Rewarding Allegiance: Political Alignment and Fiscal Outcomes in Local Government

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Abstract

We examine how local governments' political alignment with central government affects subnational fiscal outcomes. In theory, alignment could be rewarded for example with more intergovernmental transfers, or swing voters in unaligned constituencies could be targeted instead. We analyze data from Ghana, which has a complex decentralized system that seeks to preclude political alignment effects. District Chief Executives (DCEs) are centrally appointed local administrators loyal to the ruling party, while district Members of Parliament (MPs) may belong to another party. A formula for central transfer distribution aims to limit the influence of party politics. Using a new dataset for 1994-2018 and a close election regression discontinuity design we find that despite this system, there is evidence of politically-motivated local fiscal outcomes. Aligned districts receive lower transfers and have lower district expenditure and internally generated funds, indicating swing-voter targeting. Results suggest that district fragmentations have weakened these effects. We also show strong electoral cycle effects, with mid-term peaks in fiscal outcomes.

JEL codes: H7, D72, O55, H87
Keywords: political alignment, Ghana, regression discontinuity, electoral cycles, fiscal federalism

1 Introduction

Fiscal policy outcomes in decentralized systems are often influenced by political factors such as political alignment between the central and local governments, and electoral cycle pressures. Given politicians' primary aim of securing re-election, Lindbeck and Weibull (1987) proposed that intergovernmental transfers (i.e. fiscal transfers from the central to the local government level) would be targeted primarily at swing voters in order to convince them to cast their vote for the incumbent party candidate in the next election. Cox and McCubbins (1986) and Dixit and Londregan (1996) instead contended that transfers would aim at rewarding core supporters in constituencies that chose the incumbent party with a larger vote share. A sizeable empirical literature now exists on the political motivations behind intergovernmental transfers, as well as other possible outlets for political favouritism. The evidence often supports the core-voter-targeting explanation for politically-motivated intergovernmental transfers, while swing-voter targeting seems common for other outcomes.

This paper aims to provide a comprehensive analysis of how political factors affect a range of fiscal outcomes in a complex, developing-country context. We look at Ghana and answer two related questions: how does political alignment influence subnational fiscal outcomes, including intergovernmental transfers, local expenditure and internally generated funds? Second, are there electoral cycle effects in local fiscal outcomes? We use a unique, broad set of measures of district-level fiscal outcomes for the years 1994-2018, covering six national-level elections and up to 216 districts. We first exploit within-district variation over time in a series of fixed-effects panel estimations to analyze electoral cycle patterns in our fiscal outcomes. In a second step, we apply a regression discontinuity design (RDD) to examine the impact of political alignment on fiscal outcomes in close national elections. In a series of sensitivity analyses, we vary the bandwidths for the RDD approach, the district samples and time periods.

We have four main results: first, we show that there are strong electoral cycle patterns, with a marked mid-term increase on average across districts and fiscal measures. Taking the average across districts, this translates into GHC 9,114,490 more grants, GHC 1,887,000 more internally generated funds (IGFs), and GHC 9,570,600 more expenditure in the mid-term than in the first post-election year; and GHC 7,371,870 less grants, GHC 1,707,480 less IGFs, and GHC 7,441,200 less expenditure in election years. Second, districts that are aligned with the central government on average see lower fiscal outcomes across the electoral cycle than unaligned districts. Third, 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. Political

alignment sees districts receiving on average lower central government grants, raising lower levels of own revenues, and spending less than unaligned districts. Finally, district fragmentation appears to have weakened the impact of political alignment on local fiscal outcomes.

Ghana is a stable multi-party democracy with regular elections that are deemed free and fair. It has seen seven national-level elections and four peaceful changes in power between ruling parties since the return to democracy in 1992. The country has a decentralized system of government, with substantial powers delegated to the Metropolitan, Municipal and District Assemblies – what we call districts or just District Assemblies (DAs) for simplicity (see section 2 for more details). Crucially, Ghana's system adds a layer of complexity to the conventional political alignment setup, where one key local figure (e.g. a mayor of a municipality or a state governor) is either aligned or unaligned with the central government. Ghana's DA membership is made up of both locally-elected and centrally-appointed officials, in addition to the Member(s) of Parliament (MP) representing the local constituency.[1] The most powerful political appointee is the District Chief Executive (DCE), the head of the DA directly appointed by the President. DCEs are viewed as party cronies and owe their allegiance to the central government, whose policies they are expected to promote and for whom they should garner support among the district electorate (Ahwoi 2010; Ayee and Dickovick 2010; Mohammed 2015). This means that in principle, *all* districts are aligned with the central government to the same degree. Nevertheless, political differences can and do arise from the fact that MPs instead may be of an opposition party, and that DCEs and MPs are often at odds with each other.[2] Hence, in Ghana, a district shows political alignment by voting for the MP candidate(s) of the party that wins the national election.

All districts are heavily reliant on central government transfers to carry out their duties, and both the DCE – as the head of the DA – and the MP(s) are viewed by the general public as responsible for district-level policies. In a context where showing that one can 'get things done' is very important, MPs however have limited (public) financial means at their disposal to directly target their constituency, giving DCEs the upper hand when it comes to exploiting the possibilities of politically-motivated transfers. The Ghanaian system seeks to prevent such patronage by making the allocation of the main central transfer – the District Assembly Common Fund (DACF) – subject to a mathematical formula, approved annually by Parliament, that

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[1] Each district has at least one constituency. The more populous Municipal and Metropolitan districts have more than one constituency and MP.

[2] Ghana has a multi-party system, but politics are dominated by the two largest parties, the New Patriotic Party (NPP) and the National Democratic Congress (NDC). All Presidents so far have been members of either of these two parties. The two parties are generally characterized as center-right and center-left, respectively, with only loose ethnic group identifications (see e.g. Boylan 2016). Note that elected District Assembly members run for office on a non-partisan platform, so only MPs have a clear political allegiance.

considers a district's population size and comparative development factors.[3] Yet, Banful (2011) finds evidence of political motivation in the relative size of transfers of DACF moneys, and of the weights given to the criteria in the formula: transfers tend to be targeted at swing districts, and the formula appears to be amended with this aim prior to national elections. However, it is worth noting that it is difficult to successfully identify and target particular voters and districts in a context where district-level voting patterns in national elections seldom persist for more than two electoral cycles – and no party has yet been in power at the central level for more than two consecutive terms.[4]

There has been a remarkable process of district fragmentation in Ghana since the current Constitution was passed in 1992, which has led to a stepwise increase in the number of districts from 110 in 1994, to 216 at the end of our sample period. Riedl and Dickovick (2014) and Mohammed (2015) have suggested that early fragmentation rounds sought primarily to create new districts that were fiscally viable, before considering possible electoral implications,[5] but claim that the most recent rounds show signs of gerrymandering in the setting of new district boundaries. Our results suggest that the repeated fragmentations, combined with the relatively volatile political allegiances in Ghana, have weakened any attempts at politically motivated targeting over our period of analysis. Our RDD impacts are strongest in districts that have not been subject to fragmentation across the period of analysis (our 'constant district' sample) and districts with only one MP where political alignment is most clear-cut, but they disappear in broken-up districts. Moreover, omitting the two most recent fragmentation rounds indicates that the negative political alignment effects have been diminishing in magnitude as the number of districts has increased. Whether a clear pattern of political alignment effects will persist, and if so which way it will go, remains to be seen.

The present paper contributes mainly to two strands of literature. First, there is a large literature examining the impact of political alignment on intergovernmental transfers.[6] Many publications have found a positive effect of political alignment with the center on the size of intergovernmental transfers – especially discretionary grants – in line with the hypothesis of

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[3]There is an ongoing debate on whether the small share of the DACF transfers devoted to MPs' district development projects is unconstitutional. There are numerous calls for revising the current policy and having MPs focus on their core job of legislating at the national level, though it is recognized that this will necessitate a change in people's perceptions of MPs' responsibilities and the extent of their power (see Ahwoi 2010).

