Rewarding Allegiance? Political Alignment and Local Governments

Samuel K. Obeng [1] & Christa N. Brunnschweiler [2]

[1]Department of Economics, University of Warwick & CEPDeR, Covenant University
[2]Department of Economics, NTNU

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Introduction

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    - Or by rewarding core supporters (e.g. Cox and McCubbins 1986; and Dixit and Londregan 1996)
- This has implications for public service provision

Overview: What we do

We address three related questions for Ghana for 1994-2018:

1. Are there **electoral cycle effects** in local fiscal outcomes, including intergovernmental transfers, local expenditure and internally generated funds?
2. How does **political alignment** influence subnational fiscal outcomes?
3. How does **politics** influence public service provision?* - an extension

Overwiew: What we do

- **On electoral cycles:** we look at systematic variation over time in local fiscal outcomes and explore the existence of electoral cycles using a panel fixed-effects estimator.
- **On political alignment:** we examine the effect of political alignment in a regression discontinuity design (RDD)
- **On public service provision:** we examine the presence of electoral and alignment effects in the public service provision including piped water, own water, sanitation, drinking water in schools, seating and writing places in schools, core textbooks, and CAPEX in a fixed effect estimation and an RDD

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  - A closer look at the causal effect of political alignment shows strong and large negative impacts of political alignment in close elections, in accordance with swing-voter targeting.
  - Similar results when we consider political party effects, focusing on the two main parties - NPP and NDC
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  - Successive waves of district fragmentation appear to have weakened the impact of political alignment on local fiscal outcomes.
- On **public service provision:** complex effects - interesting results

The Literature

- Political alignment – i.e. whether the local politician is of the same party or coalition as the central government
  - Core-supporter reward (Cox and McCubbins 1986; and Dixit and Londregan 1996)
    - Positive effect of political alignment with the center on the size of intergovernmental transfers – especially discretionary grants (e.g. Larcinese et al., 2006; Arulampalam et al., 2009; Bracco et al., 2015)
  - Swing voters reward (Lindbeck and Weibull, 1987)
  - On Ghana: Banful (2011) finds evidence of political motivation in central government grants favoring swing states.

- Electoral cycle effects in fiscal outcomes (Shi and Svensson 2006; Sakurai and Menezes-Filho 2011)

- Political economy of public service provision (Robinson and Torvik 2005; Banerjee and Somanathan 2007; Williams 2017)

The Ghanaian context: political setup

- Stable multi-party democracy with regular free and fair elections.
  - We focus on two parties that dominate politics (NDC and NPP).
  - Parties do not have strong ethnic group links.
- Eight national-level elections and three peaceful changes in power between ruling parties since return to democracy in 1992.
- Decentralized system of government, with many powers delegated to Metropolitan, Municipal and District Assemblies (DAs).
  - DAs have similar administrative, budgeting, fiscal and political characteristics.
  - Heavily reliant on central government transfers.
- Adds layer of complexity to conventional political alignment setup:
  - District Chief Executive (DCE), the head of the DA directly appointed by the President $\Longrightarrow$ party crony
  - Member(s) of Parliament (MPs) instead may be of an opposition party $\Longrightarrow$ DCEs and MPs are often at odds with each other.
  - Elected DA members are non-partisan.
  - In this context, alignment focuses on political affiliation of local MP(s).

The Ghanaian context: DA budgets

- DAs are responsible for local basic infrastructure, provision of municipal works and services, management of human settlements and of natural environment.
- DAs have three sources of revenue:
  - Central grants directed to the District Assemblies Common Fund (DACF) - at least 5% of central government revenues; makes up at least 80% of DAs' revenues in our dataset.
  - Ceded revenue (e.g. natural resource royalties)
  - Internally generated funds (IGFs) raised through local taxation, fees, fines, and charges.
- The DACF is distributed between DAs according to a formula approved annually by Parliament, and in turn its allocation by DAs must be approved by the central government.
- The DACF allocation formula is calculated as a weighted linear combination of four criteria:
  - (i) Equity; (ii) Need; (iii) Responsiveness; and (iv) Service Pressure

Methodology

Electoral cycles:

$$lnFiscal_{it} = \alpha + \sigma Election_{it} + \beta X_{it-1} + \mu_i + \epsilon_{it}, \quad (1)$$

