack of detailed data on results of primary elections and limited number of observations preclude using a regression discontinuity approach.

In order to make progress, I estimate a regression model with a rich set of covariates

at country and party levels. In addition, I exploit within-country variation and include country fixed effects. This approach reduces the scope of omitted variables. It may not, however, fully address relevant identification concerns. For instance, there might still be time-variant unobserved heterogeneity driving the results. To complement this approach, I also explore why parties use primaries and use the suggested determinants as instrumental variables (see Section 4). While far from conclusive, this approach provides a check of the robustness of the main results, and hints to the underlying mechanism linking primaries to quality of government.

A second empirical issue relates to the estimation of standard errors. Recall that the measure of primary varies at president's mandate level, while the outcome variables vary at annual level. Thus, the explanatory variable (primary) is constant within the aggregated unit (president's mandate). In this case, I need to allow for errors to be correlated within each aggregated unit (Moulton, 1990). Otherwise, I may underestimate the standard errors and over-reject the null hypothesis of no significance. One approach is to cluster the errors at mandate level using the cluster-correlated Huber-White covariance matrix estimator. An alternative, and more conservative, approach, is to recognize that the main source of variation is at mandate level, aggregate the annual data accordingly, and use weighted OLS (Angrist and Pischke, 2008, Ch. 8.2.1.).

In the main exposition in this paper I use the more conservative approach. In particular, I collapse the annual data by taking the average over a president's mandate.[15] Then I estimate the following baseline regression:

$$y_{ij} = \eta_j + \beta primary_{ij} + \gamma \mathbf{X}_{ij} + \epsilon_{ij}, \tag{1}$$

where y_{ij} is the measure of quality of government (or other outcomes) during the mandate of president i in country j, and $primary_{ij}$ is the candidate nomination procedure used to select the ruling president. η_j is a set of country fixed effects, while $\mathbf{X}_{ij}$ is a vector

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[15]Table 6 in Appendix B). replicates the baseline results using annual data and clustering the errors by president's mandate. This alternative procedure produces similar results.

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of control variables. In the full specification $\mathbf{X}_{ij}$ includes country characteristics, such as an index of democracy and an indicator of mandatory primaries, as well as features of the president's party, such as size (measured using its seat share during the president's mandate), age, and an indicator of whether the party is a coalition. All regressions include quinquennium fixed effects to account for the time trend.[16] Since the observations are averages over a president's mandate, I estimate the model using weighted OLS. As weights, I use the number of annual observations.

3   Main results

Table 2 presents the estimates of the baseline regression. Column 1 is a benchmark regression without any control variable. Column 2 adds several country and party covariates. Of particular interest are covariates that may also explain the use of primaries, such as party size (*seat share* and *seat share*^{2}), legal mandate to use primaries (*mandatory primaries*), and a country's level of democracy (*democracy index*). Column 3 excludes observations from Chile, a potential outlier as seen in Figure 1. Finally, column 4 estimates the full specification adding country fixed effects.

In all cases, there is a positive and significant correlation between primaries and quality of government. The most conservative estimate suggests that the quality of government increases by 0.067 during the mandate of primary-nominated presidents. This is equivalent to an increase of 0.38 standard deviations. For the average country, this represents an increase of around 12 percent in the measure of quality of government. The results are significant despite the dramatic reduction in degrees of freedom in the full specification.[17] Note that the inclusion of country fixed effects reduces the estimates of β by almost half. This is consistent with the presence of relevant country-specific omitted

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[16]The quinquennium indicators are associated to the year of the presidential election. I consider the following periods: 1980-84, 1985-89, 1990-1994, and so on. The last period is 2000-2005. The results are robust to the exclusion of this time trend. In results using annual data, I include year fixed effects.

[17]As previously mentioned, a less demanding specification uses annual data instead of aggregated at mandate level. The results, shown in Table 6, are similar.

variables and motivate the use of country fixed effects.[18]

Next, I explore in more detail the relation between primaries and quality of government. Recall that the measure of quality is composed by three indicators: quality of bureaucracy, corruption in government, and rule of law. Columns 5 to 7 estimate the baseline regression, with the full set of controls, using these three indicators as outcome variables. There is a positive correlation only between primaries and quality of bureaucracy and corruption in government.[19] These two measures have been used as proxies of government efficiency in previous work (Knack and Keefer, 1995; La Porta et al., 1999). In contrast, the lack of relation with rule of law may be due to this indicator reflecting more stable institutions, which are less likely to be affected by the president's actions.