[4]Robinson and Torvik (2009) focus on the possibility that swing voters are severely punished, potentially to the point of disenfranchisement. There is no evidence of the use of such 'sticks' in Ghana.

[5]Banful (2011) empirically confirms the absence of political motivation at least behind the first fragmentation round of 2004.

[6]The modern debate on the decentralization of government goes back to Buchanan (1950), Musgrave (1959), and Oates (1972, 1977), who argued that decentralization leads to greater political participation, accountability, and administrative and fiscal efficiency. Critics of decentralization instead point out that it leads to soft budget constraints, macroeconomic instability, clientelism, and greater government size (e.g. Rodden 2006).

rewarding core supporters. Examples include Levitt and Snyder (1995) and Larcinese et al. (2006) for the U.S.; Arulampalam et al. (2009) and Rodden and Wilkinson (2004) for India; Brollo and Nannicini (2012) for Brazil; Bracco et al. (2015) for Italy; Curto-Grau et al. (2018) for Spain; and Kantorowicz and KpplTuryna (2019) for Poland.

A second, closely related literature looks at other manifestations of political targeting and often – but not always – finds evidence for swing-voter targeting: for example, for India, Cole (2009) shows that government-owned bank lending in the agricultural sector peaks in election years and is targeted at swing districts; Baskaran et al. (2015) show election-year increases in electricity provision to swing constituencies; Asher and Novosad (2017) find positive local economic growth effects of political alignment; and Mahadevan and Shenoy (2022) find political targeting of a public works program in India, with more aid going to aligned jurisdictions in water-stressed areas that rely most heavily on public funds. Elsewhere, Remmer (2007) draws a complex picture of political patronage effects across the electoral cycle on provincial expenditures in Argentina; Sakurai and Menezes-Filho (2011) show an increase in the average municipal expenditure and the budget deficit in election years in Brazil, though the effect is lower in aligned municipalities; Borcan (2020) finds positive political alignment effects on electoral fraud in Romania; and Colonnelli et al. (2020) find positive political alignment effects in public employment in Brazil. There is also evidence of 'pure' electoral cycle effects on various outcomes: for example, Shi and Svensson (2006) find an increase in the expenditure and the budget deficit in election years which can differ across countries; Dahlberg and Mork (2011) find similar electoral cycles in local public employment in Sweden and Finland; and Repetto (2017) finds pre-electoral budget spikes in Italian municipalities, which are stronger with more local information available.

We examine a decentralized system in Africa, a continent which has so far been under-studied by the strands of literature described above.[7] We are not the first to focus on Ghana: Miguel and Zaidi (2003) find evidence of 'patronage targeting' at the district level in Ghana's education spending between 1996 and 2000, applying a regression discontinuity design to a random sample of schools; and more recently, Stoecker (2022) shows lower political corruption levels in politically aligned districts in Ghana. Mogues and Benin (2012) use a panel dataset for Ghana from 1994-2004 and show that central government transfers from the DACF crowd out locally-generated revenues, in spite of incentives for raising own funds that are built into

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[7]For studies on decentralization in Africa, see Mbate (2017) for a review of how decentralization has spread throughout the continent and how it has affected governance; Riedl and Dickovick (2014) for how political party systems have affected decentralization in Ghana and other African countries; and Appiah-Agyekum et al. (2013) for a qualitative analysis of how the Ghanaian decentralized political system influences the use of local government finance.

the criteria for allocation of the DACF. Most closely related to our work, Banful (2011) extends the Mogues and Benin (2012) dataset to 1994-2005 to examine whether the formula for the allocation of DACF moneys eliminates politically-motivated targeting of transfers. In fixed-effect estimations, she finds that transfers follow the swing-voter hypothesis: districts with lower vote margins in the previous election receive relatively more transfers, and the criteria for funding allocation change in line with this prediction. Fumey (2018) in turn extends the dataset until 2014 and uses a system GMM approach to examine political-alignment effects on DACF transfers, also finding evidence for swing-voter targeting, though the longer time period allows him to qualify this as a more recent phenomenon, with core-supporter targeting dominating in the early post-democracy period.

Our paper adds to these results in several ways: we use a longer time period – allowing us also for the first time to gauge the effect of the repeated district fragmentations – and a more extensive set of fiscal outcomes than previous contributions on Ghana; we shed light on the effect of politics in local fiscal outcomes both around elections and across the electoral cycle; and we are able to identify causal impacts using a close-election RDD.

The rest of the paper is structured as follows: Section 2 gives more details on the Ghanaian context; Section 3 presents the methodology and data; Section 4 discusses the results; and Section 5 concludes.

2 The local governance structure of Ghana

2.1 The institutional framework

Our focus is on Ghana, so it is worth describing the country's decentralized political and fiscal system in some detail before turning to the empirical analysis. Ghana has been a stable, multi-party presidential democracy since the new Constitution of 1992 signaled the end of the last military government. The new Constitution included a decentralized structure of government, with substantial powers delegated to sub-national entities; fiscal decentralization was added in 1994 to formalize central government transfers to local authorities.[8] In practice, the current decentralized governance system has four tiers below the center, operating – starting at the top of the hierarchy – at the regional, district, zonal, and Unit Committee levels. In this article, we concentrate on the District Assemblies (DAs), which act as the crucial links between regional and central governments above, and Zonal Councils, Unit Committees and the general

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[8]Decentralization was further strengthened in 2010 under the Decentralization Policy Framework.

population below.[9] The Constitution of Ghana specifies that the DAs are the highest political, legislating, budgeting, and planning authorities at the local level.[10]

In order to carry out its plans, a District authority has three sources of revenue: central grants directed to the District Assemblies Common Fund (DACF); ceded revenue;[11] and internally generated funds (IGF) raised through local taxation, fees, fines, and charges. The DACF and ceded revenue are both central government transfers, but the DACF constitutes the main source of funding of district authorities. It has a constitutionally stipulated minimum share of central government revenue of at least 5%; it 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.[12]

The DACF allocation formula is calculated as a weighted linear combination of four criteria, which adds up to 100%. The most important is the 'Equality' criterion, which ensures that each district benefits from a substantial amount of the DACF by providing an equal base sum to every district. The 'Need' criterion is targeted at bridging the gap between rich and poor districts.

The 'Responsiveness' criterion serves as an incentive for districts to raise their own revenues, although the indicators used to measure own revenue generation have greatly varied over the years (Banful 2011). Finally, a measure of the intensity of use of public facilities in a district - 'Service Pressure' – is included in the formula to account for the implications of population density for public facilities. We control for district population and the basic education enrolment ratio in our regression estimations to take some of the main DACF allocation criteria into account.[13]

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[9]The Regional Coordinating Councils (RCCs) have little real power beyond coordinating activities and strategies, while the two lowest levels are mainly responsible for carrying out at the local level the policies decided above, and for conveying concerns from the population to the higher government levels.

[10]Among their most important tasks are the preparation of annual district Development Plans, which should be subjected to public hearings to ensure alignment with local needs; and of annual budget estimates. Both require approval by a majority of District Assembly members. Development is prescribed to be pro-poor and cover basic infrastructure, the provision of municipal works and services, the management of human settlements and of the natural environment in the district (FES 2016). In particular, DAs are responsible for fire protection; the civil status register; the maintenance of a statistical office; education services including pre-school, primary, and junior secondary education; social welfare services including family welfare services and welfare homes; public health services including primary care and health protection; water and sanitation; refuse collection and disposal; self-help projects; cemeteries and crematoria; slaughterhouses; and parks and open spaces, sports and leisure facilities.

