

# When Do Partisans Cross the Party Line?

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## Abstract

Electoral accountability relies, in part, on voters' willingness to cross party lines to select a better opposition politician when a copartisan officeholder shirks. Knowing when voters are likely to do so is essential for understanding political responsiveness. I argue that two critical constituency-level factors jointly influence an individual's likelihood to vote for a candidate from the other party. The first is *partisan geography*: voters have an incentive to vote for opponents in constituencies where supporters of competing parties are intermixed in constituent communities because politicians cannot channel goods to home areas in such districts. Second, voters only have an incentive to vote for opponents in constituencies with a high *level of electoral competition* where their vote can be pivotal in selecting and sanctioning an opposition politician. In other electoral settings, partisans have few incentives to vote for opponents because they either do not expect to benefit from the goods that she will provide or they believe that their vote is not essential (or both). I find support for my argument using data from a conjoint experiment alongside survey responses of citizens (N=2,020) located in a stratified, representative sample of electoral districts in Ghana.

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# 1 Introduction

Politicians are more likely to be responsive to citizens' demands when voters are willing to cross party lines to select a similar or better-qualified opposition candidate when they perform poorly in office (Fearon, 1999). However, in many electoral settings, scholars argue that voters keep supporting copartisan or coethnic candidates because they do not expect to benefit from an opposition incumbent (Bates, 1983; Posner, 2005; Eggers et al., 2014). Party and ethnic cues provide voters with shorthand information about which communities a particular politician will likely favor if elected, especially in newer democracies (Conroy-Krutz, Moehler and Aguilar, 2016). Voters who engage in instrumental partisan voting are not tempted to vote for a similar or better opposition candidate (Carlson, 2015; Adida et al., 2017), which can incentivize politicians to cater only to their copartisans' interests — thus undermining democratic responsiveness.

Building on recent work on instrumental partisan-ethnic voting, I argue that two constituency-level factors jointly influence an individual's likelihood to vote for a candidate from the other party. The first is *partisan geography*: voters have an incentive to vote for the opposition party politician where supporters of the competing parties are intermixed in communities across the constituency (*partisan non-segregated districts*) because politicians cannot efficiently channel goods to certain areas in such districts (Kasara, 2006; Ichino and Nathan, 2013; Velasquez, 2013; Nathan, 2016). Second, voters only have an incentive to vote for a candidate from another party when there is a high *level of electoral competition*. In competitive constituencies, citizens can use their vote to elect a better opposition candidate or punish such opposition politicians if they renege on their electoral promises once in office (Fearon, 1999; Keefer and Vlaicu, 2005).

Accordingly, I argue that an individual is more likely to vote for an opposition candidate who promises a better provision of public goods and services in partisan non-segregated districts that are also competitive. In other electoral settings where these two conditions do not hold, partisans have minimal incentives to vote for an opposition-party candidate either because they do not expect to benefit from the goods that she will provide or they believe that their vote is not pivotal (or both).

In contrast to existing work, my argument implies that partisan geography and electoral competition *jointly* shape the chances that voters will cross party lines. For example, Ichino and Nathan (2013)'s

influential study considers the effect of the ethnic composition of a voter's neighborhood on vote choice in a presidential election. By focusing on the executive race, Ichino and Nathan effectively hold electoral competition fixed. However, such an analysis assumes that ethnic-minority voters always believe that their votes are pivotal in electing the candidate of the majority group in their neighborhood in national elections. Casey (2015) shows that voters in Sierra Leone are more likely to cross the ethnic-party line when they have access to quality information about candidates' competence in *competitive* electoral settings in local elections. However, she also holds the potential effect of electoral geography fixed. I propose and test a theory of instrumental partisan voting that accounts for both factors.<sup>1</sup>

I test these expectations regarding when voters will cross party lines in Ghana, a consolidating democracy in West Africa with a robust two-party system. To assess my argument, I use a forced-choice conjoint survey experiment in which respondents choose between two hypothetical candidates running to represent their constituency in parliament. I randomly varied how much a candidate plans to dedicate to public goods provision from their Constituency Development Fund (CDF) if elected to parliament, along with other attributes. Respondents were randomly paired with copartisan and non-copartisan candidates.

The design of the conjoint experiment allows me to estimate two quantities of interest to test my hypotheses. First, I estimate the *average marginal component effect* (AMCE) of higher public goods provision on vote choice (Hainmueller, Hopkins and Yamamoto, 2013). In this study, I use the AMCE to refer to the average treatment effect of attribute values relative to a baseline, as opposed to using these effects to make claims about whether a *majority* of respondents prefer such candidate features (Abramson, Koçak and Magazinnik, 2019).<sup>2</sup> In general, I expect voters to prefer candidates who promise to spend their individually assigned CDF on local public goods (Barkan et al., 2010; Lindberg, 2010; Weghorst and Lindberg, 2013). Second, the conjoint allows me to estimate the probability that a respondent will select the profile of a candidate at each level of spending (i.e., the *marginal mean*) when paired with copartisan and non-copartisan aspirants (Leeper, Hobolt and Tilley, 2019). If a respondent is equally

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<sup>1</sup>Nathan (2016) considers how ethnic diversity and wealth of neighborhoods jointly shape the instrumental voting decision of voters in urban places.

<sup>2</sup>Abramson, Koçak and Magazinnik (2019) warns against interpreting the AMCE as "true preference of the majority." I use "prefer" to indicate that respondents put more weight on a particular attribute value relative to the baseline (conditional on other randomized attributes) in their voting decision.

likely to pick a copartisan as an opposition candidate at each level of promised public goods, I interpret this as evidence that respondents are willing to cross the party line.<sup>3</sup>

Respondents (N=2,022) were sampled from a stratified, nationally representative sample of 12 constituencies. The sample includes a mix of competitive and non-competitive, and partisan-segregated and partisan non-segregated, constituencies. To examine when voters cross party lines, I compare the conditional AMCEs and marginal means in each of the four electoral types.

My findings are threefold. First, citizens prefer candidates who promise to allocate more of their CDF to providing local public goods rather than private benefits (or not spending their CDF at all). Respondents were 13 percentage points (pp) more likely to choose a candidate who pledged to spend the majority of their CDF on public infrastructure than one who plans to use only a little (or none) (i.e., the baseline) of the fund in this way. By contrast, voters are 7 pp more likely to pick a politician who committed to spending the majority of their funds to provide individual benefits compared to baseline.

Second, in the full sample, I find that an increase in promised public infrastructure has a positive AMCE on a voter's support for both copartisan and opposition candidates. However, the causal effect is higher for copartisan candidates compared to non-copartisans. The marginal means also show that voters are more likely to select copartisans over opponents even when their promised public goods spending is the same or higher. These results are consistent with instrumental theories of partisan voting.

Third, disaggregating the results by electoral setting, I find that voters are only willing to cross party lines in partisan non-segregated constituencies that are also competitive, which is consistent with my expectation. In these districts, promises of a high supply of public goods by copartisan and non-copartisan candidates have similar effects (i.e., similar AMCEs). Voters also become indifferent between these candidates (i.e., similar marginal means). In the other three types of constituencies, as hypothesized, citizens continue to prefer copartisan candidates to opposition candidates.

To investigate the mechanism that drives these results, I also gathered data on citizens' perceptions of their Member of Parliament's (MP's) behavior in their constituencies. I asked respondents if

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<sup>3</sup>In the pre-analysis plan that I filed for this study, I only specified using a comparison of the conditional AMCEs within each electoral setting to test my hypotheses. However, Leeper, Hobolt and Tilley (2019) find that merely considering conditional AMCEs can lead to misleading conclusions when focusing on heterogeneous effects because the groups may have different baseline propensities for privileging a feature in selecting candidates. Therefore, I include the results of the marginal means to provide a full description of the causal effects of promised CDF spending across partisan pairs in different settings.

they have seen or expect a project in their community supplied by their MP. I compare the responses of copartisans and non-copartisans of the MP. The data show that respondents did not differ much in their reports of incumbent behavior in partisan non-segregated constituencies. In contrast, in partisan-segregated districts, copartisans were much more likely to say that they had received a project compared to non-copartisans. Further, these differences were more pronounced in competitive compared to non-competitive constituencies. These results provide support for my argument that citizens are more likely to cross party lines in partisan non-segregated constituencies because they believe an opposition incumbent cannot exclude them from public goods.

This study makes three main contributions to the literature on electoral politics and accountability. First, it contributes to research on the determinants of voter choice in new democracies. Prior studies have shown that the provision of (or promise to supply) public goods influences the behavior of swing voters (Weghorst and Lindberg, 2013, 2011; Barkan, 1978; Lindberg and Morrison, 2008; Lindberg, 2010). Similar to Brierley, Kramon and Ofori (2020), my findings suggest that under certain conditions, even strong partisans can also be swayed by such commitments.

Second, I add to a growing number of studies that consider how partisan geography and electoral competition shape legislators' distributive tactics (Ejdemyr, Kramon and Robinson, 2017; Grossman and Michelitch, 2018; Harris and Posner, 2019; Ofori, 2019). My research extends these studies by showing that these important constituency-level factors also shape individuals' instrumental voting behavior. It joins studies that examine whether and how contextual factors such as ethnic segregation affect voting behavior (Ichino and Nathan, 2013; Nathan, 2016, e.g.), and attitudes towards out-groups (Enos, 2014, 2016).

Finally, my findings help explain seemingly contradictory results in the literature regarding the conditions under which voters cross party-ethnic lines in sub-Saharan Africa. Carlson (2015) and Adida et al. (2017) find evidence of coethnic (copartisan) intransigence among voters, whereas Ichino and Nathan (2013) suggest that voters sometimes cross party lines. My research shows that both of these conclusions are correct: voters *are* willing to cross party lines, but only in certain electoral settings. Thus, this study contributes to the small, but growing, number of empirical studies that consider how voters' expectations about partisan or ethnic favoritism discourage or encourage them to cross party-ethnic lines

(e.g., Arriola, Choi and Gichohi, 2016; Ichino and Nathan, 2013; Ferree and Horowitz, 2010; Ferree, 2006; i Miquel et al., 2007; Carlson, 2015).

## **2 Promised public goods, local electoral conditions, and crossing the party line**

A vast literature on the study of elections in Africa suggests that candidates' party or ethnic identities significantly shape vote choice (Horowitz, 2000; Posner, 2005; Conroy-Krutz, Moehler and Aguilar, 2016). A predominant theory of voting in these settings views such a close connection between a voter and her preferred candidate's party or ethnic identity as instrumental: a voter chooses the candidate she believes will favor her community with public resources (Bates, 1983; Chandra, 2007; Ferree, 2006; Posner, 2005; Conroy-Krutz, Moehler and Aguilar, 2016). Prior studies have highlighted two key (related) reasons why party or ethnic identity may serve as important criteria for selecting politicians in Africa.

First, analysts argue that the dearth of information about the quality of candidates in many elections in Africa implies that voters use party or ethnic cues as an informational shortcut to signal how a politician will distribute public benefits such as schools, clinics, roads, and electricity once in office (Posner, 2005; Carlson, 2015; Conroy-Krutz, Moehler and Aguilar, 2016). There is significant qualitative and empirical evidence that voters in many settings believe officeholders will favor their copartisans or coethnics when distributing public resources under their control; they accordingly vote along ethnic-party lines (McClendon, 2016; Kramon and Posner, 2016; Stokes et al., 2013; Kramon and Posner, 2013; Butler and Broockman, 2011; Nichter, 2008).<sup>4</sup>

Second, the literature suggests that electing copartisan or coethnic politicians helps voters hold politicians to account because, compared to noncopartisan officeholders, they find it easier to access information on performance through social networks that strengthen their ability to control copartisan

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<sup>4</sup>Of course, such a tactical allocation of public resources by politicians is not limited to the African context. A prominent view in the theoretical literature on distributive politics, which is mostly based on United States case studies, indicates that resource-constrained incumbents do not distribute public resources equally among voters (Dixit and Londregan, 1995, 1996; Cox, 2010). For example, Dixit and Londregan (1995)'s model suggests that US politicians target their core supporters because they have substantial information about their needs. The party "machine" is used to identify and target resources to supporters and avoid the inefficiencies or waste that may be associated with providing benefits to swing voters.

or coethnic politicians (Habyarimana et al., 2007; Miguel and Gugerty, 2005; Fearon and Laitin, 2003; Bates, 1983).

Accordingly, while an opposition candidate can pledge to provide more development resources, the logic of instrumental partisan/ethnic voting implies that such a commitment will not influence a voter's choice because she does not expect to benefit. Recent empirical work appears to offer support for such a conclusion. For example, in Uganda, Carlson (2015) finds that voters use information about hypothetical candidates' past performance to choose a better performer among coethnics, but that exerting more effort does not help politicians win the hearts and minds of non-coethnic voters. Similarly, in Benin, Adida et al. (2017) show that voters use performance information to determine which coethnic politicians deserve to be rewarded for performing well, but rarely use such data to sanction poor performing ones or to select quality opponents. These models and empirical results suggest that voters are unlikely to cross ethnic-party lines to select an opposition candidate with similar or better credentials or a more convincing commitment to provide public goods and services.

However, instrumental theories of voting assume that ethnic groups or party supporters are clustered in distinct communities (or regions) within a constituency (or country) and that officeholders can precisely target their supporting communities and exclude opponents (Posner, 2005; Bates, 1983). In practice, the partisan geography of constituencies (or countries) varies: partisans of different parties may live either in distinct communities or intermixed in each community within an electoral district, which may shape a voter's incentive to cross the party line to secure public goods and services from politicians (Ichino and Nathan, 2013). For example, in an influential study, Ichino and Nathan (2013) consider how the local ethnic composition of a voter's neighborhood shapes her instrumental voting decision in Ghana's presidential elections. They show that, within a neighborhood, an ethnic-minority voter is likely to cross the ethnic-party line because her community is more likely to benefit from nonexcludable public infrastructure provided by a non-coethnic (i.e., majority-group) officeholder. Ichino and Nathan (2013) focus on voter behavior in presidential elections, which enables them to hold the level of electoral competition fixed and examine how changes in the local ethnic composition shape vote choice.

While novel, Ichino and Nathan (2013)'s approach does not help us determine whether the influence of local ethnic composition on vote choice varies depending on the level of electoral competition.

They assume, albeit implicitly, that ethnic-minority voters believe their vote will tilt the national vote in favor of the majority-group candidate in their neighborhood. However, Casey (2015) shows in Sierra Leone that voters are more likely to cross the ethnic-party line when they have access to quality information about the competence of candidates in *competitive* electoral settings in local elections. Therefore, it is essential that our theory of instrumental voting considers both the geographic spread of partisans within an electoral constituency *and* the level of electoral competition.