- $lnFiscal_{it}$ refers to a vector of real per capital local government fiscal outcomes (in natural logs) for district i in year t
- $Election_{it}$ refers to the election year dummy
- X_{it-1} represents one-period lag of a vector of control variables, including the enrolment rate at the basic education level, and the total population in the DA, which are given in natural logarithms
- In a second step, we introduce dummy variables for one and two years before the election year, with the latter dummy signalling the mid-point of a four-year term
- We also include an interaction term between the election year and a dummy for political alignment between districts and central governments, to determine whether any electoral cycle effect differs between aligned and unaligned districts

Political alignment effects

- We build measures of average local government fiscal outcomes for the first two years and last two years of a government's term in office
- Hence, we cover the entire four-year term without results being driven by strong electoral-cycle fluctuations

Regression Discontinuity Design (RDD)

- Definitions:
  - **Align** is a dummy variable equal to 1 if the DCE and MP are from the same party as the central government and 0 otherwise; measures alignment
  - **Margin** is the difference between the percentage of vote share of the parliamentary candidate of the party that wins the national elections and the percentage of vote share of the parliamentary candidate of the main opposition party that loses the national elections

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- Unit of measurement:
  - Parliamentary election results; parliamentary and presidential election results are identical (also Banful, 2011)
  - Unit of observation for election results is at the constituency level; we aggregate the parliamentary election results to the district level as constituencies are units within districts
  - A first-past-the-post electoral system: a party is considered to have won a district if it captures a majority of the parliamentary vote share

Regression Discontinuity Design (RDD)

$$InFiscal_{it} = \rho_0 Align_{it} + f(Align_{it} * Margin_{it}) + \beta_i X_{it} + \varsigma_t + \mu_i + \epsilon_{it} \quad (2)$$

- Our treatment and assignment variables are $Align_{it}$ and $Margin_{it}$ respectively.
- Our control function, $Align_{it} * Margin_{it}$, is linear in $Margin_{it}$ interacted with our treatment variable $Align_{it}$
- Our coefficient of interest is ρ_0 which measures our alignment effect at the zero threshold; a positive(negative) coefficient imply core-supporter targeting (swing-voter targeting) respectively

Data description

- In our main results, we make use of data for up to 216 districts in Ghana over the period 1994-2018 covering six elections
  - In the sensitivity analysis, we consider districts with one MP where alignment is easiest to assign, a sub-sample of districts that have remained unchanged (*constant districts*) over the sample period, and a sub-sample of fragmented districts (*broken-up districts*) to examine possible effects of municipal fragmentation
- There were 41 constant DAs, 175 broken-up ones, and 181 one-MP DAs at the end of the sample period
- Further considerations:
  - District fragmentation and gerrymandering - exclude the 2012 and 2016 election years and corresponding fragmentation rounds
  - Political party effects (NPP and NDC) - (i) year-on-year; (ii) for the first-and last-two years of each party's time in power

Electoral cycles and local government fiscal outcomes

Table 1: Electoral cycles and local government fiscal outcomes

	1	2	3	4	5	6	7	8	9
		Grants		Internally Generated Funds(IGF)				Expenditure	
	Baseline	Cycle	Mediate	Baseline	Cycle	Mediate	Baseline	Cycle	Mediate
Election	-0.933***	-0.753***	-1.032***	-0.997***	-0.837***	-1.145***	-0.639***	-0.636***	-0.886***
	(0.0634)	(0.0830)	(0.111)	(0.0549)	(0.0757)	(0.112)	(0.0616)	(0.0936)	(0.120)
$Election_1$		-0.408***	-0.461***		-0.462***	-0.587***		-0.850***	-0.959***
		(0.0587)	(0.117)		(0.0574)	(0.126)		(0.0959)	(0.147)
$Election_2$		0.931***	0.450***		0.925***	0.424**		0.818***	0.253
		(0.0599)	(0.167)		(0.0582)	(0.164)		(0.0827)	(0.181)
$Align_{t-1}$			-0.586***			-0.644***			-0.752***
			(0.224)			(0.224)			(0.272)
$Election * Align_{t-1}$			0.473***			0.524***			0.430**
			(0.160)			(0.169)			(0.182)
$Election_1 * Align_{t-1}$			0.0957			0.215			0.192
			(0.177)			(0.188)			(0.204)
$Election_2 * Align_{t-1}$			0.824***			0.857***			0.965***
			(0.284)			(0.273)			(0.304)
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,785	2,785	2,774	2,815	2,815	2,804	2,422	2,422	2,412
R-squared	0.253	0.280	0.283	0.229	0.259	0.263	0.212	0.247	0.253

