Is Small Beautiful? Do Small Districts Lead to Better Outcomes?

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Motivation

- Is there an optimal population level for local governments?
- In democratic systems two sets of normative criteria are considered in answering this question
  - Citizen effectiveness - the ability and willingness of citizens to control the decisions made on their behalf
  - Functional effectiveness - the ability of local governments to provide public goods and services to its citizens and promote public welfare (Dahl and Tufte 1973, Scharpf 1999)
- Population level is expected to impact both the citizen and functional effectiveness of democratic systems
  - Considerable political and economic virtues are attributed to smaller administrative units

Motivation

- Local government sizes vary considerably across nations.
  - And sub-national boundary reorganizations are frequent - consolidation as well as decentralization

Table 1: Administrative Units in India

States/UTs	1971	1981	1991	2001	2011
States	19	22	25	29	29
Union Territories	10	9	7	6	6
Districts	356	412	466	593	640
New Districts	-	52	54	127	47

- Recently new districts were created or are under consideration for West Bengal, Telangana and Haryana States.
  - The stated rationale for district bifurcation is decentralisation of administration and better public service delivery

Research Question

- Does administrative bifurcation at the district level lead to better public service outcomes?
  - This question is examined here in the context of public education

Theory

- The fundamental argument for decentralised governance comes from the idea that there is heterogeneity in demand for public services.
- Tiebout (1956) conceptualises a fully mobile citizen who can move to a jurisdiction that matches her preferences for tax rates and public service levels, thus revealing her preferences.
- With small jurisdictions this information can be used by local governments to tailor their activities and raise welfare.
- But how much decentralisation should we demand?
  - Public goods that are (1) sensitive to local preferences and (2) do not have large spillover (3) nor scale effects: infrastructure, public education, etc. are better provided under decentralisation (Oates 1972)

Theory

- Smaller populations may reduce agency costs especially if the local administrators are directly elected and
- Reduce information costs because of the proximity of the decision-making-centre to the citizens.
- It may also lead to lower costs in planning and monitoring activities than in a larger jurisdiction.
- At the same time, it can lead to higher costs by administrative duplication and higher fixed costs per capita
  - The optimal jurisdiction size at which public service delivery begins to improve or decline might also be a function of the specific public good or service.
  - The effects of size on public service delivery depends on the size of production units as well, not just administrative units (Allers and Geertsema 2016)

- Public education is not seen as imposing strong externalities on neighbouring regions, nor does it have large scale effects.
  - Therefore, under the classic explanation, a smaller district should be able to provide better service.
- At the same time, practical considerations remain. We might need to build administrative capacity when a larger district is split into two or more before any benefits can be reaped.
- Also, if the districts are too small in the first place, there might be some benefit in consolidating two or more districts and managing them together.

Data

- District reorganization in Karnataka - 3 new districts were created from 3 already existing ones between 2007 and 2010.
- Unit of analysis is the sub-district (taluk)
- Data on school resources and inputs are taken from District Information System for Education (DISE) and aggregated to the sub-district level - publicly available dataset
- Data on student performance is taken from the SSLC exam results conducted by Karnataka Secondary Education Examination Board (KSEEB)
- 9 years - 2005 to 2013
- Demographic Data is taken from the nearest census (2001) at the sub-district level

Estimation

- The demand for creation a new district usually arises from within the district - policy endogeneity
- Difference in Difference model to compare the performance of districts that were bifurcated with those that were not
  - This approach requires the error term to be independent of the selection into treatment
  - Variables that may affect selection are included in the specification
  - It is likely that many of them are time invariant and are captured by the time and treatment fixed effects
- Two control groups - all other sub-districts that were not bifurcated, a control group selected based on propensity scores

The default specification is of the form,

$$Y_{it} = \beta_0 + \beta_1 Split_i + \beta_2 PostSplit_t + \beta_3 Split_i PostSplit_t + \sum_j \beta_j X_{ijt} + \epsilon_{it}$$

Table 2: Basic Regression Results: With PS Matched Control Group

	Dependent variable:							
	ln(Grants)	# of Schools	Public	Classrooms	Toilet-Girls	Electricity	Library	Test Scores
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Split	0.3	0.1*	0.001	−0.5***	−0.001	−0.04	0.04	0.2
	(0.2)	(0.1)	(0.02)	(0.2)	(0.001)	(0.04)	(0.1)	(7.8)
Post	0.9***	0.2***	−0.1***	0.2	−0.01***	0.3***	0.1	10.0
	(0.2)	(0.1)	(0.02)	(0.2)	(0.002)	(0.1)	(0.1)	(19.0)
Split:Post	−0.5**	−0.03	−0.02	0.1	0.003*	0.1	0.2	13.0
	(0.2)	(0.1)	(0.02)	(0.2)	(0.002)	(0.05)	(0.1)	(10.0)
Demographic Variables	YES	YES	YES	YES	YES	YES	YES	YES
Investment Variables	NO	NO	NO	YES	YES	YES	YES	YES
Resource Variables	NO	NO	NO	NO	NO	NO	NO	YES
Observations	95	95	95	95	95	95	95	95
R^2	0.3	0.4	0.4	0.8	0.4	0.8	0.3	0.4
Adjusted R^2	0.2	0.4	0.3	0.8	0.3	0.8	0.2	0.4
Residual Std. Error	0.6	0.2	0.1	0.5	0.005	0.1	0.3	24.0
F Statistic	5.3***	9.7***	9.4***	40.0***	5.6***	35.0***	4.1***	6.6***

Note: *p<0.1; **p<0.05; ***p<0.01

Table 3: Summary Statistics in 2013 - Within Treatment Group

	Variables	Old	New	p.value
1	Total Marks	344.0	333.0	0.33
2	Working Days	0.7	1.1	0.57
3	Academic Inspection	1.3	1.6	0.67
4	School Dev Grant - R	7,260.0	7,574.0	0.6
5	TLM Grant - R	1,098.0	1,456.0	0.19
6	Classrooms	4.9	4.5	0.2
7	Electricity (Yes = 1)	1.0	1.0	0.62
8	Library (Yes = 1)	1.0	1.2	0.36
9	Female teachers	2.4	1.8	0.00
10	Public Schools (%)	0.8	0.9	0.18
11	Schools per 1000 people	1.5	1.6	0.77
12	New/Old Dist (New = 1)	0	1	-
13	# of Observations	14	9	-

Population figure used to calculate 'Schools per 1000 people' is from 2001

Conclusion

- The findings from the study suggest no significant changes in the education outcomes of the sub-districts following a bifurcation.
- Government functions are many and varied and the effect of population size on one of those functions might not be the same as that on others
- It may also be possible that some of the positive effects do exist, but may manifest not in higher service levels but in lower costs to achieve the same service level as before.
- The results do not suggest that district bifurcations are always inadvisable. But a more tempered approach might be warranted than the unbridled enthusiasm in their favour in the absence of clear evidence.

Alternate Specification

$$Y_{it} = \beta_0 + \beta_1 Bifurcated_{it} + \sum_j \beta_j District_{ij} + \sum_k \beta_k Year_{kt} + \sum_l \beta_l X_{lit} + \epsilon_{it}$$