Are Public Funds Used to Maintain Ruling Coalitions? Evidence from India

Ishita Rajani

ABCDE Conference 2018

June 25, 2018
Political distortions can make public policies less effective in developing countries.

Past literature has focused on studying manipulations by incumbents using two-party settings.

Incumbents in multi-party settings can manipulate policies to secure support of smaller parties.

52% of the world’s democracies have more than two political parties.
Question: Are public funds used to maintain ruling coalitions?

Build framework to predict types of political cycles when incumbent can buy votes ex-ante or buy support ex-post.

Test predictions in the release of funds using administrative data for Indian government scheme, the Total Sanitation Campaign (TSC).

- Estimate five-year political cycles separately in districts with different political competition
- Exploit unsynchronized state elections for identification

Estimate cycles in household consumption to assess welfare and external validity
Summary of Theoretical Predictions

Three testable empirical predictions from the theoretical model:

P1: “Buying Votes” cycle:
- Spending peaks pre-election in swing districts for the two national parties.

P2: “Patronage” cycle:
- Spending peaks just after an election in districts that:
  - are safe for regional parties.
  - are swing for regional parties and the opposition.

P3: No cycles in all other types of districts.
Regression Specification

\[ \text{Exp}_{dt} = \alpha + \sum_{i=2}^{5} \beta_i \text{Year}_{(i)dt} + \gamma X_{dt} + \delta_d + \theta_t + \epsilon_{dt} \]

- **Exp** is the Per Capita funds released in district \( d \) at time \( t \).
- **Year\(_{(i)}\)** is a dummy which takes the value 1 if this is the \( i^{th} \) year after state assembly election in district \( d \). Elections are held every 5 years.
- **\( X_{dt} \)** includes SC/ST reservation status of ACs in the district at time \( t \).
- Std errors clustered at district level.
Buying Votes Cycle

Buying Votes cycle (pre-election peak) in swing districts for INC and BJP.

Current Elections

Half Years

Swing for INC & BJP

Estimated cycle

95 % Confidence Interval

Per Capita Funds Released

Years since last election

Ishita Rajani (ABCDE Conference 2018)
Patronage Cycle (post-election peak) in safe districts for Regional Parties and swing districts for Regional Parties and BJP.

- **Current Elections**
  - Half Years

**Magnitude**

<table>
<thead>
<tr>
<th>Years since last election</th>
<th>Safe for RP</th>
<th>Swing for BJP &amp; RP</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Per Capita Funds Released</td>
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<tr>
<td>2</td>
<td>Per Capita Funds Released</td>
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<td>3</td>
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<td>5</td>
<td>Per Capita Funds Released</td>
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</tr>
</tbody>
</table>

**Estimated cycle**

- **95 % Confidence Interval**

Ishita Rajani (ABCDE Conference 2018)
No cycle among safe Districts for INC and BJP, and swing districts for INC and Regional Parties.
Evidence From Household Consumption Surveys

- Do these political manipulations affect households?
- In districts with Buying Votes Cycle, do we have any evidence that funds reach households?

**Household Consumption Expenditure:** Evidence of political manipulations across government schemes affecting households.

**Data:** NSS Consumption Surveys between 2004-2014.
Political Cycles in Household Consumption

Buying Votes Cycle Districts

Patronage Cycle Districts

Estimated cycle

95% Confidence Interval
Conclusion: Two Distinct Political Cycles

- In **swing districts** for the two **national parties**:
  - Traditional **Buying Votes Cycle** with increased disbursement of funds just **before election**.
  - Consistent with central incumbent wooing voters.
- In **safe districts** for **regional parties**:
  - Previously undocumented **Patronage Cycle** with increased disbursement of funds right **after election**.
  - Cycle driven by districts where key allies of the central incumbent win.
  - Increase coincides with first fiscal year after state election.
  - Consistent with buying support of regional parties.
Conclusion: Welfare Implications and External Validity

- Data from household consumption surveys confirms household consumption expenditure has similar patterns:
  - **Buying Votes Cycle**: 6.2% increase in household consumption in the year prior to an election.
  - **Patronage Cycle**: 4.3% increase in household consumption post-election.
  - **Other Districts**: No cycle in public expenditure and household consumption.