[11]Ceded revenue is redistributed to DAs by the Internal Revenue Service via the Ministry of Local Government and Rural Development. It includes some specialized funding sources (e.g. natural resource royalties).

[12]Since 1997, a small share of each district's DACF funds – around 4-5% – is allocated to the DA's MP(s). See the "Guidelines for Utilisation of 50% of the District Assemblies' Common Fund Contingency Factor Allocation to be Shared on Constituency Basis", Ministry of Local Government and Rural Development Ref. No. SCR/ADM.250/VOL.3, 18th November 1997.

[13]Note that the weight assigned to these criteria frequently varies, although the 'Equality' criterion has always maintained the largest weight. Banful (2011) argues that formula changes are politically motivated; on the flipside, the frequent changes in the DACF formula imply that districts cannot easily influence future grant allocations, especially since allocation formula details are only communicated with a two-year delay (see also

Although DAs can set local tax rates, the potential for fiscal revenue from local taxation is limited, as the most lucrative sources of taxation – income tax, sales tax, and import and export duties – go to the central Internal Revenue Service. Moreover, local tax collection is ineffective (Dickovick and Riedl 2010).[14] Instead, district authorities overwhelmingly rely on central government transfers for their revenue, with grants and DACF funds combined making up on average over 80% of DAs' revenue sources.

Since the Constitution of 1992, Ghana has gone through four rounds of district fragmentation, which have successively increased the number of districts from 110 to 138 (after the creation of new districts in 2004), to 173 (2008), 216 (2012), to currently 254 (2018). In the early phases, fragmentation gave due consideration to the idea of economic viability of the new districts and the creation of effective local institutions; however, critics argue that since the 2000's, fragmentation has actually worsened central public spending inefficiencies and weakened local fiscal accountability (e.g., Mohammed 2015).[15]

The DAs' huge reliance on central government moneys to carry out their duties potentially opens up avenues for politically motivated transfers. To better assess this possibility, we next describe Ghana's local government politics in more detail.

2.2 Local government politics

A unique feature of local governance in Ghana is that membership of the District Assemblies is determined though a combination of centrally-made appointments and locally elected representatives. 70% of Assembly Members are elected; these elected members are also members of the Unit Committee in their local electoral area. The DA further includes the member(s) of parliament (MPs) representing the constituency(-ies) within the district; MPs are *ex officio* members with no voting right in general assembly meetings of DAs. Elections for DA members – but not MPs – are on a non-partisan basis; the elections are state-sponsored and conducted by the electoral commission. Finally, 30% of the DA members are directly appointed by the president, (theoretically) in consultation with traditional leaders and interest groups in the district.

Mogues and Benin 2012).

[14]There is one other potential source of revenue, which however has uneven usage across districts and time: revenue may come from outside the national framework, for example from the IMF/ World Bank's Heavily Indebted Poor Countries (HIPC) Initiative debt relief programme (FES 2016). Note that District Assemblies are not allowed to set deficit budgets, and any loans require prior approval by the Ministry of Finance. The Auditor General audits the annual accounts of DAs and presents a report to parliament.

[15]The motives behind the creation of new districts have also come under scrutiny, as the increase in constituencies and MPs that accompanies fragmentation has raised accusations of 'gerrymandering', i.e. the manipulation of constituency boundaries to favor one party (Riedl and Dickovick 2014; Mohammed 2015). While this strategy works sometimes in Ghana, our data show that newly created districts are no more loyal to one party over time than districts that have existed since 1992. Few districts in Ghana can truly be regarded as 'safe' for any political party for more than two electoral cycles.

Crucially, the appointed members include the District Chief Executive (DCE), who is the political-administrative head of the DA with the power to initiate, design and implement policies, and tasked with managing the district's resources (FES 2016; Debrah 2016). The approval of the government's DCE nominee depends on a two-thirds majority of the vote in the general DA. Those in favor of the system argue that it is necessary for the President to be given the opportunity to mobilize so-called competent and experienced individuals to complement elected assembly members, who may not always have technical knowledge of the issues (Debrah 2016). However, appointees tend to be seen as party cronies rather than technicians (Afrobarometer 2008; Ayee and Dickovick 2010; Mohammed 2015). In fact, DCEs are subject to "centripetal forces of central control" that pull their districts towards the central government (Ahwoi 2010: 7), and they are highly aware of being accountable to the President, who can "sack [them] at any time" (Ahwoi 2010: 15). The outcome of this mixed model of political appointees (heavily linked to the central government) and elected members (who may be aligned with the opposition) is 'administrative politicking': DCEs are often accused of breaking administrative rules, interfering with MPs' local political roles, distrusting civil servants, and generally contributing to chaotic local government (Debrah 2016).

DCEs and MPs frequently clash due to a peculiarity in the system mentioned above: MPs receive a share of a district's DACF for own projects and 'monitoring', and the allocation and disbursement of this share must be approved by the DCE.[16] Tensions between the two sides also arise from extreme partisanship and the desire to score political points; from personality conflicts; and from low transparency and trust – all of which are likely exacerbated by the appointee's often being the unsuccessful candidate in the last parliamentary race, especially in districts won by the opposition.[17] In fact, though influential, the DCE's position is precarious because it depends on presidential favor, and it is subject to a two-term limit. If the DCE has ambitions for a more secure and prominent political career, they will typically run for MP (Ahwoi 2010). Competition is always likely to be high in districts where there is differing party allegiance between DCE and MP(s), but if DCEs show an interest in the parliamentary seat, tensions arise even when both sides are in the same party (Boylan 2016; Debrah 2016).

In sum, no matter the outcome of the district-level parliamentary and presidential elections,

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[16] There are numerous reports of delays in approval and disbursement, or even appropriation by the DCE to undertake projects without the knowledge of the MP (see Boylan 2016; Debrah 2016). The Minister of Local Government and Rural Development and DACF Administrator are regularly called upon to intervene in cases of conflicts over disbursements of MPs' shares. In cases of "actual sabotage", the DACF Administrator can directly disburse the small part of an MP's DACF share that is allocated to 'monitoring and evaluation'. This advance is then deducted from the next quarterly DACF tranche (personal interview with a former DACF Administrator, Accra, May 2019).

[17] On the tensions and clashes within DAs, see Ayee (1999); Daddieh and Bob-Milliar (2012); Boylan (2016); Debrah (2016).

the local DCE is always likely to owe allegiance to the party in power in the central government, and may have their own political career at heart during their agenda-setting and decision-making process. A district MP, on the other hand, may be aligned or unaligned with the ruling party. The decentralized system in Ghana therefore offers an interesting case study of politically motivated intergovernmental transfers and local government expenditure patterns. The peculiar political pressures and rivalries at the local constituency level in Ghana would lead us to expect that, if anything, there is targeting of swing voters through increased transfers to (marginally) non-aligned districts.

3   Data and Methodology

We first describe the methodology used to analyze electoral cycles and political alignment effects, before detailing the data used.

3.1   Electoral cycles

To examine electoral cycles in fiscal outcomes in Ghana, we look at systematic variation over time in local fiscal outcomes and explore the existence of electoral cycles using a panel fixed-effects estimator as follows:

$$lnFiscal_{it} = \alpha + \sigma Election_{it} + \beta_i X_{vit-1} + \mu_i + \epsilon_{it}. \tag{1}$$

$lnFiscal_{fit}$ refers to a vector of real per capita local government fiscal outcomes (in natural logs) for district i in year t, including central government grants, internally generated funds, and total expenditure; $Election$ refers to the election year dummy; and 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. The district fixed effects and the error terms are shown as μ_i and ϵ_{it}, respectively. We use robust standard errors clustered at the district level.