The previous results could be interpreted as consistent estimates of the relation between primaries and quality of government to the extent that the control variables account for unobserved heterogeneity. While we cannot test this assumption, we can go a step further by performing a falsification test. To do so, I replace *primary* by the nomination procedure of the candidate from the main opposition party (*primary opposition*). If the positive relation between primaries and quality of government is driven by election-specific factors (such as increase in overall competition or popular demands for more party democracy), then we should expect to find a similar positive relation between quality of government and *primary opposition*.

Columns 7 and 8 in table 2 show the results of this falsification test. Note that in both cases, the estimates using *primary opposition* are smaller and statistically insignificant. Moreover, when including both *primary* and *primary opposition* in the same regression (column 9) only *primary* is significant. This finding suggests that what matters is the nomination procedure of the winning candidate, not of other presidential candidates.[20]

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[18]Interestingly, *mandatory primaries* seems to be negatively (though not significantly) correlated to quality of government. A possible explanation is that primaries are more democratic and competitive —and hence contribute more to quality of government— when they are voluntarily adopted instead of required by electoral legislation.

[19]Note that higher values of the indicator of corruption in government represent a perception of *less* corruption.

[20]The results area similar using alternative indicators such as "use of primaries by any party".

Moreover, it reduces concerns that the results are just picking up common election-specific omitted variables

A limitation of the previous measures of quality is that they capture the overall performance of the government, not necessarily the performance of the president. To address this limitation, I use a measure of the popular perception of the president's performance (*trust in president*). This variable measures the proportion of the population that reports having a lot or some trust in the president, and it is highly correlated with a president's approval rate. A main caveat is, however that this variable is available since 1997 onwards. For that reason the number of available observations is smaller.

Table 3 estimates the baseline regression using trust in the president as the outcome variable. To overcome the loss of power, I do not include country fixed effects.[21] Column 1 includes as controls only party's seat share and trust in political parties. These variables are proxies for party size and the general trust of the public in politicians, respectively. Column 2 adds other controls used in the baseline results such as an index of democracy and party characteristics. Columns 3 and 4 perform a falsification test using *primary opposition*.

Consistent with the previous results, I find that primary-nominated presidents also enjoy higher popular trust. The increase in popular trust is significant: around 9 percentage points or 0.6 standard deviations. Note that this increase in trust is associated with the president's nomination procedure, not with the use of primaries by other parties.

Taken together, the previous results suggest that the quality of government is perceived as better during the mandate of primary-nominated presidents. The results are driven by the nomination procedure of the elected president, not by the use of primaries in general.

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[21]Including fixed effects produces similar point estimates, but the results are statistically insignificant.

Table 2: Primaries and quality of government

	Index of government antidiversion policies				Components of the index			Index of government antidiversion policies	
					Quality of bureauc.	Corruption in gov.	Rule of law		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Primary	0.120**	0.136***	0.103**	0.067*	0.101**	0.071*	0.030		0.065*
	(0.049)	(0.045)	(0.048)	(0.038)	(0.049)	(0.041)	(0.057)		(0.039)
Primary opposition								0.025	0.009
								(0.036)	(0.036)
Seat share		0.871	0.707	0.754	1.602	0.230	0.429	0.533	0.757
		(0.899)	(0.909)	(0.844)	(1.075)	(0.633)	(1.224)	(0.898)	(0.854)
Seat share^2		-0.640	-0.633	-0.863	-1.719	-0.203	-0.668	-0.579	-0.860
		(1.089)	(1.085)	(0.878)	(1.095)	(0.716)	(1.331)	(0.918)	(0.884)
Mandatory primaries		-0.075	-0.049	-0.082	-0.125	0.008	-0.128	-0.068	-0.085
		(0.064)	(0.061)	(0.054)	(0.075)	(0.056)	(0.078)	(0.054)	(0.053)
Ln(party age)		-0.024**	-0.029***	-0.006	-0.021	-0.031	0.033	-0.007	-0.006
		(0.010)	(0.010)	(0.020)	(0.026)	(0.023)	(0.041)	(0.021)	(0.020)
Coalition party		0.092*	-0.000	-0.005	0.030	-0.101	0.054	-0.011	-0.004
		(0.052)	(0.056)	(0.076)	(0.089)	(0.080)	(0.139)	(0.077)	(0.078)
Democracy index		0.023*	0.021	0.005	0.033*	0.016	-0.035	0.006	0.004
		(0.014)	(0.013)	(0.017)	(0.019)	(0.013)	(0.028)	(0.018)	(0.017)
Country fixed effects	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	85	71	68	71	71	71	71	71	71
R-squared	0.135	0.313	0.214	0.767	0.787	0.813	0.790	0.755	0.767

Notes: Robust standard errors in parenthesis. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include quinquenium fixed effects and are weighted using the number of annual observations. Column 3 excludes observations from Chile. Columns 4 to 9 include country fixed effects. See Appendix A for definition of variables.