- Political manipulations are large, make consumption more volatile, likely welfare-reducing relative to smoothed disbursement.
- Political manipulations occur across schemes.
Appendix
Testing Prediction P1:

**No cycle** among safe districts for the INC and the BJP, and swing districts for the INC and RP.
Testing Prediction P1:

**No cycle** among safe districts for the INC and the BJP, and swing districts for the INC and RP.
Testing Prediction P2:

Buying Votes cycle (Peak pre-election) in swing districts for the INC and the BJP.

![Graph showing swing for INC & BJP](image)
Testing Prediction P2:

Buying Votes cycle (Peak pre-election) in swing districts for the INC and the BJP.
Testing Prediction P3:

Patronage Cycle (Peak post-election) in safe districts for RP and swing districts for RP & the BJP.

![Graphs showing the Patronage Cycle for safe districts and swing districts with estimated cycles and 95% confidence intervals.](image)
Testing Prediction P3:

Patronage Cycle (Peak post-election) in safe districts for RP and swing districts for RP & the BJP.

![Graph showing Per Capita Funds Released vs. Half-Years since election for Safe for RP and Swing for BJP & RP]

- Coefficient
- 95% Confidence Interval
- Moving Average
Regression Results

<table>
<thead>
<tr>
<th>Year(+2)</th>
<th>Swing for INC &amp; BJP</th>
<th>Swing for Safe for INC</th>
<th>Swing for BJP &amp; RP</th>
<th>Swing for Safe for BJP</th>
<th>Swing for Safe for Safe for INC &amp; RP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-0.195</td>
<td>0.763***</td>
<td>1.067***</td>
<td>-0.050</td>
<td>0.428**</td>
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<tr>
<td></td>
<td>(0.247)</td>
<td>(0.213)</td>
<td>(0.260)</td>
<td>(0.384)</td>
<td>(0.191)</td>
</tr>
<tr>
<td>Year(+3)</td>
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<td>0.309*</td>
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<td>0.160</td>
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<td>(0.168)</td>
<td>(0.316)</td>
<td>(0.429)</td>
<td>(0.206)</td>
</tr>
<tr>
<td>Year(+4)</td>
<td>0.080</td>
<td>-0.156</td>
<td>-0.672**</td>
<td>-0.751</td>
<td>-0.018</td>
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<td>(0.260)</td>
<td>(0.143)</td>
<td>(0.254)</td>
<td>(0.452)</td>
<td>(0.303)</td>
</tr>
<tr>
<td>Year(+5)</td>
<td>1.015***</td>
<td>-0.078</td>
<td>0.303</td>
<td>0.901</td>
<td>0.577**</td>
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<tr>
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<td>(0.245)</td>
<td>(0.142)</td>
<td>(0.327)</td>
<td>(0.828)</td>
<td>(0.247)</td>
</tr>
</tbody>
</table>

Observations | 9,941 | 13,308 | 7,004 | 2,512 | 5,368 | 10,296 |
R-squared     | 0.204 | 0.160 | 0.146 | 0.127 | 0.173 | 0.110 |
District and Time FE | Y | Y | Y | Y | Y | Y |
Mean          | 1.686 | 1.390 | 1.425 | 1.641 | 1.305 | 1.055 |
Std. Dev      | 7.749 | 6.513 | 6.888 | 8.706 | 5.942 | 5.905 |
Clusters      | 87         | 118    | 62     | 22     | 47     | 90     |
Political Cycles Using Current Period Election Data

- **Safe for INC**
- **Safe for BJP**
- **Safe for RP**

- **Swing for INC & RP**
- **Swing for INC & BJP**
- **Swing for BJP & RP**

- Estimated cycle
- 95% Confidence Interval

- Per Capita Funds Released
- Years since last election

- Estimated cycle
- 95% Confidence Interval

Back
Political Cycles Using Alternate Definition of Safe

Estimated cycle

95% Confidence Interval
Political Cycles Using Half-Year Dummies

Back
Political Cycles With District-Time Trends

- Estimated cycle
- 95% Confidence Interval

Per Capita Funds Released vs. Years since last election for INC, BJP, INC & Reg. Party, INC & BJP, Regional Party, BJP & Reg. Party.
### Patronage Cycle: Why is the peak in Year(+2)?