## 2.1 The dual importance of partisan geography and electoral competition

I develop and test a theory of instrumental partisan voting that takes into account the partisan geography and competition of a voter's constituency. I argue that the partisan geographic division and the level of electoral competition will shape how voters evaluate promised public goods from opposition candidates. The geographic spread of partisans within a voter's constituency shapes her expectations about whether they will benefit from an opposition candidate's promised public goods. The degree of electoral competition determines whether her vote will be pivotal in selecting (and de-selecting) a public-goods-promising opposition candidate (who reneges on their pledge).

In line with instrumental theories of voting, I assume that voters and politicians belong to one of two political parties — Party A or B — competing in a single-member electoral district. I also assume that voters prefer candidates who deliver local public goods such as schools, roads, streetlights, and health clinics (Harding, 2015; Barkan et al., 2010; Lindberg, 2010; Weghorst and Lindberg, 2013). The study is based on the further premise that during electoral campaigns, politicians from both parties promise to provide public infrastructure if they are elected, but do not specify which communities would benefit. Indeed, politicians in many new democracies, including in Ghana (Keefer and Vlaicu, 2005; Brierley, Kramon and Oforu, 2020), make such valence appeals to provide developmental projects. Once in office, politicians deliver public goods to some communities, but cannot provide them to all due to budget constraints (Cox, 2010). Only voters who reside in the project communities (or very close by) benefit from these local public goods.

Figure 1 depicts such appeals. Voter  $V$  of party A,  $V_A$ , receives similar appeals to provide public goods from a copartisan candidate  $C_A$  and a non-copartisan candidate  $C_B$ . The standard model of



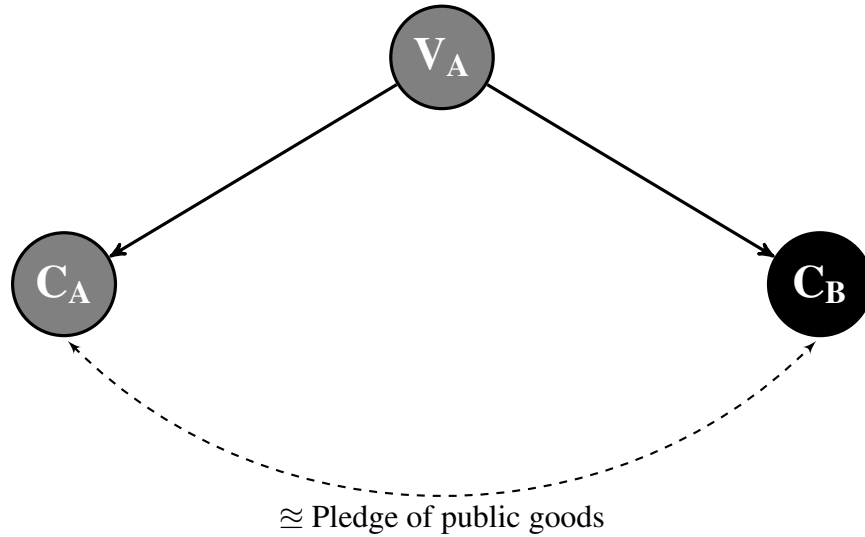


Figure 1: A simple model of partisan instrumental voting

instrumental ethnic-partisan voting would predict that  $V_A$  will discount the pledge of a non-copartisan aspirant,  $C_B$ , and select their copartisan candidate  $C_A$ . That is,  $V_A$  will not be indifferent between the two candidates because they do not expect to benefit from electing candidate  $C_B$ .

However, voters may live in one of four types of constituencies, as depicted in Figure 2. Each grid represents a polling station catchment area. These four constituencies are defined by two main characteristics — partisan geography and competition. Partisan geography refers to the distribution of a party’s supporters across polling stations (communities) within a constituency. Constituencies in which each polling station is dominated by supporters of either Party A ( $P_A$ ) or Party B ( $P_B$ ) are partisan segregated (Column (1)). Those in which each polling station is a mix of supporters of both parties are partisan non-segregated (Column (2)).

A constituency may also be competitive, whereby voters are more or less equally divided between  $P_A$  and  $P_B$ . An electoral district is non-competitive if voters predominantly belong to one party. The level of electoral competition has implications for the partisan geographic configuration of a constituency’s polling stations. In competitive, partisan-segregated constituencies, one party’s supporters, say  $P_A$ , will dominate about half of the distinct polling stations, and those of  $P_B$  will control the other half (Column (1a)). In non-competitive, partisan-segregated constituencies that are dominated by  $P_A$ , its partisans will dominate, say, three-quarters of the polling stations; Party B’s supporters will cluster in the remaining stations (Column(1b)). The reverse is true for  $P_B$ .

In partisan/non-segregated constituencies, each party's supporters will be equally distributed across the polling stations. Accordingly, in competitive constituencies, each polling station will contain, on average, half each of  $P_A$  and  $P_B$  ( $P_{A \approx B}$ ) supporters (Column (2a)). In non-competitive, non-segregated constituencies dominated by Party A, its supporters will comprise, say, 75% of the voters in each polling station, on average, and those of Party B will constitute the remaining 25% ( $P_{A > B}$ , Column (2b)). The reverse is true for Party B-dominant constituencies.

## 2.2 Theoretical expectations: crossing the party line for public goods

With these partisan geographic and electoral competition configurations in mind, I examine when a voter,  $V$ , of Party A,  $V_A$ , will be persuaded by a similar pledge of public infrastructure provision by the opposition candidate,  $C_B$ . First, imagine that  $V_A$  lives in a partisan-segregated constituency (Figure 3 Column (1)). In such a setting,  $V_A$  should expect to receive fewer or no public infrastructure projects from a non-copartisan officeholder  $C_B$  because the partisan segregation of the constituency ensures that incumbents can only favor the communities that support them (Harris and Posner, 2019; Ejdeymyr, Kramon and Robinson, 2017).<sup>5</sup> Thus,  $V_A$  will not be persuaded by an opposition candidate  $C_B$ 's pledge to switch. Specifically, I argue that voters will be less likely to vote for a public-goods-promising opposition candidate in a partisan-segregated constituency because they do not expect to benefit from such provision. Accordingly, I test the following hypothesis:

**Hypothesis H<sub>1</sub>:** *In partisan-segregated constituencies, voters are less likely to support an opposition candidate with a similar pledge to provide public goods than their copartisan aspirant*

However, the level of electoral competition may further shape  $V_A$ 's incentive to consider an opposition candidate's promise. In competitive electoral settings,  $V_A$  may be persuaded by aspirant  $C_B$ 's commitments because their vote can help elect such a public-goods-promising candidate and sanction them if they renege. In fact, high levels of electoral competition may encourage politicians to avoid discriminating among the electorate because they need to attract opposition voters (Kramer, 1983; Diaz-Cayeros,

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<sup>5</sup>The findings of Harris and Posner (2019) and Ejdeymyr, Kramon and Robinson (2017) in Kenya and Malawi regarding the allocation of CDF projects and the placement of boreholes, respectively, show that politicians can only target their supporters with public goods if they are spatially concentrated in distinct communities. Of course, some local public goods, such as roads and bridges, may still help multiple communities that may not be the primary targets of the officeholders. Nonetheless, the primary beneficiaries are often those in the catchment area of the polling station.

**Column (1)**

**a. Competitive-Segregated**

P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>
P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>
P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>
P <sub>B</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>
P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>
P <sub>B</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>
P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>B</sub>
P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>B</sub>

**b. Non-competitive-Segregated**

P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>A</sub>
P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>
P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>
P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>
P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>B</sub>	P <sub>A</sub>
P <sub>B</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>
P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>	P <sub>A</sub>	P <sub>A</sub>
P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>A</sub>	P <sub>B</sub>

**Column (2)**

**a. Competitive-Non-segregated**

P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>

**b. Non-competitive-Non-segregated**

P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>
P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>	P <sub>A&gt;B</sub>

Figure 2: Four types of constituencies

Estévez and Magaloni, 2016). That is, while incumbents *can* favor only their supporting communities in such partisan-segregated constituencies, the degree of competition implies that politicians may be forced to forgo their ability to discriminate between supporters and non-supporters. If true, this logic suggests that voters' preferences in competitive, partisan-segregated constituencies will be different from those found in segregated, non-competitive districts. My research design and data enable me to examine these alternative possibilities.

Second, imagine that  $V_A$  lives in a partisan/non-segregated electoral district (Figure 3 Column (2)) where supporters of both parties live side by side within the local communities. In such settings, candidate  $C_B$  will find it hard to exclude her non-copartisan  $V_A$  from using the public infrastructure she provides to any polling station or community (even if opponents are not her primary target) (Ichino and Nathan, 2013). Thus, citizens who reside in partisan non-segregated constituencies can expect to benefit from public goods provided by opposition officeholders equally. Accordingly, in *non-segregated electoral districts*, voters will equally prefer copartisan and non-copartisan candidates who promise to invest in local infrastructure because politicians cannot discriminate among voters. Yet this expectation may only hold in competitive settings, where voters will estimate that their vote can help elect a non-copartisan candidate who promises to deliver more local public goods. In non-competitive settings, voters who are non-copartisans of a public-goods-promising candidate can afford to downplay such a promise in their voting decision because they lack the ability to elect the politician, or to punish them if they renege.<sup>6</sup> Moreover, voters cannot be excluded from the local public infrastructure that opposition incumbents provide. Accordingly, I hypothesize that:

**Hypothesis H<sub>2</sub>:** *In competitive, partisan/non-segregated constituencies, citizens are likely to weigh promised public goods from copartisan and non-copartisan candidates equally in their voting decision*

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<sup>6</sup>A potential implication of this argument is that in non-competitive, partisan non-segregated settings, voters who belong to the minority group will be less likely to show up at the polls compared to those who align with the majority party. It is hard to test such a prediction using my forced-choice conjoint experiment. Moreover, examining the actual turnout rate for voters of the minority party in these settings may be misleading because presidential and parliamentary elections are held concurrently in Ghana. Accordingly, voters of the minority party may turn out to vote for the presidential candidate. In fact, I find similar reported turnout rates for minority and majority groups in partisan segregated non-competitive constituencies in my data. However, my argument is that, conditional on turning up, the promised public goods of a majority party's candidate will not sway a minority party's voter in such electoral setting.

**Hypothesis H<sub>3</sub>:** *In noncompetitive, partisan/non-segregated constituencies, citizens will place more weight on promised public goods from copartisan compared to non-copartisan candidates*

I test these theoretical expectations in Ghana.

### **3 Setting: partisan allocation of discretionary resources by MPs in Ghana**

Ghana's 25 years of stable democratic rule provides an ideal setting for this study. Ghanaians elect their MPs for four-year terms using a plurality rule in single-member districts, which incentivizes individual legislators to provide constituency services to cultivate personal support (Cain, Ferejohn and Fiorina, 1987; Carey and Shugart, 1995). There are no term limits for MPs. Since the country's democratic transition in 1992, Ghana has held seven elections, which have been dominated by two parties — the National Democratic Congress (NDC) and New Patriotic Party (NPP) (Fridy, 2007; Gyimah-Boadi, 2009). While both parties have strongholds among the country's 275 constituencies that they have consistently won over time, the turnover rate among reelection-seeking incumbents is about 25% (Ofosu, 2019).

The country's stable, competitive two-party system implies that citizens have reasonable expectations regarding partisan favoritism within their constituencies for at least two reasons. First, citizens cast their ballots at polling stations located within their communities. Election results are first announced at the polling station and then transferred to the Electoral Commission's district collation centers for aggregation. Thus, voters are reasonably aware of the level of support for each party in their community and across communities within the constituency. For example, through local radio reports and word of mouth, communities are labeled as pro-NPP (NDC) or mixed. I found this to be true through informal discussions with community residents during my fieldwork to pilot the survey.

Second, Ghana provides all MPs with equal amounts of individual CDFs, which are referred to as their "Common Fund". Similar to legislators in other developing countries, the country's MPs established these funds to deliver both private benefits and public goods (infrastructure) to address the gaps in public service delivery in their constituencies (Baskin, 2014). Ghanaian legislators have discretion over which individuals and communities benefit from their CDFs. Politicians often organize public events to announce beneficiaries, and public goods projects are embossed with signs indicating that the MP

donated it from their CDF. Accordingly, citizens are aware of whether their communities have benefited, which allows them to assess whether they are likely to benefit in the future.

Research on legislator–voter relationships in Ghana has provided significant insights into how MPs perceive their roles, how they respond to voters’ expectations, and whether or not voters reward incumbents who offer private and public goods (Harding, 2015; Weghorst and Lindberg, 2013; Lindberg, 2010). Lindberg (2010) found that Ghanaian MPs believe voters are most likely to hold them accountable for personal assistance (e.g., school fees medical bills, start-up financing for small businesses or farms, building materials for personal homes) and community development projects (e.g., roads, schools, health clinics, toilets, and safe sewage). Ofori (2019) finds that MPs pay for some of these demands using their CDFs.

However, we have limited knowledge about who (or which communities) MPs target with their CDFs during their terms in office. The small number of studies that have examined legislators’ tactical allocation of resources suggest that under certain conditions, MPs may discriminate between supporters and opponents, but can be more inclusive in other circumstances (Asunka, 2017; Klaus and Paller, 2017). For example, Asunka (2017) finds that in constituencies where voters have a weak attachment to parties, legislators were more likely to forgo their discretion over the use of their CDFs to provide private benefits and public goods to win over weakly aligned voters. Klaus and Paller (2017) employs unique ethnographic data to explore why some Ghanaian MPs use inclusive campaign messages while others use exclusive appeals. They conclude that legislators are more likely to be inclusive when they need to reach out to non-coethnics in their constituencies to win. These studies imply that in competitive electoral settings, incumbents may be less likely to target their supporters with public goods and private transfers. Thus, citizens in competitive environments may equally prefer copartisan and non-copartisan aspirants who commit to providing local public goods.

In related studies on ethnic favoritism and voting behavior in Ghana’s presidential elections, Ichino and Nathan (2013) and (Nathan, 2016) argue that citizens’ expectations of ethnic bias in the allocation of public goods ensure that they consider the ethnic-partisan composition of their neighborhood in their vote choice. Specifically, voters who belong to a minority ethnic group may cross the ethnic-party line to vote for a presidential candidate from the majority group. Such tactical voting behavior ensures

that they benefit from the public infrastructure provided by the ethnic-majority incumbent. These findings suggest that the local partisan composition of constituencies may shape voters' expectations about whether they will benefit from an opposition candidate's pledge to provide public goods. Indeed, Briereley, Kramon and Oforu (2020) show that partisans were persuaded by the policy positions of candidates from their opposition in Ghana's 2016 parliamentary debates, but that such effects only held in competitive constituencies over time.