Table 3: Primaries and trust in president

| | Trust in president | | | |
	(1)	(2)	(3)	(4)
Primary	0.092** (0.043)	0.103** (0.049)		0.109** (0.053)
Primary opposition			-0.037 (0.038)	-0.045 (0.042)
Seat share	-0.011 (0.178)	-0.084 (0.177)	-0.038 (0.179)	-0.071 (0.176)
Trust in political parties	0.944*** (0.209)	0.967*** (0.218)	1.208*** (0.200)	1.000*** (0.220)
Mandatory primaries		-0.072 (0.054)	-0.002 (0.036)	-0.059 (0.054)
Ln(party age)		0.008 (0.010)	0.009 (0.011)	0.004 (0.011)
Coalition party		0.079 (0.047)	0.123** (0.046)	0.063 (0.051)
Democracy index		-0.013 (0.010)	-0.011 (0.010)	-0.010 (0.010)
Country fixed effects	No	No	No	No
Observations	39	39	39	39
R-squared	0.550	0.690	0.661	0.704

Notes: Robust standard errors in parenthesis. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include quinquenium fixed effects and are weighted using the number of annual observations.

4 Exploring the mechanism

The results in the previous section suggest a positive relation between presidential primaries and quality of government. A crucial question, however, is why democratic nomination procedures —such as primaries— would affect the performance of elected politicians.

While the list of explanations is potentially quite large, I focus the attention on explanations related to the party decision to use primaries. Studying primary determinants may shed some light on the mechanisms through which primaries affect governance. Moreover, it may also give us guidelines on how to improve the identification strategy.

The literature on primary determinants suggests at least two main reasons why parties may use primaries: increase in political competition and candidates' incentives (incentive effect), and improvement in political selection (selection effect).[22] The incentive effect comes from the increase in political competition associated to primaries. In this view, parties use primaries to increase competition and regulate incentives among candidates to exert effort before the electoral campaign, e.g., investing in policy design or recruiting policy advisors (Caillaud and Tirole, 2002; Castanheira et al., 2010). Too much competition, or too little, would hinder candidates' pre-electoral incentives.

A complementary explanation focuses on political selection. In this view, primaries act as screening devices helping parties to select the best candidate (Adams and Merrill, 2008; Serra, 2011). In these models, quality of candidate can be interpreted in a broad sense as valence, charisma or ideological preference. Notice that we can include improvement in political representation in this argument, e.g., allowing parties to select politicians with preferences closer to the median voter. Either effect (incentive or selection) would improve a party's electoral performance and may also explain the increase in quality of

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[22]I focus on these two mechanisms because they have been explicitly incorporated in models of endogenous primary adoption, see for example Castanheira et al. (2010) and Serra (2011). There are, however, other benefits associated to primaries that may explain their adoption. For example, Kemahlioglu et al. (2009) argue that primaries allow parties to solve internal conflict. In a related work, Hortala-Vallve and Mueller (2010) develop a model wherein parties adopt primaries to avoid costly party splits. Meirowitz (2005) presents a model in which primaries allow voters an early chance to reveal their preferences, while Jackson et al. (2007) argue that primaries allow a party to credibly commit to more centrist policies.

government.

In a related paper, Aragón (2011) examines a model of endogenous primaries that links these two effects to strength of partisan support enjoyed by a vote-maximizing party.[23] Partisan support is defined as the proportion of voters who vote for the party regardless of the quality of its candidate or economic policies. This variable can also be interpreted as an inverse measure of inter-party political competition: parties with stronger partisan support face less competition.

The main insight of the model is that the relation between partisan support and primary adoption depends of which effect is more relevant: *negative* if the selection effect is more relevant, and *positive* if the incentive effect is more important.[24] This insight motivates the use of measures of partisan support as instruments of primary adoption. Moreover, it suggest that the first stage can be informative of why primaries would affect quality of government.

