

Why do parties use primaries?:

Political selection versus candidate incentives

ON-LINE APPENDIX

Fernando M. Aragón

A Extension with imperfect information

Consider the same setup as in the baseline model, but assume now that the party observes imperfectly politicians' type and effort. In particular, with probability α the party observes the type or effort, and with complementary probability does not observe them.

The timing of the events now is:

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. With probability α , the party observes the type (or effort) of the politicians
5. Party nominates a candidate.
6. Candidate runs in general election.

A.1 Selection effect

Similarly to the baseline model, the expected party vote share is $V_{\mathcal{N}} = \lambda + (1 - \lambda)E(q_c|\mathcal{N})$. In the case of non-primary nominations, the candidate's expected quality remains the same i.e. $E(q_c|NP) = \frac{1}{2}$. In contrast, in a primary, $E(q_c|P) = (1 - \alpha)\frac{1}{2} + \alpha E(\max\{q_1, q_2\})$. Under the assumption $q \sim U[0, 1]$, $E(q_c|P) = \frac{1}{2} + \frac{\alpha}{6}$.

Note that the expected electoral gains from using primaries (the selection effect) is $V = (1 - \lambda)\frac{\alpha}{6}$ which, as in the baseline model, is positive and decreasing in λ . Also note that the expected gains increase with α .

A.2 Incentive effect

Similarly to the baseline model, the expected utility of a politician under nomination procedure \mathcal{N} is:

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

in the case of a non-primary, the candidate's optimal policy remains:

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

In a primary, however, the expected utility of candidate i before the nomination is:

$$EU_{\mathcal{P}} = (1 - \alpha)[\lambda + (1 - \lambda)e_i] \frac{1}{2} + \alpha[\lambda + (1 - \lambda)e_i]k - \frac{ce_i^2}{2},$$

where $k = 1$ if $e_i > e_j$, $k = 0$ if $e_i < e_j$ and $k = 1/2$ if $e_i = e_j$. Note that when the party does not observe effort, it randomly chooses between both candidates, and hence the probability of nomination is $1/2$. In contrast, when the party observes effort, it picks up the candidate with highest effort. This creates a discontinuity in the expected utility, which ‘‘jumps’’ around $e_i = e_j$.

Similar to the baseline model, the interaction between candidates resembles a bidding game and, if α is large enough, there is a unique SPNE where both politicians exert the maximum level of effort e_P that solves:

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

To see this consider a possible symmetric strategy $e_i = e_j < e_P$. By increasing e_i slightly above e_j a candidate can increase the probability of party nomination. Let us denote by Δ the increase in expected utility when a candidate deviates from $e_i = e_j$ by increasing effort by an infinitesimal amount i.e. $\Delta = \lim_{\epsilon \rightarrow 0} EU_{\mathcal{P}}|_{e_i=\epsilon+e_j} - EU_{\mathcal{P}}|_{e_i=e_j}$. Note that $\Delta = (1 - \alpha)(1 - \lambda)\frac{e_i}{c} + \alpha[\lambda + (1 - \lambda)e_i]\frac{1}{2} - ce_i$. If $\alpha > \frac{2c-(1-\lambda)}{\lambda} \equiv \bar{\alpha}$ then $\Delta > 0$ for every $e_i \in (0, 1)$ and politicians always find profitable to outbid each other by increasing effort.¹

¹I also need to impose a parametric assumption to bound the values of $\bar{\alpha} \in (0, 1)$. In particular we need to

Note that the predictions remain similar to the baseline model. In particular, the optimal levels of effort e_P and e_{NP} are exactly the same as in the case of perfect information. For that reason we can still apply lemmas 1 and 2. The only difference is that now these results only apply if α is large enough.²

B Additional tables

assume that $c \in (\frac{1-\lambda}{2}, \frac{1}{2})$.

²Note that if $\alpha = 0$, $e_P < e_{NP}$ and parties will strictly prefer to use a non-primary nomination procedure.