In a second step, we introduce dummy variables for one and two years before the election year, with the latter dummy variable coinciding with the second year after the previous election in the four-year term. The first post-election year therefore becomes our omitted year.[18] Most previous literature finds a positive σ for the election year but it could be positive or negative

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[18]We do not include year dummies. A government's term of office covers a period of four years, and our electoral cycle dummies cover three of those four years, making year dummies redundant.

for other years, because there are no strong priors regarding electoral cycles in a developing country context. In a third step, we include an interaction term between the electoral cycle dummies and a one-period lag of the dummy for political alignment between DAs and central governments (described below), to determine whether the effect of the electoral cycle differs between aligned and non-aligned districts (see Cole 2009).[19]

Note that our approach differs from Dahlberg and Mörk (2011) and Repetto (2018) who use mayoral election data. We make use of national parliamentary election results to elect MPs who represent the constituency(ies) within the DA, and measure alignment of MPs with the elected presidential candidate. The simultaneous parliamentary and presidential elections could potentially confound time and electoral cycle effects. However, our relatively long time period minimizes the risk of confounding effects. Moreover, parliamentary and presidential elections in Ghana are held every four years on 7 December, hence can credibly be termed exogenous. Using subnational election data is ruled out by their non-partisan nature, while district chief executives – unlike elected mayors – are appointed rather than elected.[20]

3.2 Political alignment effects

We next examine in more depth the effect of political alignment on local government fiscal outcomes using a regression discontinuity design (RDD). We follow Brollo and Nannicini (2012) by building measures of average local government fiscal outcomes for the first two years and last two years of a government's term in office. We thus cover the entire four-year term without results being driven by strong electoral-cycle fluctuations.[21] The RDD accommodates both time-invariant and time-variant confounding factors and allows us to examine causal links between political alignment and local fiscal outcomes in Ghana around a threshold. Therefore, we more closely examine the local average treatment effect of political alignment on local government fiscal outcomes in close elections, given by vote margins (see below). The RDD is particularly suitable in our case given that local governments in Ghana are relatively homogeneous in nature, having similar administrative, budgetary, fiscal, political, and institutional structure.

We fit a local linear regression (kernel regressions) on both sides of the cut-off with obser-

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[19]By lagging our alignment dummy by one period we logically accord with the timing of elections in Ghana, which take place on December 7 every four years. For example, alignment in an election year is given by the alignment from the previous elections.

[20]We thank an anonymous referee for helpful comments on this point.

[21]Note that Ghana's main national budget is published in October/November each year, with local government budgeting periods starting at the same time. National elections occur on December 7 in election years. It is therefore reasonable to assume that election outcomes will have a delayed impact on our fiscal measures. In our sample, the periods of the first two years after the elections are 1997-1998, 2001-2002, 2005-2006, 2009-1010, 2013-2014, and 2017-2018; the periods of the last two years before the next elections are 1995-1996, 1999-2000, 2003-2004, 2007-2008, 2011-2012, and 2015-2016.

vations inside the bandwidth weighted using a triangular kernel. Using local linear regression allows us to examine jumps in our outcome variables at the threshold where the vote margin for our winning party changes between negative and positive and to estimate a potential slope of the regression function (see Eggers et al., 2015). Given that regression discontinuity estimates are sensitive to the choice of bandwidth, we provide estimates calculated using three window widths: the optimal bandwidth (d), half the bandwidth (d/2, 50%), and twice the bandwidth (2xd, 200%).[22] The estimated model is:

$$lnFiscal_{it} = \rho_0 Align_{it} + f(Align_{it} * Margin_{it}) + \beta_i X_{it} + \zeta_i + \epsilon_{it} \qquad (2)$$

where $lnFiscal_{it}$ is a vector of real per capita local government fiscal outcomes (in natural logs) for district i in year t. As explained above, we follow Brollo and Nannicini (2012) and use average two-year fiscal outcomes (for either the first two or last two years in a term) as our dependent variables. Our treatment and assignment variables are $Align_{it}$ and $Margin_{it}$, respectively. Our control function $f(Align_{it} * Margin_{it})$ is linear in $Margin_{it}$ interacted with our treatment variable $Align_{it}$. X_{it} represents a vector of time variant control variables (i.e. the enrolment rate at the basic education level and total population in natural logarithms), also averaged over the first two years or the last two years of a government's term in office (in line with the dependent variable). ζ_i represents the district fixed effect, and the error term is given as ϵ_{it}. Our coefficient of interest is ρ_0 which measures our alignment effect at the zero threshold: a positive coefficient would indicate core-supporter targeting, while a negative coefficient would suggest swing-voter targeting (close to the threshold).

3.3 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.[23] 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. In addition, we further examine if fragmentation has influenced political alignment effects by excluding the 2012 and 2016 election years and corresponding fragmentation rounds.

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[22]We thank two anonymous referees for helpful suggestions on our RDD approach.

[23]The first election after the return to democracy in 1992 is omitted because fiscal decentralization was not established until 1994.

Our dependent variable(s) include the following district-level fiscal measures: central government grants, district expenditure, and internally generated funds (IGFs). All dependent variables are measured in real per capita terms (averaged over two years for the RDD analysis), and taken in natural logarithms. Data on all our dependent variables are sourced from the various issues of the districts' budget. Data for the period 1994-2004 are from Mogues and Benin (2012), for 2005-2010 from the Ministry of Local Government and Rural Development (MLGRD) in Ghana, and for 2011-2018 they are compiled by the authors from the various issues of the individual district assemblies' composite budget for the years 2011-2020 by the Ministry of Finance and Economic Planning, Ghana.

As noted earlier, our political variables are the election dummies, *Align* and *Margin*. We measure district alignment *Align* by considering the political alignment between local government political agents and the center, with the DCE and MP as our local political agents. Given that DCEs are appointed by the central government, if the elected MP in the district and the central government belong to the same party, then the DCE and MP are automatically aligned with the central government. Hence, alignment is a dummy variable equal to 1 if the DCE and MP are from the same party as the central government, and 0 otherwise. We emphasize here again that a district demonstrates alignment with the party that wins the national election by voting for its local parliamentary candidate.

We consider parliamentary election results, because parliamentary and presidential election results in Ghana are very similar. With the unit of observation for election results at the constituency level, we aggregate the parliamentary election results to the district level as constituencies are units within districts.[24] We carefully track changes in district boundaries and constituencies within districts over time, matching them with electoral data. Ghana has a first-past-the-post electoral system, so a party is considered to have won a district if it captures a relative majority of the parliamentary vote share. For districts with more than one MP, alignment is determined using the difference between the average of the sum of votes for the parliamentary candidates of the winner of the national election and the average of the sum of votes of the parliamentary candidates of the loser of the national elections.

Margin is measured as 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. We use the vote shares of NPP and NDC in determining vote margin, and assign winner or

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[24]Banful (2011) adopts a similar approach to aggregating constituency-level election results to district-level results. She also notes that presidential and parliamentary results in Ghana are virtually the same, as candidates of the two major parties win in both the presidential and parliamentary elections held in any given district.

loser according to which of these two parties wins the national presidential elections. In other words, $Margin$ denotes the margin of victory, with a positive margin showing an aligned, and a negative margin an unaligned district.[25] Our assignment variable $Margin$ is thus not the simple margin of victory of the elected candidate, but the margin of victory (or defeat) of the *aligned* candidate (see Brollo and Nannicini, 2012.)

