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Does Foreign Aid Undermine Political Responsiveness? Evidence from Kenya

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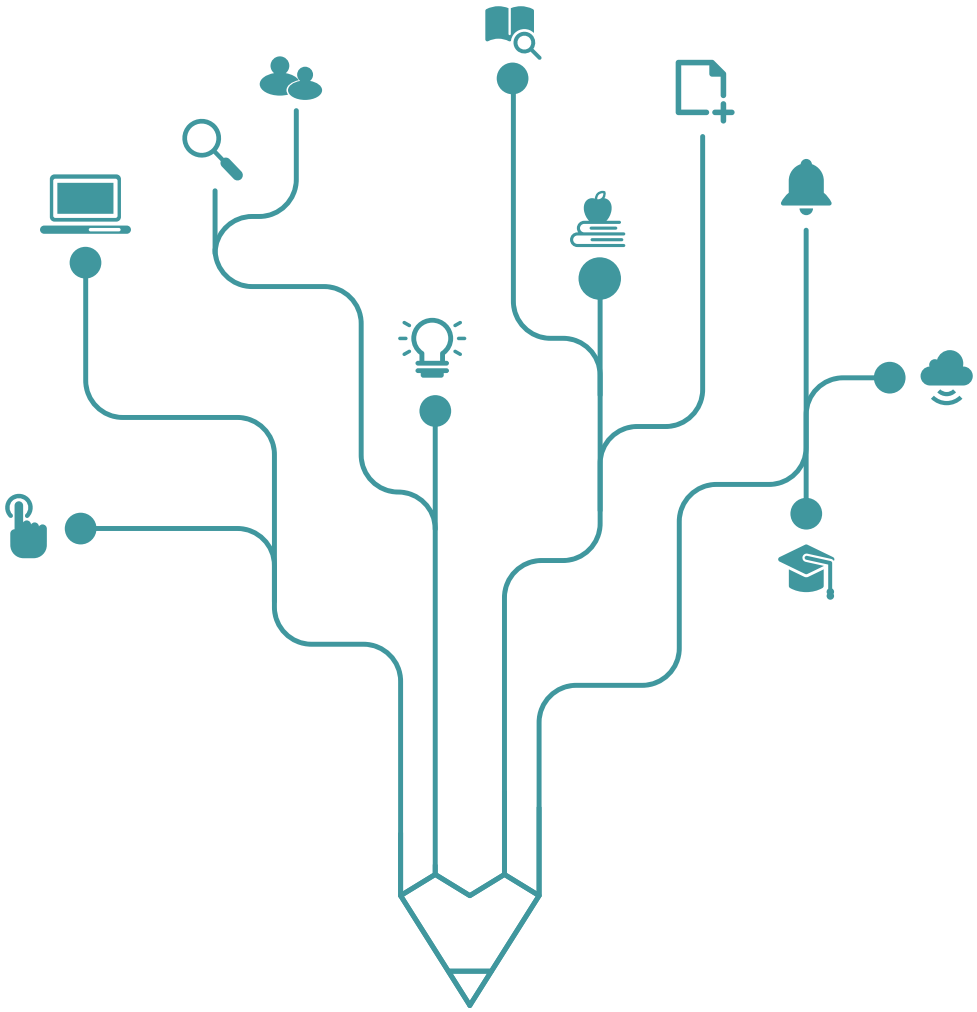

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Abstract

Does aid undermine incentives for local politicians to provide public goods? Even when politicians have no control over aid, they can claim credit for the aid in low-information environments, thus undermining their other efforts to provide public goods. I test these predictions using Kenya's Constituencies Development Fund (CDF), which provides an ideal opportunity to measure legislators' efforts since I can attribute CDF spending patterns directly to politicians. I examine two dimensions of these efforts: how much of the CDF they spent and how quickly they implemented their projects. Using a two-way fixed effects OLS estimation, I show that aid is not associated with how much CDF politicians spend, which is contrary to existing predictions. However, I find that aid slightly delays the implementation of CDF projects in low-competition constituencies—an effect that disappears in competitive races. This paper suggests that aid does not significantly compromise political responsiveness as previously expected.

Does Foreign Aid Undermine Political Responsiveness? Evidence from Kenya

Introduction

Does foreign aid undermine political responsiveness in recipient countries? Specifically, does aid weaken local politicians' efforts to deliver public goods that are responsive to citizens' needs? This is a crucial issue in the political economy of development because it has implications for citizen welfare and the quality of democratic institutions in recipient countries (Ashworth 2012; Grossman and Slough 2022). Conventional wisdom holds that aid compromises recipient politicians' incentives to work for their constituents. There are two channels through which local politicians can take advantage of foreign aid: *patronage* and *credit-claiming*. First, when they can influence aid allocation, politicians use foreign aid as patronage resources to buy political support (Bueno de Mesquita and Smith 2009; Jablonski 2014; Dreher et al. 2019). As a result, elections become less competitive, reducing incumbent politicians' incentives to impress voters. Second, even when they have no control over aid allocation, politicians claim credit for the aid in low-information environments (Cruz and Schneider 2017; Springman 2022; Baldwin and Winters 2023). Consequently, voters mistakenly attribute credit to incumbent politicians. By free riding on aid projects, local politicians slack off exerting their effort to deliver public goods.

Building on the rich literature on foreign aid and political *accountability* in recipient countries, this study explicitly investigates whether aid undermines political *responsiveness* in recipient countries. Specifically, I empirically examine whether foreign aid substitutes for local politicians' efforts in public goods provision where those politicians do not have any discretion over aid. This is important for two reasons. First, the amount of effort politicians devote to public goods provision is harder to observe than election outcomes

but directly affects voters' welfare. Second, this substitution has important implications for aid effectiveness. Due to decentralization over the past few decades, there are more opportunities for undeserved credit-claiming by local politicians—such as mayors and Members of Parliament—who have discretion over public goods provision yet lack authority over aid allocation. By empirically testing for this substitution via the local politician's undeserved credit-claiming channel, this paper joins a small but growing literature focusing on the aid's effect on individual politician's behaviors (Seim, Jablonski, and Ahlbäck 2020; Jablonski and Seim 2023) and voters' credit attribution regarding foreign aid (Baldwin and Winters 2023; Cruz and Schneider 2017; Springman 2022).

The extensive literature on aid and political accountability suggests two hypotheses. First, foreign aid reduces local politicians' efforts to provide public goods because they undeservedly claim credit for the aid in low-information situations. Second, greater electoral competition would dampen such a negative substitution effect since politicians should exert more effort due to higher electoral uncertainty. I test these theoretical predictions using the case of Kenya's Constituencies Development Fund (CDF) during 2003-2010 (Harris and Posner 2019, 2022). A CDF is a particular type of public spending program that allocates government resources *directly* to individual Members of Parliament (MPs), thereby allowing them to invest in public works in their constituencies.[1] The Kenyan CDF case provides a unique opportunity to measure politician effort systematically, especially in local public goods provision (Keefer and Khemani 2009; Ofosu 2019; Harris and Posner 2019; Opalo 2022; Asunka 2017). During the study period, the investment pattern of the CDF was essentially determined by each MP's sole decision because they were able to distribute the funds "almost unchecked"(Hornsby 2013, p. 738).[2]

Additionally, I distinguish between two dimensions of politician effort in local public goods provision: a quantity dimension (how much of the fund the politician disburses) and a time dimension (how quickly the politician implements said projects). Identifying

politicians' efforts in the time dimension is important because unfinished projects are rampant across developing countries (Williams 2017, fn 1) and implementation speed has implications for local citizens' welfare (Baldwin and Winters 2023). Specifically, I measure the quantity dimension of politician effort by the proportion of the CDF amount spent to the total CDF allocation and the time dimension by the median number of years expended for the implementation of CDF projects at the constituency level. Using two-way fixed effects OLS estimation, I investigate the relationship between World Bank aid and patterns of local public goods provision at the constituency (i.e., individual MP) level.

Contrary to existing expectations, I do not find any evidence that foreign aid crowds out local politicians' efforts to provide public goods due to their undeserved credit-claiming in recipient countries. First, the amount of foreign aid is not associated with the quantity and time dimensions of legislator effort. Little evidence exists that foreign aid reduces the amount and speed of local public goods provision by politicians. Second, however, I find a (small) conditional effect of aid on the speed of CDF project implementation by the level of electoral competition. Specifically, at the 33rd percentile of electoral competition (where the victory margin is roughly 0.62), a 100% increase in World Bank aid per capita is associated with approximately a two-week delay in the median duration of CDF projects. Electoral competition considerably reduces the size of the aid's delay effect, which disappears in more competitive races. Taken together, these results demonstrate that foreign aid does not significantly undermine political responsiveness in recipient countries.

This study's finding implies that voter inference at the local level might be more accurate than previously thought. In other words, while local politicians attempt to claim credit for foreign aid in low-information environments, receiving undeserved credit may be more difficult in some contexts than existing studies suggest. This is due to two reasons: voters' *information* about politicians and voters' beliefs about politicians' *actual involvement* in aid projects (Baldwin and Winters 2023). On the one hand, local politicians, such

as MPs, face increasingly extensive media coverage of their behaviors in developing countries. On the other hand, voters might be less willing to accept credit claims by politicians from the legislative office (MPs and local councillors) with lower aid oversight capacity than politicians from the executive office (mayors and district executives) with higher aid oversight capacity.

While this evidence suggests local politicians' attempts to free ride on foreign aid might be largely futile, aid can have unintended consequences. Most types of foreign aid and CDF essentially finance development projects that require local procurement of goods, works, and services. Therefore, aid may overburden local production capacity and unintentionally delay the implementation of CDF projects. Consistently, I find that the conditional effect is primarily driven by low local capacity constituencies, for which I used the level of the population density as a proxy measure. However, in competitive races, increased politician effort compensates for the delay effect and it disappears.

This paper produces three key implications for studying foreign aid and political institutions in recipient countries. First, this study is among the few that *directly* tackle how foreign aid impacts political responsiveness. Contrary to existing predictions, I do not find evidence that aid significantly weakens local politicians' efforts. This implies that voters' misattribution of credit depends on local contexts, as Baldwin et al. (2023) suggest. Second, the study contributes to the voluminous literature on the effect of foreign aid on recipient governments' fiscal behaviors (Morrissey 2015; Werker, Ahmed, and Cohen 2009; Wagstaff 2011), specifically individual politicians' spending decisions. Notably, Seim, Jablonski, and Ahlbäck (2020) and Jablonski and Seim (2023) examine local politicians' spatial allocation decisions with a *fixed* amount of disbursement in an experimental setting. This study complements those previous studies by examining whether foreign aid *changes* the amount those politicians would initially disburse in a non-experimental setting. Third, this study documents the aid's unintended consequences on the speed of public goods pro-

vision. In other words, foreign aid might delay the implementation of local projects in rural areas due to overburdened local supply capacity. This has significant implications for citizens' welfare because foreign aid projects are more common in weak state capacity settings. While doing so, it also demonstrates the importance of examining the time dimension of public goods spending (Williams 2017).

Aid, Political Responsiveness, and Public Goods Provision

A long-standing debate in the political economy of development field is how aid impacts political accountability and responsiveness in recipient countries (Wright and Winters 2010; Qian 2015; Blair and Winters 2020; Dreher, Lang, and Reinsberg 2024). Some research finds that aid helps transitions to democracy (Wright 2009) and multiparty politics (Dietrich and Wright 2015), and promotes respect for human rights (Carnegie and Marinov 2017) thanks to the additionality attached to aid receipt (Cheeseman, Swedlund, and O'Brien-Udry 2024). Conversely, other studies show that aid prolongs the survival of autocrats (Bueno de Mesquita and Smith 2010), undermines democratic consolidation (Ahmed 2012), and fosters patronage (Jablonski 2014). Despite contrasting views, conventional wisdom holds that foreign aid can weaken political responsiveness by undermining electoral competition. Specifically, aid may negatively affect the quality of democratic institutions via two channels: *patronage* and *credit-claiming*.

First, when local politicians have control over aid, they use it to buy political support from voters, just as they use other nontax revenues. Foreign aid is allocated to the incumbent president's electoral base (Jablonski 2014; Briggs 2014) or their birth region (Dreher et al. 2019; Bommer, Dreher, and Perez-Alvarez 2022). In return for aid, their political supporters or coethnic voters reward them in the election (Jablonski 2014; Briggs 2012, 2014). The key implication of aid as a patronage resource is that foreign aid undermines

political responsiveness by reducing the level of electoral competition.

Second, even when local politicians cannot control aid, they can actively (yet undeservedly) claim credit for the aid in low-information environments.[3] For example, Cruz and Schneider (2017) show mayors undeservedly took political credit for the aid by using a host of techniques, including frequently visiting project sites and giving speeches at ribbon-cutting ceremonies. As a result, mayors who received aid were more likely to be reelected. Similarly, Guiteras and Mobarak (2015) document that voters positively update their beliefs about their local leaders when receiving aid in their communities, while their leaders spend more time in those communities.[4]

Even in the absence of such active credit-claiming by politicians, voters may mistakenly attribute political credit to incumbent politicians. Springman (n.d., 2022) shows that voters reward incumbent politicians due to their belief that powerful politicians control the allocation of aid-funded NGO projects. Using original surveys and survey experiments in Uganda, Baldwin and Winters (2023) also find that voters' misattribution of credit is more likely when information about aid projects is scarce, although political credits might be deserved for some local politicians' offices whose oversight capacity on aid projects is high. Similarly, Knutsen and Kotsadam (2020) demonstrate that World Bank aid increases support for incumbent national leaders by strengthening trust in the president and ruling party.[5]

Review of the aid-accountability literature suggests two hypotheses. First, foreign aid weakens local politicians' efforts to provide public goods because they claim credit for the aid undeservedly in low-information settings (**Hypothesis 1**). Second, greater electoral competition would dampen such a negative substitution effect since politicians should exert more effort due to higher electoral uncertainty (**Hypothesis 2**).

While most previous studies document local politicians' credit-claiming strategies and their electoral returns, they do not explicitly examine how aid affects local politicians'

behavior regarding public goods provision. This merits attention primarily because their investments in physical capital have *direct* implications for local development and citizen-voters' welfare. Additionally, local politicians have more discretion over public goods provision now than previously because of decentralization during the past few decades. Should there be any effects, they would apply to a wide range of local elected officials responsible for the development of the areas under their jurisdiction across developing countries. Specifically, I focus on the effect of aid on MPs' efforts promoting local development in two *dimensions*: investment amounts (Keefer and Khemani 2009; Ofosu 2019) and project implementation speed. The latter is particularly important in developing countries due to the prevalence of abandoned or stalled projects (Williams 2017).

This study is also related to the voluminous literature exploring the effect of aid on government fiscal behavior in recipient countries. However, I focus on the substitution between aid and local politician efforts, while those studies primarily examine the substitution *across* sectors (Dollar and Pritchett 1998; Morrissey 2015; Werker, Ahmed, and Cohen 2009) or *spatial* substitution *within* sectors (Wagstaff 2011; Seim, Jablonski, and Ahlbäck 2020; Jablonski and Seim 2023).[6] Notably, using a field experiment in Malawi, Seim, Jablonski, and Ahlbäck (2020) and Jablonski and Seim (2023) examine local politicians' investment decisions upon receiving information about foreign aid. They find politicians who learned about foreign aid in local schools are less likely to target schools with existing aid due to fairness concerns. These studies focus on local politicians' responsiveness to citizens' needs in the spatial dimension where the amount politicians disburse was *given* by experimenters. Complementing prior research, this study investigates whether foreign aid *changes* the disbursement levels of politicians in a non-experimental environment.

Measuring Politician Effort: the Kenyan CDF

In this section, I explain why the Kenyan CDF case provides a unique opportunity to measure politician effort in providing local public goods. Then, I introduce ways to measure the two dimensions of such effort: the quantity dimension (i.e., the proportion of the CDF spent) and the time dimension (i.e., the speed of project implementation).[7]

Why the Kenyan CDF is an Ideal Case

Previous studies have used a range of proxies to measure effort or performance because legislator effort is not directly observable. One example is subjective assessment of legislator performance by third parties, such as civil society organizations (Grossman and Michelitch 2018). The proposed measure for this study is superior to other measurements, especially in measuring effort in local public goods provision, since the CDF case allows for one-to-one mapping of who exerts effort (i.e., the benefactor) to who receives the benefit of such effort (i.e., the beneficiary) (Keefer and Khemani 2009). First, the disbursement pattern of the CDF was (almost) solely determined by an individual legislator's effort during the period of study. This setting provides an ideal opportunity for teasing out legislator's effort from other unobserved factors that determine constituency-specific benefits that may not be tractable in other cases (Harris and Posner 2019, fn 7). Second, the legislator's own constituency is the sole beneficiary of her effort in disbursing the CDF. Evidence in terms of theory and practice show that this is the case (Government of Kenya 2003) while specifically who benefits within a constituency is a separate issue that this paper does not investigate (Harris and Posner 2019). Consistent with this, using a nationally representative survey and official CDF data, Opalo (2022) finds that the CDF in Kenya serves as a credible channel for MPs to signal their effort and responsiveness to voters.

The argument that the pattern of the CDF investment can be uniquely attributed

to an MP's own effort, rather than to other actors, requires further discussion. The Constituencies Development Fund Act of 2003 stipulates that a varied set of stakeholders within a constituency collectively constitutes a Constituency Development Fund Committee that has full discretion over how the funds will be spent (Government of Kenya 2003). Nevertheless, it was the MP who *de facto* controlled the committee and thus had the authority to make important decisions regarding the CDF. For instance, the 2003 CDF Act allowed the sitting legislator to "handpick" the committee members from her constituency, which made them accountable not to the constituents but to the MP (Ongoya and Lamallas 2005). Many studies cite the lack of monitoring and accountability mechanisms from below (Hornsby 2013; Kenya Human Rights Commission 2006). Not surprisingly, the CDF was commonly perceived as the "MP's money" among local residents (Francis, Nekesa, and Ndungu 2009).

Despite this lack of *vertical* accountability, MPs exerted significant effort to implement CDF projects during a financial year principally due to *horizontal* accountability. First, they were required to submit project proposals to, and follow strict guidelines set by, the National Management Committee (NMC; renamed as the CDF Board after the 2007 amendment) for successful initiation of development projects (Government of Kenya 2003, Part III). For instance, MPs were asked to identify at least five projects (twenty-five at most) for a given year and the NMC reserved the right to decline proposals after careful review (Government of Kenya 2003, Section 16, 22). Failure to meet such requirements led to the committee's denial of the transfer of allocated funds by the committee, unanimously resulting in delays of the disbursement. Surprisingly, there appears to have been no exceptions to the rule; even six powerful MPs who were then serving as cabinet members failed to access allocated funds because they did not meet the deadline for project proposals in 2004.[8]

Second, the political cost of not using the CDF allotment was significant since the law required MPs to return any unused portion of the funds to the Treasury if they fail to

attach proposals for it during a financial year (Government of Kenya 2003, Section 9 (6)). Those who failed to utilize the funds were often described as "too lazy" or "uncaring" and such an outcome was reportedly driven by "lethargy" or "incompetence."[9] These reactions were reasonable since their constituencies might lose any remaining balance at the end of the financial year unless the MPs provided detailed information to the NMC requesting reallocation of the unutilized funds to the following year (Government of Kenya 2003, Section 9).

A Means of Corruption?

One pivotal question is whether the CDF expenditure captures the MP's effort in serving her *constituents* as opposed to herself. This is a valid concern given extensive evidence of MP's rampant corruption reported by local media.[10] Unfortunately, it is very hard to accurately assess how many of the CDF disbursements failed to materialize (whether due to an MP's intention or negligence) or what proportion of them were provided in the form of public goods rather than private goods because of the absence of comprehensive data during 2003-2010. However, I contend that outright misappropriation of the funds, such as theft or payments for fraudulent projects, happened only occasionally. In most cases, MPs provided actual local public goods to their constituencies for the following three reasons (cf. Harris and Posner 2019).

First and most importantly, circumstantial evidence that pilferage was not a major outcome of the CDF exists. For instance, an independent audit of 2607 CDF projects, though not representative, by the National Taxpayer Association (NTA) revealed that 8% of them were "ghost projects"—where money was disbursed yet physical evidence could not be identified. In terms of financial value, 4.8% of the funds could not be accounted for.[11] According to a nationally representative survey, 60% of the respondents believed that the CDF had helped to reduce poverty and 77% said it had improved the quality of services in

education and health (Gutiérrez-Romero 2013). Statistics also suggest that public infrastructure had improved to a greater extent in number after the CDF was adopted in 2003; the number of dispensaries increased by 30% nationwide during 2004-2008 compared to 10% during 2000-2004 (Ndii 2014).

