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8th January 2019
Electoral Volatility measures vote-shifting/vote-switching among parties between (consecutive) elections.
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Voters switch party for various reasons: traditionally for Political (partisan) and Social (ethnic and cultural) reasons.

The Economic Voting literature argues that voters are sensitive to the Economic Performances during the tenure of the governing party/coalition. In a democratic set-up, political parties compete in elections by promising to provide voters policies that will deliver greater economic prosperity. Hence it is natural to expect that voters will react to economic conditions and hold the incumbent party/coalition responsible for the performance of the economy. If the incumbent fails to deliver economic goods in its tenure, voters could be expected to switch their vote to one of the opposition parties or one of the promising new arrivals. If voters are not satisfied with the performance of governing party, they switch parties and it increases electoral volatility (political instability), and vice versa.
Overview: Electoral Volatility and Economic Voting

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Other than estimating volatility at Assembly level, we also have estimated volatility at constituency level (no one has done it so far!)


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Testing 'deteriorating memory of voters' hypothesis proposed by Ferris and Dash (2018) in Economic Voting Hypothesis context. Voters assign higher weights to recent economic outcomes in comparison to the earlier ones (Last Year's VS Tenure's). - Third Contribution.
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First Contribution: Testing Economic Voting Hypothesis on Indian States (14 major states over elections between 1957-2013)

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Extending Traditional Literature

- Three Recent Developments:
  
  1. Grievance Asymmetry
     
     Individuals are usually risk averse, they will attach a higher weight to negative outcomes than to similar sized positive ones (Lau, 1985). Voters react more strongly to the bad outcomes than to the good ones of similar size (Nannestad and Paldam, 1997; Singer, 2011).

  2. Type A and Type B Volatilities
     
     Vote volatility arising among established parties (Type B Volatility) and vote volatility arising from old parties exiting to new parties entering (Type A Volatility).
     
     Prediction is that the poor economic performance should destabilize the existing parties and make the entry of new parties easier (Birch, 2003; Powell and Tucker, 2014).

  3. Neighborhood Effects (We Propose)
     
     Voters compare own state's economic outcomes with neighbor states'. Own state's economic outcomes may not be bad. But if the neighbor states' outcomes are better, it may increase political instability (higher volatility) in own state.
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- Electoral volatility by (Przeworski and Sprague, 1971; Pedersen, 1979)

\[ \text{Volatility}_t = \sum_{n=1}^{p} |\nu_{pt} - \nu_{pt-1}|^2 \]

Where \( \nu \) is the vote share of party \( p \) in election \( t \). It measures the net extent of vote/seat shifting among political parties between consecutive elections.

The volatility index varies between 0 (a stable political system) and 1 (an unstable political system).

Information provided by the Election Commission of India (Assembly Elections) to construct political variables (including volatility).

Dataset covers the 179 assembly elections that took place in 14 major Indian states over 56 years (over the period 1957-2013).
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Figure: State-wise Constituency and Assembly Volatility

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Economic Performance and Electoral Volatility
A fixed-effects estimator is used to study the effects of growth on volatility:

1. Effective Number of Parties (ENP)
2. Assembly size
3. Voter turnout
4. Years since last election
5. Number of parties in government
6. Congress government
7. Election after emergency
8. Presidential rule
9. Fiscal space
10. Election years (Election Time Trend)
A fixed-effects estimator is used to study the effects of growth on volatility:

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$$Y_{i,t} = \alpha_0 + \alpha_1(X_1)_{i,t} + \alpha_2(X_2)_{i,t} + \gamma_i + e + \epsilon_{i,t}$$

$Y$ represents for types of volatilities, $X_1$ for growth rates (macroeconomic variables such as inflation and unemployment not available at the state level), and $X_2$ for other explanatory variables.

Explanatory variables:

1. Effective Number of Parties (ENP)
2. Assembly size
3. Voter turnout
4. Years since last election
5. Number of parties in government
6. Congress government
7. Election after emergency
8. Presidential rule
9. Fiscal space
10. Election years (Election Time Trend)
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Explanatory variables:
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Baseline Results: Growth and Volatility

Table 1
The impact of income growth rates on vote volatility in Indian states, 1957–2013