Results: Regression Discontinuity Design
Graphical Analysis

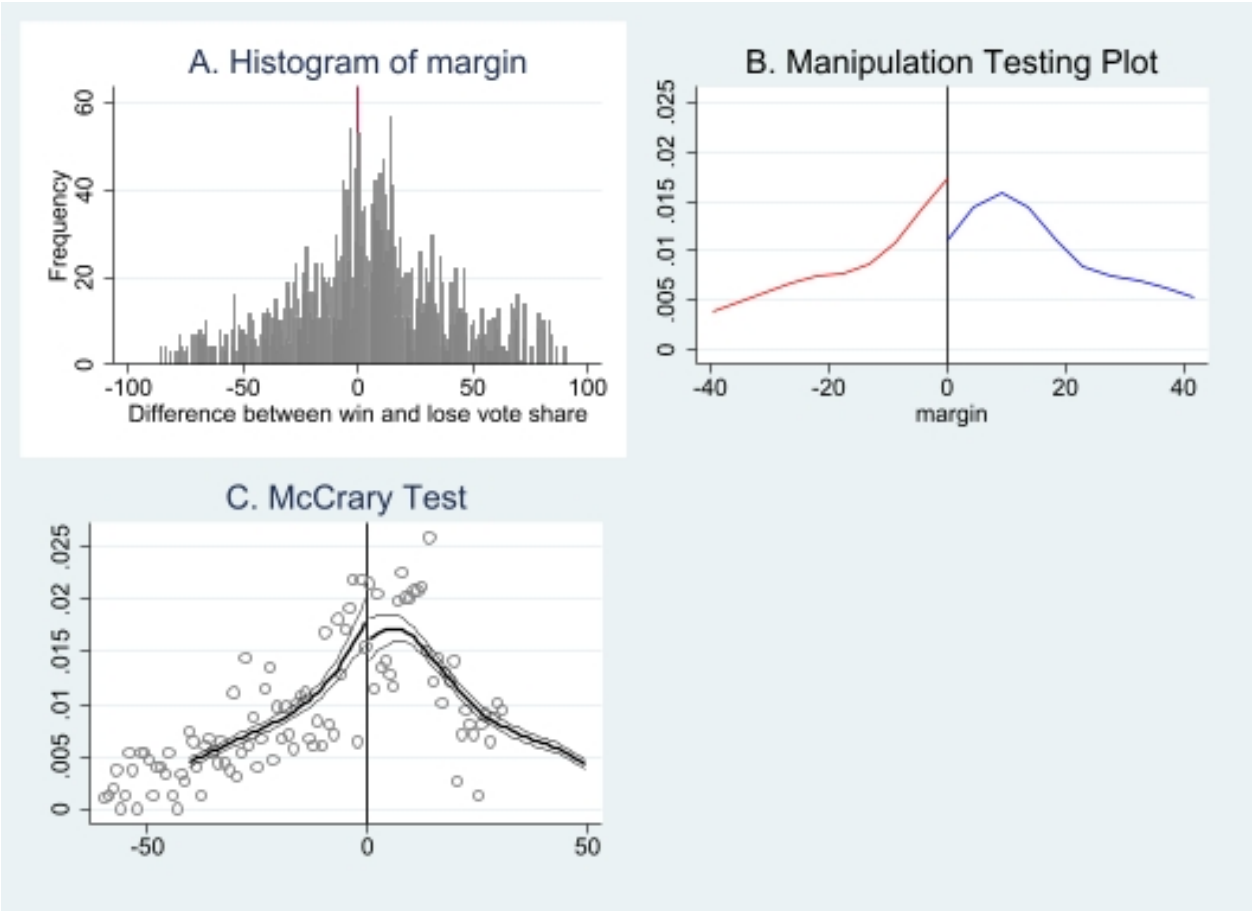

Figure 1: Histogram distribution of Margin around zero and RD plot of Margin

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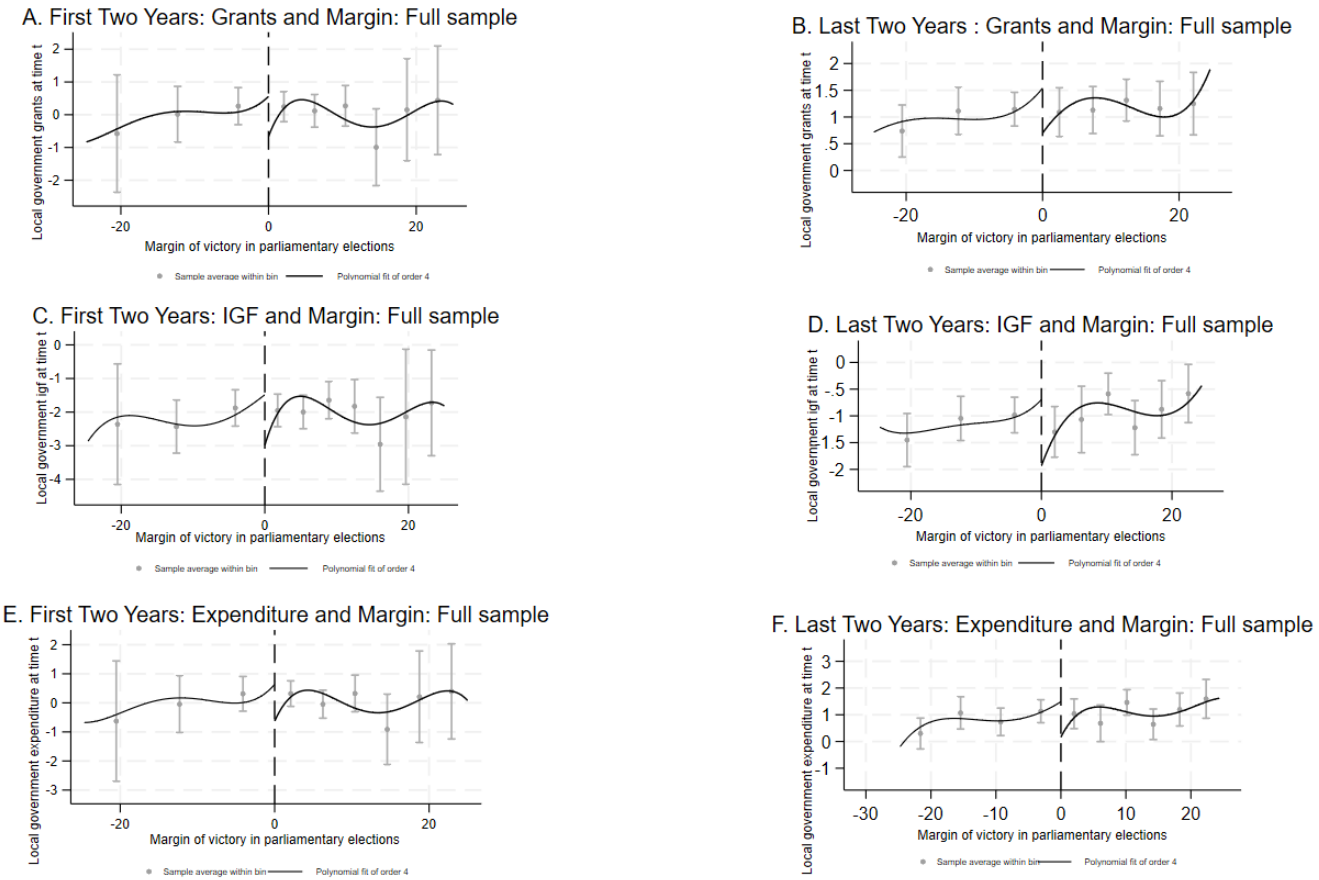

Figure 2: RD plot of fiscal outcomes and Margin for First and Last Two Years

Results: Regression Discontinuity Design

Table 2: Main results for RDD estimations for local government fiscal outcomes

	1	2	3	4	5	6
	First two years			Last two years		
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate (d)	-1.073*	-1.225**	-1.977***	-1.276	-1.921**	-1.658*
	(0.636)	(0.529)	(0.689)	(0.795)	(0.761)	(0.855)
RD Estimate(d/2)	-1.482*	-1.578**	-2.241**	-2.502**	-2.819**	-3.042**
	(0.784)	(0.633)	(0.870)	(1.170)	(1.114)	(1.236)
RD Estimate(2xd)	-0.540	-0.858**	-0.926	-0.387	-0.732	-0.373
	(0.489)	(0.428)	(0.576)	(0.573)	(0.556)	(0.624)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	893	897	755	820	828	780

Sensitivity analysis: Constant districts, one-MP districts, and broken-up districts

- Are our electoral cycle and alignment results from the full sample driven by a particular sub-set of districts?