To explore these issues, I estimate the baseline regression (1) by 2SLS using as a measure of partisan support the average party's seat share in the previous two legislative elections (*previous seat share*).

Table 4 displays the results of this exercise. Column 1 estimates the most parsimonious specification, while columns 2 and 3 populate the model with control variables, such as party's size and age, country's democracy index, and country fixed effects. Column 4 adds as included instruments other primary determinants suggested in the literature, such as party ideology, status as a pre-electoral coalition, and use of primaries by the main opposition party (Kemahlioglu et al., 2009). In all cases, the results confirm the positive and

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[23]See Appendix C for a formal exposition of the model.

[24]To see the intuition, consider a case when candidates are of heterogeneous quality and their effort is fixed In this scenario, only political selection matters, and parties may adopt primaries if they help them pick up the best politician and attract undecided voters. This benefit of primaries declines with partisan support, since there are fewer voters to attract. Hence larger partisan support will reduce primary adoption. In contrast, if candidates are homogeneous but their effort levels are not fixed, only incentives would matter. In this case, if the cost of effort is borne by the candidate, then candidates' optimal effort would be lower than the party's. Primaries are beneficial to the party since they allow it to extract the maximum level of effort from candidates who are competing for the party nomination. This benefit increases with partisan support (i.e., less political competition) since in that case candidates have even lower incentives to exert effort.

significant correlation between primaries and quality of government documented in the previous section. The estimates are even larger than in the OLS regressions. A possible explanation is that the instrumental variable estimates the local average treatment effect. Hence, it reflects the effect of primaries in cases when the president's party adopt them mainly to increase intra-party competition and not for other reasons. The magnitude of the effect in this case is likely to be larger than for the average party.

The panel at the bottom displays the first stage. Note that there is a positive relation between partisan support and primary adoption.[25] I interpret this result as evidence that primaries may improve quality of government by helping parties to increase political competition, and the pre-electoral incentives of presidential candidates.[26]

These results should be, however interpreted with caution. The instrument would be valid to the extent that, conditional on other control variables, partisan support affects quality of government only through its effect on the party choice of nomination procedure. I do control for other observable primary determinants and factors that may influence quality of government, such as current party size, age, ideology, and so on. This strategy reduces the scope for omitted variables and increases the confidence on the results. There is the possibility, however, that there are other unobserved variables correlated both to the measure of partisan support and quality of government that may invalidate the instrument's exclusion restriction.

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[25]See Table 5 in Appendix B for the full first-stage results. Also note than weak instruments is less of an issue in this case since the system is just identified, and hence 2SLS estimates are median unbiased.

[26]Exploiting within party variation and a larger sample, Aragón (2011) finds a similar positive relation between partisan support and primary adoption.

Table 4: Primaries and quality of government: IV approach

	(1)	(2)	(3)	(4)
	Index of government anti-diversion policies			
Primary	0.258*	0.741*	0.354*	0.397*
	(0.145)	(0.387)	(0.190)	(0.207)
Seat share		1.970	1.605*	1.578*
		(1.284)	(0.837)	(0.918)
Seat share^2		-2.018	-1.810*	-1.987*
		(1.499)	(0.967)	(1.163)
Mandatory primaries		-0.326*	-0.152*	-0.167*
		(0.176)	(0.087)	(0.097)
Ln(party age)		-0.062*	-0.008	0.004
		(0.035)	(0.022)	(0.024)
Coalition party		-0.014	-0.015	0.049
		(0.121)	(0.093)	(0.094)
Democracy index		0.017		
		(0.025)		
Primary (opposition)				-0.120
				(0.100)
Pre-electoral coalition				-0.126
				(0.128)
Centrist party				-0.090
				(0.097)
Country fixed effects	No	No	Yes	Yes

First stage: Dependent variable = Primary

	(1)	(2)	(3)	(4)
Previous seat share	0.629***	0.458**	0.613**	0.580**
	(0.187)	(0.223)	(0.293)	(0.274)
F-stat excl. instruments	11.26	4.22	4.37	4.47
Observations	96	80	78	70

Notes: Robust standard errors in parenthesis. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include quinquenium fixed effects. First stage only reports estimates of excluded instruments. See Table 5 in Appendix B for full results of first stage. All regressions are estimated using 2SLS and are weighted using the number of annual observations.