Our control variables are the total population of the residents in the district and the enrolment rate at the basic education level in the district, which proxy important measures for determining DACF grant distributions and district budget needs (see Section 2 above). Total population is constructed from the census data and population projections for the districts by the Ghana Statistical Service (GSS). Enrolment rate is our proxy for basic schooling, which DAs are responsible for providing. It is measured as the ratio of the sum of enroled pupils in basic education in a given year (creche, nursery, kindergaten, primary and junior high school levels; they are aged between 0-14 years) to the young population (population aged 0-14) in the district in the same year. Data on the enrolment rate at the basic education level is sourced from the various rounds of the Ghana Annual Schools Census (Basic Schools Information) by the Ministry of Education (MOE), Ghana.

We present our descriptive statistics in Table 1. From the table, districts have relatively higher levels of expenditure than revenue, suggesting they are likely to incur budget deficits on average. The mean central government grant received by the districts is higher than the mean internally generated funds of the districts. The data show that central government grants constitute 84% of local government total revenues on average, while local government IGFs make up approximately 17% of local government total revenues. In sum, the data suggest that local governments in Ghana have low levels of fiscal autonomy, and are largely dependent on central government transfers.

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[25]Since Ghana is effectively a two-party state, assume two parties in an election, Party A and Party B. Assume further that there are 3 constituencies in district i at time t. Both parties field candidates for each constituency. Hence, we aggregate the percentage of votes obtained by all candidates of Party A and divide by 3 and do same for Party B. If Party A's presidential candidate wins the national elections, then we assign Party A as the winner and Party B as the loser, and construct $Margin$ and $Align$ as described.

Table 1: 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

Note: Descriptive statistics for all variables using the full sample of districts. All fiscal outcomes are in millions of Ghana cedis (GHC). Population is given in millions. Differences in the number of observations for each variable are due to missing data and district fragmentation.

4 Empirical results

4.1 Electoral cycles

The results for the electoral cycle effect of local government fiscal outcomes are given in Table 2. Columns 1-3 of Table 2 show results for central government grants; columns 4-6 for internally generated funds (IGFs); and columns 7-9 for total expenditure. 'Baseline' refers to the results with the election year dummy only; 'Cycle' refers to the results with the election year dummy and dummies for one year and two years preceding the elections (i.e. for the entire electoral cycle); and 'Mediate' refers to the results interactions between the electoral cycle dummies and the political alignment dummy.

The coefficient of the election year dummy, *Election*, is negative and statistically significant in all baseline estimations implying that on average, local government fiscal outcomes decrease in election years compared to non-election years (i.e. the base category). The magnitude of the coefficients for the election year dummy ranges from 64-99 percent, and the effect size is largest for internally generated funds (column 4). Taking the average fiscal outcomes across districts, they have received GHC 9,134,070 less grants in election years; spent GHC 7,476,300 less in election years; and raised GHC 2,033,880 less own revenues in election years. The finding of a decreased central government grant allocation in election years is contrary to the results of Fumey (2018) on only the DACF for a slightly shorter time frame.

However, the story does not end there: we find strong full electoral cycle effects in the 'Cycle'

Table 2: 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	27.90***	27.79***	28.10***	22.67***	22.67***	23.06***	30.38***	30.63***	31.06***
	(5.698)	(5.614)	(5.677)	(5.538)	(5.456)	(5.526)	(5.964)	(5.765)	(5.813)
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

Note: Fixed effect estimations. Columns 1-3 shows results for central government grants, columns 4-6 for internally generated funds (IGF), and columns 7-9 for district expenditure. The dependent variables are measured in (log) real per capita terms. 'Baseline' refers to the results with the Election year dummy only; 'Cycle' refers to the results with the election year dummy and dummies for one and two years preceding the elections; 'Mediate' refers to the results with the election year dummy and the interaction of the election year dummies and alignment. The control variables are total population and the enrolment rate at the basic education level. Robust standard errors clustered at the district level are in parentheses. ***, **, * represent statistical significance at 1, 5 and 10 per cent levels, respectively.

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columns. First, fiscal outcomes are found to increase in the first post-election year (shown by the constant coefficient); peak in the mid-term (i.e. two years after the last and before the next election); and then decrease again to be lowest in election years. Coefficients show that outcomes are on average between 82-93 percent higher in mid-term than in immediate post-election years, while in election years and in the year preceding the election year they are between 64-84 percent and between 41-85 percent less than in immediate post-election years, respectively. Taking the average outcomes, this translates into GHC 9,114,490 more grants, GHC 1,887,000 more IGFs, and GHC 9,570,600 more expenditure in the mid-term- than right after an election. In election years and using average outcomes, this translates into GHC 7,371,870 less grants, GHC 1,707,480 less IGFs, and GHC 7,441,200 less expenditure. The fluctuations across the four-year electoral cycle are therefore large and for grants (column 2) seem akin to a targeted use of grants at the local government level in the mid-term of a government's term in office (see Drazen, 2001), which may make it difficult for voters to perceive such patterns. Nevertheless, the fluctuations in fiscal outcomes are unlikely to be driven entirely by DAs themselves and any electoral strategy they may be pursuing: Ahwoi(2010) notes that DAs face planning difficulties on account of cyclical delays on the part of central government, particularly in DACF allocations, which create uncertainty and unreliability of district budgets.

We take a look at the interaction effects between electoral cycle and political alignment in the 'Mediate' columns of Table 2. Political alignment is negative and statistically significant for all fiscal outcomes suggesting that there is no benefit on average across the cycle to aligned districts in terms of fiscal outcomes. In election years, aligned DAs have net lower average fiscal outcomes than unaligned districts;[26] the pattern for the mid-term instead shows that the net effect of alignment is positive for all fiscal outcomes and largest for grants.[27] The results overall suggest that the strong electoral cycle patterns in fiscal outcomes may have a political component, but we cannot make any causal claim based on these estimations. For better causal identification, we next turn to the RDD results.

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[26]For example, the net Grants of aligned districts in election years is calculated from column 3 as $-0.586 + 0.473 = -0.113$ or 11 percent less on average than in non-aligned districts, the net IGF of aligned districts in election years is $-0.644 + 0.524 = -0.12$ or 12 percent less, while the net expenditure of aligned districts in election years is $-0.75 + 0.430 = -0.32$ or 32 percent less. The coefficients of $Election_i * Align$ and $Align_{t-1}$ are jointly statistically significant in their respective cases.

[27]Net effects: Grants=0.238 or 24 percent; IGF=0.213 or 21 percent; Expenditure=0.213 or 21 percent.