Second, the executive branch held MPs accountable for their use of the CDF and had increasingly strengthened their control over them, although supposedly not enough to meet the standards of voters. For example, the Kibaki regime (2003-2007) had every incentive to make the CDF work since it was a powerful counter to Raila Odinga's (the main opposition candidate for the 2007 election and the Prime Minister during 2007-2013)'s proposal for "economic federalism."[12] Moreover, the idea of the CDF, if not the actual implementation on the ground, was exceptionally popular among voters. Hence, it is no surprise that the central government, the NMC, and the Ministry of Planning, in particular, had adopted a variety of measures to tighten the loopholes in the regulation and oversight of the management of the CDF over the study period. These measures included launching the CDF tracking system[13], investigating over complaints or allegations[14], and hiring and dispatching a CDF manager to every constituency with managerial expertise and experience.[15] Consequently, these endeavors provoked opposition from MPs and even an attempt to abolish the NMC altogether.[16]

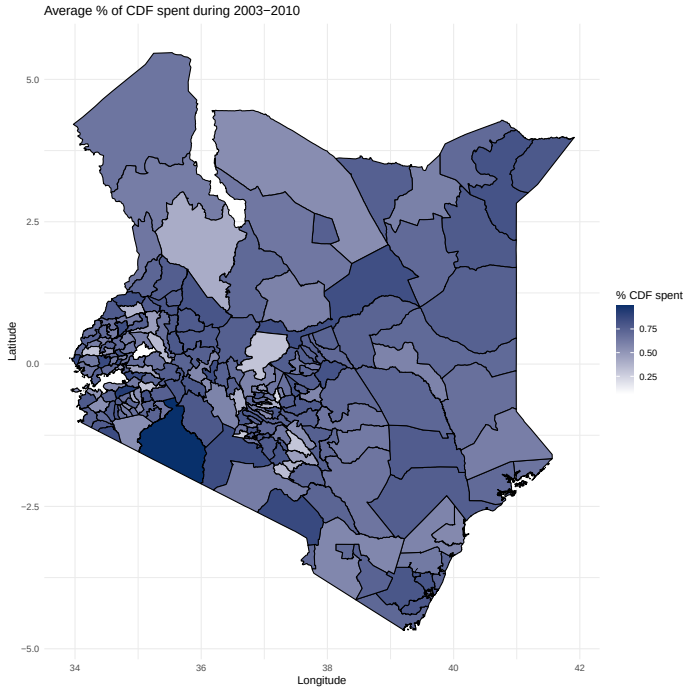
Lastly, even if a non-significant portion of the CDF landed in an MP's own pocket or vaporized, thereby yielding no tangible public goods, the proportion of the CDF spent offers a way of interpreting such embezzlement as a lack of effort. This is because allegations of misappropriation often resulted in an audit by the central government and/or lawsuits which, in turn, nearly always led to freezing the CDF account during the investigation.[17] Also, occasionally the NMC directly examined the procurement process of a constituency due to public complaints and canceled existing projects[18]. All of those events ultimately caused delays in project implementation and limited the possibility of spending

the entire CDF allocations during the allotted time.

Measuring Multiple Dimensions of Effort

The Kenyan CDF case also provides a unique opportunity to measure multiple dimensions of effort in local public goods provision. Again, this is because of the one-to-one relationship between the CDF spending pattern and the politician's effort. Without this feature, simultaneously estimating multiple dimensions of effort would be, if not impossible, extremely challenging because of the possibility that a politician might have a full discretion in one dimension but not in the other. In such a case, comparing two dimensions would be misleading since one cannot isolate the politician's effort in the latter dimension from the other factors.

Figure 1: Average Percentage of CDF Spent during 2003-2010 by Constituency



Notes: The map shows the quantity dimension of politician effort measured by the total amount of CDF expenditure (disbursement) divided by the total amount of CDF allocation in Kenya.

Quantity dimension of effort. The first dimension of legislator effort in providing local public goods using the CDF is measured by the total amount of CDF expenditure (disbursement) divided by the total amount of CDF allocation. Technically speaking, unlike the Indian case (Keefer and Khemani 2009), the Kenyan case is not entirely exogenous. Although the majority of the funds (75%) for a constituency is the same fixed amount across all constituencies, its remaining share (25%) is determined by constituency-level factors: population size, the National Poverty Index, and other miscellaneous components, such as existing infrastructure (Francis, Nekesa, and Ndungu 2009). Nonetheless, I argue that the total amount of CDF allocation for each constituency is *as-if* exogenous since the poverty rate and population size—two of the most important determinants—were derived from the 1999 Kenyan National Census data that were fixed *a priori*.[19] Therefore, such an (arguably) exogenous nature of the total amount of allocation allows for observing legislator's effort that *could have* been undertaken, which is usually unobservable to a researcher (cf. Keefer and Khemani (2009)).

Time dimension of effort. I measure the time dimension of effort by the median duration of CDF projects that MPs implemented where the duration is computed by the subtraction of the disbursement's start year from its end year. The CDF Act gives "total control, management, and supervision to the MPs" (Ongoya and Lamallas 2005) and successful implementation and completion of projects requires considerable effort from the MP.[20] They needed to follow up on the actual expenditure of the funds and submit annual reports to the NMC to receive the next year's allocation (Government of Kenya 2003, Section 4, 6). A lack of proper accounting and documentation, either due to ignorance or deliberate action, could lead to an audit by the NMC or other concerned government bodies and the denial of disbursement in the following year.[21] Some MPs even hired private auditing firms to submit their accounting books in order to expedite the review process.[22] In addition, MPs had to pursue bureaucrats to confirm that their projects were acted upon

without any unexpected delays because their work, especially in procurement, was subject to review by various government bodies. See, for example, an MP's public criticism of a government ministry for delays in the processing of tender documents.[23]

Data

To test my hypotheses, I supplement a number of existing data sets by (1) collecting original data regarding MP-level individual characteristics, such as MP ethnicity, and (2) extracting new information from existing sources regarding the Kenyan CDF (described in detail below). I report descriptive statistics and document data sources in the Supporting Information (SI).

The Kenyan CDF. I use an extensive data set on the Kenyan CDF available from Harris and Posner (2019), which offers the allocation and disbursement amount for every CDF project implemented during 2003-2010 on a yearly basis. I calculate constituency-level outcomes using the geocoded location of those projects[24] while measuring a project's duration by subtracting the year of the first disbursement for the project from the year of the last disbursement. Because this data set does not contain detailed sector information, I manually classify all CDF projects based on their name information into eleven categories including the "unknown" group.[25]

The World Bank aid. AidData (2017) provides the data set on all World Bank development projects approved from 1995-2014, including their geographic locations and the precision of that information.[26] Following previous studies on foreign aid (e.g., Jablonski (2014)), I exclude foreign aid projects with unidentifiable locations. When development projects were distributed at the provincial (ADM1) or district level (ADM2), I compute the amount of aid proportional to the population ratio for each constituency within the upper-level of the administrative unit.[27] For a robustness check, I use the ratio of constituency

area and the ratio of population in poverty as alternatives.

Covariates. Among the battery of covariates are MP-level individual characteristics such as gender, ethnicity, party affiliation, ministerial positions, and incumbency status. Since gender[28] and ethnicity information for the Kenyan MPs in the 9th and 10th Parliament (2003-2007 and 2007-2012, respectively) was not readily available, I hired two Kenyan research assistants to collect the data, which was later validated by two experts on Kenyan politics.[29]

Empirical Strategy

Quantity dimension of effort. I estimate the following multiplicative interaction OLS model specification with two-way fixed effects (constituency and year):

$$Y_{it} = \mu + \alpha D_{it} + \beta D_{it} \times X_{it'} + \eta X_{it'} + Z_{i(t-1)}\gamma + \tau_i + \delta_t + \varepsilon_{it}$$

where i denotes an individual constituency and t a year. $Y_{it} \in [0,1]$ is the percentage of CDF spent in a constituency i and a year t; it is measured by a ratio of the amount of CDF disbursement to the amount of CDF allocation. D_{it}, the treatment variable, is the (logged) total amount of aid disbursement per capita. $X_{it'}$, the moderator, denotes the competitiveness of the last parliamentary election where t' represents the previous election year. Competitiveness is operationalized as $1 - \textit{Victory Margin}_{it'}$ where $\textit{Victory Margin}_{it'}$ is simply the subtraction of the vote share of the runner-up from that of the winner in t'.

To address endogeneity concerns, I include constituency-fixed effects (τ_i), year-fixed effects (δ_t), and a set of cross-sectional and time-varying covariates ($Z_{i(t-1)}$) in the baseline model specification. Constituency-level fixed effects control for time-invariant constituency-specific confounders, such as distance to the capital, landlocked status, and

proximity to borders, which could influence both the amount of foreign aid and politician effort. The covariate set comprises three categories: constituency (population and poverty rate), CDF (allocation amount),[30] and MP characteristics (copartisan, coethnic, female, and incumbent). Though not perfect, this broad set of control variables, along with two-way fixed effects, helps mitigate concerns.

The conditional effect of aid at X value of competitiveness is captured by $\frac{\partial Y_{it}}{\partial D_{it}} = \alpha + \beta X_{it'}$. One caveat regarding the data set is that the CDF disbursement amount is greater than its allocation amount for some observations, leading to the CDF percentage spent to be greater than one. The most likely cause of this scenario is that administrative staff miscalculated the total CDF disbursement for their constituency given that these data anomalies are concentrated in the first year of the CDF. Following Harris and Posner (2019), I convert remaining abnormal values to one.[31]

Time dimension of effort. I estimate the same multiplicative interaction OLS model with two-way fixed effects. The outcome Y_{it} in this case is the median (or mean) duration of active CDF projects where the duration is computed by the subtraction of disbursement start year from end year. I control for one additional covariate: the total amount of CDF expenditure.

Semiparametric estimation of the moderating effect. To further validate the *conditional* marginal effects of aid on the CDF outcomes, I use semiparametric estimation strategies following Hainmueller, Mummolo, and Xu (2019). They allow me to flexibly estimate heterogeneity in the marginal effect of a treatment variable D on an outcome Y across values of the moderator X by avoiding the linear interaction effect (LIE) assumption inherent in the classic multiplicative interaction models.

Results

Quantity dimension of effort. Table 1 shows that World Bank aid is not associated with the CDF expenditure by local politicians. Across Columns 1-4, I use the percentage of the CDF spent to measure the quantity dimension of legislator effort. It is noteworthy that I exclude MPs who served as government ministers from all analyses presented in this study on the premise that they had discretion over the allocation of aid programs across the country.[32] Though the estimates for aid are positive across specifications, they are not statistically significant at the conventional level. The same holds for the estimates for the interaction term between aid and competitiveness.

In Tables E1 and E2 in the SI, I confirm that alternative coding decisions of treatment do not change the results. Neither do alternative ways of coding copartisan and co-ethnic MP, according to Table E3. Table E4 reports the results of the same analysis with an alternative outcome, the number of CDF projects, suggesting no relationship between aid and the quantity of CDF investment. Table E5 suggests that there is no heterogeneous effect by the CDF project size. In sum, the results presented in this section imply that the distribution of development aid is not correlated with the level of politician effort in the quantity dimension of public goods. I discuss the potential causes of the null effect in the Discussion section.

Time dimension of effort. Columns 5-6 in Table 1 indicate that development aid is not associated with politician effort in the time dimension. The estimates are small in size and not significant at the conventional level. Instead, Columns 7-8 demonstrate that the amount of foreign aid has a conditional effect on the duration of CDF projects. While the coefficient estimate for *Aid* is positive, the interaction term between *Aid* and *Competitiveness* is negative where both are statistically significant at the conventional level.

Figure 2 (corresponding to Column 8 in Table 1) presents the conditional marginal

effects of aid on the duration of CDF projects at different levels of electoral competition. The kernel density plot at the bottom illustrates the distribution of the moderator, showing that while elections are competitive in most constituencies, some are heavily skewed in favor of one candidate. The figure indicates that at the lower level of competition, the combined effects of aid and competition are positive and statistically significant. Specifically, at the 33rd percentile of electoral competition (where the victory margin is roughly 0.62), a 100% increase in World Bank aid per capita is associated with an approximate two-week delay in the median duration of CDF projects. While this effect is modest—given that the average project duration is about 3 years and 10 months—it suggests that a greater amount of aid can prolong implementation of CDF projects in low-competition contexts. Consistent with theoretical expectations, the results indicate that competitive elections entirely mitigate this delay effect. According to the estimates, the delaying effect vanishes when the incumbent's victory margin falls below approximately 0.59, encompassing 83% of the observations.

Despite controlling for a broad set of covariates and constituency- and year-level fixed effects in the baseline model specification, concerns about unobservable confounders potentially driving the results remain. To address these concerns, I incorporate high-dimensional fixed effects and apply coarsened exact matching to the baseline model specification. Table 2 presents the results, with Column 1 displaying the result of the baseline specification for ease of comparison. Panel A uses the median duration of CDF projects while Panel B uses the mean duration as an alternative outcome for a robustness check.

First, I address potential omitted variable bias by incorporating province-year fixed effects in Column 2. This specification accounts for province-specific shocks—such as variations in the effectiveness of local programs like the CDF or unexpected public health crises—that could simultaneously affect both foreign aid allocation and politician effort.

Second, to address concerns that international organizations, such as the World

Bank, may strategically adjust aid disbursements during election years either to influence or avoid influencing electoral outcomes, I introduce additional fixed effects to the baseline model. Specifically, Column 3 includes year-by-MP Party ID fixed effects, and Column 4 includes year-by-MP Ethnicity fixed effects. These adjustments help control for systematic differences in aid distribution based on the MPs' political or ethnic affiliations that vary across specific years.

Third, I implement coarsened exact matching (CEM) to reduce heterogeneity in observable characteristics between high-aid and low-aid constituencies. Given that foreign aid is a continuous variable, I classify constituencies receiving above-median aid as the treatment group and those receiving below-median aid as the control group. I then match on key constituency-level covariates (population and poverty rate) in Column 5 and add CDF-level variables (CDF allocation and disbursement amounts) to the set of matching covariates in Column 6. Across these different model specifications using two different outcome measures, the estimated coefficients for *Aid* and *Aid*$\times$*Competitiveness* remain stable and statistically significant at conventional levels, reinforcing the robustness of the results.

Figure 3 shows the conditional marginal effects of aid on the duration of CDF projects by the level of electoral competition using the conservative model specification with year-by-province fixed effects and the matched sample (corresponding to Column 5 in Table 2). The results are estimated using the binning estimator (Panel a) and the kernel estimator (Panel b) (Hainmueller, Mummolo, and Xu 2019). In Panel a, the binning approach, denoted by the red dots and bars, estimates the conditional marginal effect at low (L), medium (M), and high (H) levels of the moderator where each bin has roughly the same number of observations. The binning estimate at the low level of competition (where the winning margin is roughly 0.62) is positive and marginally statistically significant at the conventional level.[33] Panel b shows that the kernel estimates are largely consistent.

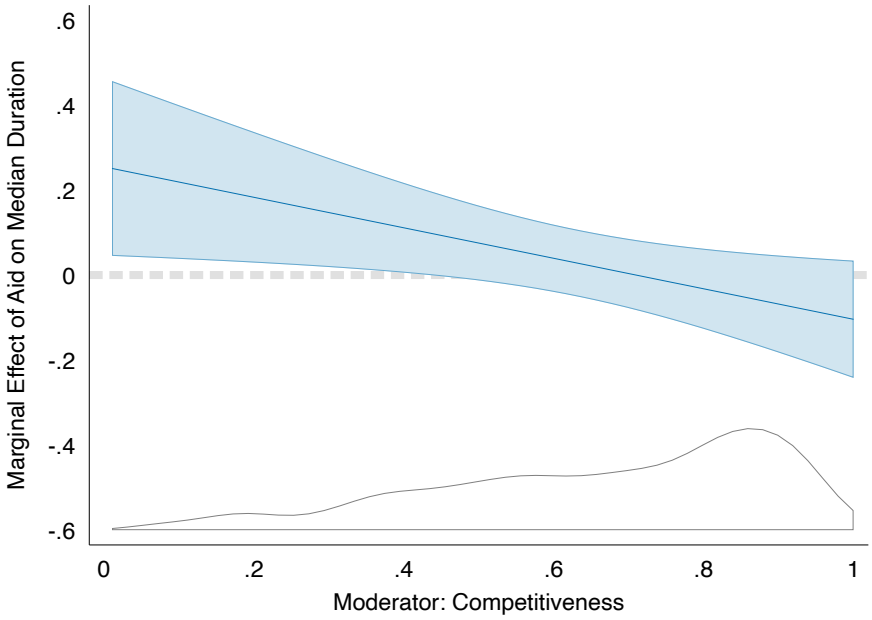
Taken together, the results suggest the aid's delaying effect when elections are lopsided and further validates the moderating role of competitive elections without imposing the linear interaction effect assumption.

Table 1: The Effect of Aid on the Quantity and Time Dimensions of CDF Investment

Outcome	CDF Percent Spent				Duration of CDF Projects			
Treatment	World Bank Aid (per capita)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Aid pc	0.00	0.00	0.02	0.02	0.00	0.01	0.27***	0.25**
	(0.01)	(0.01)	(0.03)	(0.02)	(0.04)	(0.04)	(0.10)	(0.11)
Aid pc × Competitiveness			-0.02	-0.02			-0.39**	-0.36**
			(0.03)	(0.03)			(0.15)	(0.16)
Competitiveness			0.08	0.06			0.75	0.72
			(0.08)	(0.08)			(0.50)	(0.54)
Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Constituency control	✓	✓	✓	✓	✓	✓	✓	✓
MP control		✓		✓		✓		✓
Outcome mean	0.66	0.66	0.66	0.66	3.81	3.81	3.82	3.82
R^2	0.56	0.57	0.57	0.57	0.66	0.66	0.66	0.66
N	1337	1337	1326	1326	1316	1316	1305	1305

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. *CDF Percent Spent* is the ratio of the total disbursements for CDF projects to the total CDF allocation for a constituency. *Duration of CDF projects* is the median duration of all active CDF projects where the duration is computed by the subtraction of disbursement start year from end year. *Aid* is a logged value of the total World Bank aid disbursement per capita. *Competitiveness* is operationalized as $1 - Victory\ Margin$ where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner. Covariates included but not shown across Columns 1-4 are *Log CDF Allocation*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Across Columns 5-8, in addition to those covariates, *Log CDF Disbursement* is included but not shown. MP-minister is not included in the sample. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Figure 2: Conditional Marginal Effects of Aid on the Time Dimensions of CDF Investment by Competitiveness (OLS Estimation)



Notes: The model specification is the baseline OLS model with constituency- and year-fixed effects. The blue solid line represents conditional marginal effects estimated by a conventional linear interaction model. The blue shaded area represents the 95% confidence interval. The kernel density plot at the bottom represents the distribution of the moderator (competitiveness).

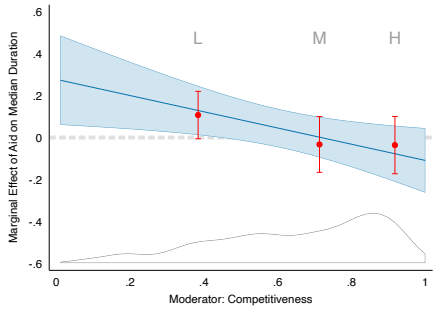
Table 2: The Effect of Aid on the Time Dimension of CDF Investment with High-dimensional Fixed Effects and Matching

Outcome	Duration of CDF projects					
Treatment	World Bank Aid (per capita)					
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A. Outcome: Median Duration					
Aid pc	0.25**	0.28***	0.31***	0.27**	0.28**	0.29**
	(0.11)	(0.11)	(0.10)	(0.11)	(0.11)	(0.13)
Aid pc × Competitiveness	-0.36**	-0.36**	-0.40**	-0.35**	-0.39**	-0.41**
	(0.16)	(0.16)	(0.15)	(0.17)	(0.16)	(0.18)
Competitiveness	0.72	0.73	0.95*	0.40	1.04*	1.46***
	(0.54)	(0.54)	(0.54)	(0.59)	(0.54)	(0.55)
	Panel B. Outcome: Mean Duration					
Aid pc	0.16**	0.15**	0.18**	0.14*	0.14*	0.16*
	(0.07)	(0.07)	(0.07)	(0.08)	(0.08)	(0.09)
Aid pc × Competitiveness	-0.22**	-0.21**	-0.22**	-0.19*	-0.20*	-0.23**
	(0.10)	(0.10)	(0.10)	(0.11)	(0.10)	(0.11)
Competitiveness	0.53	0.53	0.60*	0.29	0.71**	0.95***
	(0.33)	(0.33)	(0.33)	(0.38)	(0.33)	(0.32)
Constituency FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
× Province FE	-	✓	-	-	✓	✓
× MP Party ID FE	-	-	✓	-	-	-
× MP Ethnicity FE	-	-	-	✓	-	-
Sample	Full	Full	Full	Full	Matched	Matched
Outcome mean (Panel A)	3.82	3.82	3.81	3.82	3.87	3.92
R^2 (Panel A)	0.66	0.69	0.69	0.70	0.70	0.73
N (Panel A)	1305	1305	1265	1298	1173	894

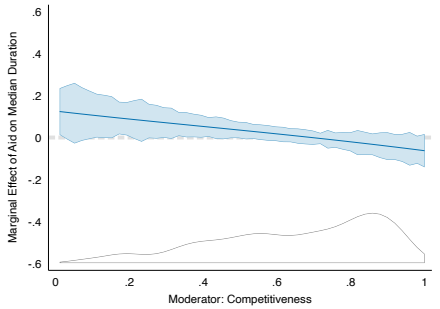
Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. *Duration of CDF projects* is the median (or mean) duration of all active CDF projects where the duration is computed by the subtraction of disbursement start year from end year. *Aid* is a logged value of the total World Bank aid disbursement per capita. *Competitiveness* is operationalized as $1 - $ *Victory Margin* where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner. Covariates included but not shown are composed of the three groups. First, constituency controls: *Log Population*, and *Poverty Rate*. Second, CDF controls: *Log CDF Allocation*, and *Log CDF Disbursement*. Third, MP controls: *Copartisan MP*, *Coethnic MP*, *MP gender*, and *Incumbent MP*. Coarsened exact matching was conducted in Columns 5 (Const. controls) and 6 (Const. and CDF controls), defining the treatment group as constituencies that received foreign aid exceeding the median value. Sturges' rule was used to automatically determine cutpoints for continuous matching covariates, while exact matching was applied to dummy covariates. MP-minister is not included in the sample. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Figure 3: Conditional Marginal Effects of Aid on the Time Dimensions of CDF Investment by Competitiveness (OLS, Binning, and Kernel Estimation)

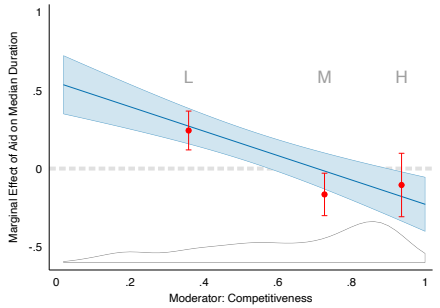
(a) Full sample, OLS and binning estimator



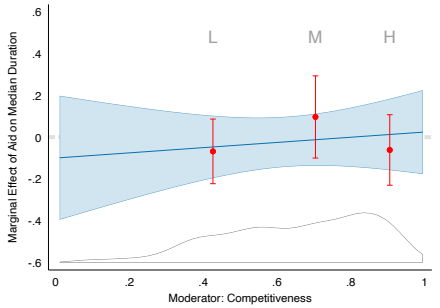
(b) Full sample, kernel estimator



(c) Low-capacity constituency sample, OLS and binning estimator



(d) High-capacity constituency sample, OLS and binning estimator



Notes: The model specification is a conservative one with high-dimensional FEs and matching in Table 2, Column 5. In Panels a, c, and d, the blue solid line represents conditional marginal effects estimated by conventional linear interaction model. The blue shaded area represents the 95% confidence interval. Coefficient plots denoted by red dots and bars are conditional marginal effects estimated based on binning estimator (3 bins), evaluated at the median of each bin. Panel c includes low-capacity constituencies, while Panel d includes high-capacity constituencies, with population density serving as a proxy for local capacity. In Panel b, the blue solid line represents conditional marginal effects based on a kernel smoothing estimator. The blue shaded area represents 95% confidence interval computed by bootstrapping. The manually selected bandwidth is 0.5 for kernel estimation. In all panels, the kernel density plot at the bottom represents the distribution of the moderator (competitiveness).