In contrast to these studies that focus on either partisan geography *or* electoral competition, I contend that both factors interact to shape voters' instrumental party-ethnic voting behavior. Indeed, Harris and Posner (2019) find that officeholders channel projects from the CDFs to their supporting communities in competitive, partisan/segregated constituencies where they have both the *incentive* and *ability* to do so. Otherwise, they find that politicians don't channel CDF projects disproportionately to their supporters once they control for other factors that determine project placement, such as distance from roads and population density. I examine whether partisan geography and electoral competition, in turn, jointly influence instrumental voting decisions of voters.

## **4 Research design**

I use data from a forced-choice conjoint survey experiment of eligible voters located in a stratified, nationally representative sample of constituencies to test my hypotheses. Survey respondents were asked to choose between two hypothetical MP candidates to represent their constituency based on their partisanship and commitments to allocate their CDF to provide private and public goods if elected. The values of each attribute were randomized, which allows me to simultaneously estimate the AMCE of each attribute on vote choice (Hainmueller, Hopkins and Yamamoto, 2013). Within the conjoint, I implicitly randomly matched respondents to either their copartisan or non-copartisan candidates, which helps to form participant-candidate copartisan and non-copartisan dyads to test my hypotheses. To examine the (dis)similarity of voters' preferences for copartisan and non-copartisan candidates across electoral settings, I compare respondents' marginal means (probabilities) of picking copartisan vs. non-copartisan aspirants for similar values of promised CDF allocation (Leeper, Hobolt and Tilley, 2019). I detail the design of the conjoint survey and my sampling procedures below.

## 4.1 Designing the conjoint survey

To design the survey, I drew on a combination of qualitative and quantitative information on Ghanaian parliamentary aspirants. I assembled the profiles of all candidates who contested the 2016 general election from the website of the country’s Electoral Commission. The data contained each candidate’s name, party affiliation, gender, place and year of birth, level of education, and profession. I used this information to generate plausible levels of attributes regarding a candidate’s party, gender, profession, and place of birth, which increases the external validity of the survey design.<sup>7</sup>

Crucial to testing my hypotheses, in the conjoint survey, I used how a candidate’s promise to spend more of their CDF on public work influences the level of support from respondents. Specifically, I generated four potential allocations of an incumbent’s CDF between public and private goods ( $P_{\text{public}(\% \text{ CDF}),\text{private}(\% \text{ CDF})}$ ).<sup>8</sup> At the extreme ends, politicians promised to use their funds to provide mainly public goods ( $P_{\text{public}(90\% \text{ CDF}),\text{private}(10\% \text{ CDF})}$ ) or private goods ( $P_{\text{public}(10\% \text{ CDF}),\text{private}(90\% \text{ CDF})}$ ). In another treatment arm, they promised to divide their fund equally between each ( $P_{\text{public}(50\% \text{ CDF}),\text{private}(50\% \text{ CDF})}$ ). I use minimal spending on each type,  $P_{\text{public}(10\% \text{ CDF}),\text{private}(10\% \text{ CDF})}$ , as the baseline category, because some MPs spend very little of their funds.<sup>9</sup>

In addition to randomizing how candidates promise to spend their CDFs, I also included how often they pledge to help individuals navigate the government bureaucracy (i.e., casework), visit the constituency, meet and listen to constituents’ concerns, and attend or support social events (including attending funerals, religious services, and traditional festivals). The values for each of these attributes were randomly assigned. In this paper, I assess the impact of promised CDF allocations; I systematically

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<sup>7</sup>To reduce the cognitive burden on respondents, I did not include age or education in the survey.

<sup>8</sup>Oforu (2019) finds that MPs use their CDFs to provide private benefits, such as educational and medical expenses, business start-up capital, job apprenticeship fees, or relief for those affected by a natural disaster. They also use these funds to pay for public works, including road construction or maintenance, hospitals, schools, football fields, and clearing garbage sites. I use these insights and examples to generate my survey vignettes.

<sup>9</sup>Ideally, one would use no spending as the baseline. However, because voters may not consider CDF spending in their choice of MPs in the first place, choosing a 0% use of CDF could simply prime respondents rather than elicit a genuine response.



analyze the other dimensions in a complementary paper that considers the effect of constituency service on vote choice.<sup>10</sup>

Columns (1) and (2) of Table 1 show the abridged set of attributes (i.e., partisanship and CDF spending) and the levels I used in the experiment.<sup>11</sup> Column (3) displays the probabilities assigned to each attribute. All respondents (“voters”) were presented with three “voting tasks” in which they were asked to choose between two hypothetical candidates competing for the next election in their constituency. Appendix Figure B.1 shows an example of one choice presented to a respondent. The profiles were presented side by side, each pair on a separate screen. Appendix Table A.4 shows that the order in which the profile appeared did not affect the results. The attributes were presented in a randomized order that was fixed across the three pairings for each respondent to ease the cognitive burden for respondents and minimize primacy and recency effects. Appendix Table A.3 shows that the randomization was successful. Controlling for a few variables that were not balanced across treatments, as expected by chance, does not change the results.

To estimate the intensity of voters’ preferences for various candidate profiles (and to encourage attentiveness to the narratives), I combined the conjoint survey design with a unique behavioral measure. Respondents were given GHC 2 and asked to donate GHC 0.5–2 to their preferred candidate to measure the intensity of this preference; survey participants were told that we would give the total amount raised in each constituency to the candidate with the set of attributes that most voters preferred.<sup>12</sup> Appendix B shows the interview procedure and the narrative presented to respondents.

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<sup>10</sup>Appendix Table C.1 shows the results of all the attributes in the full sample. Among the other factors considered in the conjoint survey, only the impact of the promise to organize regular community (at least once every six months or more) is as important as the pledge of local infrastructure from the CDF in determining respondents’ choice.

<sup>11</sup>Appendix Table B.1 shows the full set of characteristics and their levels. I piloted the survey in the following constituencies: Awutu Senya West (competitive and segregated), Sege (non-competitive and non-segregated), and Krowor (competitive and non-segregated) in August 2018.

<sup>12</sup>It was not possible to donate research funds to political parties due to constraints from the research funders. Instead, I used the money to co-sponsor a dissemination workshop with the Ghana Center for Democratic Development, a reputable civil society organization dedicated to the promotion of issue-based campaigns, to share the findings with parties, candidates, and the general public. The workshop was broadcast live on radio and TV. The state newspaper also published the results See: “CDD releases report on why people vote for MPs.” Naturally, the setup of conjoint surveys ensures that half of the profiles are selected by respondents, while the other half is not. Accordingly, 50% of the profiles received 0 GHC in donations. The modal donation to a preferred candidate profile was 1 GHC (43%). More than a third gave the minimum required donation of 0.5 GHC (33.7%). Appendix Figure B.2 shows these results.

Table 1: Values of candidates' CDF promise and partisanship in the conjoint survey

Candidate attribute	Attribute levels	Probabilities
Political Party	Independent (IND)[1]	1/3
	New Patriotic Party (NPP)[2]	1/3
	National Democratic Congress (NDC)[3]	1/3
Use of MP's Common Fund (CDF)	[Levels: (1) 10%; (2) 50%; (3) 90% ] of MP's CDF to support the construction or renovation of community schools and clinics, repairs of roads and bridges, and other community self-help projects. [Levels: (1) 10%; (2) 50%; (3) 90% ] of MP's CDF to pay school fees, medical bills, and apprenticeship fees for some individual constituents. [Use levels:	
	P <sub>10,10</sub> [1]	1/4
	P <sub>50,50</sub> [2]	1/4
	P <sub>10,90</sub> [3]	1/4
	P <sub>90,10</sub> [4]	1/4

## 4.2 Sampling of constituencies, polling stations, and respondents

I designed a three-step sampling procedure to obtain a fairly representative sample of participant–candidate copartisan and non-copartisan dyads in the different electoral settings. First, I took a stratified, nationally representative sample of 12 constituencies. I grouped the country's 275 constituencies into competitive versus non-competitive and segregated versus non-segregated districts. I classify constituencies as competitive if MPs elected for the 2013–2016 and 2016–2020 parliamentary terms won by a margin of 10% or less, and non-competitive otherwise, following Ichino and Schündeln (2012) and Asunka et al. (2019).

I used an entropy index to measure each constituency's level of partisan segregation (Reardon and O'Sullivan, 2004).<sup>13</sup> The index assesses the relative deviation from an even distribution of partisans (NPP and NDC supporters) across polling stations within a constituency. For instance, if a party's parliamentary candidate won 51% of the votes, but these votes were concentrated in distinct polling stations, then an electoral district is considered segregated. However, if the candidate's votes were evenly spread across polling stations, it is deemed to be non-segregated (mixed or diverse).

The entropy index ranges from 0 (the vote shares of party candidates in each polling station are, on average, equal to those across the entire constituency) to 1 (a single party dominates each polling station in the constituency). Using polling station results for the 2016 parliamentary elections, I find that the majority of Ghana's constituencies are not segregated along party lines. The index ranges from 0.008 to 0.559 (mean = 0.091). I classified constituencies as segregated if their entropy score was equal to or

<sup>13</sup>Details of the entropy measure are provided in Appendix E.

greater than the 90th percentile ( $\geq 0.172$ ) of the distribution. I chose this threshold to ensure that I test my hypotheses in settings with sufficient conditions stipulated by theory.<sup>14</sup>

Table 2 shows the distribution of all 275 constituencies across the different electoral settings. I randomly selected three constituencies from each cell (further stratifying on the party affiliation of the incumbent MP).<sup>15</sup> Figure 3 shows the distribution of support for candidates affiliated with the NPP (the incumbent party at the executive level) during the 2016 election for a sample of all four types of constituencies. Each point represents a polling station (community) and is color-coded according to the proportion of votes received by the NPP candidate in the 2016 election. The size of each point represents the proportion of voters who live within the community. In many constituencies, voters are evenly spread across polling stations.

The second stage of my sampling process involved selecting polling stations (the primary sampling unit) within the sampled constituencies to conduct my interviews. In each constituency, I randomly picked ten polling stations. In segregated constituencies, I first classified polling stations as strongholds of the two major parties (if they won 75% or more of the votes in the 2016 election). I randomly picked five NPP stronghold polling stations and five NDC strongholds to ensure I have partisan voters living in these different areas of a constituency. In non-segregated constituencies, I randomly selected ten polling stations from the list of all polling stations.

Finally, following the Afrobarometer sampling protocol, my research assistants interviewed 17 citizens from each polling station. Overall, I sampled 2,040 respondents equally distributed across these cells, with about 510 residents in each stratum and approximately 170 respondents interviewed in each constituency.

Table 2: Classification of constituencies

<b>Competition</b>	<b>Geographical distribution of NDC and NPP supporters</b>	
	Segregated	Non-segregated
Competitive	8	42
Non-competitive	20	205

<sup>14</sup> Appendix Figure E.1 shows the distribution of the entropy scores.

<sup>15</sup> Appendix Table E.1 displays the randomly selected constituencies in each cell with the names of the corresponding MPs and their party affiliations.

Figure 3: Spatial distribution of NPP candidates' polling station vote shares in illustrative sampled constituencies

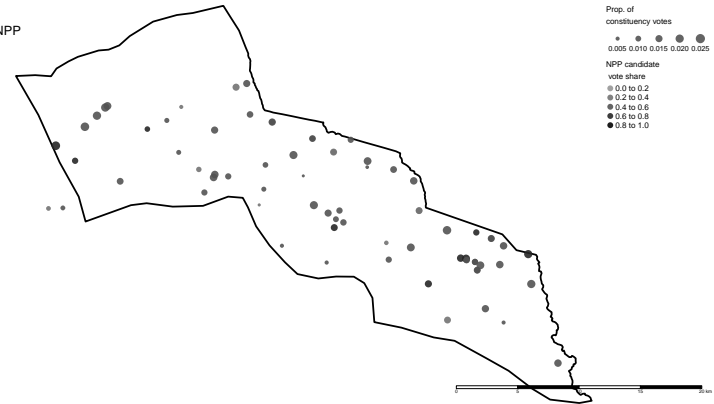
**Competitive-Segregated**

BAWKU CENTRAL  
Incumbent party=NDC



**Competitive-Non-segregated**

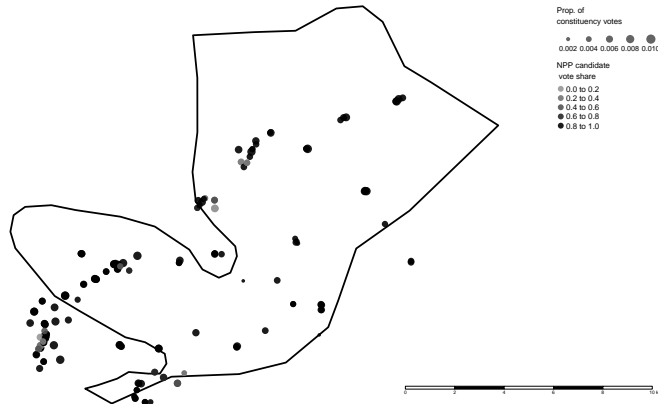
BUNKPURUGU  
Incumbent party=NPP



19

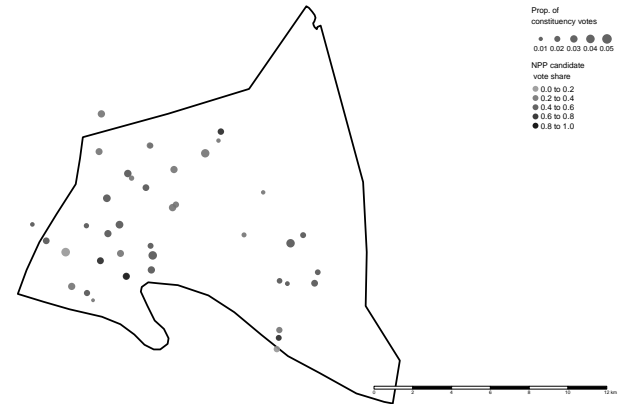
**Non-competitive-Segregated**

KWABRE EAST  
Incumbent party=NPP



**Non-competitive-Non-segregated**

NABDAM  
Incumbent party=NDC



*Notes:* Figure 3 shows the location of polling stations in a selection of sampled constituencies. The intensity of the color indicates the incumbent-party candidate's vote share in the 2016 election. The size of the points shows the proportion of the total votes in the constituency that were cast at the polling station.