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4.2 Regression discontinuity results
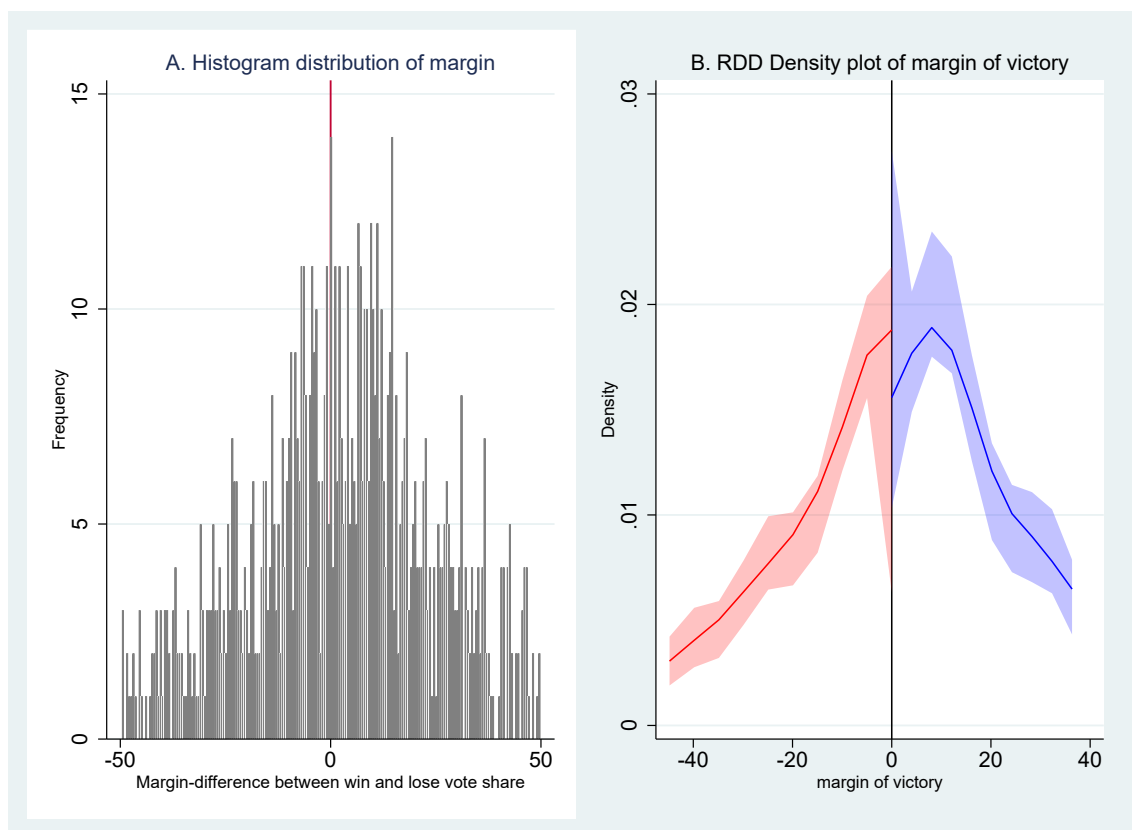
4.2.1 Graphical analysis

Figure 1: Histogram distribution of Margin around zero and RD plot of Margin
Note: In Panel A on the left, the histogram is constructed for margin in the range [-40, 40]. The central line splits the distribution at the cut-off point of zero(0). In Panel B on the right, the central line splits the margin of alignment in the range [-40, 40] at the cut-off point of zero(0). Red shows margins in unaligned (or 'lost') districts, while blue shows margins in aligned districts. The shaded areas are the 95 per cent confidence interval. Data used cover the period 1994-2018.

We first carry out a graphical analysis to examine the density and distribution of our assignment variable and seek evidence of discontinuity. We discuss a histogram and a density plot of Margin showing its distribution along the zero cut-off in Figure 1. We then plot the margin of alignment, on the horizontal axis, and the fiscal outcome of each district, on the vertical axis, in Figure 2. For easier interpretation of the plots, the margin of vote is restricted to the range [-40, 40], and estimates include the 95 per cent confidence intervals. We make use of 40 bins in all our plots. Panel A shows that the margin of alignment (i.e. the margin of victory) is distributed around zero(0), with some districts barely aligned, other districts barely unaligned, and more districts clearly won or lost. Panel B suggests that there is a discontinuity in margin of alignment with the density distribution along the cut-off of zero (0), shown with a 95 per cent confidence interval. This justifies our use of margin as the assignment variable.
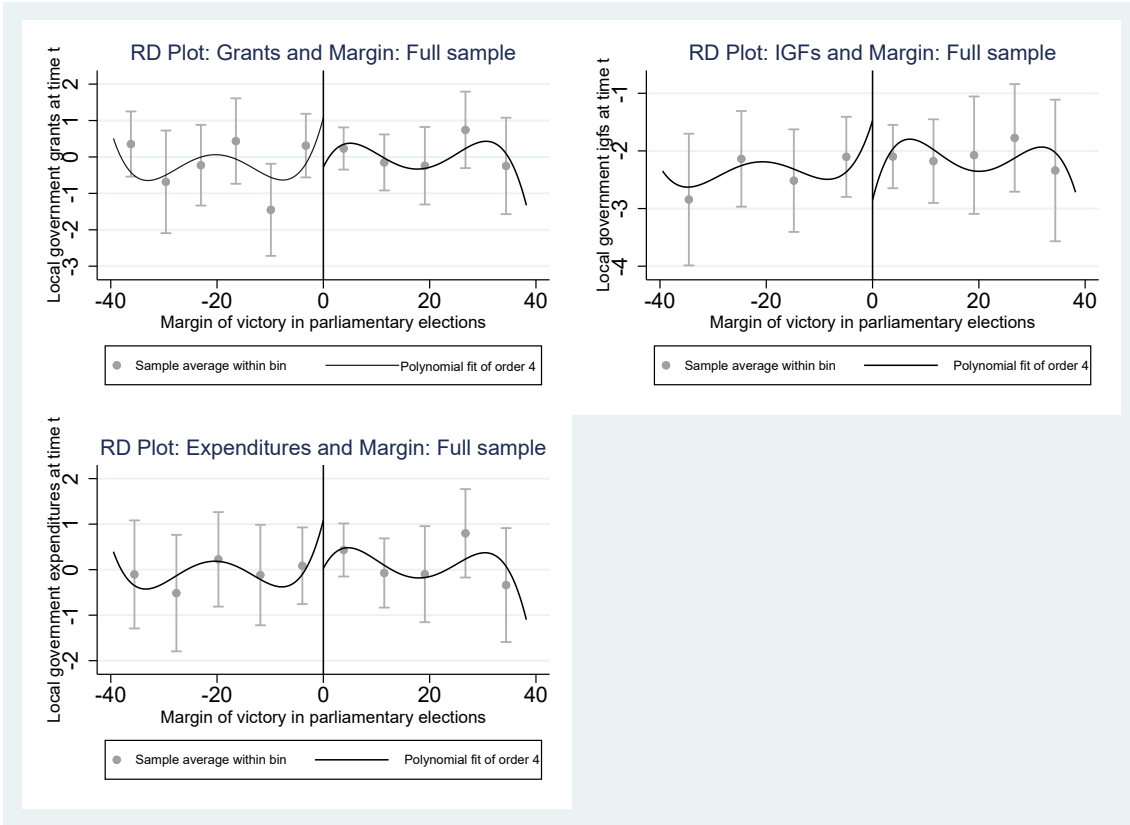
18

Figure 2: RD plot of fiscal outcomes and Margin

Note: Panel A represents Grants and Margin, Panel B represents IGF and Margin and Panel C represents Expenditure and Margin. 'Dots' represent sample average within bin. The fitted lines represent the natural shape of the underlying mean outcome functions and the size of the jump at the cut-off. 'Whiskers' represent the 95% confidence interval. Data used cover the period 1994-2018.

Figure 2 shows the RD plot of DAs' fiscal outcomes in real per capita terms. There is some evidence of discontinuity around the cut-off, but it is not entirely clear from the figure judging by the confidence intervals. The figure also shows that as we move away from the cut-off, unaligned districts (on the left side of the cut-off) and aligned districts (on the right side) do not differ much in their fiscal outcomes. However, the estimation fit appears less precise as we move away from the cut-off, judging by the length of the 'whiskers' denoting 95 percent confidence intervals. We will next examine the effects around the cut-off more closely in the regression estimation.

