

Elections and Rural Road Construction: Theory and Evidence from India

Ahana Basistha (Indian Statistical Institute, Delhi)

Joint work with: Amrita Dhillon (King's College London) and Arka Roy Chaudhuri (Shiv Nadar University)

Motivation

- Previous empirical evidence that economic outcomes will follow the electoral calendar due to fiscal manipulation by opportunistic politicians.
- Political cycles are more apparent in outcomes where there is greater discretion and control of instruments by the government, and where targeting to pivotal groups of voters is possible.
- We provide evidence for electoral cycles in broad-based public good- **road building** - even when the local level government does not control the budget on roads, when there are multiple levels of government involved, and when targeting of roads to particular constituencies is ruled out.
- Using **disaggregated spatial level panel data**, we show **exact strategic timing** on the part of the incumbent politicians in **infrastructure programs that have long gestation periods between inception and completion**.

Background

- Prime Minister's Rural Road Program or *Pradhan Mantri Gram Sadak Yojna (PMGSY)*, introduced in December 2000 in **India**, provides all weather road connectivity to previously unconnected habitations of India.
- Multiple decision-makers are involved in various stages of this program.
- One-time preparation of core network, followed by annual preparation of priority list.
- Funds are released from the federal ministry**, subject to approval of core network.
- Management and monitoring** through **online database, maintained at federal level**.
- Suggestions from **state-level legislators formally sought in one-time plan**, informal ceremonial role in work inauguration.

Theory

- Competence of incumbents is a shock that the incumbent observes only after decisions on roads have been made.
- Politicians have incentives to **increase road budgets (sanctioned roads) in election periods** to improve the competence signal but not in non-election periods.
- Rational voters anticipate this, but electoral districts with **higher share of uninformed voters display larger electoral cycles**.

Data

- Use data that map **all roads** built under PMGSY **over a decade** (2000-01 to 2012-13) in **18 states of India**, to census villages and then to state-level electoral districts using shape files.
- Information on initial and subsequent stages of a road's construction from administrative records - **sanction, award of road construction** contracts (or award) and finally **road construction (or completion)**.
- Election data from Election Commission of India and the Trivedi Centre for Political Data (TCPD). Census (2001) data for demographic information.

Empirical Strategy

- Identification based on **exogeneity of election timing- scheduled election cycle** dummies (rather than actual) as our main set of regressors.
- Robustness checks**- dropping midterm election, scheduled election dummies as instruments for actual election dummies.