Table 3: The Conditional Effect of Aid on the Time Dimension of CDF Investment by Local Production Capacity

Outcome	Median Duration of CDF projects							
Treatment	World Bank Aid (per capita)							
Subset	Low Capacity Constituency				High Capacity Constituency			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Aid pc	0.01	0.40***	0.54***	0.55***	-0.02	-0.09	-0.08	-0.10
	(0.06)	(0.12)	(0.10)	(0.10)	(0.06)	(0.17)	(0.16)	(0.15)
Aid pc × Competitiveness		-0.57***	-0.74***	-0.78***		0.11	0.13	0.12
		(0.19)	(0.16)	(0.16)		(0.24)	(0.24)	(0.22)
Competitiveness		1.30*	1.57**	1.82***		-0.27	-0.24	-0.11
		(0.70)	(0.62)	(0.62)		(0.79)	(0.71)	(0.70)
Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
× Province FE	-	-	✓	✓	-	-	✓	✓
Sample	Full	Full	Full	Matched	Full	Full	Full	Matched
Outcome mean	3.76	3.76	3.76	3.84	3.87	3.88	3.88	3.90
R^2	0.65	0.65	0.70	0.70	0.69	0.69	0.73	0.75
N	681	676	676	567	616	610	610	588

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. *Duration of CDF projects* is the median duration of all active CDF projects where the duration is computed by the subtraction of disbursement start year from end year. *Aid* is a logged value of the total World Bank aid disbursement per capita. *Competitiveness* is operationalized as $1 - Victory\ Margin$ where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner. Covariates included but not shown are composed of the three groups. First, constituency controls: *Log Population*, and *Poverty Rate*. Second, CDF controls: *Log CDF Allocation*, and *Log CDF Disbursement*. Third, MP controls: *Copartisan MP*, *Coethnic MP*, *MP gender*, and *Incumbent MP*. Coarsened exact matching was conducted in Columns 4 and 8 (Const. controls), defining the treatment group as constituencies that received foreign aid exceeding the median value. Sturges' rule was used to automatically determine cutpoints for continuous matching covariates. MP-minister is not included in the sample. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Robustness Check

The results reported in the previous section are also robust to using alternative measures of the outcome and the treatment, alternative samples, and alternative coding decisions of MP characteristics. Tables E6 and E7 in the SI show that the main results hold even when weighting aid projects without exact geographic locations by other ratios, such as the constituency area and the population in poverty. As the results in Table E8 suggest, the aid's delay effect is observed in the 30th, 40th, 50th, 60th, and 70th percentiles of the CDF project's duration. Table E9 suggests that the aid's delay effect is robust to different coding decisions of coethnic and copartisan MPs. Table E10 alleviates concerns that the delay effect may be driven by a specific time period, such as 2003 (the start year of the CDF) and 2007 (the election year).

Mechanism

The main results suggest that foreign aid does not significantly undermine the responsiveness of local politicians. The aid is not associated with both dimensions of politician effort. However, the results imply that aid might have unintended consequences, such as the implementation-delay effect, when elections are not competitive. Implementing foreign aid and CDF projects requires the same sources of procurement at the local level: goods, labor, and services. This means that aid projects could place constraints on local production capacity and delay the implementation of CDF projects. Table 3 shows that the conditional effect of aid by the degree of electoral competitiveness is primarily driven by low local capacity constituencies (Columns 1-4), for which I used population density as a proxy measure. Such a conditional effect is not present in high production capacity constituencies (Columns 5-8). In Figure 3, Panels c and d show the conditional marginal effects of aid by competitiveness in low capacity and high capacity constituencies, respec-

tively. Both the OLS (blue line and shaded areas) and binning estimates (red dots and bars) in Panel c suggest that the delaying effect exists only in low capacity constituencies. Taken together, in rural areas where aid could substantially increase the marginal cost of production, aid projects overburden local capacity and delay the CDF projects. However, local politicians exert effort to dampen the negative effect when participating in competitive elections.

Alternative Explanations

In this section, I examine a range of plausible explanations for the null effect in the quantity dimension of politician effort and the aid's conditional effect on the time dimension of effort.

Efficiency concerns. Efficiency or equity concerns might drive substitution *across* sectors or *spatial* substitution within a constituency (Jablonski and Seim 2023; Seim, Jablonski, and Ahlbäck 2020), respectively, while not affecting the total amount of CDF disbursement. This is consistent with the null finding on the quantity dimension of effort. If the new CDF projects take a longer time to implement, this could lead to delays in CDF project implementation. Specifically, I examine the possibility of substitution across sectors.[34] I do not find strong evidence of heterogeneous effects by sector on either foreign aid or Kenyan CDF spending (Tables F1–F3). Since most CDF projects were in the education sector (Opalo (2022); Figure C18), Table F4 examines the effect of sectoral aid on education-related CDF expenditures. These results suggest little to no substitution across sectors.

MP lobbying. Some of these local politicians may be successful in lobbying the central government and aid agencies to allocate development aid programs in their constituencies (Lindberg 2010, p. 121). Those powerful MPs might drive more foreign aid

allocations and slower implementation speed of CDF projects at the same time due to their lobbying effort. To test this MP-lobbying hypothesis, I estimate OLS models with an interaction term between aid and MP characteristics, where I examine whether the effect of aid is moderated by MP characteristics such as incumbency, copartisanship, and coethnicity in Table F5. The results lend only limited evidence in favor of the explanation.

Clientelism. The ruling party's clientelism strategy could be an alternative explanation. The incumbent government might bias aid allocation in favor of their core supporters or coethnic voters before the election. And as Williams (2017, 712–3) suggests, the incumbent government (in this case, MPs from the ruling party) would deliberately delay their CDF projects because voters cannot credibly commit to reward development projects with votes. As long as voters believe the incumbent is more likely to complete her unfinished projects than her challenger, the incumbent MP has incentives to leave projects incomplete intentionally before the election to make citizens vote for her. In Table F6, I test whether aid's delaying effect is pronounced in the election year. The analyses leveraging the year 2007 in the data set offer only limited evidence for the clientelism hypothesis.

Aid workers' career incentives. Briggs (2021) highlights the role of aid workers' career incentives in the selection and implementation of development aid projects, focusing on Task Team Leaders (TTLs) at the World Bank. Rather than MPs exerting lower effort under weak electoral competition, it is possible that aid workers exert greater effort in delivering aid to rural areas, which could, in turn, place additional pressure on local production capacity and delay the implementation of CDF projects. Unfortunately, the absence of project-level data on TTLs and suitable measures of their effort levels prevents a direct test of this hypothesis. Nonetheless, the implications of aid workers' career incentives for public goods provision by local politicians present an important and promising avenue for future research.

Discussion

In this article, I investigate whether foreign aid undermines the responsiveness of local politicians in aid-recipient countries. Specifically, I hypothesize that foreign aid would weaken legislator's efforts for local public goods provision in both the quantity and time dimensions while electoral competition would dampen such negative effects. In contrast to existing predictions, I find that foreign aid is not associated with the quantity and speed of local public goods provision. However, I also find that at low levels of competition (the 33rd percentile), doubling foreign aid delays Kenyan CDF projects by two weeks, but this effect disappears in competitive races. The conditional effect of aid is primarily driven by low capacity constituencies, suggesting that aid inflow can unintentionally strain local production capacity in rural areas. The slight delay effect is compensated for by politicians' efforts who are facing electoral uncertainty.

This study's findings suggest that voters may be less prone to mistakenly attribute credit to politicians than previously thought (e.g., Cruz and Schneider 2017 and Guiteras and Mobarak (2015)). While my analysis does not directly measure voter attribution, the results raise the possibility that local politicians' attempts to claim credit for foreign aid could be less effective than often assumed. This may be due to two reasons: voters' *information* about politicians and voters' beliefs about politicians' *actual involvement* in aid projects. This is consistent with what Baldwin and Winters (2023) and Springman (2022) find in Uganda. First, it is possible that voters have sufficient information (even though it is incomplete) about their local representatives, such as MPs, to judge those politicians' performance. In Kenya, extensive media coverage of MPs' activities could have contributed to this, though the extent to which this influences voter behavior remains an open question. Anecdotal evidence suggests that the public recognized the CDF as "MPs' money," and many pundits encouraged voters to hold MPs accountable for their CDF spending patterns.

Under these circumstances, MPs might have found that slacking off was too risky for their electoral success. However, the degree to which voter knowledge constrains MPs' behavior requires further investigation.

Second, when information is insufficient, voters may rely on their general knowledge about the role of politicians in attracting and overseeing aid projects. That is, they might be less likely to attribute credit to politicians from the legislative office (MPs and local councillors) than politicians from the executive office (mayors and district executives). This is because they believe the former has lower aid oversight capacity than the latter (Baldwin and Winters 2023). In a similar vein, it is also possible that incumbent presidents could "automatically receive credit," but local politicians may struggle because voters believe only the presidents have significant influence over aid delivery (Springman 2022, p. 535). In sum, voters' information about the CDF and beliefs about MPs' involvement in foreign aid delivery could be the key reasons politicians' credit claims were mostly unsuccessful in the Kenyan context. Yet, more direct evidence on voter attitudes and perceptions is needed to fully evaluate this mechanism.

Though I examine the Kenyan case, qualitative evidence reports local politicians' credit-claiming strategies across many developing countries, such as the Philippines, Sierra Leone, Uganda, and Iraq (Cruz and Schneider 2017). Despite those politicians' free riding efforts, the findings presented in this study suggest that not all credit-claiming strategies are successful, and voters' credit misattribution is not as widespread as previously believed (Guiteras and Mobarak 2015). Specifically, Baldwin et al. (2023) find that in Malawi, Nigeria, Senegal, and Uganda, voters do not give credit to governments when they are well informed, and government offices have low aid oversight capacity. Their result implies that this study's finding would hold in other developing countries, especially among elected representatives, due to (1) increasing access to information about local politicians and (2) voter belief about their limited role in aid delivery and oversight.

I conclude by discussing this study's key implications for research on foreign aid and political responsiveness in developing countries. First, the study offers more optimistic evidence regarding the crowd-out effects of aid compared to previous studies. I find that foreign aid does not significantly undermine the responsiveness of elected politicians in recipient countries, because voters might not mistakenly attribute credit to those politicians (Baldwin et al. 2023; Springman 2022). It also complements previous research on the effect of aid on local politicians' behaviors. Development aid does not reduce the amount politicians spend. Neither does it encourage them to spend "freed-up" resources to more politically important places (Seim, Jablonski, and Ahlbäck 2020; Jablonski and Seim 2023). Taken together, the substitution between foreign aid and local politician effort is less concerning than expected.

Second, however, my study also demonstrates the aid's (small) adverse effect on the speed of local public goods provision due to overburdened local production capacity. By doing so, this article joins a small but growing literature (e.g., Williams 2017) focusing on the speed of implementation and completion of projects, which has far-reaching implications for the welfare of local citizens. More broadly, these findings emphasize the need to consider multiple aspects of politicians' efforts when assessing the effects of external interventions. While this study focuses on constituency service, legislators must navigate trade-offs among various responsibilities, including representation, lawmaking, and executive oversight (Ofosu 2024, 2019; Opalo 2022; Lindberg 2010). Future research could explore how fiscal windfalls, such as foreign aid, influence these broader legislative and oversight functions, extending beyond their impact on local service delivery.

Third, consistent with many other studies, I find positive effects of electoral competition on political responsiveness (e.g., Grossman and Michelitch 2018). In this sense, party strongholds in aid-dependent countries could suffer from *double* political curses: As Keefer and Khemani (2009) show, local politicians pass on pork in their party strongholds

(regardless of aid) and have fewer incentives to exert effort to offset the aid's delaying effect on local project implementation.

Endnotes

1. Since 2000, development funds similar to Constituency Development Funds (CDFs) have been implemented in numerous developing countries, including India, Ghana, Malawi, Tanzania, and Zambia, among others (Rivera 2020, fn 2). For studies on CDFs in specific contexts, see Malik (2021) on Pakistan, Jensenius and Chhibber (2023) on India, Asunka (2017) and Ofosu (2019) on Ghana, and Barkan and Mattes (2014) on Africa. Baskin (2014) provides a broader overview of CDFs across different countries.

2. Harris and Posner (2019) make the same argument, especially for the period of 2003-07.

3. See Table 1 in Baldwin and Winters (2023) for a detailed review on this topic.

4. Baldwin and Winters (2023, p. 15) also find that compared to other local politicians, MPs are more likely to claim credit for aid projects in Uganda.

5. A related body of literature investigates the effect of aid on government legitimacy, and largely finds that foreign aid does not undermine state legitimacy (Blair and Roessler 2021; Dietrich and Wright 2015; Baldwin and Winters 2020).

6. Even when they find a substitution between aid and central government spending, it does not directly speak to political responsiveness because changes in spending might be due to other factors, such as tax collection and domestic and foreign borrowing (Morrissey 2015).

7. I document more qualitative evidence supporting my argument regarding the Kenyan CDF in Appendix A in the Supporting Information (SI).

8. "MPs Lose Control of Sh1.2bn Fund For Constituencies," the Daily Nation, August 27, 2004 (Accessed on December 29, 2020)

9. See "MP Should Stop Their Greed For Cash," the Daily Nation, August 26, 2007 (Accessed on December 30, 2020) and; "Damning Reports On Constituency Funds," the Daily Nation, February 10, 2007 (Accessed on December 30, 2020).

10. The list of such news coverage is endless; for example, "Anti-Fraud Officers Probe CDF's Sh23 Million Theft," the East African Standard, October 26, 2006 (Accessed on December 31,

2020); " Funds Go to Waste As CDF Projects Stall," the Daily Nation, July 21, 2008 (Accessed on December 31, 2020). See "Why CDF Act Might Be Next Frontier of Corruption," the Daily Nation, July 26, 2006 (Accessed on December 31, 2020) for the analysis of the loopholes in the CDF Act;

11. As cited in Table 3.4 in Ndii (2014). The original source is the National Taxpayers Association, "CDF Citizen Report Cards." The audit sample was comprised of 2607 projects funded by the CDF in 35 constituencies out of 210. While 23 constituencies cover only FY06/07, the other 12 cover FY06/07 and 07/08. The audit was done by physical visits to all sampled projects sites and their results were evaluated by independent professionals (Ndii 2014).

12. This required constitutional reform at that time and involved further decentralization. The proposed government also was known as a *majimbo* system. See more details in "Majimbo: What On Earth Does It Mean?," the Daily Nation, October 21, 2007 (Accessed on December 30, 2020). The Kibaki regime claimed that the CDF, among others, already fulfilled the decentralization of public resources. See "PNU Advocates CDF As Vehicle For Faster Growth," the Daily Nation, October 24, 2007 (Accessed on December 30, 2020); "Does CDF Help Devolution," the Daily Nation, September 29, 2007 (Accessed on December 30, 2020).

13. "New System to Track Public Funds," the East African Standard, September 5, 2007 (Accessed on December 31, 2020).

14. "Nyeri Town CDF Team Dissolved Over Scam," the East African Standard, August 23, 2007 (Accessed on December 31, 2020).

15. "210 CDF Managers to Be Hired," the East African Standard, January 31, 2007 (Accessed on December 31, 2020).

16. "MPs Seeking More Say Over Use of Funds," the Daily Nation, November 28, 2006 (Accessed on December 31, 2020)

17. "Court Freezes CDF Accounts in Malava," the Daily Nation, September 6, 2007 (Accessed on December 31, 2020); "Court Stops MP From Releasing Project Money," the East African Standard, November 18, 2004 (Accessed on December 31, 2020).

18. For example, see "Board Cancels CDF Tenders," the Daily Nation, May 24, 2005 (Accessed

on December 30, 2020).

19. "Study Finds Fault In Allocation Criteria For CDF," the Sunday Nation, October 11, 2008 (Accessed on December 21, 2020).

20. See also Awiti (2008), Institute For Social Accountability (2011), and Ndii (2014) for more evidence.

21. For example, see "Seven Could Miss Sh10bn CDF Bonanza," the Daily Nation, September 26, 2006 (Accessed on December 29, 2020).

22. "Seven Could Miss Sh10bn CDF Bonanza," the Daily Nation, September 26, 2006 (Accessed on December 29, 2020).

23. "MP Accuses Ministry of Delaying Projects," the Daily Nation, February 7, 2006 (Accessed on December 29, 2020).

24. See more details about their geocoding methodology in their Online Appendix C.

25. For more details, see Appendix B in the SI.

26. Unfortunately, to my knowledge, there is no geocoded foreign aid data from other donors. That being said, Briggs (2020) suggests that studies relying on single donor, especially the World Bank, are generalizable across donors.

27. See more details about coding procedures in Appendix B in the SI.

28. Gender information for MPs during 2007-2012 is available in Harris and Posner (2019).

29. More details on the data collection procedure is available in Appendix B in the SI.

30. For the duration of CDF projects, I also include the CDF disbursement amount.

31. See Appendix B for a discussion of potential causes of such data anomalies.

32. Results are robust to including minister-MPs (See the SI).

33. The estimated size of the effect is 0.10, with a 95% confidence interval of (-0.01, 0.22).

34. Unfortunately, I cannot systematically investigate the possibility of spatial substitution due to data limitation–not all aid projects are geocoded.

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Supporting Information

Does Foreign Aid Undermine Political Responsiveness?
Evidence from Kenya

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A Measuring Politician Effort

In this section, I document qualitative evidence supporting my arguments in the main body of the paper. Two most cited sources are local newspapers: the Daily Nation and the East African Standard.

- The sole beneficiary of an MP's effort in disbursing the CDF was her own constituency: For example, the 2003 CDF Act requires that "[p]rojects under this act" be "community based" so that "prospective benefits are available to a widespread cross-section of the inhabitants of a particular area" where community means "residents of a particular geographical area or region defined as a constituency, location, or sub location and having common interests." (Government of Kenya 2003)

- The list of CDF Committee members includes an elected MP; local bureaucrats, such as councilors and a district officer; religious organization representatives; an active local-NGO nominee; and representatives of local residents (men, women, youth); among others (Government of Kenya 2003).

- In theory, the MP's nominations must be approved by the National CDF Board (Awiti 2008). Yet, in practice the CDF Committee is usually filled with the MP's friends, relatives, and cronies (Kenya Human Rights Commission 2006). In addition, the MP has a statutory role as chair of the committee and submits CDF proposals to the National CDF Board, which is required to review and approve them by the law (Government of Kenya 2003).

- This is a direct quote from a respondent in Samburu during a survey: "many folks [...] do not even know the difference between the MP's money (CDF) and the councilor's money (LATF)" (Francis, Nekesa, and Ndungu 2009, pp. 31-32). The results of a representative survey conducted by the Kenya Human Rights Commission in 2006 are also largely consistent with the respondent's perception: 65% of respondents answered that their MP is in charge of the CDF and only 22% responded that the CDF Committee made decisions regard-

ing the CDF among 2,399 Kenyan respondents who were informed of the CDF prior to the survey (Kenya Human Rights Commission 2006) as cited in Harris and Posner (2019). For a list of civil organizations that share a similar (critical) perspective about the MP's role in CDF, see p. 12 of Institute For Social Accountability (2011).

- Local media and government officials also treated the CDF as MPs' own budget. For example, see "Watch MPs On the Funds," the Daily Nation, April 2, 2005 (Accessed on December 29, 2020).

- The NMC consists of four Permanent Secretaries of the government ministry (top civil servants) and eight other members from the civil society and private sectors who are nominated by the Minister of Finance. See Government of Kenya (2003, Section 5) and "Why CDF Act Might Be Next Frontier of Corruption," the Daily Nation, July 26, 2006 (Accessed on December 31, 2020) for more details.

- A failure to meet requirements set by the NMC led to the denial of the transfer of allocated funds by the Committee, unanimously resulting in delays of the disbursement: "16 MPs Miss Development Funds Due to Negligence," the Daily Nation, July 25, 2005 (Accessed on December 28, 2020); "100 Constituencies Risk Missing Out On CDF Cash," the Daily Nation, November 25, 2007 (Accessed on December 28, 2020); "80 MPs Yet to Form CDF Committees," The East African Standard, March 20, 2008 (Accessed on December 28, 2020); "CDF Doles Ready," the Daily Nation, August 13, 2008 (Accessed on December 29, 2020).