I gathered the following information on each survey participant: age, gender, years/level of education, employment status, party identification, voting records, and their closeness to a political party. I used a survey measure similar to a “feeling thermometer” to code respondents’ partisanship. I asked them to rate, on a scale of 0–7, how close they are to the country’s two major parties, the NPP and NDC. I then multiplied their rating of the NPP by  $-1$  and added it to their rating of the NDC to generate a continuous variable that ranges from  $-7$  to  $7$ . Higher negative values are closer to the NPP, and higher positive values are closer to the NDC. Using the distribution of this outcome, I classify respondents in the lower tercile (33rd percentile) as NPP supporters and those in the upper tercile (66th percentile) as NDC supporters; those in between are considered swing or moderate voters. In line with my hypotheses, I restrict my analyses to partisans of the two parties. To avoid priming respondents, I asked these questions after the survey. Thus, in the conjoint experiment, I assume that participants are either partisan of one of the two major parties or unaffiliated. They are then implicitly randomly paired with a candidate who is either their copartisan or is not. I also asked whether they knew the name of the constituency’s MP and which party’s parliamentary candidate they would vote for if the election were held [today].<sup>16</sup> Finally, I asked respondents whether the incumbent had provided their community with any public good during the current term; I report these results in Section 6.

Appendix Table A.1 shows the summary statistics of the sample. Appendix Table A.2 presents the summary statistics of polling station characteristics (recorded by enumerators) within each type of constituency, and indicates that these locations are similar on multiple dimensions.

## 5 Results

To measure the causal effect of pledged public goods on vote choice, I estimate the AMCE of promised CDF allocations. The unit of analysis is a rated *profile*, and the dependent variable is coded 1 for the candidate profiles respondents preferred within a pair, and 0 for those they did not. The independent variables are all dummy variables for each attribute level.<sup>17</sup> Because respondents took three

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<sup>16</sup>I used SurveyCTO software installed on smartphones to conduct the interviews to ease data entry, minimize enumerator errors, and facilitate the randomization of treatments in the conjoint survey.

<sup>17</sup>Using respondents’ donations to their chosen profiles as the dependent variable produces similar results (see Appendix C Table C.1, Columns (3) and (4)).

voting tasks and entered the dataset multiple times, I cluster standard errors at the respondent level to account for the non-independence of responses. Also, to ensure that I am comparing individuals within the same electoral district, I include constituency fixed effects. In Section 5.1, I present the AMCE of promised CDF allocations for the full sample. I then disaggregated the results by participant–candidate partisan dyads; the conditional AMCEs and marginal means at each value of CDF are shown in Section 5.2. Finally, in Section 5.3, I further disaggregated these results of participant–candidate partisan dyads by electoral settings.

### 5.1 AMCE of pledged CDF allocations for the full sample

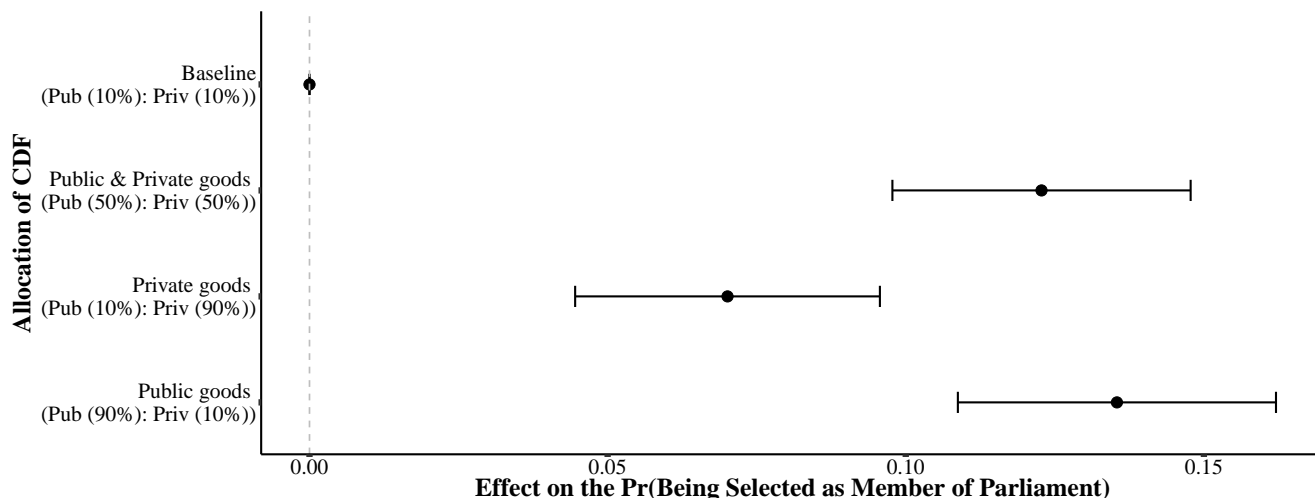
Figure 4 shows how values of promised CDF allocations affect preferences for candidates in the full sample. The figure displays the AMCEs (points) and 95% confidence intervals (bars).<sup>18</sup> The results suggest that citizens prioritize the promise of public goods in their vote choice (relative to individual financial benefits). Regarding public goods, citizens are 12.5 percentage points (pp) and 13.5 pp more likely to prefer a candidate who promised to spend half ( $P_{\text{pub}(50\%),\text{priv}(50\%)}$ ) or almost all ( $P_{\text{pub}(90\%),\text{priv}(10\%)}$ ) of their CDF to provide public infrastructure, respectively, compared to those who promised to use only a small amount on private and public goods ( $P_{\text{pub}(10\%),\text{priv}(10\%)}$ ). These estimates are statistically significant at  $p < 0.01$ . The promise to use a lion’s share of the CDF ( $P_{\text{pub}(10\%),\text{priv}(90\%)}$ ) to provide private financial benefits to constituents increases the probability of choosing a candidate by only 7 pp ( $p < 0.01$ ) relative to the baseline.

Accordingly, consistent with the findings from previous studies, citizens prefer candidates who will use their CDFs to provide more, rather than less, private and public goods. Nonetheless, conditional on spending more of their CDFs, these results indicate that respondents prefer politicians who would use their funds to provide local public infrastructure rather than individual transfers. In Appendix Figure C.1, I show that these results are similar for the different partisan groups.

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<sup>18</sup>Appendix C Table C.1, Columns (1) and (2), shows the full regression results.

Figure 4: Average marginal causal effect of a candidate’s promised CDF allocation on being preferred as an MP



Notes: Figure 4 shows estimates of the effects of randomly assigned promised allocations of CDFs to private vs. public goods on respondents’ vote choices. These estimates are based on an ordinary least squares (OLS) model with standard errors clustered at the respondent level as shown in Appendix C Table C.1. The points without horizontal bars (95% confidence intervals) represent the reference category of the attribute.

## 5.2 Do voters equally weigh similar promised public goods by copartisan and non-copartisan aspirants in their vote choice?

To investigate whether voters give a similar or different weights to the same amount of promised political transfer by copartisans and opposition candidates in their vote choice, I first compare the conditional AMCE of CDF allocation by respondent–candidate partisan dyads. Specifically, I disaggregate the results in the full sample according to when respondents were randomly paired with a hypothetical copartisan candidate versus when they were matched with a non-copartisan aspirant. I then compare the marginal means of selecting copartisans and non-copartisans at each level of promised CDF allocation, as suggested by Leeper, Hobolt and Tilley (2019), to determine whether respondents were indifferent between the two.

Table 3 disaggregates the AMCEs of CDF allocations on voters’ preferences for copartisan and non-copartisan aspirants in Columns (1) and (2), respectively. These results show that, on average, partisans are likely to increase their support for a candidate who commits to spending more of their CDF to provide public (and private) goods, irrespective of the aspirant’s party affiliation. However, as expected, the causal effects of a similar promised increase in the supply of public goods are higher when voters

are paired with copartisan, compared to non-copartisan, aspirants. Specifically, the AMCEs of picking a copartisan candidate who promised to spend half ( $P_{\text{pub}(50\%),\text{priv}(50\%)}$ ) or almost all ( $P_{\text{pub}(90\%),\text{priv}(10\%)}$ ) of their CDF on public infrastructure are 7.5 pp ( $p < 0.058$ ) and 7.1 pp ( $p < 0.053$ ), respectively, higher than the AMCEs for non-copartisan aspirants. Regarding promised private benefits, the difference in the AMCEs for copartisan and non-copartisan dyads is not statistically significant, which suggests that the causal effects are similar. These results are consistent with instrumental theories of partisan voting in that they suggest that voters place more weight on promises of public goods by copartisan, relative to non-copartisan, aspirants.

Table 3: AMCEs of a candidate’s promised CDF allocations on being preferred as an MP by participant–candidate partisanship dyads

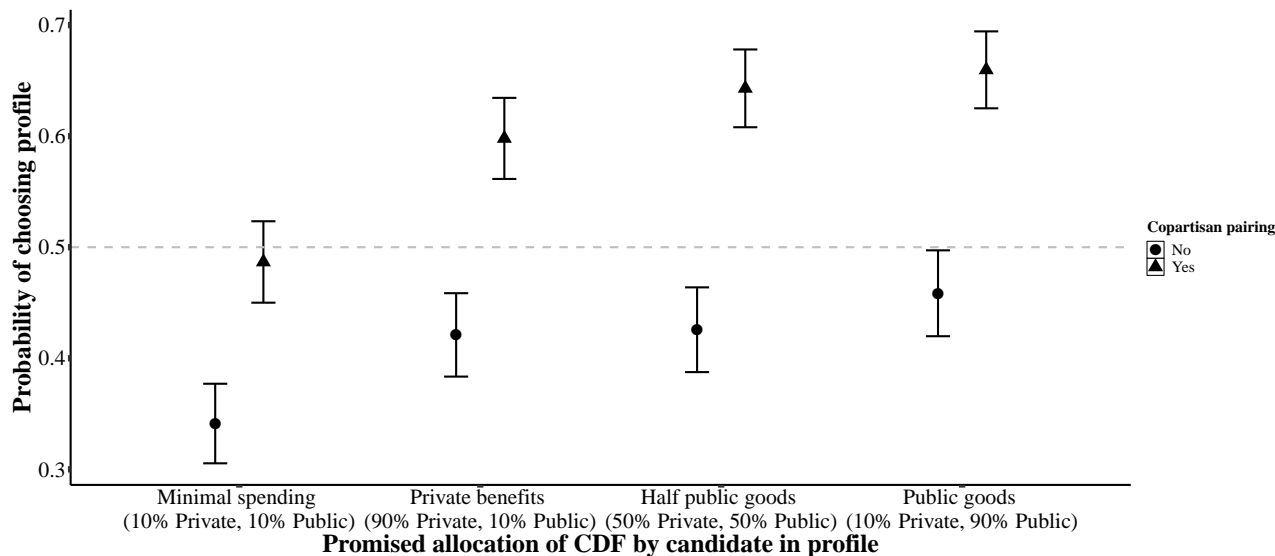
	<i>Dependent variable:</i>	
	<b>Will vote for candidate with profile as MP</b> <i>Copartisan dyad</i>	<i>Non-copartisan dyad</i>
	(1)	(2)
<b>Constituency Development Fund</b>		
Public (90%):Private (10%)	0.181*** (0.027)	0.106*** (0.029)
Public (50%):Private (50%)	0.152*** (0.026)	0.081*** (0.026)
Public (10%):Private (90%)	0.118*** (0.026)	0.075*** (0.027)
Constant	0.375*** (0.053)	0.144*** (0.054)
Observations	2,849	2,624
R <sup>2</sup>	0.048	0.050
Adjusted R <sup>2</sup>	0.037	0.039

*Note:* Table 3 shows the AMCEs of CDF allocation values on a candidate being preferred as an MP by their copartisan (Column(1)) and non-copartisan (Column (2)) respondents in the full sample. All the models include all the randomly assigned attributes. Estimates are based on an OLS model with standard errors clustered at the respondent level. The models also include constituency fixed effects. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

Figure 5 displays the marginal means of selecting a candidate at the different values of promised CDF allocation by respondent–candidate partisan dyads. Again, consistent with instrumental theories of voting, the results in Figure 5 show that respondents diverge in their preferences for copartisan versus non-copartisan aspirants for similar levels of CDF allocation. For example, voters are 14.5 pp (se 2.6,  $p <$



Figure 5: Marginal means of selecting a candidate as an MP at different levels of CDF allocation, by respondent–candidate partisan dyads



Notes: Figure 5 shows the probabilities of selecting a profile with randomly assigned CDF allocations when paired with copartisan (triangle points) and non-copartisan candidates (solid circles) with 95% confidence intervals (vertical bars). Note that in a joint survey experiment, a simple random selection of a feature level in pairwise comparisons would yield a probability of 0.5.

0.01) more likely to select a copartisan (48.7%), compared to a non-copartisan (34.1%), aspirant’s profile when the hypothetical candidate promises to use only a minimal amount of their CDF to provide private and public benefits ( $P_{\text{pub}(10\%),\text{priv}(90\%)}$ ). The difference in the probability of picking a copartisan candidate (48.7%) as opposed to selecting a non-copartisan aspirant (34.1%) increases to 20 pp (se 2.6,  $p < 0.01$ ) when the politician promises to spend 90% of their CDF on public infrastructure ( $P_{\text{pub}(90\%),\text{priv}(10\%)}$ ). Indeed, for all values of promised CDF allocations, respondents are significantly more likely to select a copartisan than a non-copartisan politician, which is not apparent when we only compared the AMCEs in Table 3.<sup>19</sup> Overall, these results suggest that, on average, for a similar pledge of political transfer, voters are more likely to choose a copartisan over a non-copartisan aspirant.

### 5.3 Under what conditions do voters cross the party line?

The results reported above are consistent with our priors regarding instrumental partisan-ethnic voting. However, these aggregate-level conditional AMCEs and marginal means comparisons do not

<sup>19</sup>The resulting F-test for comparing the full (unrestricted) and partial (restricted) models indicates that these subgroup differences are statistically significant at  $p \leq 0.01$ .

consider potential variation in vote choice across electoral settings. Table 4 disaggregates the conditional AMCEs by participant–candidate partisan dyads by electoral setting. Figure 6 shows the corresponding marginal means at the different levels of pledged CDF allocations, also by constituency type.

The results in Columns (1) and (2) indicate that a candidate’s promise to spend “half” or “almost all” of her CDF on public goods increases their level of support among supporters and opposition voters by about 8 pp and 18 pp from baseline, respectively, in partisan-segregated, competitive constituencies. In segregated, non-competitive electoral districts (Columns (3) and (4)), the estimated AMCEs diverge significantly between copartisan (22.1 pp and 18.9 pp) and non-copartisan (3.4 pp and 3.7 pp) dyads. Specifically, the promise of public goods increases a voter’s support for her copartisan candidate, but not for the non-copartisan aspirants in partisan-segregated, competitive constituencies. While the outcome in partisan-segregated, competitive constituencies appears to be inconsistent with Hypothesis H<sub>1</sub>, the results in segregated, non-competitive constituencies are in line with its prediction. However, as I indicated above, a similarity in the positive causal effects of a promised increase in the supply of public goods on partisans’ support for copartisan and non-copartisan aspirants does not imply a similarity of preference or favorability.

