Ballot design and intraparty fragmentation.
Electronic Voting in Brazil

EITM • University of Houston • June 16-27, 2014
• “... electoral laws have many more components than the system itself. Rules on ballot access, political advertising, or the financing of parties, all affect, or at least we think they may affect, the performance of parties in elections” (Bowler 2006:590)
Argentina 2011
Argentina 2011
Argentina 2011
Colombia 2014

VOTO PARA SENADO DE LA REPÚBLICA CIRCUNSCRIPCIÓN NACIONAL
1. Marquen la casilla correspondiente para votar por el Partido, Movimiento Político o Grupo Significativo de Ciudadanos.

2. Después de marcar el Partido, Movimiento Político o Grupo Significativo, marque aquí el número del candidato a su preferencia para la circunscripción local.

PARTA A

VOTO EXCLUSIVO PARA CIRCUNSCRIPCIÓN ESPECIAL: COMUNIDADES INDÍGENAS SENOADO DE LA REPÚBLICA
1. Marquen la casilla correspondiente para votar por el Partido, Movimiento Político o Grupo Significativo.
2. Después de marcar el Partido, Movimiento Político o Grupo Significativo, marque aquí el número del candidato a su preferencia para la circunscripción especial.

2011 202
Source: Verified Voting
US 2012

Source: Verified Voting
Introduction

• Whether ballot design would make a difference on the expected outcomes given certain electoral system, both at the party and at the system level.
  • Minority representation
  • Party discipline and legislative behavior
  • Responsiveness
  • Fragmentation
  • Turnout
• Can a change in ballot design affect intraparty dynamics?
• Can a change in ballot design alter voters’ accessibility to political alternatives?
• Can a change in ballot design alter voter mobilization opportunities?
Literature

- Whether dynamics are candidate or party-centered is a result of type of list and district magnitude (Carey & Shugart 1995).

- SMPL and MMPR systems with open list lead to candidate-centered politics (Morgenstern 2004, Crisp et al 2004, Jones 2004).

- MMPR and open list leads to intraparty-competition and zero-sum-like game among co-partisans (Ames 2001, Mainwaring and Shugart 1997).

If, and how, ballot design affects intraparty dynamics is unexplored.
Literature on ballot designs has not addressed intraparty dynamics effect. Instead, it focuses on:

- Usability conditions according to voters’ perception (Everett et al. 2006).
- Transparency and reliability in developing countries (Alvarez et al. 2009).
- Informational effects of devices on vote casting (Kimball & Kropf 2005).
- “De facto enfranchisement effect” of less-educated voters (Fujiwara 2010).

Whether these have an effect on intra-party competition levels has attracted little attention.
Literature on the effect of electoral systems on parties and party systems does not include the ballot design as a relevant independent variable.

This paper aims to bridge the literature of the impact of electoral systems on parties and party systems and the literature on changes on ballot design.
Ballot designs and voting mechanisms vary in terms of complexity and how user friendly they are. The simpler they are, the larger the number of voters it appeals to, and the easier to translate preferences into votes.

Thus, simpler ballot designs and voting mechanisms create the conditions for a more competitive electoral offer on the candidate side.

All things remaining equal, systems with simpler ballot designs and voting mechanisms should observe higher levels of competition and thus, a larger effective number of parties or candidates.
Theoretical concept → (intra)party competition
Statistical concept → index of party/candidate fragmentation
Access to political alternatives results from parties/candidates’ outreach and voters’ possibility to express their preferences.

Accessibility increases with district permeability.

If ballot structure enables voters to see past the dominant candidate(s), permeability rises.

Permeability incentivizes challengers to invest resources and target untapped voters.

When the electoral system already incentivizes intraparty competition, ballots enhancing candidate’s visibility can further increase competition.
EITM Step 2

Theoretical analogue → minimize distance between preference and vote choice / opportunity cost minimization

Statistical analogue → matching and regression analysis
Brazil has received wide attention due to its unique political and institutional characteristics:

- Highly fragmented party system.
- Few nationwide political parties.
- Low legislative party discipline.
- Candidates cultivate personal profiles.
- Frequent party label switch.
- High district magnitude and open list combination.
- Capped number of candidate nomination.
- It is possible to vote for one deputy or for the list.
- Seats first assigned by party, then by candidates.
1998 Brazilian Federal House of Representatives elections.