Table B.1: Definition of variables and data sources

	Variable	Definition	Sources
1	Primary	1 if presidential candidate was nominated in a primary (open or closed), 0 otherwise	Carey and Polga-Hecimovich (2007)
2	Other party uses primary	1 if other party used primary in the same electoral process, 0 otherwise	Carey and Polga-Hecimovich (2007)
3	Legal mandate to use primaries	1 if the country's electoral legislation required the use of primaries, 0 otherwise	Alcantara (2002), Freidenberg (2003) and Carey and Polga-Hecimovich (2007)
4	<i>SEATSHARE</i>	Proportion of legislative seats obtained by the candidate's party in the legislative election held simultaneously or immediately before the presidential election. In case of bicameral legislatures, it considers number of seats in the lower chamber.	Center on Democratic Performance and Political Database of the Americas
5	<i>SEATSHARE1</i>	Seat share obtained by the candidate's party in the legislative election associated to the previous presidential election	Center on Democratic Performance and Political Database of the Americas
6	Presidential vote share	Proportion of votes obtained by the party presidential candidate	Carey and Polga-Hecimovich (2007)
7	<i>VOTESHARE1</i>	Proportion of votes obtained by the party presidential candidate in the previous election	Carey and Polga-Hecimovich (2007)
8	Win presidential election	1 if party candidate win presidential election, 0 otherwise	Carey and Polga-Hecimovich (2007)
9	Party age	Age of party in the year of presidential election (years)	Political Database of the Americas
10	Incumbent party	1 if incumbent president during the presidential election belongs to party, 0 otherwise	Carey and Polga-Hecimovich (2007)
11	Pre-electoral coalition	1 if party candidate was jointly endorsed by more than one political party, 0 otherwise. It corresponds to the broad definition of coalition in Kemahlioglu et al (2009).	Carey and Polga-Hecimovich (2007) and Kemahlioglu et al (2009).
12	Nr. candidates	Number of presidential candidates in a given election	Carey and Polga-Hecimovich (2007)

Table B.2: Mean comparison of variables available for full and panel sample

Variables	All candidates (1)	Panel sample		Difference (2) - (3)
		Yes (2)	No (3)	
Primary	0.073 (0.261)	0.155 (0.362)	0.048 (0.214)	0.107 (0.021)
Presidential vote share	0.119 (0.169)	0.271 (0.180)	0.072 (0.134)	0.199 (0.012)
Win presidential election	0.120 (0.325)	0.294 (0.457)	0.065 (0.248)	0.228 (0.025)
Incumbent party	0.101 (0.302)	0.299 (0.459)	0.040 (0.196)	0.259 (0.023)
Pre-electoral coalition	0.225 (0.418)	0.280 (0.450)	0.208 (0.406)	0.071 (0.035)
Nr. Observations	820	194	626	
Nr. Parties	494	58	436	

Note: Standard errors in parenthesis.

Figure B.1: Predicted increase in probability of winning the presidential election of primary-nominated presidents