The results in the right panel of Figure 6 demonstrate this point. For similar levels of promised public goods, voters are more likely to select a copartisan candidate than an opposition candidate in partisan-segregated constituencies, especially in competitive electoral districts (top-right panel of 6).<sup>20</sup> Thus, consistent with Hypothesis H<sub>1</sub>, I find that in partisan-segregated, competitive constituencies, voters do not equally prefer copartisan and non-copartisan candidates who make similar pledges. These results suggest that voters are less likely to cross party lines in partisan-segregated constituencies.

Columns (5) and (6) of Table 4 show the results for partisan/non-segregated, competitive constituencies. The top-left panel of Figure 6 shows the corresponding marginal probabilities. Consistent with Hypothesis H<sub>2</sub>, these results show that voters are equally motivated by promises to provide local public goods by copartisan and opposition candidates. Specifically, the commitment to use “half” or “almost all” of one’s CDF to provide support to public infrastructure increases a candidate’s chances of being preferred by copartisans by 19.4 pp ( $p < 0.01$ ) and 23.7 pp ( $p < 0.01$ ), respectively. Similarly,

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<sup>20</sup>The resulting F-test for comparing the unrestricted and restricted models indicates that these subgroup differences are statistically significant at  $p \leq 0.01$  in both competitive and non-competitive partisan-segregated constituencies.

among non-copartisans, the respective AMCEs were 20 pp ( $p < 0.01$ ) and 22.1 pp ( $p < 0.01$ ). Moreover, the results presented in the top-left panel of Figure 6 suggest that at the different levels of promised CDF allocations, a voter is indifferent between a copartisan and a non-copartisan candidate.<sup>21</sup> Together, these results provide support for Hypothesis H<sub>2</sub>.

Finally, the conditional AMCEs in Columns (7) and (8) of Table 4 and the associated marginal probabilities plotted in the bottom-left panel of Figure 6 provide a test and support for Hypothesis H<sub>3</sub>. I find that the commitment to use “half” or “almost all” of one’s CDF to provide support to public infrastructure does not change a candidate’s chances of being preferred by her copartisan *or* non-copartisan voters. Moreover, at the different levels of promised public goods, citizens are more likely to pick a copartisan over an opposition candidate.

Overall, these results suggest that in competitive districts, partisans are likely to increase their support for *any* candidate who promises more public goods rather than less. However, whether partisans will cross the party line in competitive settings depends on the electoral geography. My results suggest they are only likely to do so if (1) an opposition incumbent cannot exclude them from using a promised public good and (2) their vote is pivotal to selecting such better candidates – i.e., in non-segregated, competitive electoral constituencies. In other types of constituencies, partisans are less likely to cross the line because politicians can either exclude them from provided public goods or because a voter does not believe her vote is pivotal in (de)selecting such an opposition public-goods-promising candidate, or both.

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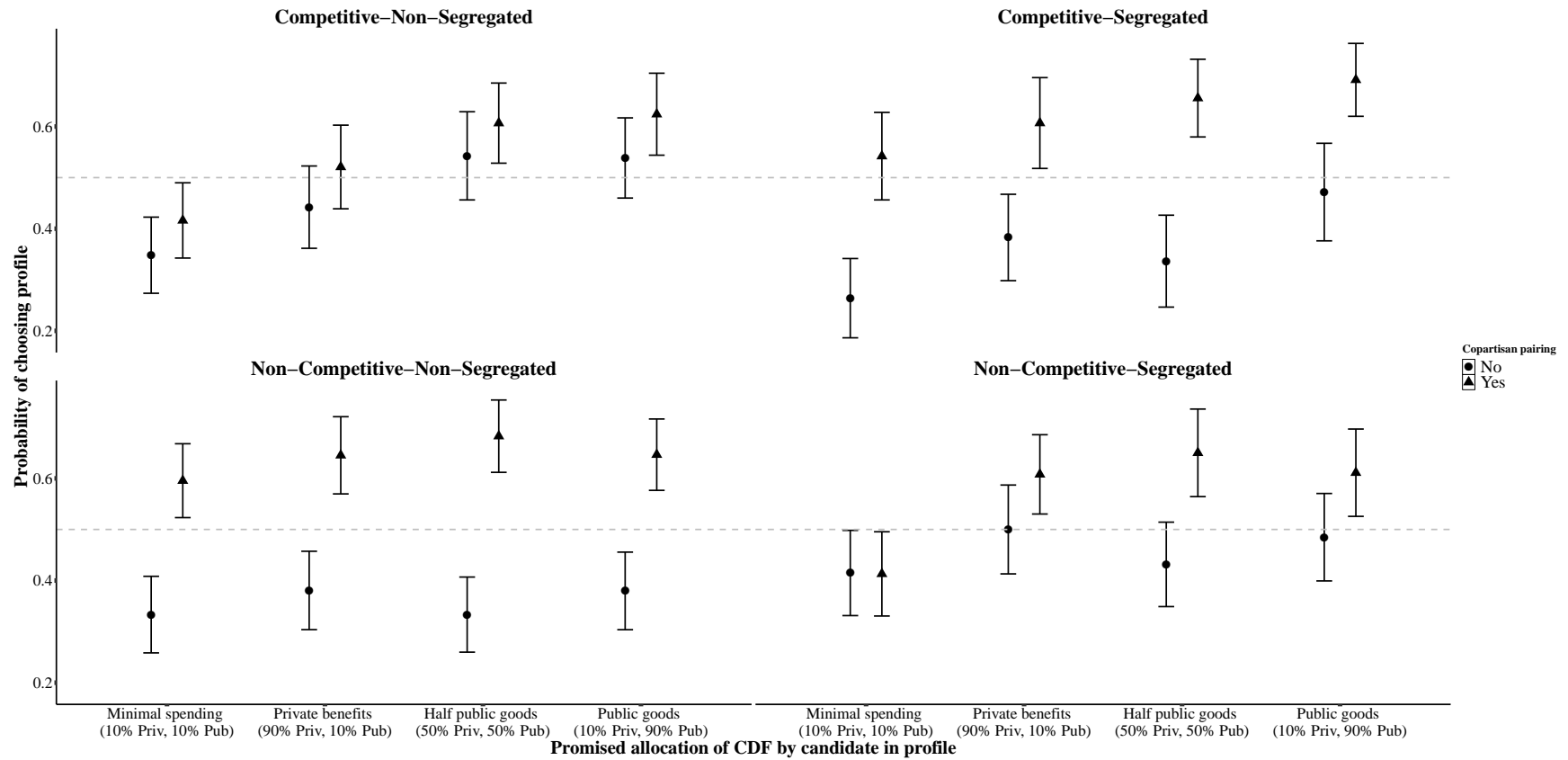
<sup>21</sup>The resulting F-test for comparing the unrestricted and restricted models indicates that these subgroup differences are not statistically significant.

Table 4: Effects of candidate attribute on the probability of being preferred as an MP, by partisanship and constituency type

	<i>Dependent variable:</i>							
	Will vote for candidate							
	Segregated				Non-Segregated			
	Competitive		Non-Competitive		Competitive		Non-Competitive	
<i>Copartisan</i>	<i>Non-copartisan</i>	<i>Copartisan</i>	<i>Non-copartisan</i>	<i>Copartisan</i>	<i>Non-copartisan</i>	<i>Copartisan</i>	<i>Non-copartisan</i>	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>Constituency Development Fund</b>								
Public (90%):Private (10%)	0.179*** (0.062)	0.187** (0.073)	0.189*** (0.063)	0.037 (0.064)	0.237*** (0.059)	0.221*** (0.062)	0.054 (0.054)	0.055 (0.057)
Public (50%):Private (50%)	0.109* (0.063)	0.075 (0.063)	0.221*** (0.062)	0.034 (0.059)	0.194*** (0.057)	0.200*** (0.057)	0.085 (0.054)	0.001 (0.054)
Public (10%):Private (90%)	0.077 (0.067)	0.131** (0.058)	0.163*** (0.054)	0.087 (0.064)	0.127** (0.061)	0.112** (0.056)	0.039 (0.054)	0.024 (0.057)
Constant	0.471*** (0.117)	0.124 (0.112)	0.421*** (0.110)	0.037 (0.101)	0.405*** (0.101)	0.062 (0.099)	0.330*** (0.092)	0.323*** (0.088)
Observations	561	466	537	534	608	590	681	625
R <sup>2</sup>	0.044	0.072	0.104	0.090	0.098	0.089	0.047	0.086
Adjusted R <sup>2</sup>	0.003	0.024	0.063	0.049	0.062	0.052	0.013	0.051

*Note:* Table 4 shows estimates of the effects of randomly assigned parliamentary candidate attribute values on a candidate being preferred as an MP in the next election by partisanship and constituency type. All the models include all randomly assigned attributes. Estimates are based on an OLS model with standard errors clustered at the respondent level. The models also include constituency fixed effects. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

Figure 6: Marginal means of selecting a candidate with promised allocation of CDF on being preferred as an MP, by respondent–candidate partisan dyads and constituency type



Notes: Figure 6 shows the probability of selecting a hypothetical candidate’s profile that has the specified randomly assigned CDF allocation when paired with copartisan (triangle points) and non-copartisan (solid circles) candidates.

## 6 Mechanisms

I have argued that voters are more likely to cross party lines when they believe that (1) an opposition incumbent will find it hard to exclude them from the provided public goods and (2) they can help elect a better non-copartisan politician. I suggested that non-segregated, competitive electoral districts satisfy these requirements. It is reasonable to assume that partisans are more likely to believe that switching their vote can tilt the electoral outcome in favor of selecting a public-goods-promising opposition candidate in competitive relative to non-competitive settings. Of course, voters can equally help elect (and sanction) opposition candidates who promise more local public goods in segregated, competitive electoral settings. However, I contend that it is because partisans are also less vulnerable to being excluded from public goods provided by opposition officeholders in non-segregated-competitive compared to segregated-competitive constituencies, which motivates them to cross party lines.

To test these assumptions, I draw on survey data that I collected from participants immediately after they took part in the conjoint experiment.<sup>22</sup> I asked respondents if their community had received (and if they expected to receive) public infrastructure investment from the MP during his current term in office.<sup>23</sup> Where multiple respondents indicated that the incumbent had provided such investment, research assistants verified these projects in the communities.<sup>24</sup>

Table 5 presents my findings. First, in the full sample, I find that copartisans of the MP were about 19 pp more likely than non-copartisans to report that their community had received such benefits (row 1 of Column (3), Table 5). This result is consistent with the literature on distributive politics, which suggests that incumbents are more likely to target their core supporters with the resources they control (see Cox, 2010). Disaggregating the outcome by partisan segregation, I find that the extent to which copartisans of the MP, relative to non-copartisans, report that their community had received any public benefit from the incumbent is significantly greater in partisan-segregated compared to non-segregated constituencies. In the former, copartisans of the MP were about 30 pp more likely than

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<sup>22</sup>I asked questions about the receipt and expectation to receive community infrastructure after the conjoint survey to avoid priming respondents.

<sup>23</sup>Because the results for asking respondents whether they had received or expected to receive these public goods are similar, I present the former. Appendix Table D.2 shows the latter

<sup>24</sup>The projects included constructed roads, water pumps, boreholes, toilets, bridges, markets, a residence for local doctors, mobile phone network masts, and renovated school buildings.

non-copartisans to report that the MP had provided their community with public infrastructure. In non-segregated electoral districts, the difference was only about 10 pp. These findings are consistent with recent empirical findings, which indicate that politicians are more likely to provide more public goods and target their supporters in partisan-segregated constituencies (Ejdemyr, Kramon and Robinson, 2017; Harris and Posner, 2019).

Table 5: Voters' perceptions of MP's partisan favoritism in the allocation of public infrastructure by constituency type

Electoral environment	Partisanship with incumbent		<i>Difference-in-means</i> (3)
	Non-copartisan (1)	Copartisan (2)	
<b>Full sample</b>	0.169	0.335	0.186***
	0.016	0.020	(0.063)
N	526	570	
<b>Segregation</b>			
Segregated	0.064	0.355	0.298***
	0.015	0.032	(0.114)
	251	231	
Non-segregated	0.265	0.322	0.097**
	0.027	0.025	(0.039)
	275	339	
<b>Competition</b>			
Competitive	0.212	0.511	0.252**
	0.024	0.033	(0.099)
	297	233	
Non-competitive	0.114	0.214	0.118*
	0.021	0.022	(0.069)
	229	337	

Notes: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Next, I disaggregate the results by the level of electoral competition. I find that copartisans of the MP are more likely than non-copartisans to report that the MP had provided their community with public infrastructure during the current term in competitive relative to non-competitive constituencies. Of course, the incumbent appears to favor their supporting communities in both types of electoral settings. However, the results in Table 5 indicate that the degree of partisan favoritism is starker in competitive areas (25 pp difference in competitive compared to 12pp in non-competitive districts). These results contrast with the idea that, in competitive constituencies, politicians will distribute public goods equitably

to win more votes (Asunka, 2017; Diaz-Cayeros, Estévez and Magaloni, 2016). Further, in line with my findings in Section 5.3, these outcomes indicate that electoral competition may be a necessary but not sufficient condition for partisans to cross the party line.

Finally, Figure 7 disaggregates the results by the four hypothesized electoral settings. In each electoral context, I show the proportion of copartisans and non-copartisans of the MP who report that their community had received a public benefit from the incumbent with 95% confidence intervals. Appendix D Table D.1 shows the OLS regression estimating the difference in proportions.<sup>25</sup> The results demonstrate a strong interaction effect between partisan segregation and electoral competition: while the spatial concentration of party supporters within specific communities enables officeholders to target their supporters, high levels of electoral competition *exacerbate* such partisan favoritism.

For example, in segregated constituencies, the proportion of the MP's copartisans who said he had provided public infrastructure for their community was 40 pp ( $p < 0.05$ ) higher than her non-copartisans in competitive settings. The difference between the proportions for copartisans and non-copartisans of the MP was 21 pp ( $p < 0.1$ ) in non-competitive places, which is about a 50% decrease compared to the difference in competitive settings.