- Many Kenyans were aware of the CDF and the political cost of keeping the CDF allocation unused was not negligible: The Round 3 Afrobarometer survey in 2005 yielded a similar result: 70% of the respondents had heard of the CDF though only 56% of them were aware of any actual projects funded by the CDF in their constituency (Odhiambo, Obala, and Sentamu 2006, Question 89A and 89B).

- Local media and experts associating the investment patterns of CDFs (almost) exclusively

with MPs' efforts: How much and how effectively they spent the funds were considered as one of the key criteria by which voters could judge an MP's performance before the election (Ndii 2014; Gutiérrez-Romero 2013). For example, the head of the Anglican Church of Kenya urged voters to vote out MPs who failed to deliver constituency services using the CDF.[1] MP Moses Akaranga, Public Service minister, claimed that the "professionalism of MPs" would be probed by examining their CDF records.[2] Similarly, a columnist wrote "[h]ow he [MP Raila Odinga] has used CDF money, for example, may indicate how he would manage the economy."[3] Finally, a Kenyan Harvard professor argued that the CDF is a "powerful instrument" for voters "against which they can judge MP's performance" (Juma 2007). Unsurprisingly, a poll commissioned by the US-based International Republican Institute suggested that most Kenyans linked their MP's performance to their work with the CDF among others.[4]

- In fact, such an allocation formula led some MPs to publicly denounce the "unfair" division of the funds in order to claim more CDF allocation for themselves.[5] Yet their attempts were proven to be largely unsuccessful and the *ex ante* nature of the allocation had not been changed (Harris and Posner 2019, fn 12).[6]

- Local media coverage on the CDF is skewed toward the utilization and non-utilization of the funds by some notable MPs rather than their completion of CDF projects, suggesting that providing information about the former would have been more useful to the voters: Just to

1. "Vote Out Non-Performing Leaders, Says Cleric," the East African Standard, July 11, 2006 (Accessed on December 29, 2020).

2. "Call to Put MPs On Performance Contracts," the Daily Nation, June 26, 2006 (Accessed on December 31, 2020).

3. "The Watchman," the Daily Nation, October 15, 2007 (Accessed December 29, 2020).

4. "Most MPs Might Lose Seats If Polls Were Held Today," the East African Standard, November 27, 2006 (Accessed on December 29, 2020).

5. For example, see "Another MP Rejects Funds Allocation," the Daily Nation, September 18, 2020 (Accessed on December 29, 2020). Some MPs also pressured the Kenya National Bureau of Statistics into shelving official statistics indicating improvement in poverty rates. See "Study Finds Fault In Allocation Criteria For CDF," the Sunday Nation, October 11, 2008 (Accessed on December 21, 2020).

6. The Planning minister in 2008 decided to continue to use old 1999 Census data for 08/09 allocation to avoid accusations over "unfair" allocation. See "Balala Rejects Share of CDF Allocation," the Daily Nation, September 17, 2008 (Accessed on December 29, 2020) Even if they were, it affects only a portion of the total allotment (Harris and Posner 2019, fn 12). It also leads to underestimating the level of effort, especially, of hard-working legislators thereby causing bias against estimating the impact of aid on legislator effort assuming effort has a positive impact on poverty rates.

name a few: “Plans on CDF Use And Eldeffrs’ Word Hold Key to Galole Seat,” the Daily Nation, April 14, 2007 (Accessed on December 30, 2020); “Showdown Looms In Kuria District,” May 8, 2007 (Accessed on December 30, 2020); “Ndwiga Favourite As He Seeks Fourth Term,” the Daily Nation, April 21, 2007 (Accessed on December 30, 2020); and “For Tuju, the Road Back to Parliament is Not So Smooth,” the Daily Nation, April 8, 2007 (Accessed on December 30, 2020).

B Data

Variable	Data Source
Panel A. Treatment variables and outcomes	
Log Aid Disbursement	AidData (2017)
Log CDF Disbursement	Harris and Posner (2019)
Percentage of CDF Spent	Harris and Posner (2019)
Duration of CDF Projects	Computed by the author based on Harris and Posner (2019)
Number of Disbursements for CDF Projects	Computed by the author based on Harris and Posner (2019)
Panel B. Covariates	
CDF Sector	Coded by the author based on Harris and Posner (2019)
Aid Sector	Coded by the author based on AidData (2017)
Log CDF Allocation	Harris and Posner (2019)
Log Total CDF Disbursement	Harris and Posner (2019)
Log Number of CDF Projects	Harris and Posner (2019)
Victory Margin	Coded based on Constituency-Level Elections Archive (CLEA) (Kollman et al. 2019)
Competitiveness	Computed based on Victory Margin
Ethnic Factionalization (ELF)	Jablonski (2014)
Log Population Density	Jablonski (2014)
Poverty Rate	Jablonski (2014)
Log Land Area	Jablonski (2014)
Infant Mortality Rate	Jablonski (2014)
Log Tax Revenue	Jablonski (2014)
MP Copartianship	Coded based on Constituency-Level Elections Archive (CLEA) (Kollman et al. 2019)
MP Gender	Collected by the author
MP Incumbency	Coded based on Constituency-Level Elections Archive (CLEA) (Kollman et al. 2019)
MP Coethnicity	Collected by the author
MP Ministership	WhoGov data set (version 1.1) (Nyrup and Bramwell 2020)

Data Anomalies in the Kenyan CDF data set. Andy Harris at New York University Abu Dhabi provided detailed explanations about potential causes of data anomalies in his Kenyan CDF data set, drawing upon his field work and interviews with the local CDF officials in Kenya. The most likely cause of those data inconsistencies lies in lack of competence (or care) among local officials responsible for maintaining and submitting the CDF project records to the national CDF board. In a nutshell, the quality of financial records was poor especially in the early days of the CDF. It is possible that MPs decided to reallocate some of the CDF disbursements to other CDF projects and, along that process, the amount of those disbursements could have been recorded redundantly or miscalculated. Alternatively, the total CDF disbursement amount could be greater than its allocation amount simply because of data entry error. This is consistent with the fact that these anomalies are concentrated in 2003, the first year of the CDF implementation (see Figure C5). It is also possible that the CDF officials delayed the disbursement of the unspent portion of the CDF allocation from the previous FY and such practices led to the CDF percentage greater than one. Yet it is impossible to pin down the exact cause of those data inconsistencies.

How to Code MP Ethnicity. To code MP ethnicity, I hired two Kenyan research assistants via Upwork, an online freelancing platform. One of them worked as a researcher and a campaigner for the Orange Democratic Movement (ODM) Party in Kenya during the 2007 election. I then asked them to code the ethnicity of Kenyan MPs using their knowledge and a range of information available to them, such as an MP's first and last name, her constituency and province, and her party affiliation at the time of election. In case they were not sure about their choice of coding for some politicians, they were encouraged to search for records from local media about them and consult their acquaintances who know well about those legislators. Among 420 MPs, they disagreed upon the ethnicity of 29 MPs (i.e., nearly 93% of agreement across two coders). To further validate the MP ethnicity data set, I reached out to two experts on Kenyan Politics: Dr. Charles Hornsby, the author of *Kenya: A History Since Independence* (2012) and Dr. Richard Bosire at the University of Nairobi. They generously helped me to resolve the discrepancies among two coders and to identify miscoded MPs by sharing their feedback on the working data set.

How to Code Aid. The table below, copied from Strandow et al. (2011), shows the precision categories used for the UCDP/AidData codebook and which categories I included in my sample.

Precision code	Included?	Description
1	Yes	The coordinates corresponds to an exact location, such as a populated place or a hill.
2	Yes	The location is mentioned in the source as being "near", in the "area" of, or up to 25 km away from an exact location. The coordinates refer to that adjacent, exact, location.
3	Yes	The location is, or is analogous to, a second order administrative division (ADM2), such as a district, municipality or commune.
4	Yes	The location is, or is analogous to, a first order administrative division (ADM1), such as a province, state or governorate.
5	Yes	The location can only be related to estimated coordinates, such as when a location lies between populated places; along rivers, roads and borders; more than 25 km away from a specific location; or when sources refer to parts of a country greater than ADM1 such as a National Park which spans across several provinces
6	No	The location can only be related to an independent political entity, meaning the pair of coordinates that represent a country. This includes aid that is intended for country-wide projects as well as larger areas that cannot be georeferenced at a more precise level.
7	No	Unclear. The country coordinates are entered to reflect that subcountry information is unavailable.
8	No	The location is estimated to be a seat of an administrative division (local capital) or the national capital.

Following Jablonski (2014), I add up the disbursement amount of each project distributed to a constituency as below (I omit t which denotes the year for simplicity).

$$Y_{\text{const}} = \sum_{i \in \text{const}} (P1_i + P2_i) + \sum_{j \in \text{const}} P3_j \times \frac{\text{Pop}_{\text{const}}}{\text{Pop}_{\text{dstrct}}} + \sum_{k \in \text{const}} (P4_k + P5_k) \times \frac{\text{Pop}_{\text{const}}}{\text{Pop}_{\text{prvnc}}}$$

where Y_{const} is the total amount of aid for a constituency, $dstrct$ represents a district (ADM2), and $prvnc$ represents a province (ADM1). i, j, and k are the subscripts for three categories of the World Bank projects with precision 1 and 2; precision 3; and precision 4 and 5, respectively. For the projects distributed at either district or province level, I assume that it was distributed proportional to the population ratio for each constituency within those upper-levels of administrative unit. I also use the constituency area ratio and population in poverty ratio for robustness checks.

Table B1: Difference in Means T-Test Result Across Geocoded and Non-geocoded Projects

Variable	Mean		Estimate	CI Lower	CI Upper	t-stat	Std. Err.	p-value
	Geocoded	Non-Geocoded						
Total Commitments (log)	18.21	17.56	0.66	-1.1	-0.21	-3.04	0.22	0.01
Total Disbursements (log)	17.75	17.37	0.38	-0.84	0.07	-1.74	0.22	0.09
Total Disbursements (log, imputed)	17.84	17.22	0.62	-1.15	-0.09	-2.4	0.26	0.02
Duration	6.85	7	-0.15	-1.01	1.3	0.26	0.57	0.79
Education	0.05	0.1	-0.05	-0.06	0.16	1	0.05	0.33
Health	0.01	0.16	-0.15	0.02	0.28	2.31	0.07	0.03
Water	0.1	0.01	0.09	-0.12	-0.07	-7.13	0.01	0
Transport	0.14	0.04	0.1	-0.18	-0.02	-2.43	0.04	0.02
Energy	0.22	0.08	0.14	-0.25	-0.02	-2.45	0.06	0.02
Agriculture	0.27	0.15	0.11	-0.25	0.02	-1.77	0.06	0.09
Other	0.22	0.46	-0.24	0.07	0.41	2.98	0.08	0.01
N	423	25						

Notes: The results are obtained by running a Welch Two Sample t-test with the two-sided alternative hypothesis and the unequal variance assumption. The unit of analysis is the World Bank project and the sample contains the projects that began, were under implementation, ended at some point during 2003-2010 (inclusive). *Not Geocoded* refers to lacking the exact geographic location information (i.e., the precision code greater than 6). *Total Disbursements (log, imputed)* is obtained by assuming that the Bank disbursed 95% of their total commitments to the projects without the disbursement information. *Total Disbursements (log)* is the data without imputation. The figure 95.04% is obtained by computing the ratio of the total disbursements to the total commitments for all complete projects in Kenya in the data set. *Duration* is computed by the difference between transaction start and end year. The variables indicating sector such as *Education* shows the sectoral composition of a project.

Keywords for CDF Sector Classification. The CDF data set (Harris and Posner 2019) already provides sector information for the following three sectors: education (denoted by "S" as in School), health ("H"), and water ("W"). However, I did not use the existing information and manually classified the project sector based on its name. The following table offers some keywords in the project name based on which I categorize its sector. In the actual data set, there exist many typos and acronyms such as DO (Division Officer) and DICECE (District Centres for Early Childhood Education).

CDF		
Sector Name	Sector Code	Keyword[1]
ADMINISTRATION	A	ADMIN OFFICE
ADMINISTRATION	A	ADMINISTRATION POST
ADMINISTRATION	A	CHEIFS CAMP
ADMINISTRATION	A	CHIEFS OFFICE
ADMINISTRATION	A	DISTRICT OFFICES
ADMINISTRATION	A	DOS OFFICE
ADMINISTRATION	A	DOS RESIDENCE
ADMINISTRATION	A	FURNISHING
ADMINISTRATION	A	MOTOR BIKE
ADMINISTRATION	A	OFFICE EQUIPMENTS
ADMINISTRATION	A	OFFICE RENOVATION
ADMINISTRATION	A	TOWN COUNCIL
ADMINISTRATION	A	VEHICLE
AGRICULTURE	AG	AGRICULTURE
AGRICULTURE	AG	AGROFORESTRY
AGRICULTURE	AG	AQUACULTURE
AGRICULTURE	AG	BOAT
AGRICULTURE	AG	BUSH CLEARING
AGRICULTURE	AG	CATTLE DIP
AGRICULTURE	AG	COEFFEE FACTORY
AGRICULTURE	AG	COMM FARMING
AGRICULTURE	AG	COTTAGE
AGRICULTURE	AG	FARMERS GROUP
AGRICULTURE	AG	FISHING
AGRICULTURE	AG	GRADER
AGRICULTURE	AG	HORTICULTURE
AGRICULTURE	AG	PREPROCESSING FACTORY
AGRICULTURE	AG	SILO

1. Note that I do not provide a comprehensive list of the keywords here. These keywords are a subset of the list and are presented to help readers get a sense of how the author classified the CDF sector based on the CDF name or description information.

AGRICULTURE	AG	TEA BUYING CENTRE
AGRICULTURE	AG	TRACTORS
AGRICULTURE	AG	TRANSFORMER
AGRICULTURE	AG	WILDLIFE FENCE
CONSTRUCTION	C	CENTRE REPAIR
CONSTRUCTION	C	CHILDREN S HOME
CONSTRUCTION	C	COMMUNITY CENTRE
CONSTRUCTION	C	CULTURAL CENTRE
CONSTRUCTION	C	GARBAGE
CONSTRUCTION	C	GUARDIAN HOME
CONSTRUCTION	C	ICT CENTRE
CONSTRUCTION	C	MARKETS
CONSTRUCTION	C	ORPHANAGE
CONSTRUCTION	C	PLAYGROUNDS
CONSTRUCTION	C	REHABILITATION CENTRE
CONSTRUCTION	C	SALEYARD
CONSTRUCTION	C	SHOPPING CENTRE
CONSTRUCTION	C	SOCIAL HALL
CONSTRUCTION	C	STADIUM
CONSTRUCTION	C	TOWN CENTRE
EDUCATION	E	ACADEMY
EDUCATION	E	ADULT CENTRE
EDUCATION	E	CHILD DEVELOPMENT CENTRE
EDUCATION	E	CHILDRENS HOME
EDUCATION	E	DICECE
EDUCATION	E	EDUCATION OFFICE
EDUCATION	E	PRESCHOOL
EDUCATION	E	PRIMARY
EDUCATION	E	SCHOOL
EDUCATION	E	SECONDARY
EDUCATION	E	SPECIAL UNIT
EDUCATION	E	TRAINING CENTRE
EDUCATION	E	VOCATIONAL TRAINING
ENERGY	EN	ELEC PROJECT
ENERGY	EN	ELECTRIFICATION
ENERGY	EN	GENERATOR
ENERGY	EN	HYDRO POWER
ENERGY	EN	PIPELINE
ENERGY	EN	POWER
ENERGY	EN	SOLAR
HEALTH	H	DISPENSARY
HEALTH	H	HEALTH CENTRE
HEALTH	H	LATRINE
HEALTH	H	MEDICAL CENTRE
HEALTH	H	PHARMARCY
HEALTH	H	RED CROSS
HEALTH	H	SANITATION

HEALTH	H	TOILETS
POLICING	P	ADMINISTRATION POLICE
POLICING	P	PATROL BASE
POLICING	P	POLICE HOUSE
POLICING	P	POLICE LINE
POLICING	P	POLICE POST
POLICING	P	POLICE STATION
POLICING	P	PRISON
POLICING	P	SECURITY POST
TRANSPORT	T	AIR STRIP
TRANSPORT	T	BRIDGES
TRANSPORT	T	BUS
TRANSPORT	T	BUS SHADES
TRANSPORT	T	CATCHMENTS
TRANSPORT	T	CROSSING
TRANSPORT	T	FOOT BRIDGE
TRANSPORT	T	FOOT PATH
TRANSPORT	T	GABION
TRANSPORT	T	GARAGE
TRANSPORT	T	JUNCTION
TRANSPORT	T	ROAD DRIFT
TRANSPORT	T	ROADS
TRANSPORT	T	ROCK CATCHMENTS
TRANSPORT	T	STREETLIGHTS
TRANSPORT	T	TERMINUS
WATER	W	BORE HOLE
WATER	W	DAMS
WATER	W	SEWERAGE
WATER	W	WAETR PROJECT
WATER	W	WATER POINT
WATER	W	WELL

World Bank		CDF[2]
Sector Code	Sector Name	Sector Name
AZ	General agriculture, fishing and forestry sector	agriculture
AB	Agricultural extension and research	agriculture
AJ	Animal production	agriculture
BL	Public administration- Agriculture, fishing and forestry	agriculture
AT	Forestry	agriculture
YA	Agro-industry, marketing, and trade	agriculture
AH	Crops	agriculture
EP	Primary education	education
EV	Vocational training	education
EC	Pre-primary education	education
ET	Tertiary education	education
ES	Secondary education	education
EZ	General education sector	education
EL	Adult literacy/non-formal education	education
LZ	General energy sector	energy
LG	Thermal Power Generation	energy
LT	Transmission and Distribution of Electricity	energy
LD	Power	energy
LA	Energy efficiency in Heat and Power	energy
BU	Public administration- Energy and mining	energy
LE	Renewable energy	energy
LR	Other Renewable Energy	energy
LC	Oil and gas	energy
JA	Health	health
BQ	Public administration- Health	health
JB	Other social services	other
BZ	General public administration sector	other
BC	Central government administration	other
FD	Non-compulsory pensions and insurance	other
BG	Law and justice	other
YZ	General industry and trade sector	other
BS	Public administration- Other social services	other
BH	Sub-national government administration	other
FH	SME Finance	other
FG	Payments, settlements, and remittance systems	other
FZ	General finance sector	other
WB	Solid waste management	other
FA	Banking	other
FK	Capital markets	other

2. Note that there is no official sector classification for the Kenyan Constituency Development Funds (CDF). The author classified a project's sector based on the name of the project. For more information, see the following page.

TI	Rural and Inter-Urban Roads and Highways	transport
TA	Roads and highways	transport
TZ	General transportation sector	transport
TV	Aviation	transport
TW	Railways	transport
AI	Irrigation and drainage	water
WC	Water supply	water
WZ	General water, sanitation and flood protection sector	water
WV	Wastewater Treatment and Disposal	water
WT	Wastewater Collection and Transportation	water

C Descriptive Statistics

Table C1: Summary Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
CDF percent spent	1568	0.66	0.23	0	1
CDF median duration	1545	3.79	1.65	1	8
CDF mean duration	1545	3.87	1.19	1	8
Total CDF disbursement (log)	1568	16.65	2.22	0	18.69
Total Aid disbursement (log)	1568	14.34	1.51	11.64	19.69
Total Aid disbursement pc (log)	1568	2.56	1.3	0.74	8.14
Competitiveness	1557	0.67	0.25	0.01	1
Total CDF allocation (log)	1568	17.35	0.72	15.61	18.49
Population (log)	1568	11.94	0.49	9.83	13.74
Poverty rate	1568	0.49	0.19	0	1
MP copartisanship	1568	0.62	0.48	0	1
MP gender	1568	0.04	0.21	0	1
MP incumbency	1568	0.36	0.48	0	1
MP coethnicity	1568	0.22	0.41	0	1

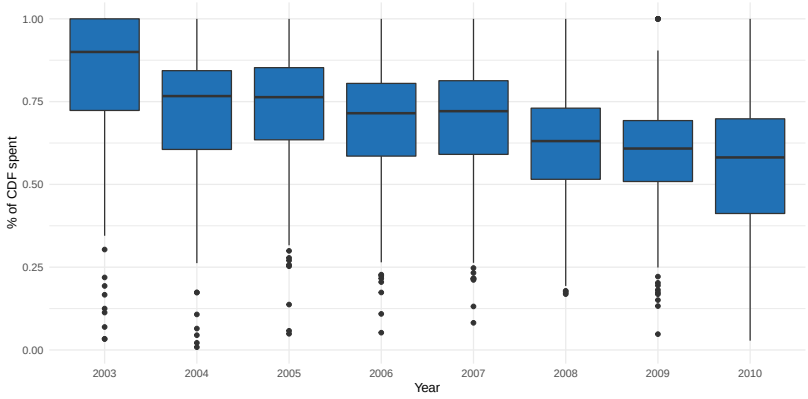
Notes: The unit of the data set is a constituency-year during 2003-2010. *CDF Percent Spent* is the ratio of the total disbursements for CDF projects to the total CDF allocation for a constituency. *Total CDF Disbursement* is the total disbursements for CDF projects. *Per capita* is a logged value of the total World Bank aid disbursement per capita. *Sum* is a logged value of the total aid disbursement. *Competitiveness* is operationalized as $1 -$ *Victory Margin* where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner.