<table>
<thead>
<tr>
<th>Volatility (Constituency)</th>
<th>Volatility (Assembly)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Per capita growth rate (prior tenure)</td>
<td>-0.016** (2.19)</td>
</tr>
<tr>
<td>Per capita growth rate (Last year)</td>
<td>-0.013** (2.90)</td>
</tr>
<tr>
<td>Δ in Effective Number of Parties (ENP)</td>
<td>0.317** (2.81)</td>
</tr>
<tr>
<td>Assembly size</td>
<td>0.165 (0.66)</td>
</tr>
<tr>
<td>Δ in Voter turnout</td>
<td>-0.252 (1.56)</td>
</tr>
<tr>
<td>Years since election</td>
<td>-0.121* (1.94)</td>
</tr>
<tr>
<td>Number of parties in government</td>
<td>-0.06 (1.6)</td>
</tr>
<tr>
<td>Congress government</td>
<td>-0.026 (1.63)</td>
</tr>
<tr>
<td>Election after emergency</td>
<td>0.237*** (4.2)</td>
</tr>
<tr>
<td>Presidential rule</td>
<td>0.006 (0.14)</td>
</tr>
<tr>
<td>Fiscal space</td>
<td>-0.199 (1.39)</td>
</tr>
<tr>
<td>Election years</td>
<td>-0.004* (1.93)</td>
</tr>
<tr>
<td>Constant</td>
<td>6.37 (1.43)</td>
</tr>
</tbody>
</table>

R² | 0.28 | 0.32 | 0.32 | 0.37 | 0.38 | 0.38 |
F-Stat | 25.26*** | 37.7*** | 36.04*** | 90.02*** | 48.67*** | 50.4*** |
Elections (States) | 163 (14) | 163 (14) | 163 (14) | 163 (14) | 163 (14) | 163 (14) |

Notes: All models include state fixed-effects. ***(***)[*] = significant at 1% (5%) 10%. ? = just misses significance at 10%. Robust t-statistics are given in parentheses. Standard errors are corrected for heteroscedasticity and clustered at the state level. All variables in logs except Congress government, Emergency, President’s rule, and Election years.
Robustness Checks

Four Strategies:

1. Growth and policies of economic liberalization following 1991 (Introducing a separate variable for post 1991 growth)

   Introduction of a variable for growth rates after year 1991 weakened the tenure growth results, but last year’s growth rate results remained unchanged.

2. Sample of scheduled elections (Mid-term VS Scheduled elections)

   With this sample, growth rate in the last governing year plays a more important role than the average growth rate over the tenure.

3. Alternative measures of economic growth and volatility

   Using alternative measures of growth and volatility does not disturb our baseline findings.

4. Inclusion of additional covariates of volatility

   (a) National election’s outcomes may affect state election’s outcomes if both elections coincide; and (b) Center-state political nexus.
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## Table 2

### The impact of positive versus negative income growth rates on vote volatility

**Indian States: 1957 – 2013**

<table>
<thead>
<tr>
<th></th>
<th>Volatility (Constituency)</th>
<th>Volatility (Assembly)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Positive per capita growth rate (prior Tenure)</td>
<td>-0.01 (0.98)</td>
<td>-0.001 (0.03)</td>
</tr>
<tr>
<td>Negative per capita growth rate (prior Tenure)</td>
<td>-0.037 (1.22)</td>
<td>-0.009 (0.23)</td>
</tr>
<tr>
<td>Positive per capita growth rate (Last year)</td>
<td>-0.011 (1.63)</td>
<td>-0.011 (1.44)</td>
</tr>
<tr>
<td>Negative per capita growth rate (Last year)</td>
<td><strong>-0.015</strong> (2.69)</td>
<td><strong>-0.013</strong> (2.15)</td>
</tr>
<tr>
<td>(\Delta) in Effective Number of Parties (ENP)</td>
<td>0.318** (2.74)</td>
<td>0.307** (2.61)</td>
</tr>
<tr>
<td>Assembly size</td>
<td>0.199 (0.78)</td>
<td>0.078 (0.29)</td>
</tr>
<tr>
<td>(\Delta) in Voter turnout</td>
<td>-0.235 (1.44)</td>
<td>-0.179 (1.25)</td>
</tr>
<tr>
<td>Years since election</td>
<td>-0.114 (1.66)</td>
<td>-0.105 (1.49)</td>
</tr>
<tr>
<td>Number of parties in government</td>
<td>-0.067* (1.87)</td>
<td>-0.07* (1.98)</td>
</tr>
<tr>
<td>Congress government</td>
<td>-0.034 (0.78)</td>
<td>-0.049 (1.14)</td>
</tr>
<tr>
<td>Election after emergency</td>
<td>0.24*** (4.04)</td>
<td>0.266*** (4.17)</td>
</tr>
<tr>
<td>President’s rule</td>
<td>0.001 (0.03)</td>
<td>0.014 (0.3)</td>
</tr>
<tr>
<td>Fiscal space</td>
<td>-0.198 (1.39)</td>
<td>-0.132 (0.91)</td>
</tr>
<tr>
<td>Election years</td>
<td>-0.004* (2.01)</td>
<td>-0.004* (1.9)</td>
</tr>
<tr>
<td>Constant</td>
<td>6.6 (1.46)</td>
<td>6.96 (1.47)</td>
</tr>
</tbody>
</table>