<table>
<thead>
<tr>
<th></th>
<th>Regional Party (1)</th>
<th>Regional Party (2)</th>
<th>BJP/Regional Party (3)</th>
<th>BJP/Regional Party (4)</th>
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</thead>
<tbody>
<tr>
<td>First Fiscal Year</td>
<td>0.688** (0.219)</td>
<td>0.664* (0.330)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year(+2)</td>
<td>0.763*** (0.213)</td>
<td>0.338 (0.223)</td>
<td>1.067*** (0.260)</td>
<td>0.607* (0.247)</td>
</tr>
<tr>
<td>Year(+3)</td>
<td>0.309+ (0.168)</td>
<td>0.354* (0.167)</td>
<td>0.370 (0.316)</td>
<td>0.343 (0.315)</td>
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<tr>
<td>Year(+4)</td>
<td>-0.156 (0.143)</td>
<td>-0.022 (0.146)</td>
<td>-0.672* (0.254)</td>
<td>-0.555+ (0.292)</td>
</tr>
<tr>
<td>Year(+5)</td>
<td>-0.078 (0.142)</td>
<td>0.024 (0.145)</td>
<td>0.303 (0.327)</td>
<td>0.334 (0.330)</td>
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<td>13,308</td>
<td>13,308</td>
<td>7,004</td>
<td>7,004</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.160</td>
<td>0.161</td>
<td>0.146</td>
<td>0.146</td>
</tr>
<tr>
<td>District and Time FE</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Mean</td>
<td>1.390</td>
<td>1.390</td>
<td>1.425</td>
<td>1.425</td>
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<tr>
<td>Clusters</td>
<td>118</td>
<td>118</td>
<td>62</td>
<td>62</td>
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Magnitude of the Patronage Cycle

**Center Allies**

- Estimated cycle
- 95% Confidence Interval

**Swing for BJP & RP**

- Estimated cycle
- 95% Confidence Interval

Per Capita Funds Released vs. Years since last election.
### Political Cycles in Household Consumption

<table>
<thead>
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<th>BV Cycle</th>
<th>Patronage Cycle</th>
<th>No Cycle</th>
</tr>
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<tbody>
<tr>
<td><strong>Year(+2)</strong></td>
<td>-32.731*</td>
<td>-8.812</td>
<td>-14.865</td>
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<tr>
<td></td>
<td>(19.224)</td>
<td>(11.476)</td>
<td>(12.169)</td>
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<tr>
<td><strong>Year(+3)</strong></td>
<td>-54.189**</td>
<td>36.909***</td>
<td>-13.987</td>
</tr>
<tr>
<td></td>
<td>(22.690)</td>
<td>(11.449)</td>
<td>(13.820)</td>
</tr>
<tr>
<td><strong>Year(+4)</strong></td>
<td>-28.179</td>
<td>-4.126</td>
<td>-24.181</td>
</tr>
<tr>
<td></td>
<td>(24.998)</td>
<td>(11.554)</td>
<td>(17.817)</td>
</tr>
<tr>
<td><strong>Year(+5)</strong></td>
<td>53.729**</td>
<td>-20.693**</td>
<td>3.866</td>
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<tr>
<td></td>
<td>(22.497)</td>
<td>(9.972)</td>
<td>(15.041)</td>
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<td><strong>Observations</strong></td>
<td>32,353</td>
<td>97,625</td>
<td>71,212</td>
</tr>
<tr>
<td><strong>R-squared</strong></td>
<td>0.333</td>
<td>0.289</td>
<td>0.294</td>
</tr>
<tr>
<td><strong>District and Survey FE</strong></td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td><strong>Mean</strong></td>
<td>853.2</td>
<td>861.5</td>
<td>988.1</td>
</tr>
<tr>
<td><strong>Std. Dev</strong></td>
<td>789.7</td>
<td>766.2</td>
<td>971.8</td>
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<tr>
<td><strong>Clusters</strong></td>
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<td>180</td>
<td>157</td>
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## Allies vs Opposition