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  - Politically-motivated targeting may be easier in smaller districts with only one MP, or in those districts that have never been subjected to fragmentation (i.e. constant districts), which also tend to be smaller and leave less scope for breaking-up.

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  - Politically-motivated targeting may be easier in smaller districts with only one MP, or in those districts that have never been subjected to fragmentation (i.e. constant districts), which also tend to be smaller and leave less scope for breaking-up.
- Electoral cycle results show similar results for the election year and the full cycle as in the main sample for the sub-sample of constant districts, one-MP districts and broken-up districts

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- From broken-up districts: politically-motivated electoral cycle effects are driven by the districts that have been the subject of municipal fragmentation
- The negative local average treatment effects of political alignment found in the full sample are likely driven mainly by constant districts and one-MP districts, with only very weak evidence for politically-driven fiscal outcomes in broken-up districts.

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- Ghana has gone through four rounds of district fragmentation during the period of analysis: possible *gerrymandering*?
- To explore this possibility, we first drop one and then two recent fragmentation rounds to see whether our main results change in any way
- **Results: Same as main.** The district fragmentations combined with the relatively volatile voting behavior in Ghana - where there is hardly such a thing as a truly 'safe' district for more than two election cycles - have diluted any attempts at gerrymandering, and in fact weakened politically-motivated fiscal targeting in close elections

Political party effects

We examine if the average political alignment effects we have identified so far apply to the two dominant parties to a similar degree:

- We consider fiscal outcomes year-on-year over the regime of each party
- We then follow earlier results to examine the effects for the first-and last-two years of each party's time in power

Results: Same as main. Hence, similar alignment effects for both during their regime

Summary and Conclusion

- We find evidence of large electoral cycle effects: grant allocations, district expenditure and IGFs are highest in the mid-term of the government's four-year mandate and then decrease again to be lowest in election years
  - Taking the average across districts, this translates into £560,171 more grants, £116,000 more IGFs, and £588,000 more expenditure in the mid-term
  - Similarly, taking the average across districts, this translates as £453,000 less grants, £105,000 less IGFs, and £457,000 less expenditure in election years
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  - Evidence of swing voter targeting
  - Similar behaviour across party regimes
- No clear evidence of fragmentation influenced by gerrymandering

PART B: AN EXTENSION

Public service provision: An extension

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We consider the following:

- *Public service provision:* capital expenditure (CAPEX); piped water; own water; and sanitation
- *Education:* provision of toilet facilities in schools; provision of drinking water in schools; number of schools needing repairs; pupil-teacher-ratio; core textbooks; number of seating places; and number of writing places

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We answer three questions here:

1. Is there an electoral cycle effect?
2. Is there an alignment effect?
3. Are these effects mediated by factors such as the age of the local government, the decision to switch alignment, and the level of financial dependence?

Data and Methodology

- Data source:
  - The Demographic and Health Surveys (DHS) - access to piped water; own water; sanitation - 1993, 1998, 2003, 2007, 2008, 2014, 2016, 2017, 2019
  - The Education Management Information System (EMIS) - 2001-2019
- Methodology
  - Fixed effects estimation
  - Regression Discontinuity Design

Overview: What do we find

- **Public service provision:**
  - CAPEX increases in election year, however, provision of piped water and sanition reduces in election years.
  - On the other hand, there is an increase in own water ownership in election years
  - Aligned districts benefit from increased access to piped water

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  - On the other hand, there is an increase in own water ownership in election years
  - Aligned districts benefit from increased access to piped water
- **Education:**
  - Election years are associated with an increase in the provision of writing and seating places in schools, and toilet facilities.
  - There is also lower pupil-teacher-ratio in election years, suggesting an improvement in teacher recruitment and placement in election years
  - Worringly, fewer core textbooks are provided in election years

Overview: What do we find

We consider some channels of effect

- Public services:
  - Older districts that are aligned have better sanitary conditions
  - There is a negative net effect to switching alignment - poorer sanitary conditions
  - Aligned districts that are financially dependent on the central government are rewarded - increased CAPEX, improved sanitory conditions