The Kenyan CDF–the Quantity Dimension. Figure C1 shows the CDF percentage spent during 2003-2010 by year. Above all, there exists some smooth variation in the outcome across constituencies, which is further supported by Figure C3. This is important for two reasons. First, MPs indeed expended some effort to use the CDF allocations. Second, the CDF, arguably, appears to be a useful means of constituency service for MPs. In addition, Figure C1 indicates that the percentage of CDF spent had gradually decreased over the years; the mean was as high as 90% in 2003 but continued to decrease until it reached a level lower than 70% in 2010. One obvious reason for this trend is that the budget of the CDF had increased over the study period (see Figure C8), thereby making it harder for MPs to spend all of their allocations in time.

The Kenyan CDF–the Time Dimension. Figure C2 shows the distribution of the median (left) and mean (right) duration of CDF projects. Note that the unit of analysis is a constituency-year. The minimum and maximum of both distributions are 1 and 8 years. It is noteworthy that while the median duration's duration is skewed to the right, the mean duration's distribution does not show such skewness. This is because the distribution of duration at the project level is heavily skewed to the right, suggesting the median duration better captures the central tendency at the constituency-year level. According to the project-level histogram (see Figure C12), the percentage of one-year CDF projects alone is 46.9%. More than half of CDF projects were completed within two years, and more than two-thirds of projects were completed within three years.[1]

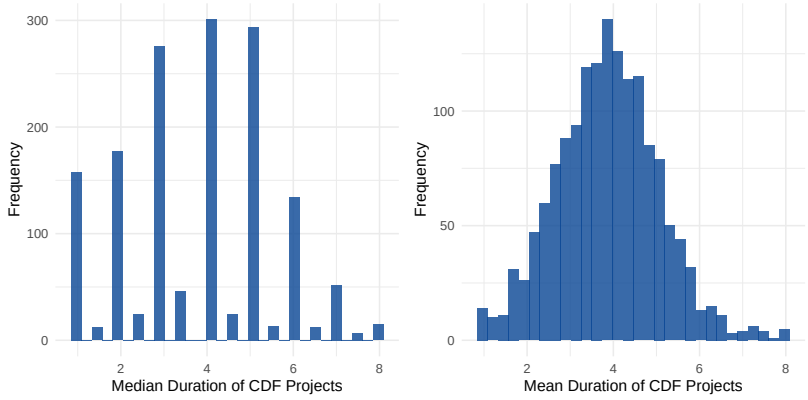
1. See more descriptive statistics on the CDF in Appendix C.

Figure C1: Box Plot of CDF Percentage Spent During 2003-2010 by Year



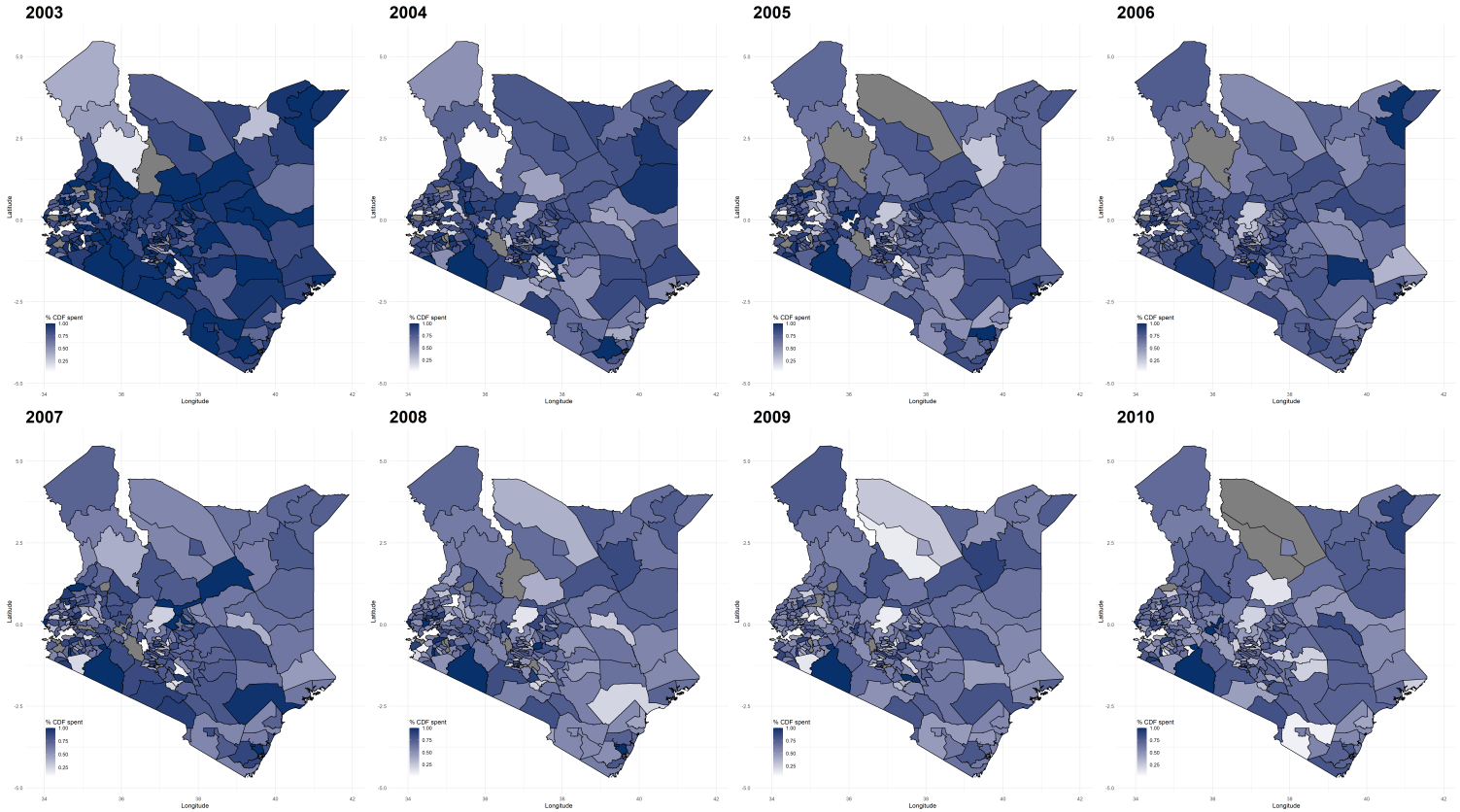
Notes: This box plot shows the distribution of the CDF percentage spent by year from 2003 to 2010. The CDF percentage spent is a ratio of the CDF disbursement to the allocation.

Figure C2: Median and Mean Distribution of CDF Project Duration During 2003-2010



Notes: This histogram shows the distribution of median (left) and mean (right) duration of CDF projects at the constituency level. *Duration* is the number of years between the project start and end year.

Figure C3: Choropleth Map of CDF Percentage Spent by Year



Notes: This choropleth map shows the geographic distribution of the CDF percentage spent by year from 2003 to 2010. The CDF percentage spent is a ratio of the CDF disbursement to the allocation. The darker a constituency's color, the higher the percentage. Grey-colored constituencies represent missing values.

Figure C4: Distribution of CDF Percentage Spent during 2003-2010 by Year

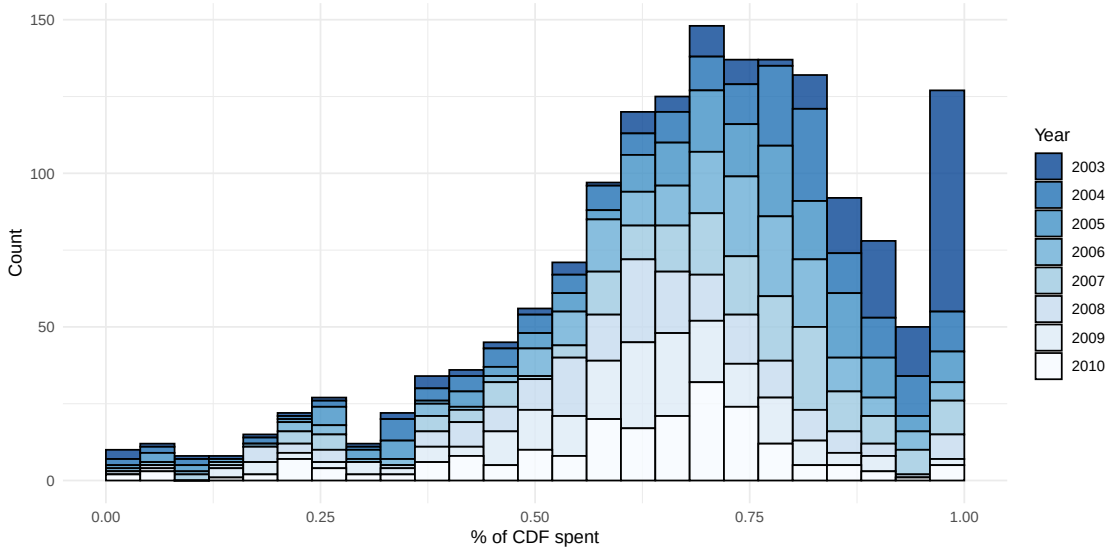


Figure C5: Percentage of Abnormal CDF % Spent during 2003-2010

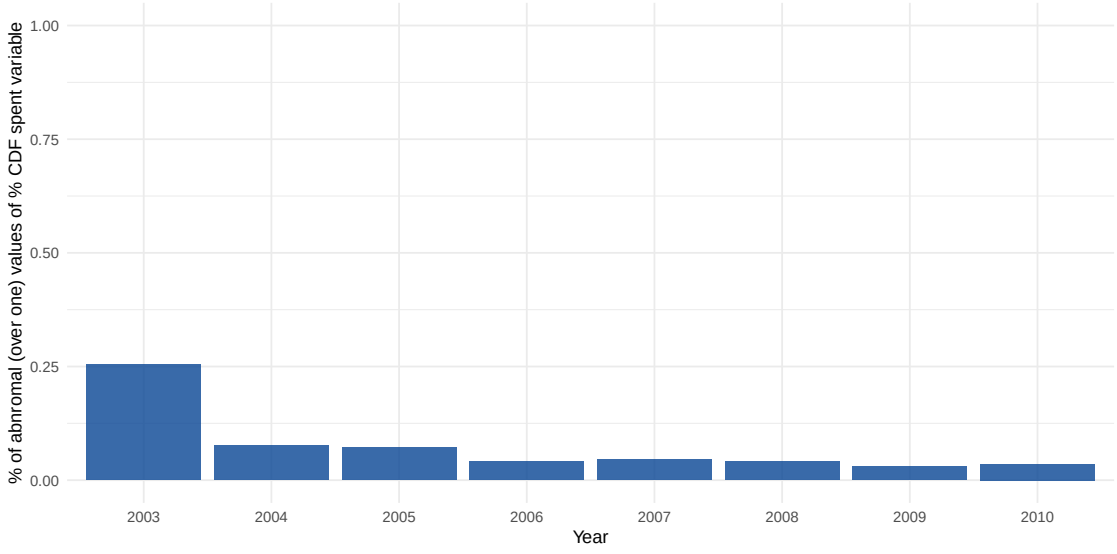


Figure C6: Percentage of Missing Values on CDF % Spent during 2003-2010 by Year

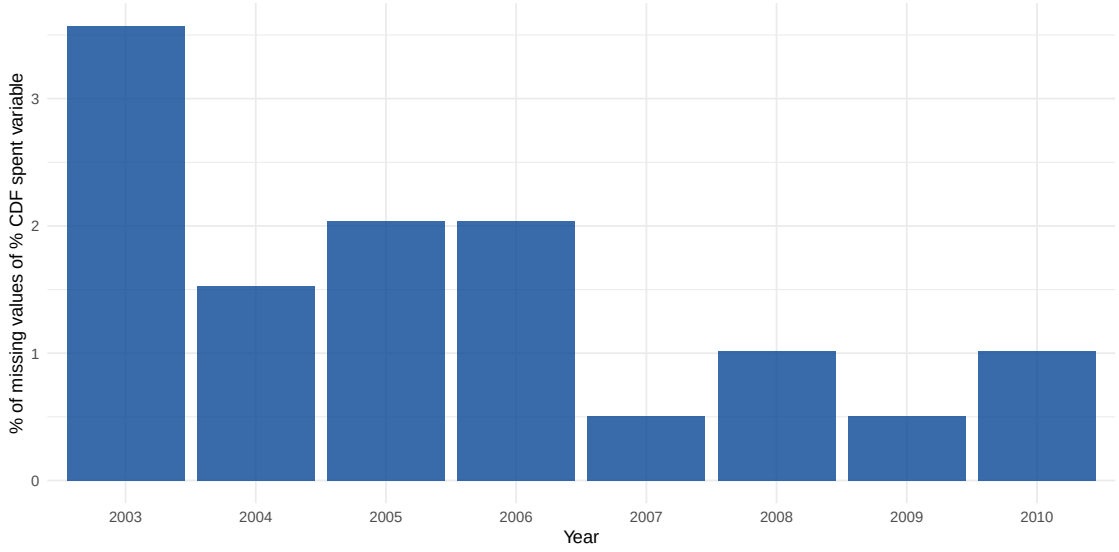


Figure C7: The CDF Allocation Amount during 2003-2010 by Year

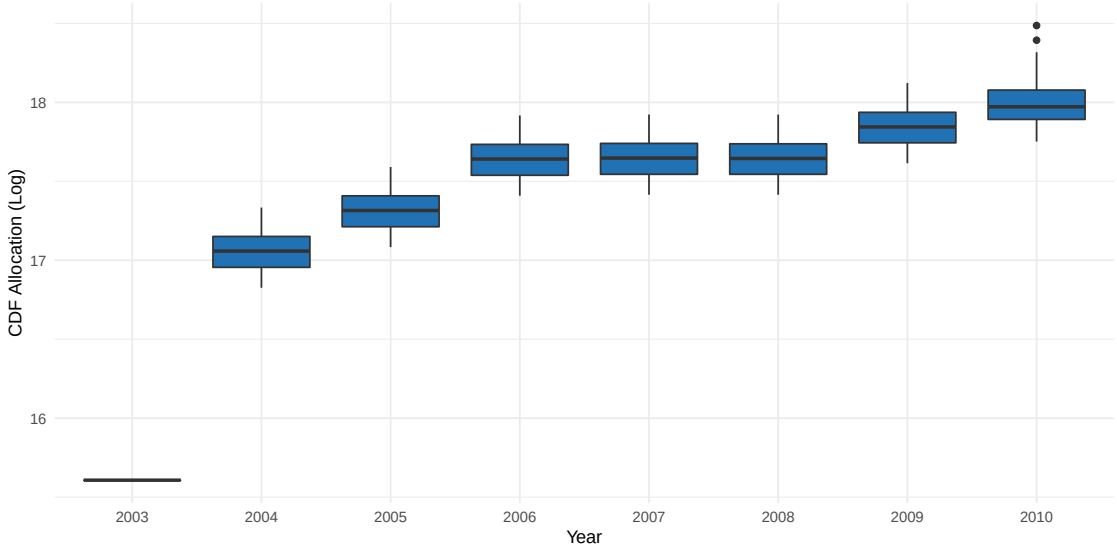


Figure C8: Density Plot of CDF % Spent by Year

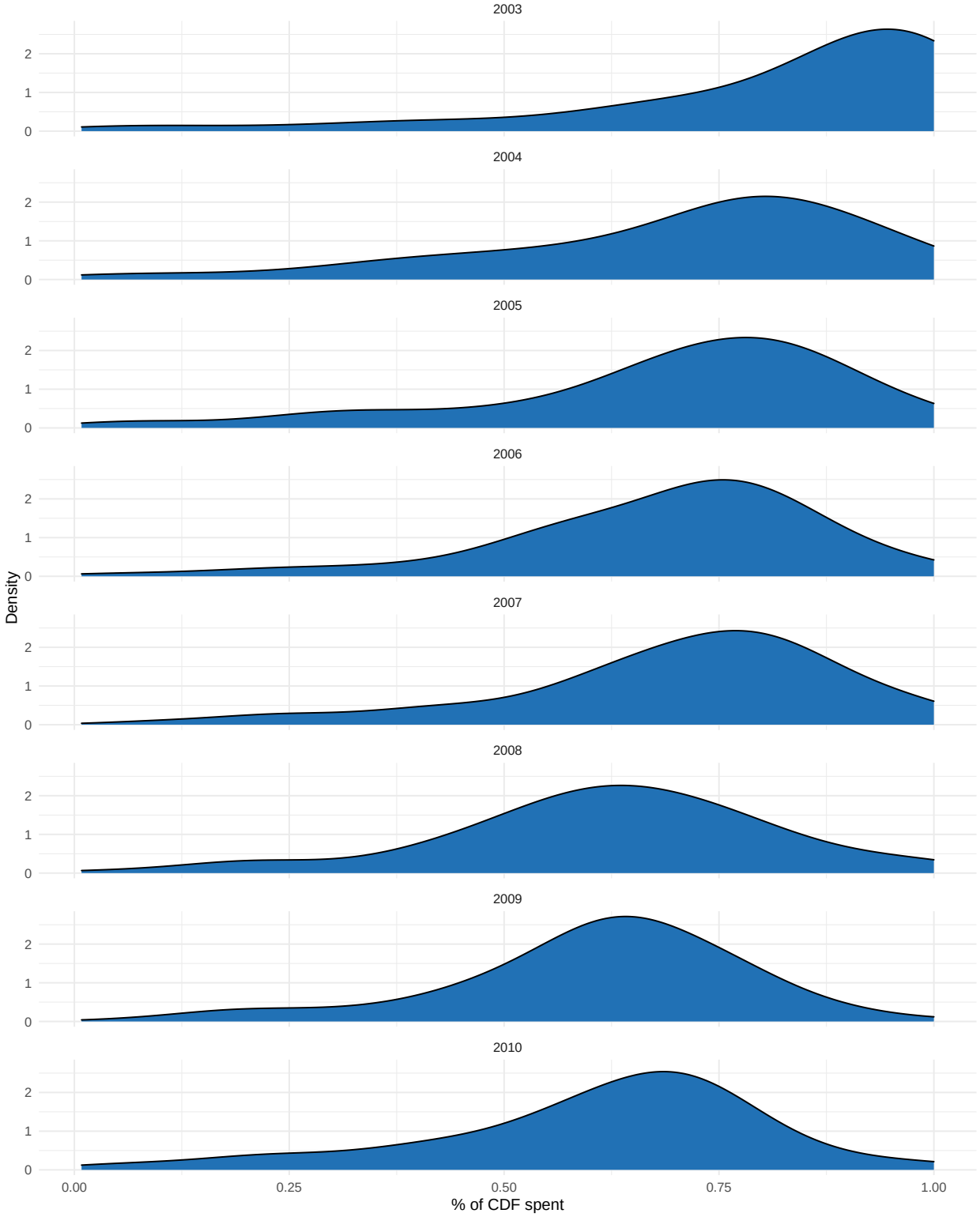


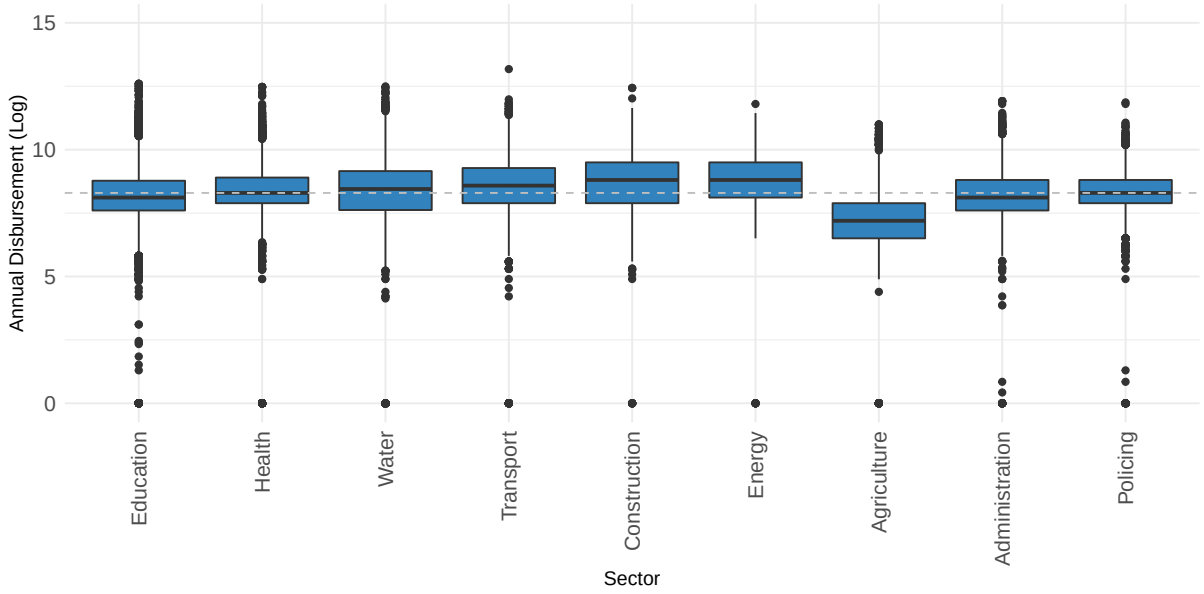
Table C2: Summary Statistics on CDF Project by Sector

CDF Sector	Total Disbursement	Mean of Project Size	Median of Project Size	Mean of Duration	Median of Duration	Number of Projects	Proportion In Number	Proportion In Disbursement
Education	19.35	9.47	8.99	3.17	3	19509	0.48	0.46
Water	18.04	9.51	8.81	1.9	1	5042	0.12	0.13
Health	17.96	9.83	9.39	3.27	3	3390	0.08	0.12
Transport	17.39	9.57	8.81	1.52	1	2473	0.06	0.07
Construction	16.16	9.84	8.81	1.76	1	552	0.01	0.02
Energy	15.33	9.67	8.99	1.53	1	285	0.01	0.01
Agriculture	16.17	8.34	7.6	1.8	1	2527	0.06	0.02
Administration	16.41	9.3	8.58	1.95	1	1232	0.03	0.02
Policing	16.25	9.44	8.99	2.49	2	903	0.02	0.02
Misc.	17.36	9.72	8.81	2.34	1	2084	0.05	0.06
Unknown	17.46	9.5	8.58	1.81	1	2872	0.07	0.07

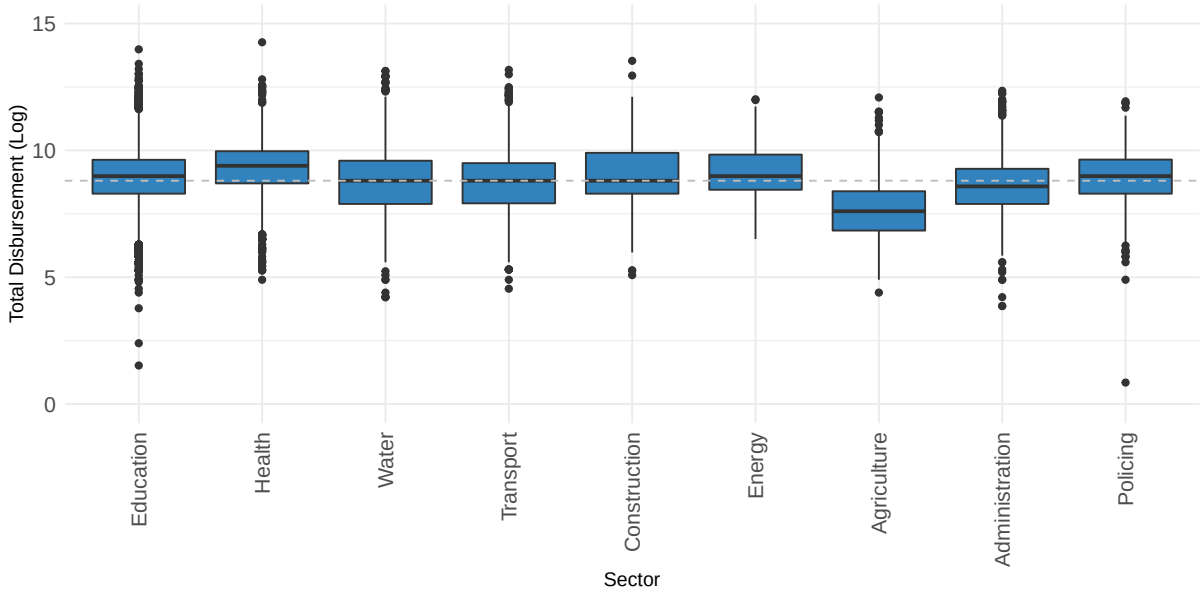
Notes: The sample is restricted to the CDF projects that ended on or before 2010. *Total Disbursement*, *Mean of Project Size*, and *Median of Project Size* are all logged values. Their unit is US dollars and the unit of duration is years. *Misc.* is a short hand for the projects that do not fall under the other nine sectors. *Unknown* is a category for the projects of which name does not contain any information that allows for the identification of its sector.