5 Final remarks

This paper studies empirically the relation between party nomination procedures and quality of government. Using the case of Latin American presidential candidates, I find evidence of a positive and robust correlation between the use of democratic procedures (such as primaries) and quality of government. This relation seems to be driven by the increase in intra-party competition, and the subsequent increase in candidates' pre-electoral incentives.

The main contribution of the paper is to take a step towards studying empirically the importance of party organizations for governance. This is an aspect of democracies which is still not well understood, but that may be relevant to understand the effectiveness of other checks and balances, such as competitive elections or informative media.

I focus only on candidate nomination procedures. In reality, party organizations have much richer institutional features. There are, for example, differences in the procedures to recruit and train politicians, communicate with citizens, or finance their activities. Studying this institutional heterogeneity may help us understand how parties work and, ultimately, how they contribute to the functioning of democracy. While beyond the scope of this paper, these questions deserve further investigation.

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A Variables and data sources

I. Nomination procedures

Variable	Description	Source
Primary	1 if president was nominated in a primary	Carey and Polga-Hecimovich (2007)
Primary opposition	1 if candidate of main opposition party was nominated in a primary	Carey and Polga-Hecimovich (2007). Definition of main opposition party comes from Database of Political Institutions 2010.

II. Quality of government and popular trust

Variable	Description	Source
Quality of bureaucracy	Assessment of the institutional strength and quality of the bureaucracy. Value normalized to 0-1. Higher values reflect better bureaucracy.	International Country Risk Guide (ICRG)
Corruption in government	Assessment of corruption within political system. Value normalized to 0-1. Higher values reflect lower corruption.	International Country Risk Guide (ICRG)
Rule of law	Assessment of the strength and impartiality of the legal system and popular observance of the law. Original name in ICRG is "Law and Order". Value normalized to 0-1.	International Country Risk Guide (ICRG)
Index of government anti-diversion policies	Average of previous 3 variables.	
Trust in president	Percentage of population that has a lot or some trust in president. Omitted categories are: little or no trust in president.	Latinobarómetro
Trust in political parties	Percentage of population that has a lot or some trust in political parties. Omitted categories are: little or no trust in political parties.	Latinobarómetro

III. Other variables

Variable	Description	Source
Democracy index	Country average of index of institutionalized democracy. Score 0-10.	Polity IV
Mandatory primaries	1 if country's electoral legislation required use of primaries.	Alcántara Sáez (2002), Freidenberg (2003) and Carey and Polga-Hecimovich (2007)
Centrist party	1 if president's party is centrist (e.g. party advocates strengthening private enterprise in a social-liberal context)	Database of Political Institutions 2010
Seat share	Proportion of (lower house) seats obtained by the president' party in the legislative election held simultaneously or immediately before the presidential election.	Center on Democratic Performance and Political Database of the Americas
Previous seat share	Average seat share obtained by the president's party in two legislative elections before the presidential election.	Center on Democratic Performance and Political Database of the Americas
Party age	Age of president's party in the year of presidential election (years)	Political Database of the Americas
Coalition party	1 if president endorsed by more than one political party before or after the selection process.	Carey and Polga-Hecimovich (2007)
Pre-electoral coalition	1 if president was endorsed by more than one political party before the selection process.	Carey and Polga-Hecimovich (2007) and Kemahlioglu et al. (2009).

B   Additional results

Table 5: Primaries and quality of government: first stage

	(1)	(2)	(3)	(4)
		Primary		
Previous seat share	0.629***	0.458**	0.613**	0.580**
	(0.187)	(0.223)	(0.293)	(0.274)
Seat share		-0.594	-1.889	-2.126
		(1.635)	(1.860)	(1.724)
Seat share^2		0.420	1.634	2.642
		(1.877)	(2.200)	(2.089)
Mandatory primaries		0.321**	0.256	0.163
		(0.147)	(0.174)	(0.186)
Ln(party age)		0.047	-0.055	-0.057
		(0.032)	(0.052)	(0.051)
Coalition party		0.158	-0.134	-0.077
		(0.138)	(0.146)	(0.196)
Democracy index		0.035		
		(0.033)		
Primary (opposition)				0.277
				(0.181)
Pre-electoral coalition				0.338*
				(0.193)
Centrist party				-0.137
				(0.169)
Country fixed effects	No	No	Yes	Yes
Observations	96	80	78	70
R-squared	0.233	0.372	0.369	0.501

Robust standard errors in parenthesis. * denotes significant at 10%,
** significant at 5% and *** significant at 1%. All regressions include
quinquenium fixed effects. The results are the first stage estimates of
regressions in Table 4.