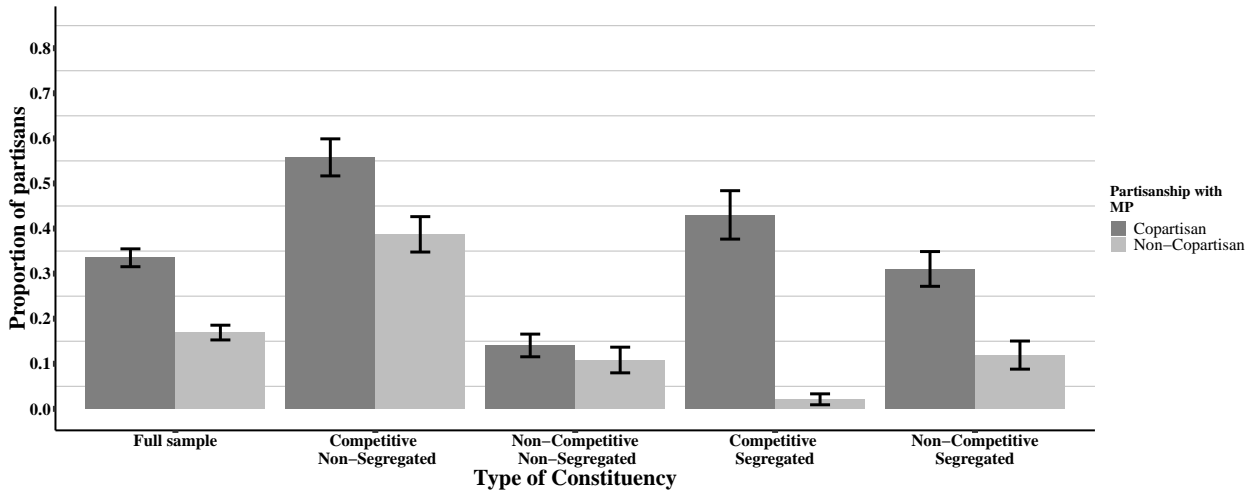
Importantly, these results also show that partisans in partisan/non-segregated, competitive constituencies will be less concerned that a non-copartisan incumbent will exclude them from public infrastructure compared to those in partisan-segregated, competitive settings. In partisan/non-segregated, competitive constituencies, copartisans of the incumbent were about 15 pp ( $p < 0.01$ ) more likely than non-copartisans to report that their communities had received a public good. As detailed above, the difference was about 40 pp ( $p < 0.05$ ) in partisan-segregated, competitive settings, which represents a 25 pp increase.

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<sup>25</sup>Appendix D Table D.2 shows the corresponding results for voters' expectation that their community will receive public infrastructure funding from the MP before the next elections.



Figure 7: Voters' perceptions of MP's partisan favoritism in the allocation of public infrastructure by constituency type, by the theorized constituency types



Overall, these findings suggest that partisans are more likely to cross the party line to help elect a public-goods-promising opposition candidate in competitive, partisan non-segregated settings because they expect to benefit personally. By contrast, partisans may have little incentive to cross the line in competitive, partisan-segregated constituencies because they expect incumbents to favor only their supporting communities. A similar logic applies to non-competitive, partisan-segregated constituencies. Also, in non-competitive, partisan non-segregated constituencies, partisans are less likely to be swayed by opposition candidates because officeholders cannot exclude them from provided public goods.

## 7 Conclusion

In this article, I combine data from a conjoint experiment and survey responses from citizens sampled from a stratified, nationally representative sample of constituencies in Ghana to examine when voters are likely to cross party lines to elect opposition politicians. Drawing on theories of instrumental partisan-ethnic voting and electoral accountability, I argue that two constituency-level factors jointly shape a voter's incentive to cross party lines: the partisan geography and level of electoral competition of their district. Using qualitative and experimental data, I first show that citizens prefer politicians who will provide local public goods (i.e., bring development to their community). However, scholarly work suggests that because voters often assume that politicians will only target their supporting communities

when distributing the resources under their control, they are unlikely to cross party lines even if there is a similar or better opposition candidate who will provide more of such benefits.

These instrumental theories of voting, which are often premised on presidential elections, assume that supporters of competing parties are clustered in distinct communities or regions. Prior empirical tests of these theories have held the level of electoral competition fixed. This paper provides a unified theory of instrumental voting by relaxing these assumptions and considering how different configurations of partisan geography and electoral competition of constituencies shape the voting calculus of voters who desire public goods. I argue and show that voters are only likely to cross party lines in constituencies when the risk of being excluded from public goods provided by an opposition incumbent is minimal – i.e., in partisan non-segregated constituencies where supporters of multiple parties are intermixed in constituent communities. However, I show that this result only holds in partisan non-segregated constituencies that are also competitive, suggesting that voters only cross party lines when their votes can be pivotal in selecting a competent opposition politician or sanctioning her should she renege. Together, these results show that voters only have an incentive to cross party lines in electoral settings where an opposition incumbent cannot exclude them from provided public goods, and their votes can be essential in electing and holding an opponent politician accountable. In other contexts, voters either fear their non-copartisan officeholder will target only their supporting communities with public infrastructure, or that they cannot help elect (or sanction) a desirable opposition candidate.

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# Online Appendix

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## A Summary statistics of sample constituencies and respondents

Table A.1: Summary statistics of respondents' characteristics

Statistic	N	Mean	St. Dev.	Min	Max
Age	2,016	38.937	14.730	18	95
Job with cash income	2,022	0.572	0.495	0	1
Gender(Female=1)	2,022	0.496	0.500	0	1
Employed (full time)	1,157	0.917	0.276	0	1
Own a mobile phone	2,022	0.752	0.432	0	1
Own a radio	2,022	0.469	0.499	0	1
Own a TV	2,022	0.456	0.498	0	1
Own a blender	2,022	0.065	0.246	0	1
Own a car	2,022	0.015	0.121	0	1
Total assets (out of 5)	2,022	1.758	1.131	0	5
Turnout (2016 election)	2,022	0.863	0.344	0	1
Feel close to a political party	2,022	0.740	0.439	0	1
Close to the incumbent party (NPP)	1,497	0.555	0.497	0	1
Closeness to the opposition party (NDC)[0-7]	1,969	3.415	2.838	0	7
Closeness to opposition party (NPP)[0-7]	1,973	3.878	2.840	0	7
Voted for the incumbent party's MP candidate in 2016	1,744	0.541	0.498	0	1
Will vote for incumbent party's MP candidate tomorrow	2,022	0.407	0.491	0	1
Report to know MP's name	2,022	0.750	0.433	0	1
Correctly names MP	1,517	0.957	0.203	0	1
Gone without food in past year	2,022	0.192	0.394	0	1
Gone without clean water in past year	2,022	0.258	0.438	0	1
Gone without medicine	2,022	0.245	0.430	0	1
Gone without cooking fuel	2,022	0.166	0.372	0	1
Gone without cash income	2,022	0.613	0.487	0	1
Lives in a hut/shack	2,015	0.454	0.498	0	1
Poverty index	2,015	1.928	1.538	0	6
Often get news from radio	2,022	0.577	0.494	0	1
Often get news from TV	2,022	0.458	0.498	0	1
Often get news from newspaper	2,022	0.011	0.106	0	1
Often gets news from internet	2,022	0.094	0.293	0	1
Often get news from social media	2,022	0.105	0.307	0	1

Table A.2: Summary statistics of polling station characteristics by constituency types

	Competitive		Non-competitive		P-value (F-statistics)
	Non-segregated	Segregated	Non-segregated	Segregated	
Electricity	0.867 (0.346)	0.833 (0.379)	0.893 (0.315)	0.933 (0.254)	0.683
Pipe water	0.667 (0.479)	0.433 (0.504)	0.308 (0.471)	0.414 (0.501)	0.047
Mobile service	1 (0)	0.867 (0.346)	0.857 (0.356)	0.900 (0.305)	0.218
Post office	0.133 (0.346)	0.143 (0.356)	0 (0)	0.069 (0.258)	0.199
School	0.967 (0.183)	0.833 (0.379)	0.964 (0.189)	0.967 (0.183)	0.102
Police station	0.233 (0.430)	0.133 (0.346)	0.214 (0.418)	0.267 (0.450)	0.639
Clinic	0.500 (0.509)	0.517 (0.509)	0.607 (0.497)	0.667 (0.479)	0.535
Bank	0.233 (0.430)	0.167 (0.379)	0.037 (0.192)	0.333 (0.479)	0.039
Paved road	0 (0)	0.067 (0.254)	0.071 (0.262)	0.367 (0.490)	0.00004
Paved roads to 5km to village	0 (0)	0.200 (0.407)	0.143 (0.356)	0.367 (0.490)	0.002
Road condition in village (very)good	0.267 (0.450)	0.433 (0.504)	0.393 (0.497)	0.300 (0.466)	0.504

Table A.3: Randomization Check

	<i>Dependent variable:</i>									
	Age	Closeness incumbent party	Turnout (2016)	Education	Employed	Akan	Ewe	Kokomba	Correctly names MP	Total assets
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<b>Constituency Development Fund:</b>										
Public,50:Private,50	0.311 (0.366)	0.003 (0.015)	0.004 (0.009)	-0.026 (0.053)	-0.002 (0.012)	-0.007 (0.011)	0.005 (0.007)	-0.0004 (0.008)	-0.003 (0.006)	-0.0004 (0.028)
Public,10:Private,90	0.309 (0.393)	-0.003 (0.015)	-0.001 (0.009)	-0.016 (0.055)	0.0003 (0.013)	-0.017 (0.012)	0.005 (0.007)	0.002 (0.008)	0.009* (0.005)	-0.043 (0.030)
Public,90:Private,10	0.167 (0.372)	0.020 (0.015)	0.006 (0.009)	-0.019 (0.056)	0.023* (0.013)	0.003 (0.012)	-0.0002 (0.007)	0.013 (0.009)	-0.001 (0.005)	-0.050* (0.029)
<b>Time in Constituency vs. Capital</b>										
Const.:50-capital:50	0.091 (0.338)	-0.012 (0.013)	0.010 (0.007)	0.052 (0.045)	0.015 (0.011)	0.017* (0.010)	0.006 (0.006)	-0.001 (0.007)	-0.005 (0.006)	0.021 (0.024)
Const.:75-capital:25	0.365 (0.365)	-0.025* (0.014)	0.003 (0.009)	0.052 (0.052)	-0.006 (0.012)	0.0003 (0.011)	0.004 (0.007)	-0.007 (0.008)	0.001 (0.005)	0.042 (0.028)
<b>Community meeting</b>										
Monthly	0.303 (0.435)	-0.002 (0.017)	-0.007 (0.010)	-0.048 (0.059)	-0.021 (0.015)	0.011 (0.013)	-0.003 (0.008)	-0.010 (0.010)	-0.007 (0.006)	0.004 (0.033)
Every three months	0.204 (0.432)	-0.007 (0.016)	0.007 (0.010)	-0.079 (0.057)	-0.025* (0.014)	-0.004 (0.013)	-0.006 (0.008)	-0.005 (0.010)	-0.0002 (0.007)	0.013 (0.032)
Every six months	-0.471 (0.430)	0.008 (0.016)	-0.007 (0.010)	-0.057 (0.061)	-0.012 (0.013)	0.010 (0.013)	0.0003 (0.008)	-0.008 (0.010)	-0.008 (0.007)	-0.043 (0.032)
Yearly	0.009 (0.437)	0.002 (0.017)	-0.005 (0.010)	-0.117* (0.060)	-0.015 (0.014)	0.024* (0.013)	-0.003 (0.008)	-0.0004 (0.010)	-0.006 (0.006)	-0.021 (0.033)
<b>Social event</b>										
Sometimes	-0.373 (0.333)	0.018 (0.013)	-0.008 (0.008)	-0.005 (0.046)	0.006 (0.011)	0.032*** (0.010)	-0.006 (0.006)	-0.009 (0.008)	0.007 (0.006)	0.043* (0.025)
Always	0.027 (0.326)	0.006 (0.013)	-0.003 (0.008)	-0.075 (0.047)	0.011 (0.011)	0.009 (0.010)	0.0004 (0.006)	-0.011 (0.007)	0.009** (0.005)	0.002 (0.026)
<b>Personal assistance (casework)</b>										
Sometimes	-0.262 (0.327)	-0.005 (0.013)	0.008 (0.007)	0.012 (0.045)	-0.008 (0.011)	-0.012 (0.010)	-0.001 (0.006)	-0.003 (0.008)	0.002 (0.004)	0.014 (0.025)
Always	-0.151 (0.325)	-0.010 (0.013)	-0.004 (0.008)	0.027 (0.047)	-0.005 (0.011)	-0.021** (0.010)	-0.001 (0.006)	0.015** (0.007)	-0.001 (0.005)	-0.010 (0.025)
<b>Profession</b>										
Lawyer	-0.426 (0.434)	0.034* (0.018)	-0.011 (0.010)	0.026 (0.063)	-0.002 (0.015)	-0.011 (0.014)	-0.008 (0.008)	-0.0002 (0.010)	-0.011 (0.007)	-0.006 (0.035)
Educationist/teacher	0.021 (0.447)	0.002 (0.018)	-0.025** (0.011)	-0.004 (0.065)	-0.010 (0.015)	0.007 (0.014)	0.0001 (0.009)	0.008 (0.010)	-0.014** (0.007)	-0.015 (0.035)
Business person	-0.197 (0.457)	0.005 (0.018)	-0.005 (0.010)	-0.008 (0.066)	0.012 (0.016)	0.003 (0.014)	-0.001 (0.008)	-0.007 (0.010)	-0.003 (0.006)	0.022 (0.035)
Accountant	0.076 (0.465)	0.012 (0.018)	-0.009 (0.010)	-0.065 (0.063)	-0.006 (0.015)	0.006 (0.014)	-0.001 (0.009)	-0.003 (0.010)	-0.006 (0.006)	0.042 (0.035)
Architect	-0.295 (0.485)	0.022 (0.019)	-0.001 (0.011)	0.057 (0.067)	0.0003 (0.016)	0.011 (0.015)	-0.002 (0.009)	0.010 (0.011)	-0.005 (0.007)	0.018 (0.036)
<b>Gender</b>										
Male	0.721** (0.339)	0.005 (0.013)	-0.003 (0.008)	-0.147*** (0.049)	-0.013 (0.011)	-0.005 (0.010)	0.006 (0.006)	0.011 (0.007)	-0.005 (0.006)	-0.036 (0.025)
<b>Political party</b>										
New Patriotic Party	-0.310 (0.328)	0.004 (0.013)	-0.018** (0.008)	-0.027 (0.045)	0.014 (0.011)	0.002 (0.010)	0.007 (0.006)	-0.012* (0.007)	-0.002 (0.005)	-0.034 (0.026)
National Democratic Congress	-0.242 (0.319)	-0.037*** (0.013)	0.0002 (0.007)	-0.049 (0.046)	0.006 (0.011)	0.007 (0.010)	0.004 (0.006)	-0.003 (0.007)	0.005 (0.005)	-0.028 (0.025)
<b>Hometown</b>										
Does not hail but resident in constituency	-0.104 (0.326)	0.012 (0.013)	-0.009 (0.007)	-0.013 (0.047)	-0.015 (0.011)	-0.017* (0.010)	-0.006 (0.006)	0.009 (0.007)	0.003 (0.005)	0.023 (0.025)
Hails from but not resident	-0.134 (0.328)	0.026** (0.013)	0.008 (0.007)	-0.061 (0.047)	-0.011 (0.011)	-0.013 (0.010)	0.003 (0.006)	0.017** (0.007)	0.003 (0.006)	0.029 (0.024)
Constant	38.671*** (0.765)	0.541*** (0.029)	0.878*** (0.017)	3.629*** (0.109)	0.589*** (0.025)	0.283*** (0.022)	0.076*** (0.014)	0.117*** (0.017)	0.964*** (0.010)	1.776*** (0.057)
Observations (rated profiles)	12,096	8,982	12,132	12,030	12,132	12,132	12,132	12,132	9,102	12,132
R <sup>2</sup>	0.001	0.003	0.002	0.002	0.002	0.003	0.001	0.002	0.002	0.002
Adjusted R <sup>2</sup>	-0.001	0.001	0.0005	0.0003	-0.0003	0.001	-0.001	0.0005	-0.0002	0.0001
<b>Prob &gt;F (23 attributes)</b>	<b>0.841</b>	<b>0.121</b>	<b>0.199</b>	<b>0.275</b>	<b>0.672</b>	<b>0.049</b>	<b>0.991</b>	<b>0.193</b>	<b>0.561</b>	<b>0.381</b>