Figure C9: CDF Project Disbursement by Sector

(a) Annual Disbursement



(b) Total Disbursement



Notes: Panel a shows the amount of yearly CDF disbursement and Panel b the total amount of CDF disbursement (i.e. project size). The unit of analysis a CDF project. In Panel a, dots noting zero disbursement show that for all sectors, there was at least one project that had been put on pause during its implementation period. The exchange rate of US Dollars against Kenya Schilling is 75.00 USD/KES. Their unit is US dollars.

Figure C10: Box Plot of CDF Project Size by Project Duration

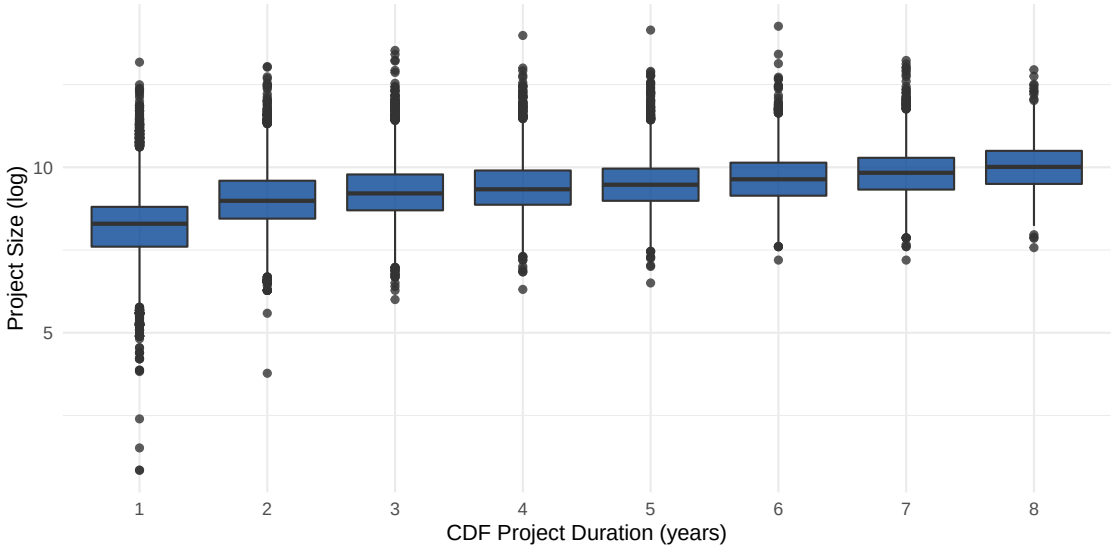


Figure C11: Distribution of CDF Project Duration at the Project Level

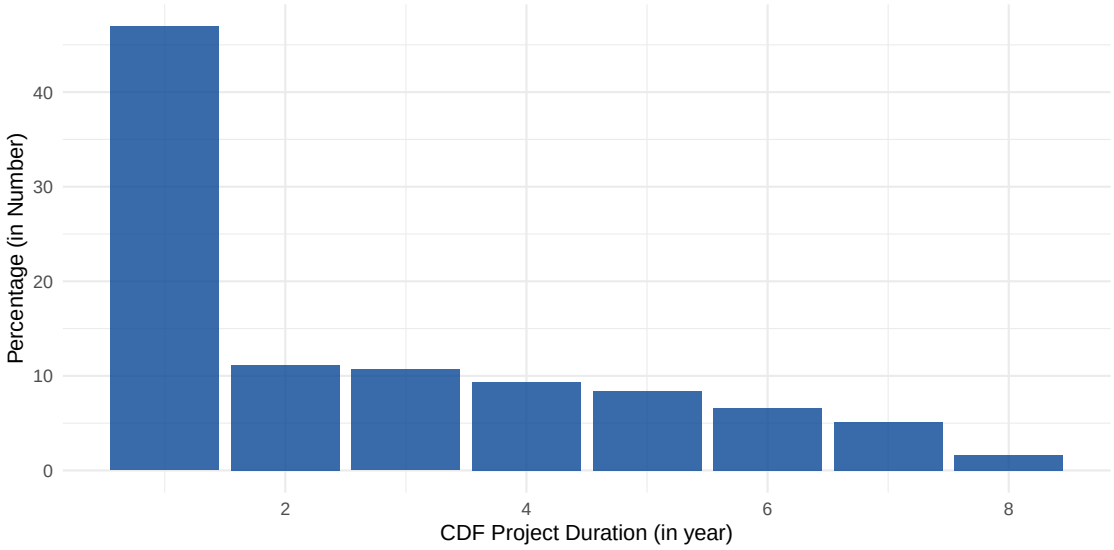
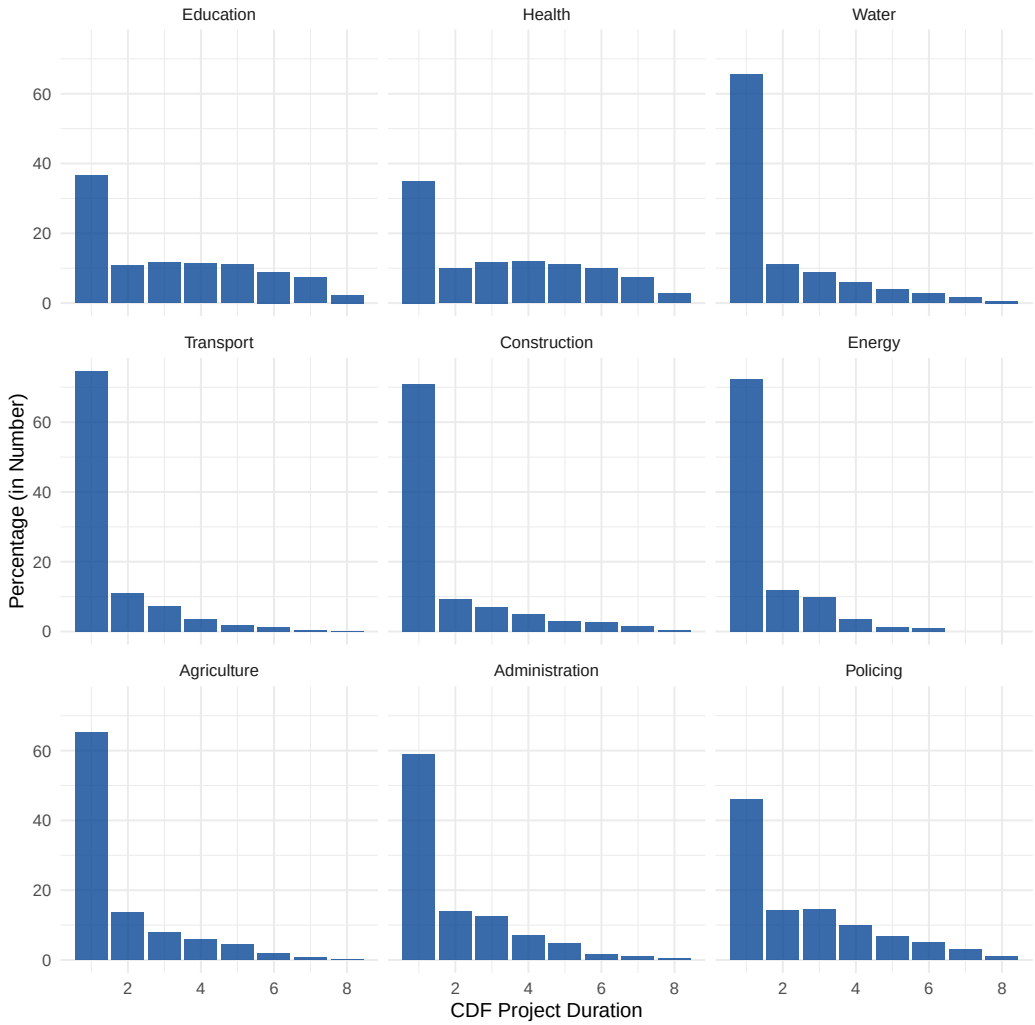


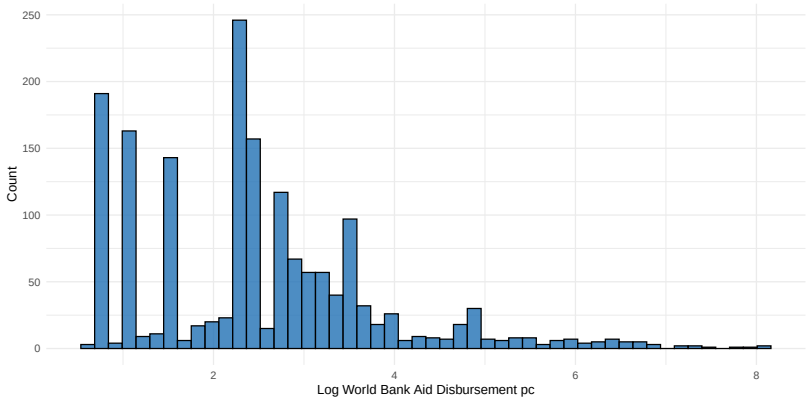
Figure C12: Distribution of CDF Project Duration by Sector



Notes: Duration is the number of years between the project start and end year.

The World Bank Aid. Figure C13 shows the distribution of (logged) aid disbursement per capita during 2003-2010. It is heavily skewed to the right, implying a great deal of variation in how much foreign aid per resident a constituency received over the period. This contrasts with a steady pattern in the mean of aid disbursement over the same period, which can be found in Figure C17, though observations with a remarkably large amount of aid are concentrated in 2006 and 2009. Several spikes on the left side of Figure C13 are the results of the assumption that I made in the data coding process: foreign aid projects that are distributed either at the province or district level without an exact geographic location were assumed to be allocated at the constituency level proportionally to the population ratio. Thus, depending on which ratio is used for those computations the distribution may look slightly different. It is also notable that the World Bank aid accounted 17.9% of the total amount of aid that Kenya received from 2003 through 2010.[2]

Figure C13: Distribution of Aid Disbursement During 2003-2010



Notes: This histogram shows the distribution of aid disbursement at the constituency level during 2003-2010. The X-axis represents a logged value of World Bank aid disbursement per capita.

2. It is measured in commitment and constant 2011 USD term. Data are from Tierney et al. (2011) (AidData Core Research Release, Version 3.1, 2016).

Figure C14: Choropleth Map of World Bank Aid (Disbursement) by Year

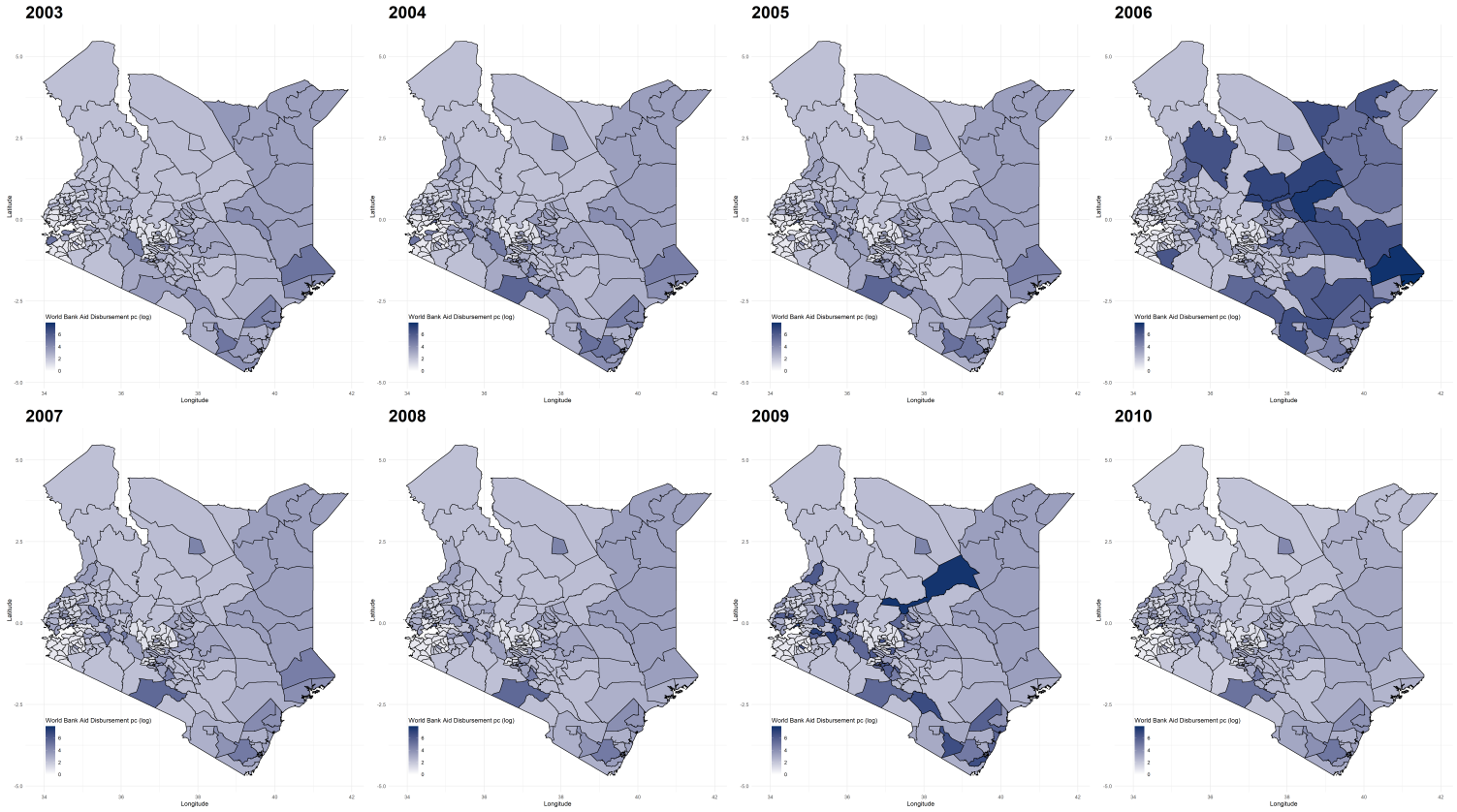


Figure C15: Density Plot of World Bank Aid Disbursement by Year

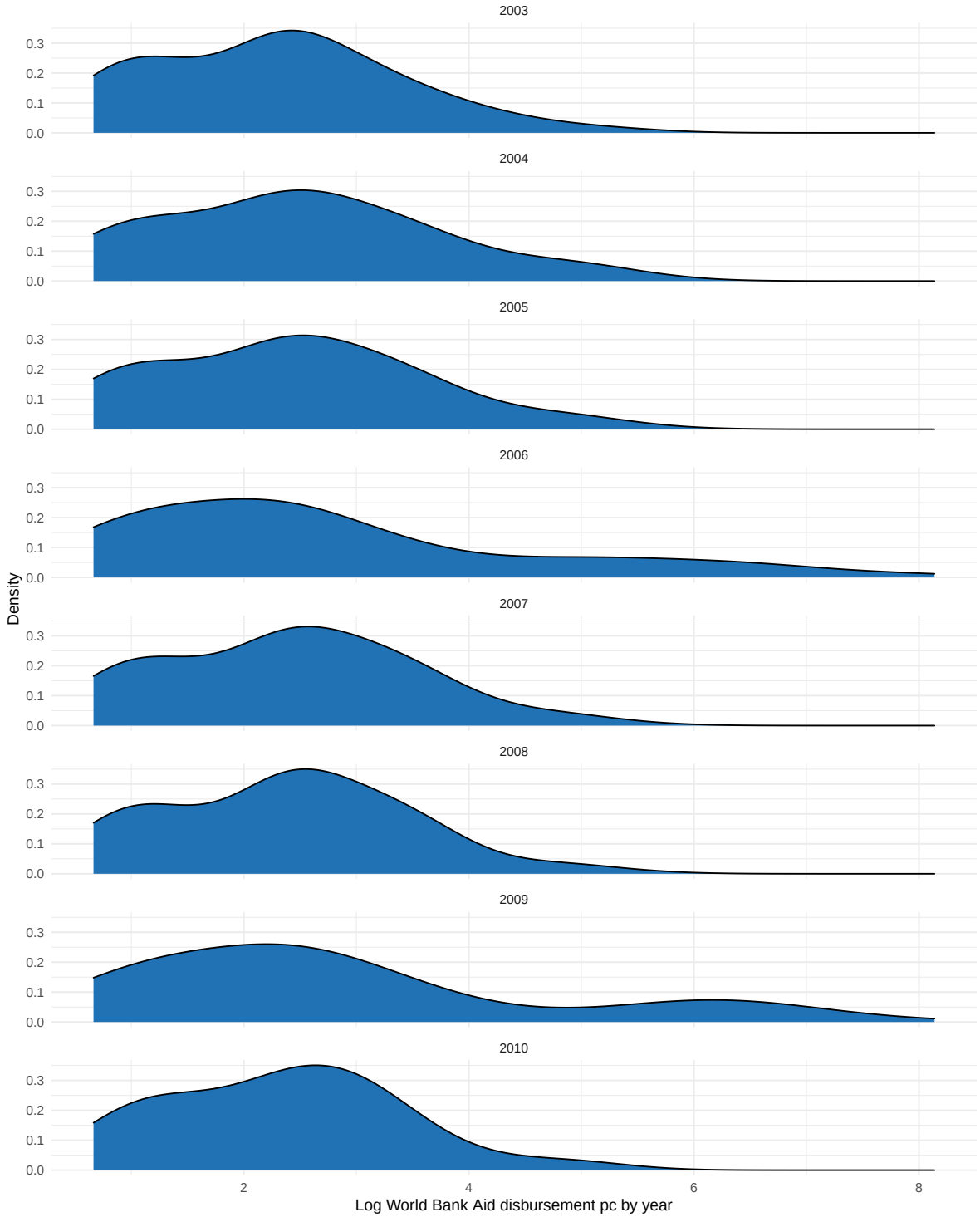
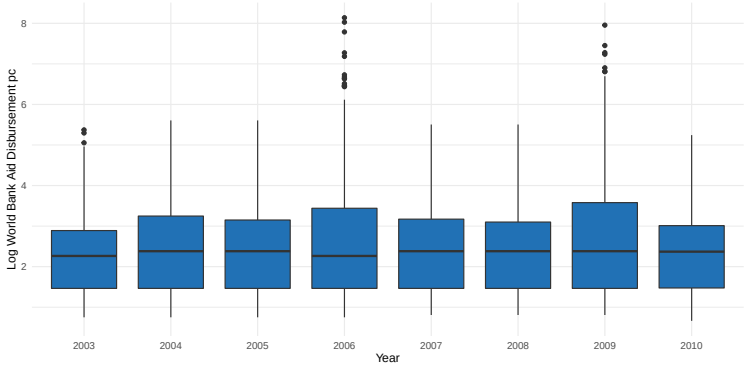
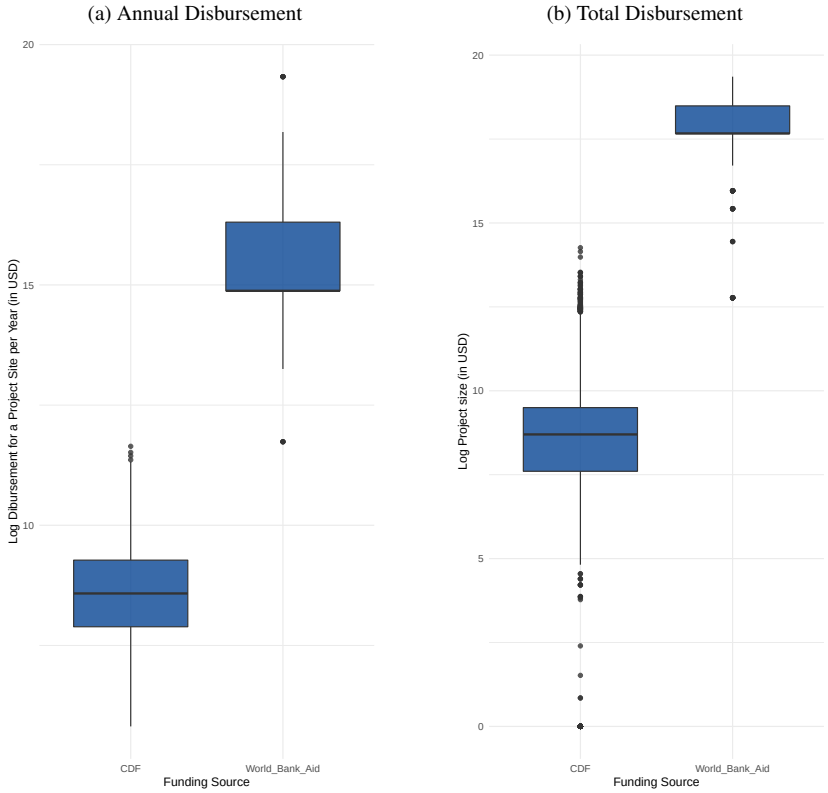