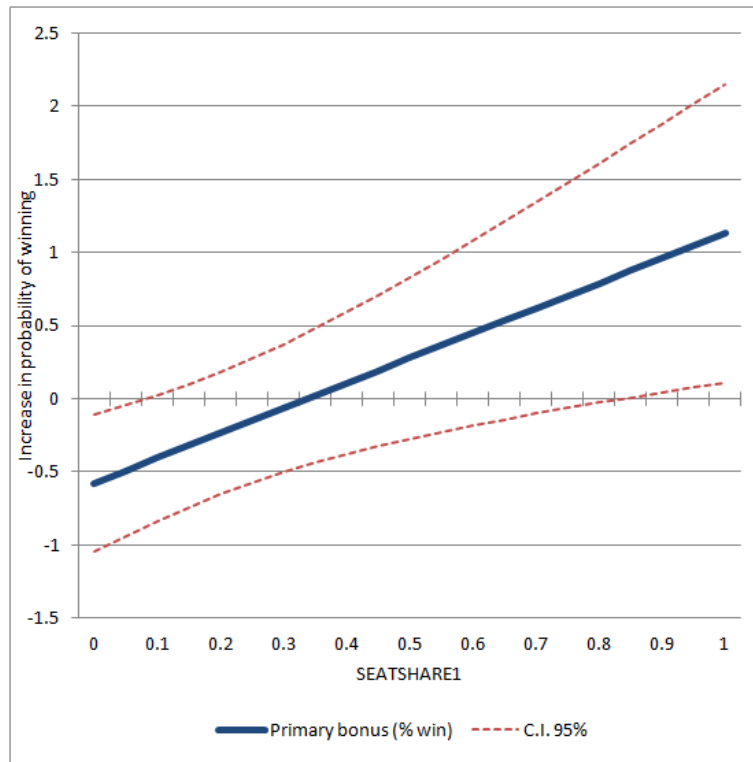


Table B.3: Replication of Table 3 without clustering S.E. at party level

	Dependent variable = Primary					
	(1)	(2)	(3)	(4)	(5)	(6)
	<u>A. Main results</u>			<u>B. Alternative measures of λ</u>		
SEATSHARE1	0.371** (0.152)	0.398*** (0.114)	0.514*** (0.125)	0.513** (0.202)		
SEATSHARE2				0.153 (0.143)		
VOTESHARE1					0.303** (0.152)	
AVERAGE12						0.478* (0.255)
Other party uses primary	0.068 (0.105)	0.100 (0.099)		0.081 (0.122)	0.055 (0.092)	0.062 (0.128)
Legal mandate to use primaries	0.511*** (0.128)	0.423*** (0.116)		0.394* (0.210)	0.432*** (0.129)	0.403* (0.214)
Pre-electoral coalition	-0.266** (0.105)					
Party age	0.006 (0.010)					
Incumbent party	-0.010 (0.072)					
Party fixed effects	Yes	No	No	Yes	Yes	Yes
Year fixed effects	Yes	Yes	No	Yes	Yes	Yes
Observations	144	194	194	119	194	119
Number of parties	41	58	58	38	58	38
R-squared	0.482	0.394	0.086	0.317	0.377	0.294

Notes: Robust standard errors in parentheses. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions are estimated using a linear probability model. All regressions, except column3, include election year fixed effects. Columns 1, 4, 5 and 6 include political party fixed effects.

Table B.4: Robustness - logit models

	Dependent variable = Primary		
	(1)	(2)	(3)
SEATSHARE1	4.062** (1.714)	3.343* (1.900)	1.521 (3.678)
Other party uses primary	1.741*** (0.590)	1.136 (0.704)	2.031** (0.910)
Legal mandate to use primaries	1.990*** (0.642)	2.092*** (0.777)	1.308 (0.935)
Pre-electoral coalition	-0.435 (0.681)	-1.328 (1.143)	
Party age	0.004 (0.006)	0.003 (0.012)	
Incumbent party	0.174 (0.604)	0.114 (0.651)	
Country fixed effects	No	Yes	No
Party fixed effects	No	No	Yes
Year fixed effects	No	No	No
Observations	150	105	68
Number of parties	41	30	18

Notes: * denotes significant at 10%, ** significant at 5% and *** significant at 1%. Column 1 is estimated using a logit model; while columns 2 and 3 use conditional logit with country and party fixed effects, respectively.

Table B.5: Primaries and Electoral Performance, including interaction with *seat share*

	Presidential vote share		Win presidential election	
	(1)	(2)	(3)	(4)
Primary	0.035 (0.070)	0.027 (0.075)	-0.099 (0.265)	-0.409 (0.357)
Primary × SEATSHARE1	0.311* (0.184)	0.391 (0.237)	2.681*** (0.941)	2.717*** (1.005)
SEATSHARE1	0.013 (0.050)	-0.129** (0.053)	-0.177 (0.271)	-0.773*** (0.219)
Primary × SEATSHARE	-0.300** (0.138)	-0.400** (0.180)	-1.838** (0.797)	-1.635*** (0.570)
SEATSHARE	0.714*** (0.072)	0.910*** (0.054)	2.816*** (0.273)	2.057*** (0.192)
Incumbent party	-0.024 (0.016)	0.009 (0.022)	-0.198*** (0.073)	-0.010 (0.074)
Ln(number of candidates)	-0.010 (0.019)	-0.010 (0.017)	0.003 (0.085)	-0.039 (0.083)
Other party uses primary	-0.050* (0.028)	-0.030 (0.020)	-0.184* (0.107)	-0.143 (0.098)
Party fixed effects	Yes	Yes	Yes	Yes
Observations	184	187	184	187
Number of parties	54	57	54	57
R-squared	0.267	0.303	0.143	0.167

Notes: Standard errors are adjusted for clustering at party level. * denotes significant at 10%, ** significant at 5% and *** significant at 1%. All regressions include election year fixed effects. Regressions in columns 3 and 4 are estimated using a linear probability model. *SEATSHARE* is the party's seat share obtained in the legislative elections contemporaneous to the presidential election.