4.2.2 Main RD estimation results

The RD estimation results in Table 3 are statistically significant for all fiscal outcomes, suggesting that the local average treatment effect of political alignment is strong, especially for IGFs and expenditure. The negative coefficients show that aligned districts receive on average lower central government grants, raise lower levels of own revenues, and spend less relative to unaligned districts. Therefore, these results suggest swing voter targeting. Given that the

Table 3: 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

Note: Estimations are done using a linear specification on either side of the RD cut-off. Columns 1-3 show results for the first two years while columns 4-6 show results for the last two years of a government's term in power. The dependent variable is measured in (log) real per capita terms. The control variables are total population and the enrolment rate at the basic education level. All regressions include a constant term. Optimally chosen bandwidth (d) is between +/- 4 and +/-6 for all fiscal outcomes, hence d/2 is between 2-3 and 2xd is between 8-12. Robust standard errors clustered at the district level are in parentheses. ***(**)(*) represent statistical significance at 1, 5, and 10 percent levels, respectively.

optimal bandwidth d in row 1 is relatively small (between 4-6), the evidence here is similar to an alignment effect for a close election (see Eggers et al., 2015), as the bandwidth includes all elections where the winning party won or lost by a margin of between 4-6 points or less. Since we consider only the two main parties in Ghana, such elections would include all cases where the winning party won by between 48 and 52 percent of the vote to between 47 and 53 percent of the vote. The effect is enhanced in the first robustness test in the second row of Table 3, when we use half the bandwidth ($d/2$). This shows slightly larger effects in districts with extremely close election results. However, when we double the bandwidth ($2xd$) in row 3, the effects all but disappear, though the coefficients remain negative. Our relatively large RD coefficient magnitudes are not unusual, at least in the context of less-developed countries, as Brollo and Nannicini (2012) estimate similar coefficients for municipalities in Brazil.

The comparison between the average outcomes in the first and last two years of a term indicates that swing-voter targeting may become stronger in the run-up to the next election: coefficients for nearly all outcomes are larger than for the first two years after an election, especially in very close elections ($d/2$ in row 2). With other words, political alignment effects around the margin seem slightly less negative at the start than at the end of the electoral cycle.[28]

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[28]This result is consistent with the overall electoral cycle patterns that emerged in the analysis in Section 4.1.

4.2.3 Placebo test

We generate placebo outcomes equal to the outcome variable in period $t-1$, shown in Appendix Table A1. The absence of treatment effect suggests continuity is satisfied and other underlying factors evolve smoothly at the cut-off point. The results show no treatment effect for all outcome variables in the first two years and the last two years of a government's term in office. Therefore, other underlying factors evolve smoothly at the cut-off point.

4.3 Sensitivity analysis

4.3.1 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? For example, 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 (see Table A2 in the Appendix), one-MP districts (Appendix Table A3) and broken-up districts (Appendix Table A4): negative and statistically significant coefficients of the *Election* and *Election*$_1$ year dummies but a positive coefficient of the *Election*$_2$ dummy. The coefficient of the alignment dummy and the interaction terms of alignment and the electoral cycle are however statistically insignificant for all sub-samples but the broken-up districts, indicating that possible politically-motivated electoral cycle effects are driven by the districts that have been the subject of municipal fragmentation.

Local average treatment effects from the RDD estimations in district sub-samples are shown in Table 4 for the same set of bandwidths as in our main estimations. The small sample of constant districts (Panel A) shows consistently negative effects of alignment for optimal bandwidth d and halved bandwidth $d/2$, but not for doubled bandwidth $dx2$. The effect is marginally significant for the last two-year averages with optimal bandwidth d, and highly significant only for the half-bandwidth $d/2$. Effect magnitudes increase substantially compared to our full sample results in Table 3. For our one-MP districts (Panel B), effects are negative but only significant for the first two-year average outcomes, and only for bandwidths d and $d/2$. Results are weakest for the sample of broken-up districts (Panel C), though coefficients remain consistently negative. In sum, the analysis at the level of smaller district sub-samples suggests that 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

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	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

Note: Estimations are done using a linear specification on either side of the RD cut-off. Panel A shows results for the Constant districts, Panel B shows results for the One-MP districts, while Panel C shows results for the Broken-up districts. All regressions include a constant term. The dependent variable is measured in (log) real per capita terms. The control variables are total population and the enrolment rate at the basic education level. Optimally chosen bandwidth (d) is between +/- 4 and +/-6 for all fiscal outcomes, hence d/2 is between 2-3 and 2xd is between 8-12. Robust standard errors clustered at the district level are in parentheses. ***(**)(*) represent statistical significance at 1, 5, and 10 percent levels, respectively.

evidence for politically-driven fiscal outcomes in broken-up districts. This is a first indication that district fragmentation may be weakening political alignment effects.

4.3.2 A closer look at the effect of district fragmentation

As described earlier, Ghana has gone through four rounds of district fragmentation during the period of analysis. While several articles on Ghana find no evidence for politically motivated splits in the early rounds, the more recent rounds have raised the accusation of gerrymandering.

Table 5: The effects 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

Note: Estimations are done using a linear specification on either side of the RD cut-off. Panel A shows results for the first two years while Panel B shows results for the last two years of a government's term in office. For each set of results, columns 1-3 are results for estimations without 2016 and columns 4-6 without 2012 elections (i.e. dropping one or two fragmentation rounds, respectively). All regressions include a constant term. The dependent variable is measured in (log) real per capital terms. The control variables are total population and the enrolment rate at the basic education level. Optimally chosen bandwidth (d) is between +/- 4 and +/-6 for all fiscal outcomes, hence d/2 is between 2-3 and 2xd is between 8-12. Robust standard errors clustered at the district level are in parentheses. ***(**)(*) represent statistical significance at 1, 5, and 10 per cent levels, respectively.

To explore this possibility in more depth, we first drop one and then two recent fragmentation rounds to see whether our main results change in any way. This of course substantially reduces our number of observations, stretching the RDD to the limit of what it can capture. Nevertheless, our analysis in Table 5 shows significant negative local average treatment effects of political alignment that are consistent with our main results and - more interestingly - appear larger in magnitude. Results are strong for both two-year averages when we drop only the 2016 fragmentation round, while they become weaker when we also drop the 2012 round for the first two-year averages (Panel A), while remaining strong the for the last two-year averages (Panel B). Effects are consistent with bandwidths d and $d/2$, but disappear with larger bandwidths $dx2$.

Taken together, this suggests that 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.

5 Conclusions

The present paper examines the effect of political alignment on sub-national fiscal outcomes in Ghana, which has a complex system prone to peculiar political pressures at the local district level. We use a new dataset on central government grants to local governments, district budgets with information on internally generated funds and total expenditures, and election outcomes spanning the years 1994-2018 and six national elections for up to 216 districts.

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. On average across the electoral cycle, we find that districts that are aligned with the central government receive less grants, have lower expenditure and also lower internally-generated funds than non-aligned districts; the negative link is accentuated in election years, but reversed mid-term.

A closer look at the causal effect of political alignment around the vote margin using a Regression Discontinuity Design (RDD) shows strong negative impacts of political alignment. Political alignment sees districts receiving on average lower central government grants, raising lower levels of own revenues, and spending less than unaligned districts in close elections. This effect suggests swing-voter targeting and is particularly pronounced where election outcomes are very tight (vote margins between 2-3 points). This is similar to earlier results found for only one type of intergovernmental transfer in Banful (2011) and Fumey (2018).

There has been an ongoing process of municipal fragmentation in Ghana since the current Constitution was adopted in 1992, which has led to an increase in the number of districts from 110 in 1994, to 216 at the end of our sample period. Sensitivity analyses show that the main findings on political alignment effects are likely driven by districts that were never broken up and by one-MP districts, where political alignment is most easily attributable. Further investigation shows that dropping the two most recent rounds of district fragmentation increases the impact magnitude of our main findings. This suggests that despite worries of politically-motivated district fragmentation and gerrymandering in Ghana (see Riedl and Dickovick 2014; Mohammed 2015),[29] the process – 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 - has

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[29]See Green (2010), Grossman and Lewis (2014); and Hassan (2016) for the theory that the creation of new districts is used as a form of patronage to reward or entice political support.