Figure C16: Box plot of Aid disbursement during 2003-2010 by Year



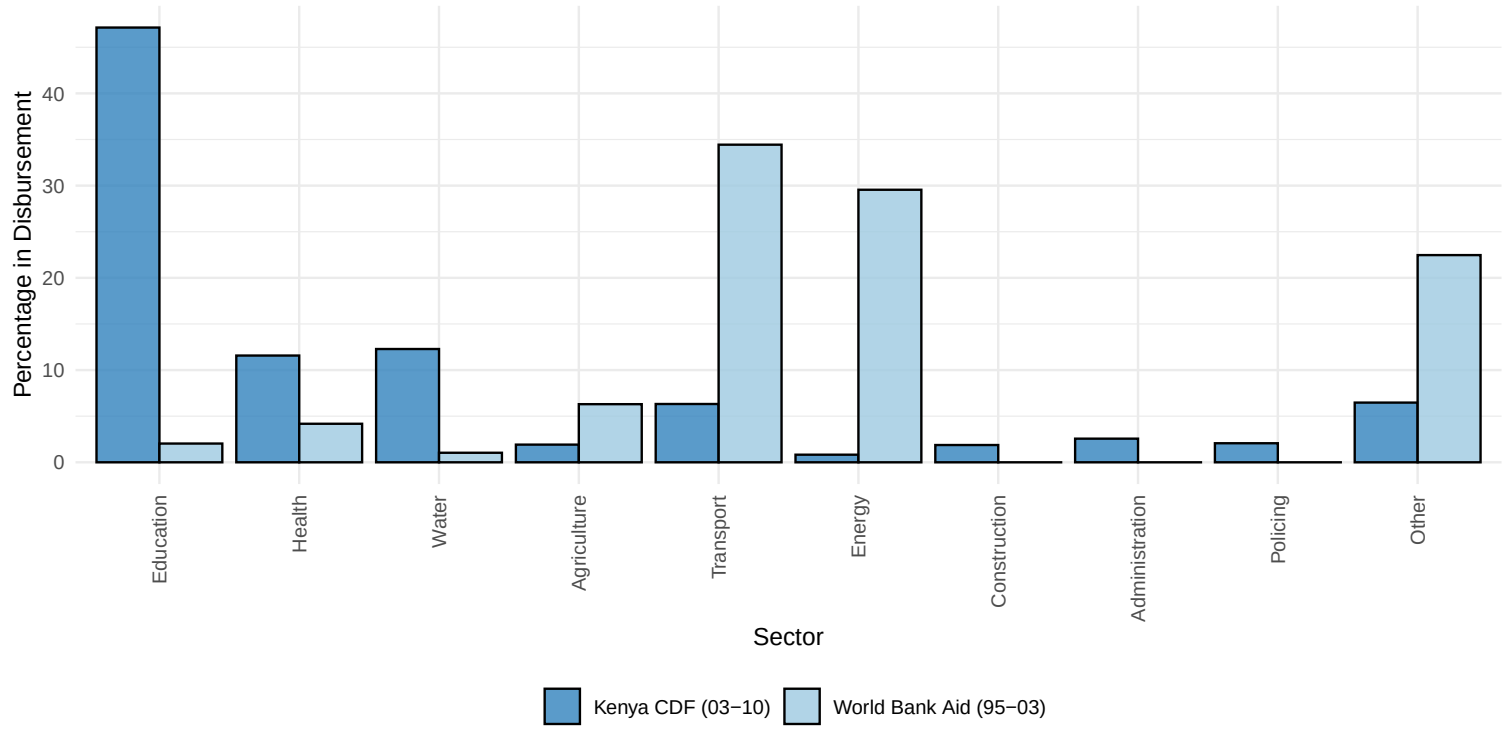
Notes: This box plot shows the distribution of aid disbursement at the constituency level by year during 2003-2010. Y-axis represents a logged value of World Bank aid disbursement per capita.

Figure C17: Comparison of Project Disbursement by Funding Source



Notes: The World Bank projects with only the precision code 1 or 2 (exact geographic location or within 25 km) are included for both Panel a and b since the data set does not provide the project site-level disbursement information for those with the a code greater than 2. The exchange rate of US Dollars to Kenya Schillings is 75.00 USD/KES.

Figure C18: Comparison of Sector-level Composition by Funding Source



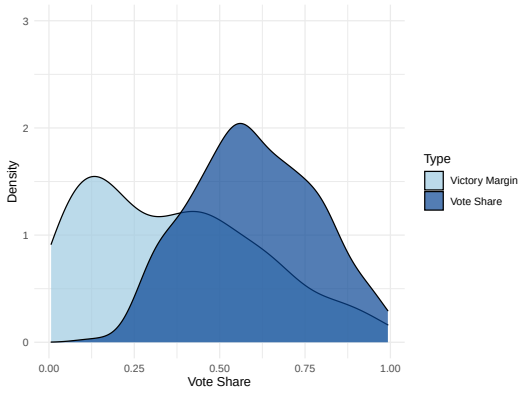
Notes: Note that the World Bank Aid data covers projects from 1995 to 2003 while the CDF data covers projects from 2003 to 2010. The percentage of sector is computed in the disbursement amount.

General Election. In this section, I discuss the degree of electoral competition (moderator) measured by the victory margin of the winner in addition to the outcome and the treatment variables. Figure C19 shows the distribution of the victory margin for both the government party (Panel a) and the opposition party (Panel b). Though both distributions skewed to the right, the distribution for the opposition party is much more skewed than the one for the ruling party. This suggests that the candidates from opposition parties tend to win the election with a narrower margin. The same pattern can be found in the distribution of the winner's vote share. A majority of the opposition party candidates were able to earn the seat with less than 50% of the votes.

Figure C20 suggests that such differences arise because the third garnered a substantial share of votes where the ruling party was not popular, thereby making the leading opposition party candidate's victory margin relatively slim. In contrast, for most of the incumbent party winners, the vote share of the candidate who came the third place was negligent. In both Panel a and b, the X-axis indicates the winner's vote share and the Y-axis the runner-up's. By construction, the points are bounded by the southern triangle-shaped quadrant demarcated by $y = x$, $x = 0$, and $y = 1 - x$. Points that are close to $y = 1 - x$ indicate bilateral electoral contests where two parties divided up the total votes among them. Panel a shows that the candidates from the ruling party won in most of those races. As points get farther away from $y = 1 - x$ line, the vote share that are not accounted for by either the winner or the runner-up increases. Panel b shows that the third place's vote share indeed increases as points get closer to the $(0,0)$ as opposed to the line. It is noteworthy that the winners from opposition parties contested not only with a candidate from the government party but also with a strong candidate from another opposition party. In sum, these figures show that opposition party MPs face a much higher level of electoral competition than those from the ruling party.

Figure C19: Distribution of Victory Margin

(a) Incumbent Party



(b) Leading Opposition Party

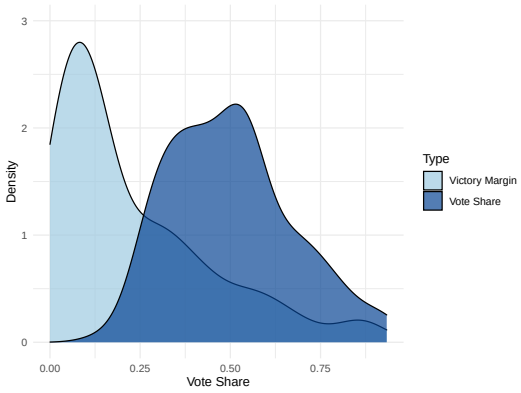
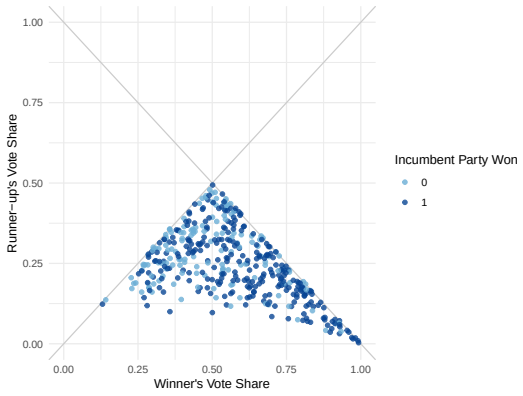
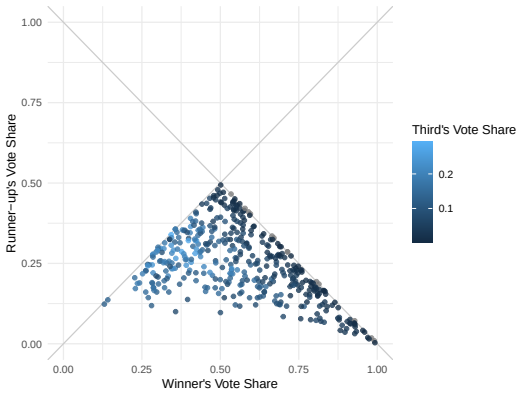


Figure C20: Scatter Plot of Winner (X-axis) and Runner-up 's (Y-axis) Vote Share

(a) By Which Party Won



(b) By Third's Vote Share



D Estimation

Outcome measurement. It is noteworthy that the CDF data set does not provide any information as to whether a project is complete. To safeguard against remaining bias due to the absence of status information, I use as another outcome the number of the nonzero CDF disbursements during the period of study (2003-2010). Since some projects went dormant over the course of their implementation, the duration of CDF projects and the number of nonzero CDF disbursements are not identical, although they are correlated with each other. The discussion so far suggests that a more conservative interpretation of the outcome measures is the speed of disbursements for the implementation of CDF projects during 2003-2007. In other words: How quickly did an MP spend a sum of allocated funds for a CDF project, controlling for the project size?

Semiparametric estimation. The gist of the binning estimator is that it breaks a continuous moderator X into multiple bins and fits a linear model within each bin, substantially relaxing the *global* LIE assumption. It works as follows. Suppose I use four bins for the analysis. I first divide the moderator X into four bins (each of them corresponding to the four quartiles) and create a dummy variable for each bin: G_j for $j = 1,2,3,4$.[1] Second, I choose x_j for $j = 1,2,3,4$, the median of X in each bin as a point where I evaluate the conditional marginal effect of D on Y. Last, I estimate a model including the interaction terms (1) between the dummy variables G_j and the treatment variable D, (2) the bin dummies G_j and the moderator X minus the evaluation points x_j and (3) the triple interaction terms of the forementioned three variables. More specifically, I estimate the following model:

$$Y_{it} = \sum_{j=1}^{4} \Big[\mu_j + \alpha_j D_{it,j} + \beta_j D_{it,j}(X_{it,j} - x_j) + \eta_j (X_{it,j} - x_j) + \gamma_j Z_{i(t-1),j}\Big] G_j + \tau_i + \delta_t + \varepsilon_{it}$$

where μ_j, α_j, β_j, η_j, and γ_j are unknown coefficients estimated for each bin $j = 1,2,3,4$, G_i is the bin dummy, and the other notations remain the same as above. The conditional marginal effect $\frac{\partial Y_{it}}{\partial D_{it,j}}$ evaluated at x_j is thus estimated by the coefficient α_j.

1. Instead, it could be greater than four, though such an estimation would require a sufficiently larger data set.

The kernel smoothing estimator is based on semiparametric smooth varying-coefficient models (Li and Racine 2010). The intuition is similar to the binning estimator in that it allows researchers to estimate a series of local effects. Yet it uses a kernel reweighting scheme and a smoothing parameter (a bandwidth) instead of mutually exclusive bin dummies to obtain the functional form of the marginal effect of D on Y across the full range of the moderator X. The kernel estimator has potential drawbacks: not only does it need more computation, but its output is harder to summarize compared to the binning estimator. The bandwidth is automatically computed using the least-square cross-validation while I sometimes choose a narrower bandwidth manually to get at a finer resolution of the functional shape at the expense of more variance.[2] For the full model specification, see Hainmueller, Mummolo, and Xu (2019, 173–4).

2. This is a typical case of the bias-variance trade-off.

E Robustness Check

Table E1: The Effect of Aid on the Quantity of CDF Investment

Outcome	Quantity of CDF Investment					
	CDF Percent Spent				Total CDF Spent	
Treatment	World Bank Aid					
	Per capita			Sum	Per capita	Sum
	(1)	(2)	(3)	(4)	(5)	(6)
Aid	0.02	0.02	0.02	0.01	0.34	0.20
	(0.03)	(0.03)	(0.02)	(0.02)	(0.41)	(0.38)
Aid # Competitiveness	-0.03	-0.02	-0.02	-0.01	-0.52	-0.30
	(0.03)	(0.03)	(0.03)	(0.03)	(0.48)	(0.45)
Competitiveness	0.08	0.08	0.06	0.11	0.80	3.76
	(0.08)	(0.08)	(0.08)	(0.38)	(0.98)	(5.99)
Constituency FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Constituency control		✓	✓	✓	✓	✓
MP control			✓	✓	✓	✓
R^2	0.57	0.57	0.57	0.57	0.60	0.60
N	1326	1326	1326	1326	1326	1326

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. *CDF Percent Spent* is the ratio of the total disbursements for CDF projects to the total CDF allocation for a constituency. *Total CDF Disbursement* is the total disbursements for CDF projects. *Per capita* is a logged value of the total World Bank aid disbursement per capita. *Sum* is a logged value of the total aid disbursement. *Competitiveness* is operationalized as $1 -$ *Victory Margin* where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table E2: The Effect of Aid on the Quantity of CDF Investment using Alternative Treatment Measures

Outcome	Quantity of CDF Investment					
Treatment	Non-geocoded World Bank Aid weighted by					
	Population		Land Area		Population in Poverty	
	Per capita	Sum	Per capita	Sum	Per capita	Sum
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A. Outcome: CDF Percent Spent					
Aid	0.02	0.01	0.02	0.01	0.01	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
Aid # Competitiveness	-0.02	-0.01	-0.03	-0.02	-0.02	0.00
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Competitiveness	0.06	0.11	0.08	0.22	0.05	0.06
	(0.08)	(0.38)	(0.07)	(0.38)	(0.07)	(0.37)
R^2	0.57	0.57	0.57	0.57	0.57	0.57
N	1326	1326	1326	1326	1326	1326
	Panel B. Outcome: Total CDF Disbursement					
Aid	0.34	0.20	0.35	0.17	0.35	0.21
	(0.41)	(0.38)	(0.40)	(0.38)	(0.40)	(0.38)
Aid # Competitiveness	-0.52	-0.30	-0.57	-0.32	-0.52	-0.30
	(0.48)	(0.45)	(0.47)	(0.43)	(0.48)	(0.44)
Competitiveness	0.8	3.76	0.78	3.97	0.80	3.81
	(0.98)	(5.99)	(0.85)	(5.56)	(0.96)	(5.92)
R^2	0.60	0.60	0.60	0.60	0.60	0.60
N	1326	1326	1326	1326	1326	1326

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. Treatment is the World Bank aid disbursement where non-geocoded aid is weighted by either (1) population, (2) land area, and (3) population in poverty. *CDF Percent Spent* is the ratio of the total disbursements for CDF projects to the total CDF allocation for a constituency. *Total CDF Disbursement* is the total disbursements for CDF projects. *Per capita* is a logged value of the total World Bank aid disbursement per capita. *Sum* is a logged value of the total aid disbursement. *Competitiveness* is measured by the absolute difference between the winner's and the runner-up's vote share in the general election. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table E3: The Effect of Aid on the Quantity of CDF Investment using Alternative Coding of MP Characteristics

Outcome	Quantity of CDF Investment			
MP Covariate Coding	Copartisan/Coethnic as			
	Both	Kibaki	Odinga	Both
Sample	Excl. Minister-MP			All MPs
	(1)	(2)	(3)	(4)
	Panel A. Outcome: CDF Percent Spent			
Aid pc	0.02	0.03	0.02	0.01
	(0.02)	(0.02)	(0.02)	(0.02)
Aid pc # Competitiveness	-0.02	-0.04	-0.02	-0.01
	(0.03)	(0.03)	(0.03)	(0.03)
Competitiveness	0.06	0.07	0.06	0.03
	(0.08)	(0.08)	(0.08)	(0.07)
R^2	0.57	0.58	0.57	0.53
N	1326	1326	1326	1557
	Panel B. Outcome: Total CDF Disbursement			
Aid pc	0.34	0.49	0.34	0.16
	(0.41)	(0.42)	(0.44)	(0.36)
Aid pc # Competitiveness	-0.52	-0.76	-0.51	-0.30
	(0.48)	(0.51)	(0.53)	(0.43)
Competitiveness	0.80	1.00	0.77	0.32
	(0.98)	(1.01)	(1.12)	(0.92)
R^2	0.60	0.61	0.60	0.56
N	1326	1326	1326	1557

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. There exist three ways of coding copartisan and coethnic MP during 2008-10 due to the power-sharing agreement between Mwai Kibaki and Raila Odinga: copartisan/coethnic as (1) both, (2) Kibaki, and (3) Odinga. Column 4 includes all MPs instead of excluding Minister-MPs. *CDF Percent Spent* is the ratio of the total disbursements for CDF projects to the total CDF allocation for a constituency. *Total CDF Disbursement* is the total disbursements for CDF projects. *Per capita* is a logged value of the total World Bank aid disbursement per capita. *Sum* is a logged value of the total aid disbursement. *Competitiveness* is measured by the absolute difference between the winner's and the runner-up's vote share in the general election. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table E4: The Effect of Aid on the Quantity of CDF Investment using Alternative Outcomes (the Number of CDF Projects) and Alternative Treatment Measures

Outcome	Total Number of CDF Projects (Log)					
Treatment	Non-geocoded World Bank Aid weighted by					
	Population		Land Area		Population in Poverty	
	Per capita	Sum	Per capita	Sum	Per capita	Sum
	(1)	(2)	(3)	(4)	(5)	(6)
Aid pc	0.07	0.03	0.07	0.02	0.07	0.03
	(0.10)	(0.09)	(0.10)	(0.09)	(0.10)	(0.09)
Aid pc # Competitiveness	-0.08	-0.03	-0.11	-0.04	-0.08	-0.02
	(0.12)	(0.11)	(0.12)	(0.10)	(0.12)	(0.11)
Competitiveness	0.15	0.32	0.20	0.54	0.15	0.31
	(0.28)	(1.45)	(0.25)	(1.36)	(0.27)	(1.44)
Constituency FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
R^2	0.76	0.76	0.76	0.76	0.76	0.76
N	1326	1326	1326	1326	1326	1326

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. Treatment is the World Bank aid disbursement where non-geocoded aid is weighted by either (1) population, (2) land area, and (3) population in poverty. *CDF Percent Spent* is the ratio of the total disbursements for CDF projects to the total CDF allocation for a constituency. *Total CDF Disbursement* is the total disbursements for CDF projects. *Per capita* is a logged value of the total World Bank aid disbursement per capita. *Sum* is a logged value of the total aid disbursement. *Competitiveness* is measured by the absolute difference between the winner's and the runner-up's vote share in the general election. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table E5: The Effect of Aid on the Quantity of CDF Investment using Alternative Outcomes (CDF Project by Size)

Outcome	Total CDF Disbursement by Project Size			
Sample	Size of CDF Project			
	Smallest (Q1)	Smaller (Q2)	Larger (Q3)	Largest (Q4)
	(1)	(2)	(3)	(4)
	Panel A. Treatment: Aid per capita			
Aid pc	-0.51	-0.17	0.26	0.01
	(0.48)	(0.53)	(0.28)	(0.07)
Aid pc # Competitiveness	0.37	0.25	-0.10	0.02
	(0.63)	(0.63)	(0.30)	(0.10)
Competitiveness	1.01	-1.03	-0.43	0.33
	(1.97)	(1.70)	(0.72)	(0.54)
R^2	0.53	0.50	0.61	0.88
N	1326	1326	1326	1325
	Panel B. Treatment: Total Aid Disbursement			
Aid	-0.52	-0.28	0.09	-0.02
	(0.38)	(0.39)	(0.20)	(0.08)
Aid # Competitiveness	0.43	0.40	0.12	0.06
	(0.49)	(0.46)	(0.23)	(0.11)
Competitiveness	-4.13	-6.10	-2.38	-0.49
	(7.22)	(6.43)	(3.20)	(1.15)
R^2	0.53	0.50	0.61	0.88
N	1326	1326	1326	1325