- **Change in Ballot Design** – Traditional paper-ballots were replaced by electronic voting.
- **Quasi-Experiment** – Partial implantation: Capital cities and municipalities over 40,500 voters.
- **Municipal Level Analysis** – 635 municipalities -2/3 of population- used electronic, 4,917 paper ballot.
A Quasi-Experiment

The federal government partially implemented the ballot change, allowing to compare the old paper ballot against the new electronic voting mechanisms.

Control Group:
Paper Ballot

Treatment Group:
Electronic Ballot

- visual aids (candidate pictures),
- guidance on how to proceed,
- familiar input mechanism by using numbers (telephone resembling keypad),
- feedback to the voters.

Source: MIT Political Science
Hypothesis

**H1** – Under MMPR open list system, the introduction of accessibility-enabling changes in ballot structure increases intraparty fragmentation.
### Data & Research Design | H1

**Observation**  | Party/Coalition at the Municipal level

**Method**  | Propensity score matching with replacement

**DV**  | Rae and Taylor’s (1970) Intraparty fragmentation index  
\[ 1 - \sum_{i=1}^{n} c_i^2 \]  
\( n \) is the number of candidates with at least one vote in each party/coalition  
\( c_i^2 \) the square of each candidate’s proportion of all votes

<table>
<thead>
<tr>
<th>IV</th>
<th>Match</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic/Paper Ballot (+)</td>
<td>Illiteracy Rate</td>
</tr>
<tr>
<td>Legislative Incumbent (+)</td>
<td>Per Capita GDP</td>
</tr>
<tr>
<td>Executive Incumbent (+)</td>
<td>Population</td>
</tr>
<tr>
<td>Crowdedness of the List (+)</td>
<td>District Magnitude</td>
</tr>
<tr>
<td>Turnout</td>
<td></td>
</tr>
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</table>
Balance of the Matched Sample (cont.)
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<thead>
<tr>
<th></th>
<th>All</th>
<th>Matched</th>
<th>Mean Treated</th>
<th>Mean Control</th>
<th>Mean Treated</th>
<th>Mean Control</th>
<th>Improvement</th>
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</thead>
<tbody>
<tr>
<td>N</td>
<td>3,207</td>
<td>31,366</td>
<td>3,207</td>
<td>755</td>
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<tr>
<td>Illiteracy</td>
<td>9.38</td>
<td>20.03</td>
<td>9.38</td>
<td>10.40</td>
<td>90.40</td>
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</tr>
<tr>
<td>PIB p/ capita</td>
<td>6,775.98</td>
<td>4,445.87</td>
<td>6,775.98</td>
<td>6,167.49</td>
<td>73.89</td>
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<tr>
<td>Population</td>
<td>264,344.73</td>
<td>209,04.04</td>
<td>264,344.73</td>
<td>334,625.94</td>
<td>71.13</td>
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</tr>
<tr>
<td>District Magnitude</td>
<td>47.31</td>
<td>38.81</td>
<td>47.31</td>
<td>34.14</td>
<td>-54.91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Turnout</td>
<td>0.61</td>
<td>0.49</td>
<td>0.61</td>
<td>0.69</td>
<td>29.62</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
See Presentation
See Presentation
See Presentation
Data & Research Design | H2

Observation  | Party/Coalition at the Municipal level
Method      | Propensity score matching with replacement

DV          | Rae and Taylor’s (1970) Intraparty fragmentation index

IV – Electronic/Paper Ballot
IV – Turnout
IV – Electronic * Turnout
IV – Legislative Incumbent
IV – Executive Incumbent
IV – List Crowdedness

Match – Illiteracy Rate
Match – Per Capita GDP
Match – Population
Match – District Magnitude
See Presentation
Results (H2)

See Presentation
Conclusions

Results show an overall increase of intraparty fragmentation in treatment municipalities.

Results remain unaltered when including fixed effects by region.

Electronic voting exacerbates the intraparty competition.

However, intraparty fragmentation decline conditional on turnout levels. Where turnout increased, intraparty fragmentation decreased in the places with electronic ballot.
Next Steps

Use spatial models to formalize the theory

Time series analysis

Cross sectional analysis

Experiment
Ballot design and intraparty fragmentation.

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