(perhaps inadvertently) watered down any attempts at systematic political targeting in fiscal outcomes, and moreover done so more successfully than the obstacles to party favoritism that are built in to the decentralized system. Whether this persists in the future remains to be seen.

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Appendix

Table A1: 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

Note: Estimations are done using a linear specification on either side of the RD cut-off. Columns 1-3 show results for the First Two Years while columns 4-6 show results for the Last Two Years of a government's term in power. All regressions include a constant term. The dependent variable is a placebo measured as the outcome variable in period $t-1$ given in (log) real per capital terms. The control variables are total population and the enrolment rate at the basic education level. Robust standard errors clustered at the district level are in parentheses. ***(**)(*) represent statistical significance at 1, 5, and 10 per cent levels respectively.

Table A2: Electoral cycles and local government fiscal outcomes: Constant districts

	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	-1.134***	-0.963***	-1.075***	-1.187***	-1.036***	-1.227***	-0.774***	-0.622***	-0.693**
	(0.0864)	(0.126)	(0.246)	(0.0628)	(0.103)	(0.264)	(0.0883)	(0.135)	(0.268)
$Election_1$		-0.549***	-0.706**		-0.568***	-0.815***		-0.672***	-0.752**
		(0.105)	(0.261)		(0.0964)	(0.291)		(0.171)	(0.344)
$Election_2$		1.099***	0.670		1.069***	0.621		1.120***	0.754
		(0.0840)	(0.438)		(0.0923)	(0.448)		(0.129)	(0.507)
$Align_{t-1}$			-0.491			-0.507			-0.442
			(0.536)			(0.550)			(0.664)
$Election * Align_{t-1}$			0.170			0.313			0.102
			(0.356)			(0.397)			(0.407)
$Election_1 * Align_{t-1}$			0.272			0.425			0.139
			(0.441)			(0.475)			(0.498)
$Election_2 * Align_{t-1}$			0.741			0.769			0.636
			(0.732)			(0.716)			(0.801)
Constant	1.337	1.418	1.940	-2.887	-2.627	-2.111	-0.527	0.205	0.606
	(8.080)	(7.834)	(7.836)	(7.815)	(7.575)	(7.559)	(8.334)	(8.043)	(8.056)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	762	762	762	766	766	766	673	673	673
R-squared	0.243	0.273	0.275	0.226	0.257	0.259	0.184	0.220	0.222

Note: Fixed effect estimations. Columns 1-3 shows results for central government grants, columns 4-6 for internally generated funds (IGF), and columns 7-9 for district expenditure. The dependent variables are measured in (log) real per capita terms. The control variables are total population and the enrolment rate at the basic education level. 'Baseline' refers to the results with the Election year dummy only; 'Cycle' refers to the results with the election year dummy and dummies for one and two years preceding the elections; 'Mediate' refers to the results with the election year dummy and the interaction of the election year dummies and alignment. Robust standard errors clustered at the district level are in parentheses. ***, **, * represent statistical significance at 1, 5 and 10 per cent levels, respectively.

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Table A3: Electoral cycles and local government fiscal outcomes: One-MP districts

	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	-1.188***	-0.979***	-0.966***	-1.259***	-1.092***	-1.083***	-0.883***	-0.986***	-0.937***
	(0.0694)	(0.0822)	(0.141)	(0.0621)	(0.0732)	(0.128)	(0.0789)	(0.103)	(0.165)
Election$_1$		-0.165**	-0.0451		-0.270***	-0.188		-0.896***	-0.764***
		(0.0721)	(0.144)		(0.0754)	(0.153)		(0.119)	(0.187)
Election$_2$		0.721***	0.650***		0.692***	0.598***		0.439***	0.340
		(0.0695)	(0.174)		(0.0683)	(0.170)		(0.0998)	(0.214)
Align$_{t-1}$			0.0755			0.0372			0.0747
			(0.262)			(0.249)			(0.332)
Election * *Align*$_{t-1}$			-0.0209			-0.0115			-0.0897
			(0.213)			(0.197)			(0.242)
Election$_1$ * *Align*$_{t-1}$			-0.228			-0.164			-0.253
			(0.201)			(0.204)			(0.252)
Election$_2$ * *Align*$_{t-1}$			0.109			0.148			0.153
			(0.291)			(0.277)			(0.331)
Constant	-2.846	-2.582	-2.894	-7.194	-6.588	-6.836	-3.532	-0.909	-1.323
	(7.444)	(7.368)	(7.448)	(7.434)	(7.310)	(7.394)	(9.647)	(9.286)	(9.401)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,710	1,710	1,702	1,729	1,729	1,721	1,410	1,410	1,403
R-squared	0.175	0.198	0.197	0.165	0.191	0.190	0.113	0.147	0.148

Note: Fixed effect estimations. Columns 1-3 show results for central government grants, columns 4-6 for internally generated funds (IGF), and columns 7-9 for district expenditure. The dependent variables are measured in (log) real per capita terms. 'Baseline' refers to the results with the Election year dummy only; 'Cycle' refers to the results with the election year dummy and dummies for one and two years preceding the elections; 'Mediate' refers to the results with the election year dummy and the interaction of the election year dummies and alignment. The control variables are total population and the enrolment rate at the basic education level. Robust standard errors clustered at the district level are in parentheses. ***, **, * represent statistical significance at 1, 5 and 10 per cent levels, respectively.

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Table A4: Electoral cycles and local government fiscal outcomes: Broken-up districts

| | 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	-0.765***	-0.516***	-0.777***	-0.837***	-0.609***	-0.869***	-0.520***	-0.509***	-0.740***
	(0.0789)	(0.105)	(0.148)	(0.0693)	(0.0976)	(0.129)	(0.0765)	(0.124)	(0.164)
Election$_1$		-0.236***	-0.211		-0.302***	-0.347**		-0.790***	-0.873***
		(0.0771)	(0.130)		(0.0759)	(0.134)		(0.144)	(0.184)
Election$_2$		0.942***	0.475***		0.945***	0.456***		0.772***	0.174
		(0.0814)	(0.165)		(0.0788)	(0.156)		(0.111)	(0.170)
Align$_{t-1}$			-0.565**			-0.645***			-0.832***
			(0.221)			(0.221)			(0.265)
*Election * Align$_{t-1}$*			0.462**			0.465**			0.436**
			(0.193)			(0.193)			(0.221)
*Election$_1$ * Align$_{t-1}$*			-0.0278			0.0852			0.161
			(0.211)			(0.216)			(0.218)
*Election$_2$ * Align$_{t-1}$*			0.802***			0.839***			1.025***
			(0.292)			(0.280)			(0.300)
Constant	49.63***	49.46***	49.85***	43.64***	43.50***	43.97***	55.82***	55.42***	56.12***
	(12.07)	(12.00)	(12.20)	(11.89)	(11.83)	(12.02)	(11.52)	(11.23)	(11.31)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,023	2,023	2,012	2,049	2,049	2,038	1,749	1,749	1,739
R-squared	0.302	0.327	0.331	0.274	0.304	0.309	0.276	0.310	0.318

Note: Fixed effect estimations. Columns 1-3 show results for central government grants, columns 4-6 for internally generated funds (IGF), and columns 7-9 for district expenditure. The dependent variables are measured in (log) real per capita terms. 'Baseline' refers to the results with the Election year dummy only; 'Cycle' refers to the results with the election year dummy and dummies for one and two years preceding the elections; 'Mediate' refers to the results with the election year dummy and the interaction of the election year dummies and alignment. The control variables are total population and the enrolment rate at the basic education level. Robust standard errors clustered at the district level are in parentheses. ***, **, * represent statistical significance at 1, 5 and 10 per cent levels, respectively.

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