Notes: Standard errors are clustered at the individual level. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table A.4: The profile order of the three “voting task” has no effect of the effect of attributes

	<i>Dependent variable</i>		
	<i>Variable coefficient</i>	<i>Preferred candidate profile</i>	
		<i>Interaction effect (*Second profile)</i>	<i>Interaction effect (*Third profile)</i>
Second profile	-0.036 (0.056)		
Third profile	-0.056 (0.056)		
<b>Constituency Development Fund</b>			
Public (90%):Private (10%)	0.126*** (0.023)	0.027 (0.032)	-0.001 (0.032)
Public (50%):Private (50%)	0.096*** (0.022)	0.054* (0.030)	0.025 (0.031)
Public (10%):Private (90%)	0.049** (0.022)	0.031 (0.031)	0.031 (0.030)
<b>Time in Constituency vs. Capital</b>			
Const.:50-capital:50	-0.002 (0.018)	0.038 (0.026)	-0.003 (0.028)
Const.:75-capital:25	0.009 (0.020)	0.057** (0.026)	0.021 (0.028)
<b>Community meeting</b>			
Monthly	0.139*** (0.024)	-0.018 (0.033)	-0.001 (0.034)
Every three months	0.149*** (0.025)	-0.051 (0.035)	0.007 (0.035)
Every six months	0.095*** (0.024)	-0.0005 (0.035)	0.064* (0.035)
Yearly	0.035 (0.024)	0.027 (0.035)	0.046 (0.033)
<b>Social event</b>			
Sometimes	0.033* (0.019)	0.018 (0.027)	0.011 (0.027)
Always	0.089*** (0.019)	-0.019 (0.027)	-0.013 (0.026)
<b>Personal assistance (casework)</b>			
Sometimes	0.079*** (0.019)	0.011 (0.027)	-0.032 (0.027)
Always	0.109*** (0.019)	0.001 (0.026)	-0.020 (0.026)
<b>Profession</b>			
Lawyer	-0.031 (0.026)	0.031 (0.038)	0.035 (0.038)
Educationist/teacher	0.032 (0.026)	-0.005 (0.037)	0.013 (0.038)
Business person	-0.012 (0.027)	0.041 (0.038)	-0.013 (0.038)
Accountant	0.019 (0.027)	-0.001 (0.038)	-0.033 (0.038)
Architect	0.003 (0.028)	0.038 (0.040)	-0.007 (0.039)
<b>Gender</b>			
Male	0.014 (0.019)	-0.040 (0.027)	0.004 (0.027)
<b>Political party</b>			
New Patriotic Party	0.049*** (0.019)	-0.020 (0.026)	-0.030 (0.026)
National Democratic Congress	0.029 (0.019)	-0.024 (0.026)	-0.024 (0.027)
<b>Hometown</b>			
Does not hail but resident in constituency	-0.063*** (0.019)	0.060** (0.027)	0.066** (0.027)
Hails from but not resident	-0.051*** (0.019)	0.025 (0.027)	0.016 (0.027)
Constant	0.241*** (0.040)		
Observations (Rated Profiles)	12,132		

Notes: Standard errors are clustered at the individual level. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## **B Conjoint design: narratives**

I trained twelve experienced research assistants to conduct the in-person interviews across the selected constituencies.<sup>26</sup> After introducing the conjoint and instruction, enumerators read (narrated) the attributes and values of the conjoint survey as “campaign promises” of hypothetical candidates (i.e., what a particular candidate will do when elected to office). Enumerators started the conjoint surveys as follows:

1. As you may know, during elections, candidates with different qualifications and characteristics compete to represent your constituency as a Member of Parliament (MP). These candidates also make promises as to what they would do to serve you and your constituency when you elect them as your MP. There could be only one MP. Let us say two people are standing for elections in your constituency for the 2020 parliamentary elections. I am going to tell you a little bit about these two people and then ask your opinion about them.
2. After describing these candidates, I will also like you to take this GHC 2. You cannot keep all the amount for yourself. However, you can give any amount between GHC .50 and GHC 2 to your preferred candidate. We will donate the total amount collected to the aspirant similar to the candidate most preferred by respondents in this constituency during the 2020 parliamentary elections.
3. Should I repeat these instructions?

My RAs then narrated the attributes and their corresponding values of two hypothetical candidates in pairwise comparison. They then asked respondents whether they should repeat the attributes and its values. Respondents were then asked the following questions:

### **Questions:**

1. Which of these two candidates would you vote for?

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<sup>26</sup>While each constituency was assigned to an enumerator, in some cases pairs of RAs helped each other to survey their constituency. As a robustness check, I will include enumerator fixed effects.

Table B.1: Values of candidates' promises and characteristics in the conjoint survey

Candidate Attribute	Attribute levels	Probabilities
Political Party	Independent (IND)[1]	1/3
	New Patriotic Party (NPP)[2]	1/3
	National Democratic Congress (NDC)[3]	1/3
Hometown	Hails from and resident in constituency [1]	1/3
	Does not hail but resident in constituency [2]	1/3
	Hails from but not resident [3]	1/3
Profession	Farmer/Agriculturalist (1)	1/6
	Lawyer (2)	1/6
	Educationist/teacher (3)	1/6
	Business person (4)	1/6
	Accountant (5)	1/6
	Architect (6)	1/6
Gender	Female [0]	1/5
	Male [1]	4/5
Use of MP's Common Fund (CDF)	[Levels: 1) Ten (10) percent; 2) 50 percent; 3) 90 percent ] of MPCF to support the construction or renovation of community school and clinics, repairs of roads and bridges, and other community self-help projects. [Levels: 1) Ten (10) percent; 2) 50 percent; 3) 90 percent] of MPCF to pay school fees, medical bills, and apprenticeship fee for some individual members of this constituency. [Use levels:	
	P <sub>10,10</sub> [1]	1/4
	P <sub>50,50</sub> [2]	1/4
	P <sub>10,90</sub> [3]	1/4
	P <sub>90,10</sub> [4]	1/4
Time in constituency versus capital	Constituency (C): [25, 50, 75 ] percent; Accra (A):[25, 50, 75] percent [Use levels (T <sub>C,A</sub> ):	
	T <sub>25,75</sub> [1]	1/3
	T <sub>50,50</sub> [2]	1/3
	T <sub>75,25</sub> [3]	1/3
Personal assistance	[Levels: Hardly (1/10)[1], Sometimes (5/10)[2], Always (10/10)[3]] support constituents who need help to obtain government services such as business license, passport, birth certificate, facilitate loans or get government jobs	
	Hardly (1/10)[1]	1/3
	Sometimes (5/10)[2]	1/3
	Always (10/10)[3]	1/3
Community meetings	Never [1]	1/5
	Monthly [2]	1/5
	Every three months [3]	1/5
	Every six months [4]	1/5
	Yearly [5]	1/5
Social events	[Levels: Hardly (1/10)[1], Sometimes (5/10)[2], Always (10/10)[3]]: attend or contribute to social events such as funerals, church/mosque activities, and traditional festivals.	
	Hardly (1/10)[1]	1/3
	Sometimes (5/10)[2]	1/3
	Always (10/10)[3]	1/3

Candidate A

Candidate B

2. Please choose the amount of you would like to donate to your preferred candidate.

GHC 0.50

GHC 1.00

GHC 1.50

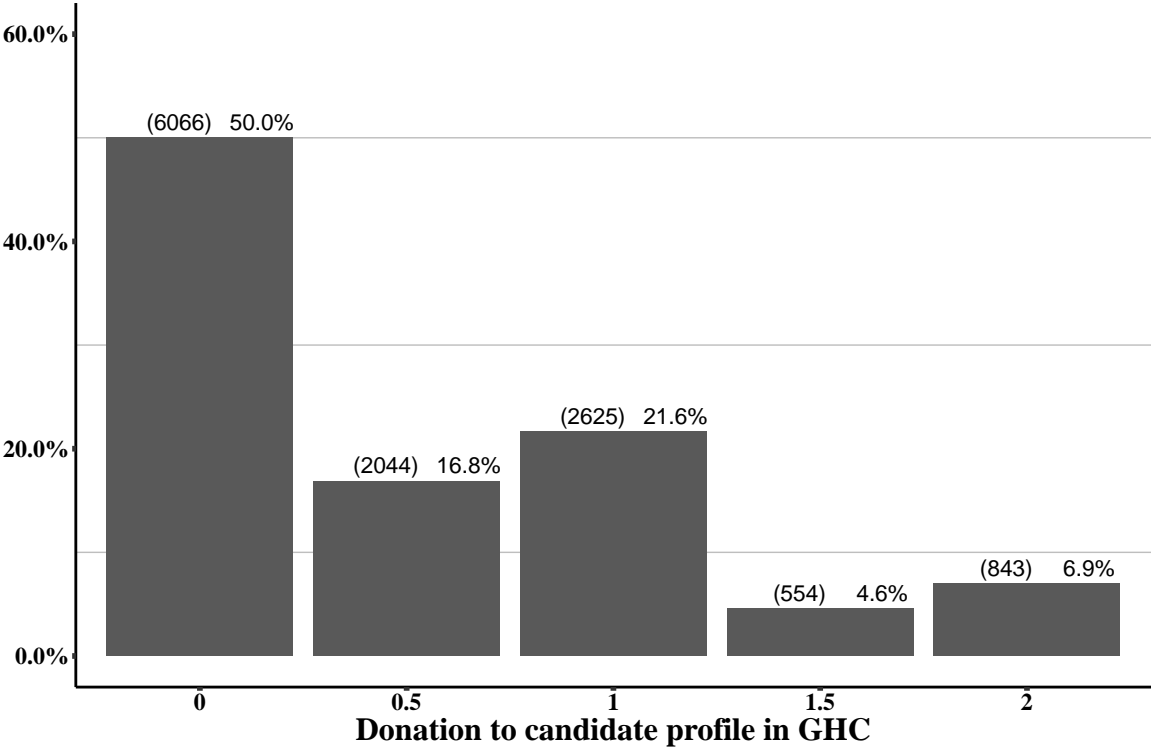
GHC 2.00

Figure B.1: An example of candidates' profiles respondents saw

Voting Game > Rounds 1 to 3 (3) <span style="float: right;">↶ Go to</span>	
A	B
<b>Gender</b>	
Male	Female
<b>Profession</b>	
Lawyer	Accountant
<b>Social Events</b>	
Sometimes (5/10) attend or contribute to social events such as funerals, church/mosque activities, and traditional festivals	Hardly (1/10) attend or contribute to social events such as funerals, church/mosque activities, and traditional festivals
<b>Time in Constituency vs. Capital</b>	
Constituency: 50 percent; Capital: 50 percent	Constituency: 25 percent; Capital: 75 percent
<b>Hometown</b>	
Hails from but not resident	Does not hail but resident in constituency
<b>Community meetings</b>	
Yearly	Monthly
<b>Use of MP Common Fund</b>	
50 percent of MPCF to support the construction or renovation of community school and clinics, repairs of roads and bridges, and other community self-help projects. 50 percent of MPCF to pay school fees, medical bills, and apprenticeship fee for some individual members of this constituency.	50 percent of MPCF to support the construction or renovation of community school and clinics, repairs of roads and bridges, and other community self-help projects. 50 percent of MPCF to pay school fees, medical bills, and apprenticeship fee for some individual members of this constituency.
<b>Political party</b>	
New Patriotic Party (NPP) 	National Democratic Congress (NDC) 
<b>Personal assistance (case work)</b>	
Always (10/10): support constituents who need help to obtain government services such as business license, passport, birth certificate, facilitate loans or get government jobs	Sometimes (5/10): support constituents who need help to obtain government services such as business license, passport, birth certificate, facilitate loans or get government jobs



Figure B.2: Distribution of the amount donated by respondents to their preferred candidate profile



**C Main results tables**

Table C.1: Effects of candidate attributes on the probability of being selected as Member of Parliament