<table>
<thead>
<tr>
<th>Year (+2)</th>
<th>Safe for RP</th>
<th></th>
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<tbody>
<tr>
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<td>Allies</td>
<td>Opposition</td>
<td>Allies</td>
<td>Opposition</td>
</tr>
<tr>
<td>Year (+2)</td>
<td>1.152***</td>
<td>-0.237</td>
<td>1.968***</td>
<td>0.148</td>
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<tr>
<td></td>
<td>(0.335)</td>
<td>(0.210)</td>
<td>(0.525)</td>
<td>(0.282)</td>
</tr>
<tr>
<td>Year (+3)</td>
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<td>-0.077</td>
<td>0.262</td>
<td>0.316</td>
</tr>
<tr>
<td></td>
<td>(0.266)</td>
<td>(0.219)</td>
<td>(0.676)</td>
<td>(0.681)</td>
</tr>
<tr>
<td>Year (+4)</td>
<td>0.166</td>
<td>0.019</td>
<td>-0.584</td>
<td>-1.346**</td>
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<tr>
<td></td>
<td>(0.225)</td>
<td>(0.248)</td>
<td>(0.694)</td>
<td>(0.493)</td>
</tr>
<tr>
<td>Year (+5)</td>
<td>0.318</td>
<td>-0.764***</td>
<td>0.811</td>
<td>-0.051</td>
</tr>
<tr>
<td></td>
<td>(0.195)</td>
<td>(0.225)</td>
<td>(0.569)</td>
<td>(0.512)</td>
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<td>0.215</td>
<td>0.242</td>
<td>0.167</td>
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<td>District and Time FE</td>
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<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Mean</td>
<td>1.530</td>
<td>1.095</td>
<td>1.405</td>
<td>1.465</td>
</tr>
<tr>
<td>Std. Dev</td>
<td>6.935</td>
<td>5.503</td>
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<tr>
<td>Clusters</td>
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<td>21</td>
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### Heterogeneity by Demographic Groups

<table>
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<tr>
<th></th>
<th>Safe for RP</th>
<th>Swing for INC &amp; BJP</th>
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<td></td>
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<tr>
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<td>High Mus (3)</td>
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<tr>
<td></td>
<td>(0.340)</td>
<td>(0.225)</td>
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<tr>
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<tr>
<td></td>
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<td>-0.296</td>
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<td>(0.519)</td>
<td>(0.231)</td>
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<td>(0.284)</td>
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<td>(0.375)</td>
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<td>(0.291)</td>
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<tr>
<td></td>
<td>0.750*</td>
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<td>(0.330)</td>
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<td>(0.561)</td>
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<tr>
<td></td>
<td>(1.062***)</td>
<td>(0.270)</td>
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<table>
<thead>
<tr>
<th></th>
<th>Observations</th>
<th>R-squared</th>
<th>District and Time FE</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Clusters</th>
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<td>8,187</td>
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<td>1.853</td>
<td>8.315</td>
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Political Cycle Across All Districts

Per Capita Funds Released vs Years since last election

- Estimated cycle
- 95% Confidence Interval

Ishita Rajani (ABCDE Conference 2018)  Public Funds in Coalition Governments  June 25, 2018
## Regression Results

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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<td>Year(+2)</td>
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<td>0.433***</td>
<td>0.359***</td>
<td>0.368***</td>
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<tr>
<td></td>
<td>(0.088)</td>
<td>(0.094)</td>
<td>(0.099)</td>
<td>(0.085)</td>
<td>(0.087)</td>
<td>(0.088)</td>
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<tr>
<td>Year(+3)</td>
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<td>0.066</td>
<td>0.093</td>
<td>0.094</td>
<td>0.032</td>
<td>0.043</td>
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<tr>
<td></td>
<td>(0.080)</td>
<td>(0.087)</td>
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<td>Year(+4)</td>
<td>-0.219*</td>
<td>-0.178+</td>
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<tr>
<td></td>
<td>(0.086)</td>
<td>(0.093)</td>
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<td>(0.079)</td>
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<tr>
<td>Year(+5)</td>
<td>0.296**</td>
<td>0.379***</td>
<td>0.365***</td>
<td>0.455***</td>
<td>0.316**</td>
<td>0.297**</td>
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<td></td>
<td>(0.093)</td>
<td>(0.098)</td>
<td>(0.107)</td>
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<td>(0.096)</td>
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<td>Y</td>
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<td>Y</td>
<td>N</td>
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**Notes:** The unit of observation is a district-month. The dependent variable is monthly per capita expenditure in a district. Standard errors are clustered by district. *** p<0.001, ** p<0.01, * p<0.05, + p<0.10