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  - Aligned districts that are financially dependent on the central government are rewarded - increased CAPEX, improved sanitory conditions
- Education
  - Schools in districts that switch alignment have better drinking water, lower pupil-to-teacher ratio, and receive more core textbooks
  - Schools in districts that are financially dependent on the central government have poorer sanitary conditions and core textbook deficits, but improved seating places. These conditions are however likely to be better if such districts are aligned to the central government

Thank You

Appendix 1: Descriptive statistics

Table A1: Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max
Internally Generated Funds(IGF)	3,301	2.04	9.12	20.9	230
Grants	3,269	9.79	19.4	0	320
Total revenue	3,285	11.8	25.8	86.42	450
Total Expenditure	2,845	11.7	45.5	110	1500
NPP voteshare	3,609	40.64	20.2	0	90.01
NDC votsehare	3,613	45.82	16.65	0	93.81
Margin	3,609	4.49	33.1	-86.1	90.26
Align	3,796	0.59	0.49	0	1
Unalign	3,796	0.4	0.49	0	1
Enrolment rate	3,545	60.18	38.58	0	311.48
Population	3,793	0.143	0.187	0.021	2.1
Number of MPs	3,607	1.5	1.28	1	13
Grant share	3,267	0.838	0.15	0	1
IGF share	3,283	0.167	0.17	0.001	3.45

Appendix 2: Placebo test for RDD

Table A2: Placebo test for RDD

	1	2	3	4	5	6
	First two years			Last two years		
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate	0.0654	-0.657	-0.447	-0.00226	-0.391	-0.0624
	(0.768)	(0.624)	(0.710)	(1.305)	(1.216)	(1.364)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	654	658	558	563	570	535

Appendix 3: Optimal bandwidth

Table A3: Optimal bandwidth

	1	2	3	4	5	6
	First Two Years			Last Two Years		
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate (d)	5.14	4.61	4.52	4.93	5.46	4.13
RD Estimate (d/2)	2.57	2.3	2.26	2.46	2.73	2.07
RD Estimate (2xd)	10.28	9.22	9.05	9.85	10.92	8.27

Appendix 4: Balance tests

Table A4: Balance tests

	1	2	3	4
	Population		Enrolment rate	
	First Two Years	Last Two Years	First Two Years	Last Two Years
RD estimate	-0.162	0.168	-0.347	-0.178
	[-0.366, 0.042]	[-0.078, 0.414]	[-1.024, 0.330]	[-0.594, 0.238]

Appendix 5: RDD estimations for sub-samples of districts

	1	2	3	4	5	6
Panel A	First two years: Constant districts			Last two years: Constant districts		
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate(d)	-1.583	-1.103	-1.856	-2.753*	-2.026	-2.789*
	(1.549)	(1.612)	(2.182)	(1.471)	(1.378)	(1.480)
RD Estimate(d/2)	-6.981***	-7.485***	-8.287***	-4.595**	-3.620**	-4.752***
	(0.657)	(0.680)	(0.818)	(1.815)	(1.752)	(1.772)
RD Estimate(2xd)	0.157	0.257	0.238	-0.347	0.0660	-0.365
	(1.182)	(1.154)	(1.505)	(1.243)	(1.143)	(1.246)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	221	221	190	211	212	212
Panel B	First two years: One-MP districts			Last two years: One-MP districts		
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate(d)	-1.032*	-1.336**	-2.065***	-0.732	-0.644	-0.991
	(0.544)	(0.522)	(0.589)	(0.972)	(0.824)	(1.085)
RD Estimate(d/2)	-1.635**	-1.576**	-2.776***	-2.043	-1.630	-2.559
	(0.654)	(0.662)	(0.691)	(1.460)	(1.214)	(1.577)
RD Estimate(2xd)	-0.425	-0.767*	-0.913*	0.137	-0.142	-0.0151
	(0.408)	(0.429)	(0.530)	(0.734)	(0.639)	(0.817)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	630	634	518	498	503	468
Panel C	First two years: Broken-up districts			Last two years: Broken-up districts		
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate(d)	-0.395	-0.872	-1.375*	-0.515	-1.178	-0.613
	(0.730)	(0.606)	(0.835)	(0.819)	(0.762)	(0.868)
RD Estimate(d/2)	-0.680	-0.718	-1.464	-1.251	-2.044*	-1.577
	(0.885)	(0.709)	(1.011)	(1.279)	(1.194)	(1.352)
RD Estimate(2xd)	-0.604	-1.066**	-0.782	-0.426	-0.894*	-0.259
	(0.516)	(0.462)	(0.626)	(0.554)	(0.526)	(0.593)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	672	676	565	609	616	568