Table 6: Primaries and quality of government - using annual data

	(1)	(2)	(3)	(4)	(5)
	Index of government anti-diversion policies				
Primary	0.097**	0.110***	0.049**		0.048*
	(0.043)	(0.036)	(0.024)		(0.024)
Primary (opposition)				0.027	0.006
				(0.029)	(0.027)
Seat share		1.439*	0.840*	0.703	0.835*
		(0.822)	(0.455)	(0.450)	(0.453)
Seat share^2		-1.336	-0.951*	-0.798	-0.942*
		(1.016)	(0.526)	(0.513)	(0.522)
Mandatory primaries		-0.111**	-0.051	-0.045	-0.053
		(0.047)	(0.044)	(0.044)	(0.043)
Ln(party age)		-0.012	-0.011	-0.010	-0.011
		(0.009)	(0.014)	(0.014)	(0.014)
Coalition party		0.084*	-0.073	-0.079	-0.073
		(0.048)	(0.074)	(0.074)	(0.074)
Democracy index		0.032**			
		(0.013)			
Country F.E.	No	No	Yes	Yes	Yes
Observations	388	327	327	327	327
R-squared	0.145	0.312	0.707	0.700	0.707

Notes: Robust standard errors in parenthesis. Standard errors are clustered at president's mandate level. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include year fixed effects.

- NOT FOR PUBLICATION -

C   A model of endogenous primaries

This section is based on a model developed in Aragón (2011). The model analyzes the party decision to use primaries and stresses two possible benefits: gains from creating incentives among candidates (incentive effect) and gains from improving candidate selection (selection effect).

These two mechanisms for primary adoption have received special attention in the literature of primary determinants. In a seminal paper, Caillaud and Tirole (2002) model primaries as tools to regulate political competition and maximize the effort put by politicians in the design of electoral platforms. In a complementary view, Adams and Merrill (2008) and Serra (2011) develop models of primary adoption where primaries improve selection of the candidate with better campaigning skills. In a related work, Castanheira et al. (2010) develop a model of primary adoption that include both the incentive and selection effects. Their model is richer since it includes the strategic interaction between two parties and voters. This allows for parties to compete by choosing the nomination procedure, and use it as a signal of politician's quality.

C.1   The basic setup

Consider an office-seeking party that nominates a candidate to run in presidential elections. The vote share obtained by the party candidate depends of the quality of the candidate q_c, the effort exerted by the party candidate during the electoral campaign e, and the relative size of the party's partisan support (i.e. citizens who will vote for the party regardless of the candidate's type or effort) λ.[27]. In particular, the party's vote share is

$$\lambda + (1 - \lambda)(\phi_s q_c + \phi_i e),$$

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[27] Alternatively, we can interpret λ as an inverse measure of inter-party political competition, as in Besley et al. (2010)

The parameters ϕ_s and ϕ_i capture the relative importance of selection and incentives to attract non-partisan voters. The element $(1 - \lambda)(\phi_s q_c + \phi_i e)$ can be interpreted as the proportion of non-partisan voters attracted to the party candidate due to is quality q_c or effort e.

I define e as the effort exerted by the candidate during the electoral campaign. In Caillaud and Tirole (2002) and Castanheira et al. (2010), this effort is interpreted as investments on improving policy design. More broadly, it can represent any pre-electoral action that increases the candidate's electoral performance such as participation in public debates, canvassing, or campaign spending. In contrast, quality represents an invariant characteristic of the politician that improves her electoral performance. It could correspond to the campaigning skills as in Adams and Merrill (2008) or to the politician's charisma, honesty or valence.

Before nominating its candidate, the party needs to choose a nomination procedure. There are two nomination procedures $\mathcal{N} = (P, NP)$, where P stands for primary and NP for non-primary, respectively. If the party uses NP, a politician is randomly selected and automatically becomes the party candidate. In contrast, under P, two randomly drawn politicians compete in internal elections and the party picks up its preferred candidate. The party observes both politicians' quality and effort perfectly. The level of effort, however, is decided by the politician before the nomination takes place.

Let us denote the expected vote share under nomination procedure $\mathcal{N}$ as $V_\mathcal{N}$, and the electoral benefit from using primaries as $V \equiv V_P - V_{NP}$. I assume that the probability of using a primary is increasing on V.