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. Outcome is the total CDF disbursement by project size from Q1 (Smallest) through Q4 (Largest). For example, outcome for Column 1 is the sum of disbursements of CDF projects in the smallest group. *Competitiveness* is operationalized as $1 - Victory\ Margin$ where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. The Bonferroni correction is applied to all hypothesis testings for addressing the multiple comparisons problem. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table E6: The Effect of Aid on the Duration of CDF Projects

Outcome	Duration of CDF projects					
	Median				Mean	
Treatment	World Bank Aid					
	Per capita			Sum	Per capita	Sum
	(1)	(2)	(3)	(4)	(5)	(6)
Aid	0.28***	0.27***	0.25**	0.25***	0.16**	0.16**
	(0.10)	(0.10)	(0.11)	(0.09)	(0.07)	(0.06)
Aid # Competitiveness	-0.39**	-0.39**	-0.36**	-0.36***	-0.22**	-0.22**
	(0.15)	(0.15)	(0.16)	(0.14)	(0.10)	(0.09)
Competitiveness	0.74	0.75	0.72	4.92**	0.53	3.11**
	(0.51)	(0.50)	(0.54)	(2.00)	(0.33)	(1.28)
Constituency FE	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓
Constituency control		✓	✓	✓	✓	✓
MP control			✓	✓	✓	✓
R^2	0.66	0.66	0.66	0.66	0.75	0.75
N	1305	1305	1305	1305	1305	1305

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. *Median/mean duration of CDF projects* is the median/mean duration of all CDF projects where the duration is computed by the subtraction of disbursement start year from end year. *Per capita* is a logged value of the total World Bank aid disbursement per capita. *Sum* is a logged value of the total aid disbursement. *Competitiveness* is operationalized as $1 - Victory\ Margin$ where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log CDF Disbursement*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table E7: The Effect of Aid on the Duration of CDF Projects using Alternative Treatment Measures

Outcome	Duration of CDF Projects					
Treatment	Non-geocoded World Bank Aid weighted by					
	Population		Land Area		Population in Poverty	
	Per capita	Sum	Per capita	Sum	Per capita	Sum
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A. Outcome: Median Duration					
Aid pc	0.25**	0.25***	0.21*	0.23**	0.26**	0.25***
	(0.11)	(0.09)	(0.11)	(0.10)	(0.11)	(0.09)
Aid pc # Competitiveness	-0.36**	-0.36***	-0.28*	-0.31**	-0.37**	-0.36***
	(0.16)	(0.14)	(0.16)	(0.14)	(0.16)	(0.14)
Competitiveness	0.72	4.92**	0.47	4.14**	0.73	4.96**
	(0.54)	(2.00)	(0.50)	(1.97)	(0.53)	(1.98)
R^2	0.66	0.66	0.66	0.66	0.66	0.66
N	1305	1305	1305	1305	1305	1305
	Panel B. Outcome: Mean Duration					
Aid pc	0.16**	0.16**	0.12	0.14**	0.16**	0.16**
	(0.07)	(0.06)	(0.08)	(0.07)	(0.08)	(0.07)
Aid pc # Competitiveness	-0.22**	-0.22**	-0.16	-0.18**	-0.22**	-0.22**
	(0.10)	(0.09)	(0.11)	(0.09)	(0.10)	(0.09)
Competitiveness	0.53	3.11**	0.35	2.51**	0.54	3.15**
	(0.33)	(1.28)	(0.31)	(1.23)	(0.33)	(1.28)
R^2	0.75	0.75	0.75	0.75	0.75	0.75
N	1305	1305	1305	1305	1305	1305

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. Treatment is the World Bank aid disbursement where non-geocoded aid is weighted by either (1) population, (2) land area, and (3) population in poverty. *Per capita* is a logged value of the total World Bank aid disbursement per capita. *Sum* is a logged value of the total aid disbursement. *Median Duration* and *Mean Duration* are the median and mean of the duration of CDF projects in a constituency, respectively. *Competitiveness* is measured by the absolute difference between the winner's and the runner-up's vote share in the general election. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log CDF Disbursement*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table E8: The Effect of Aid on the Duration of CDF Projects using Alternative Outcome Measures

Outcome	Duration of CDF Projects					
	Percentile					Mean
	30th	40th	50th	60th	70th	
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A. Treatment: Aid per capita					
Aid pc	0.24**	0.19*	0.25**	0.20*	0.14	0.16**
	(0.10)	(0.11)	(0.11)	(0.11)	(0.08)	(0.07)
Aid pc # Competitiveness	-0.33**	-0.28*	-0.36**	-0.28*	-0.21*	-0.22**
	(0.15)	(0.16)	(0.16)	(0.15)	(0.12)	(0.10)
Competitiveness	0.74	0.69	0.72	0.52	0.61	0.53
	(0.54)	(0.55)	(0.54)	(0.49)	(0.38)	(0.33)
R^2	0.61	0.65	0.66	0.69	0.71	0.75
N	1305	1305	1305	1305	1305	1305
	Panel B. Treatment: Aid simple sum					
Aid	0.23**	0.19*	0.25***	0.20**	0.15**	0.16**
	(0.10)	(0.10)	(0.09)	(0.09)	(0.07)	(0.06)
Aid # Competitiveness	-0.32**	-0.28**	-0.36***	-0.28**	-0.23**	-0.22**
	(0.14)	(0.14)	(0.14)	(0.13)	(0.10)	(0.09)
Competitiveness	4.43**	3.99*	4.92**	3.75**	3.36**	3.11**
	(2.05)	(2.08)	(2.00)	(1.86)	(1.42)	(1.28)
R^2	0.61	0.65	0.66	0.69	0.71	0.75
N	1305	1305	1305	1305	1305	1305

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. Outcome is the duration of CDF projects in a constituency where Column 1-5 uses the 30th, 40th, 50th (median), 60th, and 70th percentil of duration of CDF projects, respectively. *Competitiveness* is measured by the absolute difference between the winner's and the runner-up's vote share in the general election. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log CDF Disbursement*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table E9: The Effect of Aid on the Duration of CDF Investment using Alternative Coding of MP Characteristics

Outcome	Duration of CDF Investment			
MP Covariate Coding	Copartisan/Coethnic as			
	Both	Kibaki	Odinga	Both
Sample	Excl. Minister-MP			All MPs
	(1)	(2)	(3)	(4)
	Panel A. Outcome: Median Duration			
Aid pc	0.25**	0.27**	0.25**	0.25**
	(0.11)	(0.10)	(0.10)	(0.10)
Aid pc # Competitiveness	-0.36**	-0.38**	-0.36**	-0.36**
	(0.16)	(0.15)	(0.15)	(0.14)
Competitiveness	0.72	0.75	0.66	0.66
	(0.54)	(0.54)	(0.53)	(0.45)
R^2	0.66	0.66	0.66	0.65
N	1305	1305	1305	1533
	Panel B. Outcome: Mean Duration			
Aid pc	0.16**	0.17**	0.15**	0.15**
	(0.07)	(0.07)	(0.07)	(0.07)
Aid pc # Competitiveness	-0.22**	-0.24**	-0.20**	-0.20**
	(0.10)	(0.10)	(0.10)	(0.09)
Competitiveness	0.53	0.58*	0.45	0.43
	(0.33)	(0.34)	(0.32)	(0.28)
R^2	0.75	0.74	0.75	0.74
N	1305	1305	1305	1533

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. There exist three ways of coding copartisan and coethnic MP during 2008-10 due to the power-sharing agreement between Mwai Kibaki and Raila Odinga: copartisan/coethnic as (1) both, (2) Kibaki, and (3) Odinga. Column 4 includes all MPs instead of excluding Minister-MPs. *Median Duration* and *Mean Duration* are the median and mean of the duration of CDF projects in a constituency, respectively. *Competitiveness* is measured by the absolute difference between the winner's and the runner-up's vote share in the general election. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log CDF Disbursement*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table E10: The Effect of Aid on Duration of CDF Projects using Alternative Samples

Outcome	Duration of CDF Projects			
Sample	Excl. 2003 Sample start year	Excl. 2006 Prior year to 2007	Excl. 2007 Election year	Excl. 2010 Sample end year
	(1)	(2)	(3)	(4)
	Panel A. Outcome: Median Duration			
Aid pc	0.20*	0.31***	0.28**	0.22**
	(0.11)	(0.11)	(0.13)	(0.11)
Aid pc # Competitiveness	-0.30**	-0.42**	-0.35*	-0.31**
	(0.15)	(0.16)	(0.19)	(0.15)
Competitiveness	0.44	0.95	0.70	0.73
	(0.50)	(0.60)	(0.63)	(0.54)
R^2	0.67	0.67	0.66	0.68
N	1138	1136	1139	1147
	Panel B. Outcome: Mean Duration			
Aid pc	0.13*	0.19**	0.19**	0.13*
	(0.07)	(0.09)	(0.08)	(0.08)
Aid pc # Competitiveness	-0.19**	-0.22*	-0.25**	-0.19*
	(0.09)	(0.13)	(0.11)	(0.10)
Competitiveness	0.40	0.50	0.66*	0.57
	(0.31)	(0.39)	(0.37)	(0.35)
R^2	0.76	0.75	0.74	0.76
N	1138	1139	1136	1147

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. Note that the sample period is from 2003 through 2010 where Column 1-4 excludes a specific year in turn. *Median Duration* and *Mean Duration* are the median and mean of the duration of CDF projects in a constituency, respectively. *Competitiveness* is measured by the absolute difference between the winner's and the runner-up's vote share in the general election. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log CDF Disbursement*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

F Alternative Explanations

Table F1: The Effect of Sectoral Aid on the Quantity Dimension of CDF Investment

Outcome	Quantity of CDF Investment					
Treatment	Aid pc by Sector					
	Education	Health	Water	Transport	Energy	Agriculture
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A. Outcome: CDF Percent Spent					
Sector Aid pc	-0.09	0.05	0.00	0.02	0.02	-0.03
	(0.05)	(0.11)	(0.05)	(0.02)	(0.02)	(0.02)
Sector Aid pc # Competitiveness	0.13	-0.02	0.00	-0.02	-0.03	0.04
	(0.08)	(0.07)	(0.06)	(0.02)	(0.02)	(0.03)
Competitiveness	-0.07	0.04	0.03	0.04	0.04	-0.02
	(0.08)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)
R^2	0.70	0.70	0.70	0.70	0.70	0.70
N	1326	1326	1326	1326	1326	1326
	Panel B. Outcome: Total CDF Disbursement					
Sector Aid pc	0.29	0.75	1.54	-0.47	-0.11	0.59
	(0.46)	(1.25)	(1.44)	(0.33)	(0.15)	(0.39)
Sector Aid pc # Competitiveness	-0.29	-0.82	-2.06	0.51	0.10	-0.90
	(0.59)	(0.72)	(1.88)	(0.35)	(0.15)	(0.50)
Competitiveness	-0.19	-0.02	0.01	-0.79	-0.45	0.54
	(0.76)	(0.67)	(0.54)	(0.56)	(0.52)	(0.66)
R^2	0.60	0.60	0.61	0.60	0.60	0.60
N	1326	1326	1326	1326	1326	1326

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. Treatment is the World Bank aid per capita by sector: Education, Health, Water, Transport, Energy and Agriculture. For example, *Sector Aid pc* in Column 1 refers to aid disbursement per capita for the education sector. *Competitiveness* is operationalized as $1 - Victory\ Margin$ where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. The Bonferroni correction is applied to all hypothesis testings for addressing the multiple comparisons problem. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table F2: The Effect of Aid on the Quantity of CDF Investment using Alternative Outcomes (Total CDF Disbursement by Sector)

Outcome	Total CDF Disbursement by Sector (Log)								
	Education	Health	Water	Trans.	Constr.	Energy	Agri.	Admin.	Policing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Aid pc	0.05	0.23	-0.03	0.20	-0.62	0.02	-1.12	-0.47	0.07
	(0.13)	(0.25)	(0.45)	(0.65)	(0.45)	(0.33)	(0.57)	(0.57)	(0.41)
Aid pc # Competitiveness	-0.11	0.05	0.18	-0.57	0.66	0.05	1.22	-0.04	-0.39
	(0.18)	(0.34)	(0.65)	(0.81)	(0.59)	(0.45)	(0.70)	(0.75)	(0.51)
Competitiveness	-0.58	-0.86	-1.37	2.33	1.16	-1.70	-0.49	0.16	1.92
	(0.71)	(1.00)	(1.67)	(2.67)	(1.99)	(1.59)	(1.99)	(2.27)	(1.86)
Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
R^2	0.68	0.57	0.54	0.53	0.41	0.39	0.53	0.51	0.58
N	1326	1326	1326	1326	1326	1326	1326	1326	1326

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. The outcome is the total CDF disbursement for a specific sector. *Trans*., *Constr*., *Agri*., and *Admin*., are the short hands for *Transport*, *Construction*, *Agriculture*, and *Administration* sector, respectively. For example, the outcome for Column 1 is the logged total CDF disbursement for the education sector. *Competitiveness* is operationalized as $1 - $ *Victory Margin* where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. The Bonferroni correction is applied to all hypothesis testings for addressing the multiple comparisons problem. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table F3: The Effect of Aid using Alternative Outcomes (the Total Number of CDF Projects by Sector)

Outcome	Total Number of CDF Projects by Sector (Log)								
	Education	Health	Water	Trans.	Constr.	Energy	Agri.	Admin.	Policing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Aid pc	0.01	0.00	-0.04	0.00	-0.06	0.00	-0.13	-0.11	0.05
	(0.03)	(0.04)	(0.06)	(0.06)	(0.04)	(0.02)	(0.09)	(0.07)	(0.03)
Aid pc # Competitiveness	-0.02	0.02	0.03	-0.02	0.08	0.00	0.17	0.04	-0.08
	(0.04)	(0.05)	(0.08)	(0.08)	(0.05)	(0.03)	(0.11)	(0.08)	(0.04)
Competitiveness	0.14	-0.02	-0.20	0.20	-0.07	-0.14	0.11	-0.18	0.27
	(0.13)	(0.17)	(0.25)	(0.24)	(0.16)	(0.12)	(0.30)	(0.24)	(0.16)
Constituency FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
R^2	0.93	0.73	0.70	0.62	0.43	0.40	0.63	0.62	0.69
N	1326	1326	1326	1326	1326	1326	1326	1326	1326

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. The outcome is the total CDF disbursement for a specific sector. *Trans*., *Constr*., *Agri*., and *Admin*., are the short hands for *Transport*, *Construction*, *Agriculture*, and *Administration* sector respectively. For example, the outcome for Column 1 is the logged total CDF disbursement for the education sector. *Competitiveness* is operationalized as $1 - $ *Victory Margin* where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. The Bonferroni correction is applied to all hypothesis testings for addressing the multiple comparisons problem. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table F4: The Effect of Sectoral Aid on the Quantity Dimension of Education CDF Investment

Outcome	Quantity of Education CDF Investment					
Treatment	Aid pc by Sector					
	Education	Health	Water	Transport	Energy	Agriculture
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A. Outcome: Education CDF Disbursement					
Sector Aid pc	-0.52	-0.33	1.48	-0.62	-0.23	0.61
	(0.88)	(1.66)	(1.43)	(0.45)	(0.23)	(0.44)
Sector Aid pc # Competitiveness	1.17	-0.49	-1.98	0.57	0.09	-0.72
	(1.11)	(0.98)	(1.86)	(0.48)	(0.26)	(0.59)
Competitiveness	-2.11	-0.99	-0.82	-1.64	-1.19	-0.45
	(1.11)	(0.87)	(0.65)	(0.73)	(0.65)	(0.81)
R^2	0.53	0.53	0.53	0.53	0.53	0.53
N	1326	1326	1326	1326	1326	1326
	Panel B. Outcome: Number of Education CDF Projects					
Sector Aid pc	-0.27	-0.27	0.00	0.00	0.04	-0.03
	(0.14)	(0.17)	(0.06)	(0.03)	(0.04)	(0.04)
Sector Aid pc # Competitiveness	0.32	0.01	0.02	-0.03	-0.06	0.06
	(0.21)	(0.14)	(0.08)	(0.04)	(0.05)	(0.06)
Competitiveness	-0.17	0.08	0.08	0.10	0.11	0.03
	(0.18)	(0.12)	(0.08)	(0.09)	(0.09)	(0.11)
R^2	0.93	0.93	0.93	0.93	0.93	0.93
N	1326	1326	1326	1326	1326	1326

Notes: All columns are the OLS specifications with fixed effects where the unit of analysis is a constituency-year. Treatment is the World Bank aid per capita by sector: Education, Health, Water, Transport, Energy and Agriculture. For example, *Sector Aid pc* in Column 1 refers to aid disbursement per capita for the education sector. *Competitiveness* is operationalized as $1 - $ *Victory Margin* where *Victory Margin* is simply the subtraction of the vote share of the runner-up from that of the winner. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. The Bonferroni correction is applied to all hypothesis testings for addressing the multiple comparisons problem. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table F5: The Effect of Aid on the Time Dimension of CDF Investment by MP Characteristics

Outcome	Duration of CDF Projects						
Interaction Variable	MP Characteristic						
	Incumbent MP	Copartisan MP			Coethnic MP		
		Both	Kibaki	Odinga	Both	Kibaki	Odinga
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Panel A. Outcome: Median Duration						
Aid pc # MP Characteristic	0.16**	0.03	-0.05	-0.04	0.09	0.01	0.03
	(0.07)	(0.09)	(0.08)	(0.08)	(0.10)	(0.14)	(0.08)
Aid pc	0.17	0.23*	0.30**	0.28**	0.24**	0.27**	0.24**
	(0.10)	(0.13)	(0.12)	(0.12)	(0.10)	(0.11)	(0.10)
MP Characteristic	-0.37	-0.21	0.17	0.06	-0.71**	0.00	-0.19
	(0.23)	(0.30)	(0.27)	(0.27)	(0.36)	(.)	(0.28)
R^2	0.66	0.66	0.66	0.66	0.66	0.66	0.66
N	1305	1305	1305	1305	1305	1305	1305
	Panel B. Outcome: Mean Duration						
Aid pc # MP Characteristic	0.07	0.06	-0.03	0.00	0.10	0.01	0.05
	(0.05)	(0.05)	(0.04)	(0.05)	(0.06)	(0.09)	(0.05)
Aid pc	0.12	0.11	0.19**	0.15*	0.14**	0.17**	0.13*
	(0.07)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.07)
MP Characteristic	-0.09	-0.25	0.18	-0.06	-0.58***	0.00	-0.29*
	(0.14)	(0.17)	(0.16)	(0.16)	(0.22)	(.)	(0.17)
R^2	0.75	0.75	0.74	0.75	0.75	0.74	0.75
N	1305	1305	1305	1305	1305	1305	1305

Notes: All columns are OLS specifications with fixed effects where the unit of analysis is a constituency-year. Two interaction terms include the one between *Aid pc* and *MP characteristic* (shown), and the other between *Aid pc* and *Competitiveness* (not shown). Except for the two terms reported in the table, the other constitutive terms are omitted. There exist three ways of coding copartisan and coethnic MP during 2008-10 due to the power-sharing agreement between Mwai Kibaki and Raila Odinga: copartisan/coethnic as (1) both, (2) Kibaki, and (3) Odinga. *Median Duration* and *Mean Duration* are the median and mean of the duration of CDF projects in a constituency, respectively. *Competitiveness* is measured by the absolute difference between the winner's and the runner-up's vote share in the general election. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log CDF Disbursement*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

Table F6: The Effect of Aid on the Time Dimension of CDF Investment by Year

Outcome	Duration of CDF Project				
Interaction Year	2004	2005	2006	2007	2008
	(1)	(2)	(3)	(4)	(5)
	Panel A. Outcome: Median Duration				
Aid pc # Interaction Year	-0.04	0.04	-0.11**	-0.11*	0.17**
	(0.09)	(0.08)	(0.05)	(0.06)	(0.07)
Aid pc	0.26**	0.25**	0.30***	0.27**	0.27**
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
R^2	0.66	0.66	0.66	0.66	0.66
N	1305	1305	1305	1305	1305
	Panel B. Outcome: Mean Duration				
Aid pc # Interaction Year	-0.02	0.03	-0.05	-0.05	0.10**
	(0.05)	(0.04)	(0.03)	(0.04)	(0.04)
Aid pc	0.16**	0.15**	0.17**	0.16**	0.17**
	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)
R^2	0.75	0.75	0.75	0.75	0.75
N	1305	1305	1305	1305	1305

Notes: All columns are OLS specifications with fixed effects where the unit of analysis is a constituency-year. Two interaction terms include the one between *Aid pc* and *Year* (shown), and the other between *Aid pc* and *Competitiveness* (not shown). Except for the two terms reported in the table, the other constitutive terms are omitted. Note that Year 2007 is the election year. *Median Duration* and *Mean Duration* are the median and mean of the duration of CDF projects in a constituency, respectively. *Competitiveness* is measured by the absolute difference between the winner's and the runner-up's vote share in the general election. Covariates included but not shown across all specifications are *Log CDF Allocation*, *Log CDF Disbursement*, *Log Population*, *Poverty Rate*, *Copartisan MP*, *Coethnic MP*, *MP gender*, *Incumbent MP*, constituency-fixed effects and year-fixed effects. Robust standard errors, clustered at the constituency level, are reported in parentheses. ***, **, and * denote significance at the 1, 5, and 10 percent levels, respectively.

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