Appendix 6: The effect of district fragmentation: RDD estimations for shorter time periods

Table A6: The effect of district fragmentation: RDD estimations for shorter time periods

	1	2	3	4	5	6
	Without 2016 elections			Without 2012 elections		
Panel A	First two years					
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate(d)	-1.599*	-1.808**	-2.566***	-1.289	-1.511*	-1.528**
	(0.900)	(0.712)	(0.975)	(1.047)	(0.799)	(0.759)
RD Estimate(d/2)	-2.001*	-2.349***	-2.928**	-1.446	-1.721**	-0.726
	(1.097)	(0.810)	(1.216)	(1.338)	(0.794)	(0.518)
RD Estimate(2xd)	-0.758	-1.120*	-1.121	-0.721	-1.080	-0.765
	(0.684)	(0.581)	(0.810)	(0.802)	(0.662)	(0.780)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	701	702	564	490	490	358
Panel B	Last two years					
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate(d)	-1.642	-2.090**	-1.914*	-2.197**	-2.487***	-2.019**
	(1.037)	(0.964)	(1.008)	(0.963)	(0.937)	(0.939)
RD Estimate(d/2)	-3.146**	-3.455**	-3.461**	-3.779***	-3.697***	-3.753***
	(1.469)	(1.377)	(1.385)	(1.329)	(1.375)	(1.295)
RD Estimate(2xd)	-0.580	-0.955	-0.506	-0.573	-0.796	-0.449
	(0.736)	(0.694)	(0.748)	(0.723)	(0.700)	(0.707)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	701	703	662	452	453	451

Appendix 7: Political party effects: RDD estimations for whole regime time periods

Table A7: Political party effects: RDD estimations for whole regime time periods

	1	2	3	4	5	6
	NDC YEARS			NPP YEARS		
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate(d)	-4.554***	-4.255***	-4.574***	-0.107	-0.602	-0.427
	(0.879)	(0.791)	(0.930)	(0.400)	(0.405)	(0.387)
RD Estimate(d/2)	-5.588***	-5.164***	-6.501***	-0.509	-0.524	-0.872
	(0.973)	(0.891)	(1.031)	(0.683)	(0.548)	(0.671)
RD Estimate(2xd)	-1.780**	-1.662**	-1.783**	0.00301	-0.397	-0.0416
	(0.782)	(0.717)	(0.832)	(0.288)	(0.325)	(0.289)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,912	1,932	1,493	1,181	1,192	1,177

Appendix 8: Political party effects: RDD estimations for First and Last Two Years

Table A8: Political party effects: RDD estimations for First and Last Two Years

	1	2	3	4	5	6
Panel A	NDC First Two Years			NDC Last Two Years		
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate(d)	-2.221*	-2.595**	-3.424**	-2.773**	-2.449**	-2.152
	(1.166)	(1.052)	(1.416)	(1.384)	(1.234)	(1.363)
RD Estimate(d/2)	-4.104***	-4.053***	-6.315***	-6.212***	-5.535***	-5.592***
	(1.352)	(1.229)	(1.474)	(1.458)	(1.312)	(1.442)
RD Estimate(2xd)	-0.914	-1.011	-1.419	-1.592	-1.373	-1.447
	(0.844)	(0.809)	(1.101)	(1.108)	(0.980)	(1.097)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	920	922	647	904	921	757
Panel B	NPP First Two Years			NPP Last Two Years		
	Grants	IGF	Expenditure	Grants	IGF	Expenditure
RD Estimate(d)	-0.126	-0.375	-0.597	-0.0833	-1.630***	-0.00961
	(0.485)	(0.474)	(0.474)	(0.316)	(0.612)	(0.393)
RD Estimate(d/2)	-0.420	-0.205	-0.845	-0.218	-1.373**	-0.443
	(0.775)	(0.598)	(0.776)	(0.391)	(0.671)	(0.414)
RD Estimate(2xd)	0.0392	-0.287	-0.116	-0.119	-0.903*	0.0744
	(0.354)	(0.400)	(0.361)	(0.244)	(0.498)	(0.322)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	747	755	741	434	437	436