The timing of events is as follows:

1. Party chooses a nomination procedure.

2. Politicians are randomly chosen to be considered in the party nominations.

3. Politicians decide level of effort.

4. Party nominates a candidate.

5. Candidate runs in general election.

C.2 Selection effect

Let us start with a case where only selection matters. In this case, $\phi_s = 1$ and $\phi_i = 0$ and hence the expected party vote share is $V_{\mathcal{N}} = \lambda + (1 - \lambda)E(q_c|\mathcal{N})$. Note that the party is a vote maximiser and hence strictly prefers a higher q.

Politicians' quality is uniformly distributed, $q \sim U[0, 1]$. In a non-primary, a random politician becomes the party candidate, thus $E(q_c|NP) = \frac{1}{2}$. In contrast, in a primary, the party is able to select the best candidate among the two randomly selected politicians. Let q_1 and q_2 be the quality of the two randomly drawn politicians, then $E(q_c|P) = E(\max\{q_1, q_2\}) = \frac{2}{3}$.[28]

Note that primaries improve political selection by giving the the party the opportunity to observe the quality of the potential candidates. The improvement in candidate selection translates into better electoral performance. In particular, the expected electoral gain from using primaries is $V = (1 - \lambda)(E(q_c|P) - E(q_c|NP)) > 0$.

The electoral gain from primaries is decreasing in λ. Intuitively, a party with a large electoral advantage benefits less from improving candidate's quality, and thus the selection benefit from primaries is smaller. This result implies that the probability of using a primary, which is positively related to V, would also be decreasing in λ.

C.3 Incentive effect

Let us consider now an alternative scenario where only incentives matter. In that case, $\phi_s = 0$ and $\phi_i = 1$, and thus the party's vote share is $\lambda + (1 - \lambda)e_{\mathcal{N}}$, where $e_{\mathcal{N}}$ is the candidate's effort under nomination procedure $\mathcal{N}$.

The politicians' utility depends of some egorents from office, normalized to 1, minus the cost of effort. Note that a politician wins office only when the party wins the general election *and* the politician wins the party nomination. For simplicity, I assume that the probability the party wins the election is equal to the party vote share and a quadratic

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[28]To see this, define $G(x) = \Pr(\max\{q_1, q_2\} < x)$. Note that $G(x) = \Pr(q_1 < x) \times \Pr(q_2 < x) = x^2$. Hence $E(\max\{q_1, q_2\}) = \int_0^1 x \, dG = \frac{2}{3}$.

cost of effort. This implies that the expected utility of a politician under nomination procedure $\mathcal{N}$ is

$$U_{\mathcal{N}} = [\lambda + (1-\lambda)e]\Pr(\text{win party nomination}|\mathcal{N}) - \frac{ce^2}{2},$$

where c is a cost shifter high enough to guarantee $e_P, e_{NP} < 1$. A politician's outside option gives her a utility of zero.

Optimal effort In a non-primary, the randomly selected politician is also the party candidate. Hence the candidate's optimal effort is simply

$$
\begin{aligned}
e_{NP} &= \arg\max_{e} \lambda + (1-\lambda)e - \frac{ce^2}{2} \\
&= \frac{1-\lambda}{c}.
\end{aligned}
$$

Under a primary, however, the optimal effort can be thought of as the outcome of a sequential game between politicians and the party. In a first stage, the politicians simultaneously decide their level of effort. In a second stage, the party picks up the best available candidate. Recall that the effort level, similarly to the politician's quality in the previous case, is perfectly observable by the party.

Since the party maximizes vote share, it strictly prefers the candidate with the higher e. By symmetry, both politicians exert the same level of effort, and thus have the same probability of nomination. This setup resembles a Bertrand competition where two identical politicians compete between them for the party nomination by promising to exert some effort.

