The Anatomy of Voting on the Long Ballot: Evidence from South Carolina Ballot Image Logs

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Motivation: Are national and local electoral politics contested on the same partisan dimension? Contribution: Observed behavior on actual (not self-reported) individual vote choice.

Data: Ballot Image Logs

Past work relies on either opinion surveys or ecological inference (cf. Gerber and Lewis, 2004). Ballot image logs overcome measurement challenges inherent in surveys and aggregate data:

- Individual-level?
- Actual Vote choice observed?
- Down-ballot races observed?
- No selection / sampling error?
- Linkable to commercial data?

The South Carolina Election Commission makes public all voters’ ballot images.

Coverage: All votes cast in South Carolina state elections, 2010-2017

58 elections, including primaries, runoffs, and specials. The four generals featured many offices on the same ballot.

Voters Split their Ticket between Federal and State Offices

Party-line Vote, (i, ii). Voter i votes for Republicans, or Democrats, in both race a and race b. Between federal and state-wide offices, 85-95 percent of voters vote the party line. But among state legislature, county council, judicial, sheriff, and clerk races (all with party-labels), only 50-75 percent of voters vote the party line. The number is lower still with referenda.

Prevalence of Party-line Voting in the 2016 General, by Pairs of Offices (Contested Races only)

<table>
<thead>
<tr>
<th>Race</th>
<th>Voter A</th>
<th>Voter B</th>
<th>Voter C</th>
</tr>
</thead>
<tbody>
<tr>
<td>US House</td>
<td>0.75</td>
<td>0.58</td>
<td>0.38</td>
</tr>
<tr>
<td>County Council</td>
<td>0.73</td>
<td>0.52</td>
<td>0.23</td>
</tr>
<tr>
<td>Sheriff</td>
<td>0.88</td>
<td>0.65</td>
<td>0.30</td>
</tr>
<tr>
<td>Clerk of Court</td>
<td>0.72</td>
<td>0.50</td>
<td>0.25</td>
</tr>
<tr>
<td>State House</td>
<td>0.86</td>
<td>0.64</td>
<td>0.33</td>
</tr>
<tr>
<td>State Senate</td>
<td>0.83</td>
<td>0.62</td>
<td>0.36</td>
</tr>
<tr>
<td>County Council</td>
<td>0.84</td>
<td>0.63</td>
<td>0.33</td>
</tr>
<tr>
<td>Sheriff</td>
<td>0.89</td>
<td>0.65</td>
<td>0.36</td>
</tr>
<tr>
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<td>0.72</td>
<td>0.50</td>
<td>0.27</td>
</tr>
</tbody>
</table>

Dimensionality Reduction: PCA, Hierarchical Clustering, IRT

Encode, for each voter’s vote
- 1: Democrat candidate / Democratic party ticket / Yes on pro-tax referendum
- 0: Abstain / Write-In / No major party ticket selected
+1: Republican candidate / Republican party ticket / No on pro-tax referendum

Voters summarized by three principal components

Three linear combinations of votes explain around 80% of the variance. They appear to separate (i) Democrat-Republican ( > 56%), (ii) federal - subnational ( < 12%), and (iii) a dimension specific to referendum ( < 10%).

Preferences over Local Tax Hikes are not Partisan

When counties hold a referendum for a sales tax hike to fund local infrastructure, many Republicans vote for more Taxes; and a sizable amount of Democrats vote against.

Breakdown of Vote Choice in 27 County Referenda

<table>
<thead>
<tr>
<th>Referendum</th>
<th>Vote for Tax</th>
<th>Vote against Tax</th>
<th>Abstain</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.37</td>
<td>0.36</td>
<td>0.27</td>
<td>1.00</td>
</tr>
<tr>
<td>2</td>
<td>0.35</td>
<td>0.34</td>
<td>0.31</td>
<td>1.00</td>
</tr>
<tr>
<td>3</td>
<td>0.33</td>
<td>0.32</td>
<td>0.35</td>
<td>1.00</td>
</tr>
</tbody>
</table>

One-dimensional ideal points do not capture preferences over tax hikes

Votes on partisan races can also be summarized by ideal points in a IRT model. Do ideal points predict races in other choices?

Proportion of Assigned Cluster

Cluster 4 (n = 8,981) 22%
Cluster 2 (n = 24,718) 17%
Cluster 1 (n = 22,769) 14%
Cluster 5 (n = 3,275) 14%
Cluster 3 (n = 10,058) 13%

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Voters do not have a single ideal point

Voters’ parties are their choice on the straight ticket. Thus voters who did not select a ticket (about 50 percent) are excluded.

* PCA computed with singular value decomposition via procpr. Clusters by fast agglomerative hierarchical clustering via hclust, ideal points from partisan candidate races by an ordinal IRT model via emIRT. All figures use 2016 counties which held a Sales Tax Hike Referendum.