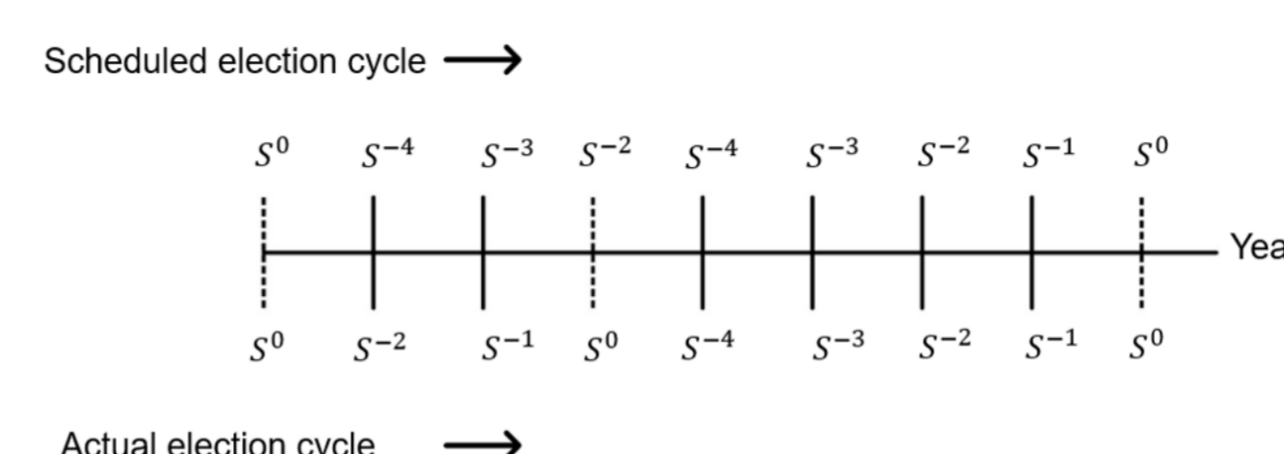


Figure 1. the dotted lines indicate election years in a typical state. In the top panel, the dummies S_{st}^{-k} , $k = 0, \dots, 4$ indicate if a *scheduled* election is k years away in state s in time t . In the bottom panel, the dummies S_{st}^{-k} , $k = 0, \dots, 4$ indicate if the *actual* election was k years away in state s in time t .

Estimation Equation

$$Y_{dst} = \gamma_i + \psi_t + \beta_0 S_{st}^0 + \beta_1 S_{st}^{-1} + \beta_2 S_{st}^{-2} + \beta_3 S_{st}^{-3} + \tau Z_{ids} \times t + \epsilon_{dst}$$

- Y_{dst} = output in constituency i of state s in time t ; S_{st}^{-k} are scheduled election dummies
- $Z_{ids} \times t$ = demographic controls at constituency level, interacted with t , linear time trend
- γ_i, ψ_t = constituency FE and year FE respectively
- standard errors clustered at the state level using wild-cluster bootstrap method

Main Result

Do elections affect road building? Focus on the **sanctioning stage** since politicians have the maximum scope to affect outcomes at this stage through formal channels.

- On the **fourth year** of an incumbent's term, **1,586 extra roads are sanctioned** as compared to the base (first year of the term), **33% increase** over the mean.

Table 1. Impact of Electoral Cycle on Sanctioning

	number of sanctioned roads	sanctioned length (km)	amount sanctioned (INR millions)
year of next election (S^0)	-0.680 [0.235]	-1.044 [0.618]	-1.170 [0.559]
1 year till next election (S^{-1})	1.586* [0.080]	5.808** [0.035]	2.911* [0.084]
2 years till next election (S^{-2})	1.663 [0.118]	2.709 [0.368]	3.763 [0.251]
3 years till next election (S^{-3})	0.403 [0.408]	-1.538 [0.281]	-1.330 [0.195]
observations	14040	14040	14040
mean	4.80	19.87	13.45

Note: The regressions control for constituency level demographic and amenities information, year FE, constituency FE, & constituency level baseline characteristics interacted with linear trends. Standard errors are clustered at the state level, using wildcluster bootstrapping. p values are reported below coefficients: * p < .10, ** p < .05, *** p < .01.

- Result robust in alternative specifications
- Consequently, **roads with shorter stipulated construction time** are finished on the **last year** of incumbent's term.
- Systematic increase in road construction in the next two stages is also observed (award- fourth year, completion- fourth and fifth year of term).

Suggestive Mechanism

How Do Politicians Bring about Electoral Cycles?

One possibility- through choosing to build **relatively easier to build roads before elections**. Two pieces of evidence here-

- Roads completed right before elections have significantly shorter stipulated construction time
- Prior to elections, sanctioning activities for all three outcomes (number of sanctioned roads, sanctioned length and amount sanctioned) become smaller in constituencies with more difficult terrain.

Why Electoral Cycle Exists

Suggestive evidence of the presence of information asymmetry (**lack of voter awareness**); magnitude of electoral cycle in road sanction is significantly higher in constituencies having a larger share of illiterate population.

Ruled out- learning effect, over the course of one's electoral term.

Conclusion

- Using road level data from 18 states of India spread over a decade, **we capture an increase in road sanctioning activities**, followed by increase in road delivery prior to state elections.
- Even in a context of a scheme that is supposed to be rules based and where local politicians cannot change roads once approved in the core network, we find evidence of manipulation.
- We find that politicians **target easier to build roads right before elections** in the sense that roads with **lower stipulated construction time** get built more before elections.
- In line with our model's predictions, we show that **constituencies with a larger share of uninformed voters, display larger electoral cycles**.
- Also rule out competing explanations, such as the presence of a learning effect leading to electoral cycles.

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