In the unique SPNE, both politicians exert the maximum possible level of effort such

that their expected utility is zero. Hence, e_P solves:[29]

$$U_P(e_P) \equiv [\lambda + (1-\lambda)e_P]\frac{1}{2} - \frac{ce_P^2}{2} = 0$$

Lemma 1 *In a primary, the effort level exerted by the party candidate is greater than in a non-primary: $e_P > e_{NP}$. The difference $e_P - e_{NP}$ is increasing in λ.*

Proof. Note that $U_P(e_{NP}) = \frac{\lambda}{2} > 0$ and that $U'_P(e_{NP}) = -\frac{1-\lambda}{2} < 0$. Together these results imply that $e_P > e_{NP}$. For the second part of the lemma, recall that $e_{NP} = \frac{1-\lambda}{c}$, thus $\frac{de_{NP}}{d\lambda} = -\frac{1}{c}$. Taking total derivatives to $U_P(e_P)$ we obtain $\frac{de_P}{d\lambda} = \frac{(1-e_P)/2}{c(e_P - e_{NP}/2)}$ which is positive since $e_P < 1$, by construction, and $e_P > e_{NP}$. ∎

Similar to the models by Caillaud and Tirole (2002) and Castanheira et al. (2010), primaries increase internal competition and candidate's effort. A less obvious result is that the difference increases with the party electoral advantage. Intuitively, the increase in λ reduces the marginal benefit of effort, and hence e_{NP}. In contrast, higher λ increases the expected benefit from holding office and hence the maximum effort that politicians are willing to exert in a competitive primary.

The increase in candidate's effort translates into better electoral performance. In particular, the party expected gain from using primaries (the incentive gain) is $V \equiv (1-\lambda)(e_P - e_{NP})$. Note that, in general, the sign of $\frac{dV}{d\lambda} = (1-\lambda)\frac{d(e_P - e_{NP})}{d\lambda} - (e_P - e_{NP})$ is ambiguous. On the one hand, there is a first order effect of increasing the difference $(e_P - e_{NP})$, as shown in Lemma 1. On the other hand, there is a second order effect of reducing the marginal benefit of improving effort . We can show, however, that:

Lemma 2 *If the electoral advantage is not too large ($\lambda < \bar{\lambda}$), the incentive gain from using primaries increase with the party electoral advantage, $\frac{dV}{d\lambda} > 0$.*

Proof. Using the proof of Lemma 1 and the definition of e_{NP}, we can write $\frac{\partial V}{\partial \lambda} =$

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[29]To see this consider a possible strategy where both politicians offer the same level of effort $e_a < e_P$ and have a probability of nomination equal to $\frac{1}{2}$. Since the probability of nomination increases to 1 by a small increase in effort $e_a + \epsilon$, a politician will find it a profitable unilateral deviation, and the strategy profile will not be an equilibrium. Similar argument applies for strategies with different effort level.

$2e_{NP} - e_P + \frac{e_{NP}(1-e_P)}{2e_P - e_{NP}}$. Note that if $e_P < 2e_{NP}$ then $\frac{dV}{d\lambda} \lesseqgtr 0$, but if $e_P < 2e_{NP}$, then $\frac{dV}{d\lambda} > 0$, but if $e_P < 2e_{NP}$ we can unambiguously state that $\frac{dV}{d\lambda} \lesseqgtr 0$. The condition $e_P < 2e_{NP}$ is satisfied if $U'_P(2e_{NP}) < 0$ and $U_P(2e_{NP}) < 0$. $U'_P(2e_{NP}) < 0$ since $U'_P < 0$ for any $e > \frac{e_{NP}}{2}$. To evaluate the second condition, note that $U'_P(2e_{NP}) = -\frac{1}{c}[\lambda^2 - \lambda(\frac{c}{2}+2)+1]$. This expression is negative if $\lambda \in (0, \bar{\lambda})$, where $\bar{\lambda} = 1 + \frac{c}{4} - \frac{\sqrt{(c/2+2)^2-4}}{2}$. ∎

C.4   Summary

The model highlights two electoral benefits from primaries: selection and incentive gains. More importantly, it predicts a differentiated effect of the party electoral advantage (λ) on the electoral benefits V, and through this channel on the probability of adopting a primary. We can summarize the previous results as follows:

Proposition 3 *Under the assumption that the likelihood of using a primary is positively correlated to their net benefits, V, then:*

1. *when the selection effect dominates, the probability of using primaries is decreasing in λ,*

2. *when the incentives effect dominates, and λ is not too large ($\lambda < \bar{\lambda}$), the probability of using primaries is increasing in λ.*

Intuitively, the increase in λ reduces the gains from selecting a better candidate, since the party has a larger partisan support. This reduces the magnitude of the selection effect. In contrast, the reduction in inter-party competition associated to a larger λ reduces candidates incentives to exert effort. In turn, this increases the gains from increasing intra-party competition and makes the use of primaries more attractive.