	<i>Dependent variable:</i>			
	Preferred candidate profile		Donation to preferred candidate profile	
	(1)	(2)	(3)	(4)
<b>Constituency Development Fund</b>				
Public (50%):Private (50%)	0.123*** (0.013)	0.123*** (0.013)	0.131*** (0.015)	0.132*** (0.015)
Public (10%):Private (90%)	0.070*** (0.013)	0.070*** (0.013)	0.080*** (0.016)	0.081*** (0.016)
Public (90%):Private(10%)	0.135*** (0.014)	0.136*** (0.014)	0.144*** (0.017)	0.145*** (0.017)
<b>Time in Constituency vs. Capital</b>				
Constituency (50%) : Capital (50%)	0.030*** (0.011)	0.031*** (0.011)	0.041*** (0.013)	0.042*** (0.013)
Constituency (75%) : Capital (25%)	0.015 (0.012)	0.016 (0.012)	0.040*** (0.015)	0.042*** (0.015)
<b>Community meeting</b>				
Monthly	0.135*** (0.014)	0.134*** (0.014)	0.155*** (0.017)	0.156*** (0.018)
Every three months	0.134*** (0.014)	0.133*** (0.014)	0.162*** (0.017)	0.162*** (0.017)
Every six months	0.117*** (0.014)	0.117*** (0.014)	0.130*** (0.017)	0.131*** (0.017)
Yearly	0.062*** (0.014)	0.060*** (0.014)	0.065*** (0.016)	0.065*** (0.016)
<b>Social event</b>				
Sometimes	0.042*** (0.011)	0.043*** (0.011)	0.041*** (0.014)	0.043*** (0.014)
Always	0.078*** (0.011)	0.079*** (0.011)	0.083*** (0.014)	0.084*** (0.014)
<b>Personal assistance (casework)</b>				
Sometimes	0.072*** (0.011)	0.073*** (0.011)	0.076*** (0.014)	0.075*** (0.014)
Always	0.102*** (0.011)	0.104*** (0.011)	0.107*** (0.014)	0.109*** (0.014)
<b>Profession</b>				
Lawyer	-0.009 (0.016)	-0.008 (0.016)	-0.006 (0.019)	-0.005 (0.019)
Educationist/teacher	0.035** (0.015)	0.033** (0.015)	0.037** (0.019)	0.036* (0.019)
Business person	-0.003 (0.016)	-0.003 (0.016)	-0.009 (0.020)	-0.008 (0.020)
Accountant	0.007 (0.015)	0.004 (0.015)	-0.005 (0.019)	-0.009 (0.019)
Architect	0.014 (0.017)	0.013 (0.017)	0.018 (0.020)	0.017 (0.020)
<b>Gender</b>				
Male	0.001 (0.011)	0.0003 (0.011)	-0.013 (0.014)	-0.012 (0.014)
<b>Political party</b>				
New Patriotic Party (incumbent)	0.032*** (0.011)	0.031*** (0.011)	0.031** (0.014)	0.030** (0.014)
National Democratic Congress (opposition)	0.011 (0.011)	0.010 (0.011)	0.003 (0.014)	0.001 (0.014)
<b>Hometown</b>				
Does not hail but resident in constituency	-0.021* (0.011)	-0.023** (0.011)	-0.017 (0.014)	-0.019 (0.014)
Hails from but not resident	-0.038*** (0.011)	-0.036*** (0.011)	-0.038*** (0.013)	-0.036*** (0.013)
<b>Controls</b>				
	No	Yes	No	Yes
Constant	0.210*** (0.023)	0.210*** (0.024)	0.282*** (0.034)	0.296*** (0.042)
Observations	12,132	11,994	12,132	11,994
R <sup>2</sup>	0.037	0.037	0.044	0.046
Adjusted R <sup>2</sup>	0.034	0.034	0.041	0.042

Notes: Table C.1 shows estimates of the effects of randomly assigned parliamentary candidate attribute values on the probability of being preferred as Member of Parliament in the next election. Estimates are based on an OLS model with standard errors clustered by reponent. The model also includes constituency fixed effects to ensure within constituency comparison. \*p<0.1; \*\*p<0.05; \*\*\*p<0.01.

Figure C.1: Marginal means of selecting a candidate with a profile that includes a randomize CDF allocation value, by voter partisanship

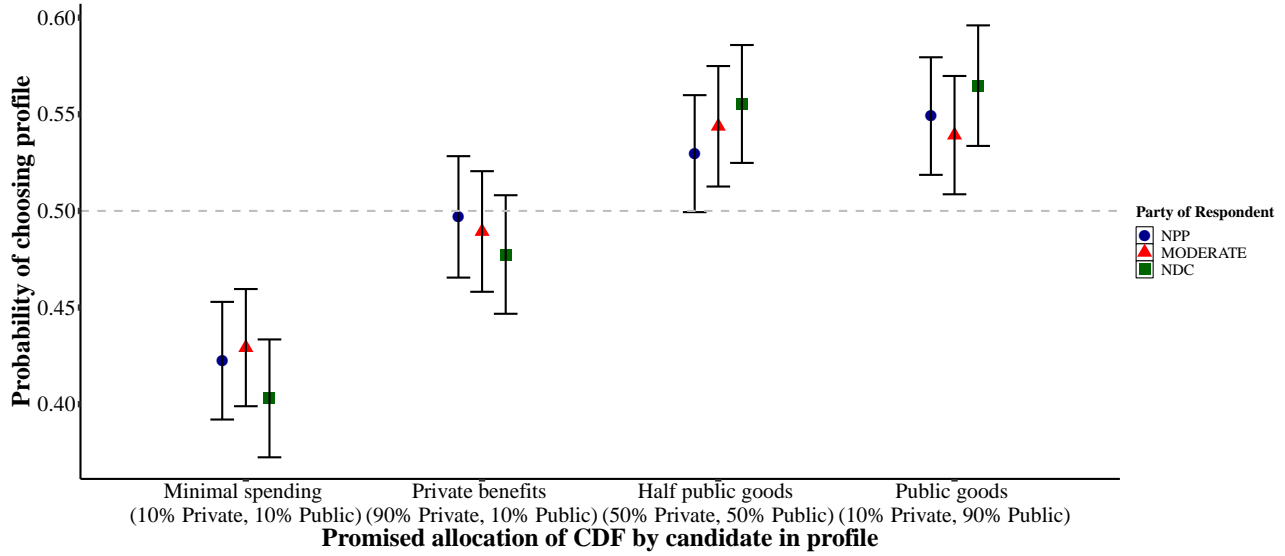


Table C.2: Difference in AMCEs for partisanship pairings by constituency type

Type of constituency	Promised CDF allocation	Copartisans dyads		Non-Copartisan dyads		Difference in AMCEs	SE	T-value	P-value
		Estimated AMCE	SE	Estimated AMCE	SE				
<b>Segregated</b>									
Competitive	Public (50%): Private (50%)	0.109	0.063	0.075	0.063	0.033	0.089	0.375	0.707
	Public (10%): Private (90%)	0.077	0.067	0.131	0.058	-0.053	0.088	-0.603	0.547
	Public (90%): Private (10%)	0.179	0.062	0.187	0.073	-0.008	0.096	-0.083	0.934
Non-competitive	Public (50%): Private (50%)	0.221	0.062	0.034	0.059	0.186	0.086	2.178	0.029
	Public (10%): Private (90%)	0.163	0.054	0.087	0.064	0.077	0.084	0.914	0.361
	Public (90%): Private (10%)	0.189	0.063	0.037	0.064	0.153	0.090	1.699	0.089
<b>Non-Segregated</b>									
Competitive	Public (50%): Private (50%)	0.194	0.057	0.200	0.057	-0.007	0.080	-0.085	0.932
	Public (10%): Private (90%)	0.127	0.061	0.112	0.056	0.014	0.083	0.170	0.865
	Public (90%): Private (10%)	0.237	0.059	0.221	0.062	0.016	0.085	0.193	0.847
Non-Competitive	Public (50%): Private (50%)	0.085	0.054	0.001	0.054	0.084	0.076	1.100	0.271
	Public (10%): Private (90%)	0.039	0.054	0.024	0.057	0.015	0.079	0.192	0.848
	Public (90%): Private (10%)	0.054	0.054	0.055	0.057	-0.002	0.079	-0.021	0.984

## D Mechanisms

Table D.1: Association between copartisanship with incumbent MP and report that your community has received local public infrastructure

	<i>Dependent variable:</i>				
	Community has received public infrastructure				
	Full sample	Segregated		Non-Segregated	
		Competitive	Non-Competitive	Competitive	Non-Competitive
(1)	(2)	(3)	(4)	(5)	
Copartisan with incumbent MP	0.186*** (0.063)	0.399** (0.194)	0.208* (0.117)	0.150*** (0.035)	0.037 (0.052)
Constant	0.141*** (0.030)	-0.101 (0.084)	-0.005 (0.078)	0.159*** (0.017)	0.021 (0.042)
Observations	1,096	228	254	302	312
R <sup>2</sup>	0.349	0.380	0.094	0.370	0.331
Adjusted R <sup>2</sup>	0.342	0.372	0.083	0.363	0.324

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table D.2: Association between copartisanship with incumbent MP and expectation that your community will receive local public infrastructure

	<i>Dependent variable:</i>				
	Expect community to receive public infrastructure				
	Full sample	Segregated		Non-Segregated	
		Competitive	Non-Competitive	Competitive	Non-Competitive
(1)	(2)	(3)	(4)	(5)	
<b>Binary</b>					
Copartisan with incumbent MP	0.317*** (0.081)	0.699*** (0.114)	0.314*** (0.073)	0.169*** (0.012)	0.153* (0.087)
Constant	0.110*** (0.037)	-0.102** (0.044)	0.079 (0.049)	0.179*** (0.006)	0.085 (0.070)
Observations	1,017	216	256	262	283
R <sup>2</sup>	0.382	0.614	0.186	0.540	0.149
Adjusted R <sup>2</sup>	0.375	0.608	0.176	0.535	0.140
<b>Likert scale (0-10)</b>					
Copartisan with incumbent MP	3.093*** (0.674)	6.393*** (0.888)	3.094*** (0.844)	1.754*** (0.189)	1.715*** (0.295)
Constant	1.649*** (0.311)	-0.470 (0.346)	1.615*** (0.563)	2.267*** (0.087)	1.048*** (0.239)
Observations	1,017	216	256	262	283
R <sup>2</sup>	0.429	0.716	0.273	0.536	0.253
Adjusted R <sup>2</sup>	0.422	0.712	0.265	0.530	0.245

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## E Spatial segregation of partisans within constituencies

To measure the level of partisan segregation of each constituency, I adopt White (1986)'s entropy index ( $Segregation_J$ ) for an entire electoral district. For Constituency  $J$ , consisting of  $N_j$  polling stations indexed by  $i$ , White (1986)'s entropy index for spatial segregation of partisans is given by

$$Segregation_J = \frac{\hat{H}_J - \sum_{i=1}^{N_j} \frac{n_i}{n_j} * h_i}{\hat{H}_J}$$

where  $Segregation_J$  is the level of segregation for Constituency  $J$ ,  $n_i$  and  $n_j$  are the populations of polling station  $i$  and Constituency  $J$ , and  $\hat{H}_J$  and  $h_i$  are the entropy of Constituency  $J$  and polling station  $i$ , respectively.  $\hat{H}_J$  at the constituency-level is calculated as follows:

$$H_J = - \sum_k p_{j,k} \ln(p_{j,k})$$

where  $p_{j,k}$  is the proportion of each partisan group  $k$  in Constituency  $J$ . Likewise, entropy at the polling station-level ( $h_i$ ) is given by:

$$h_i = - \sum_k p_{i,k} \ln(p_{i,k})$$

where  $p_{i,k}$  is the proportion of each partisan group  $k$  in polling station  $i$ .

The maximum value of  $Segregation_J$  is 1, when each polling station contains only one partisan group ( $\sum_{i=1}^{N_j} \frac{n_i}{n_j} * h_i = 0$ ). The minimum value of  $Segregation_J$  is 0, when every polling station has the same composition as the constituency ( $\sum_{i=1}^{N_j} \frac{n_i}{n_j} * h_i = \hat{H}_J$ ). Simply, constituencies with higher values of  $Segregation_J$  have *less* uniform partisan distributions while those with lower values of  $Segregation_J$  have *more* uniform partisan distributions.

I use the 2016 parliamentary election results at the polling station level for candidates of the two major parties (NPP and NDC) to compute the level of segregation for each constituency. The minimum and maximum values of  $Segregation_J$  for the 275 constituencies in Ghana are 0.008 and 0.559, respectively with a mean of 0.091. Figure E.1 shows the distribution. To simplify my sampling, I classify constituency above the 90th percentile ( $\geq 0.172$ ) the  $Segregation_J$  distribution as segregated and non-segregated otherwise.

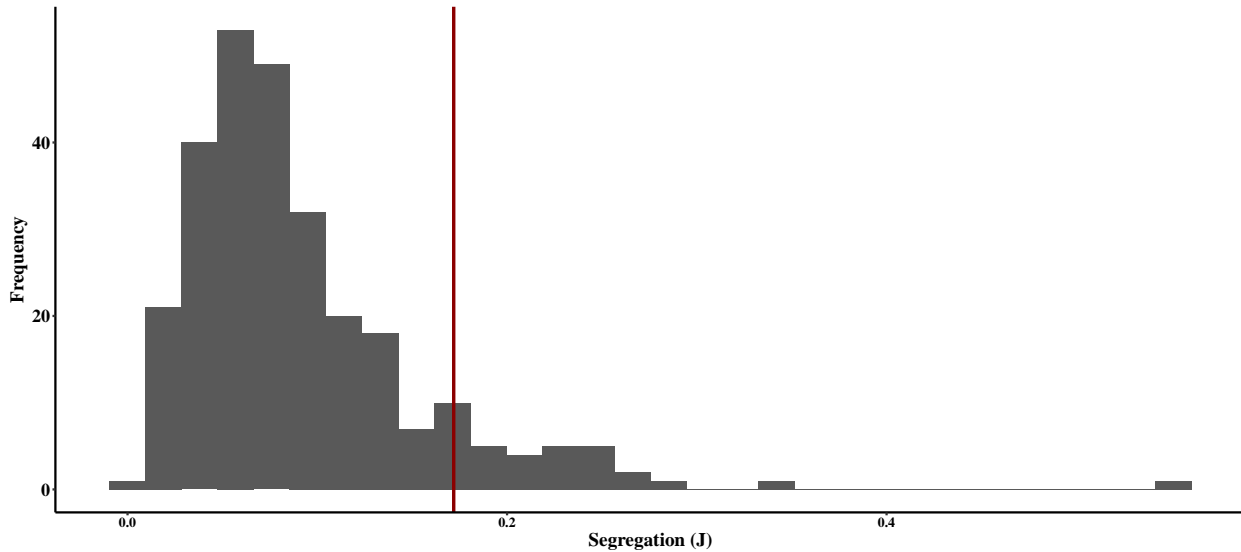


Figure E.1: Distribution of Constituency-level Segregation

Table E.1: Characteristics of sampled constituencies

Constituency	Competition	Segregation	MP name	Party
Asunafo South	Competitive	Non-Segregated	Eric Opoku	NDC
Bunkpurugu	Competitive	Non-Segregated	Solomon Namliit Boar	NPP
Suhum	Competitive	Non-Segregated	Drederick Opare-Ansah	NPP
Bawku Central	Competitive	Segregated	Mahama Ayariga	NDC
Fanteakwa North	Competitive	Segregated	Kwabena Amankwa Asiamah	NPP
Zabzugu	Competitive	Segregated	Alhassan Umar	NDC
Manso Nkwanta	Non-Competitive	Non-Segregated	Joseph Albert Quarm	NPP
Nabdum	Non-Competitive	Non-Segregated	Mark Kurt Nawaane	NDC
Saboba	Non-Competitive	Non-Segregated	Charles Binipom Bintin	NPP
Kwabre East	Non-Competitive	Segregated	Francisca Mensah Oteng	NPP
Mpraeso	Non-Competitive	Segregated	Seth Kwame Acheampong	NPP
Nkwanta South	Non-Competitive	Segregated	Geoffrey Kini	NDC