Notes: All models include state fixed-effects. ***(***)[*] = significant at 1% (5%) 10%. ? = just misses significance at 10%. Robust t-statistics are given in parentheses. Standard errors are corrected for heteroscedasticity and clustered at the state level. All variables in logs except Congress government, Emergency, President’s rule, and Election years.
## Table 3
Decomposing Volatility: The impact of income growth rates on Type A and Type B volatilities
Indian States: 1957 - 2013

<table>
<thead>
<tr>
<th>Per capita income growth rate (prior Tenure)</th>
<th>Volatility (Type A)</th>
<th>Volatility (Type B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Per capita income growth rate (Last year)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Δ in Effective Number of Parties (ENP)</td>
<td>0.529</td>
<td>0.517</td>
</tr>
<tr>
<td>(1.22)</td>
<td>(1.24)</td>
<td>(1.19)</td>
</tr>
<tr>
<td>Assembly size</td>
<td>0.145</td>
<td>1.3</td>
</tr>
<tr>
<td>(1.18)</td>
<td>(1.07)</td>
<td>(1.13)</td>
</tr>
<tr>
<td>Δ in Voter turnout</td>
<td>-2.08**</td>
<td>-2.07*</td>
</tr>
<tr>
<td>(2.18)</td>
<td>(2.09)</td>
<td>(2.00)</td>
</tr>
<tr>
<td>Years passed since election</td>
<td>-0.086</td>
<td>-0.112</td>
</tr>
<tr>
<td>(0.33)</td>
<td>(0.49)</td>
<td>(0.18)</td>
</tr>
<tr>
<td>Number of parties in government</td>
<td>-0.169</td>
<td>-0.205</td>
</tr>
<tr>
<td>(0.94)</td>
<td>(1.11)</td>
<td>(1.14)</td>
</tr>
<tr>
<td>Congress government</td>
<td>-0.114</td>
<td>-0.125</td>
</tr>
<tr>
<td>(0.5)</td>
<td>(0.55)</td>
<td>(0.63)</td>
</tr>
<tr>
<td>Election after emergency</td>
<td>1.09***</td>
<td>1.17***</td>
</tr>
<tr>
<td>(5.13)</td>
<td>(4.96)</td>
<td>(5.21)</td>
</tr>
<tr>
<td>President’s rule</td>
<td>-0.183</td>
<td>-0.229</td>
</tr>
<tr>
<td>(0.97)</td>
<td>(1.19)</td>
<td>(1.06)</td>
</tr>
<tr>
<td>Fiscal space</td>
<td>-0.721**</td>
<td>-0.541</td>
</tr>
<tr>
<td>(2.34)</td>
<td>(1.34)</td>
<td>(1.2)</td>
</tr>
<tr>
<td>Election years</td>
<td>-0.01</td>
<td>-0.008</td>
</tr>
<tr>
<td>(1.24)</td>
<td>(1.07)</td>
<td>(1.28)</td>
</tr>
<tr>
<td>Constant</td>
<td>12.38</td>
<td>8.68</td>
</tr>
<tr>
<td>(0.95)</td>
<td>(0.69)</td>
<td>(0.94)</td>
</tr>
<tr>
<td>R²</td>
<td>0.34</td>
<td>0.35</td>
</tr>
<tr>
<td>F-Stat</td>
<td>25.22***</td>
<td>24.03***</td>
</tr>
<tr>
<td>Elections (States)</td>
<td>111 (14)</td>
<td>111 (14)</td>
</tr>
</tbody>
</table>

Notes: All models include state fixed-effects. ***(***)[*] = significant at 1% (5%) 10%. ? = just misses significance at 10%. Robust t-statistics are given in parentheses. Standard errors are corrected for heteroscedasticity and clustered at the state level. All variables in logs except Congress government, Emergency, President’s rule, and Election years.
### Table 4
The impacts of income growth on volatility with neighborhood effects
Indian states: 1957 – 2013

<table>
<thead>
<tr>
<th></th>
<th>Volatility (Constituency)</th>
<th>Volatility (Assembly)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Per capita growth rate (Tenure)</td>
<td>-0.011</td>
<td>0.002</td>
</tr>
<tr>
<td></td>
<td>(1.38)</td>
<td>(0.28)</td>
</tr>
<tr>
<td>Per capita growth rate (Last year)</td>
<td>-0.012**</td>
<td>-0.012**</td>
</tr>
<tr>
<td></td>
<td>(2.52)</td>
<td>(2.32)</td>
</tr>
<tr>
<td>SGDP growth rate differences neighborhood effects (Tenure)</td>
<td>-0.008</td>
<td>-0.006</td>
</tr>
<tr>
<td></td>
<td>(1.06)</td>
<td>(0.72)</td>
</tr>
<tr>
<td>Δ in Effective Number of Parties (ENP)</td>
<td>0.314**</td>
<td>0.308**</td>
</tr>
<tr>
<td></td>
<td>(2.8)</td>
<td>(2.67)</td>
</tr>
<tr>
<td>Assembly size</td>
<td>0.158</td>
<td>0.072</td>
</tr>
<tr>
<td></td>
<td>(0.63)</td>
<td>(0.28)</td>
</tr>
<tr>
<td>Δ in Voter turnout</td>
<td>-0.232</td>
<td>-0.18</td>
</tr>
<tr>
<td></td>
<td>(1.39)</td>
<td>(1.29)</td>
</tr>
<tr>
<td>Years passed since election</td>
<td>-0.128*</td>
<td>-0.116</td>
</tr>
<tr>
<td></td>
<td>(1.86)</td>
<td>(1.65)</td>
</tr>
<tr>
<td>Number of parties in government</td>
<td>-0.061</td>
<td>-0.068*</td>
</tr>
<tr>
<td></td>
<td>(1.63)</td>
<td>(1.87)</td>
</tr>
<tr>
<td>Congress government</td>
<td>-0.029</td>
<td>-0.046</td>
</tr>
<tr>
<td></td>
<td>(0.73)</td>
<td>(1.01)</td>
</tr>
<tr>
<td>Election after emergency</td>
<td>0.243***</td>
<td>0.269***</td>
</tr>
<tr>
<td></td>
<td>(3.93)</td>
<td>(4.17)</td>
</tr>
<tr>
<td>President's rule</td>
<td>0.006</td>
<td>0.011</td>
</tr>
<tr>
<td></td>
<td>(0.13)</td>
<td>(0.25)</td>
</tr>
<tr>
<td>Fiscal space</td>
<td>-0.203</td>
<td>-0.142</td>
</tr>
<tr>
<td></td>
<td>(1.46)</td>
<td>(1.01)</td>
</tr>
<tr>
<td>Election years</td>
<td>-.004*</td>
<td>-.004*</td>
</tr>
<tr>
<td></td>
<td>(2.00)</td>
<td>(1.85)</td>
</tr>
<tr>
<td>Constant</td>
<td>7.74</td>
<td>7.25</td>
</tr>
<tr>
<td></td>
<td>(1.6)</td>
<td>(1.49)</td>
</tr>
<tr>
<td>R²</td>
<td>0.29</td>
<td>0.32</td>
</tr>
<tr>
<td>F-Stat</td>
<td>140.62***</td>
<td>739.36***</td>
</tr>
<tr>
<td>Elections (States)</td>
<td>163 (14)</td>
<td>163 (14)</td>
</tr>
</tbody>
</table>

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Concluding Remarks

Using per capita income growth as a performance indicator we found that growth causes lesser vote switching in Indian states (supports the predictions of traditional economic voting literature).

- Volatility at the constituency level is more sensitive to income growth than the volatility at the assembly level.
- Volatility responding more strongly to the growth rate of the final year than to the growth rate over the entire electoral tenure supports for the presence of a 'deteriorating memory of voters'.
- The slow decline of vote volatility over the years suggests that within each state the political party system is stabilizing as the country matures.
- Findings on impact of good and bad economic conditions on vote shifting suggests that Indian state voters punish the negative growth outcomes more severely than they reward for similar sized positive outcomes (Grievance Asymmetry).
- Growth rate influences only vote switching among established parties (Type B volatility).
- No support for Neighborhood Hypothesis (growing faster than neighbors' reduces own state vote shifting).

The overall findings suggest that theories of economic voting have an important role to play in understanding electoral outcomes and hence politics in developing countries, particularly in Indian Context.
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Bharatee Bhusana Dash, & J. Stephen Ferris
Economic Performance and Electoral Volatility
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- Growth rate influences only vote switching among established parties (Type B volatility).
- No support for Neighborhood Hypothesis (growing faster than neighbors’ reduces own state vote shifting).
- The overall findings suggest that theories of economic voting have an important role to play in understanding electoral outcomes and hence politics in developing countries, particularly in Indian Context.
Concluding Remarks

- Using per capita income growth as a performance indicator we found that growth causes lesser vote switching in Indian states (supports the predictions of traditional economic voting literature).
- Volatility at the constituency level is more sensitive to income growth than the volatility at the assembly level.
- Volatility responding more strongly to the growth rate of the final year than to the growth rate over the entire electoral tenure supports for the presence of a ‘deteriorating memory of voters’.
- The slow decline of vote volatility over the years suggests that within each state the political party system is stabilizing as the country matures.
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Thank You...