

ABSTRACT

Title of dissertation: THE DEMAND FOR AID AND
THE SUPPLY OF DEVELOPMENT

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Though citizens in developing countries are the ostensible beneficiaries of international development, projects and policies are designed well above those on the ground. This dissertation collects three papers on the consequences of international development from the perspective of these intended beneficiaries. In the first paper, I argue that citizens in societies inundated with foreign aid have preferences for different types aid projects, favoring certain donors, certain sectors, and certain implementation styles over others. I develop a model in which the political returns to satisfying voter preferences motivate the distribution of aid by a recipient government. The results of this model correspond to the optimal distribution of aid projects given citizen demand. I estimate the demand for many types of aid projects using a conjoint experiment fielded in Uganda and compare this demand to the observed allocation of aid. In the second paper, I focus on the unintended political consequences of internal displacement during civil war, a decision prioritized by domestic governments but made possible with the help of international donors. Using a randomized response experiment, I show that returned internally displaced peoples in Northern Uganda are often the targets of vote buying in post-conflict elections and suggest that the removal of citizens from their land causes a severe economic shock, making the displaced particularly susceptible to vote buying. In the final paper, I explore the unintended economic consequences of government fragmentation. While the creation of new subnational administrative units intends to bring the government “closer to the people”, I argue that many fragmented units lack the requisite administrative capacity to fulfill the provision of public goods. Combining remote-sensed development data in Burkina Faso with a difference-in-differences design, I show that communities within newly created units are often left behind.

The Demand for Aid and the Supply of Development

by

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Dedication

To mom and dad.

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Introduction

Disparities in economic well-being across the world are extreme. In sub-Saharan Africa, over 40 percent of people live on less than \$1.90 per day. In Burkina Faso and Uganda – the contexts of this dissertation – per capita income is about \$700, less than 2 percent of per capita income in the average OECD country. International donors and developing-country governments often partner in response to these substantial disparities, with donors transferring over \$7 trillion in aid since 1947 (see aiddata.org). The intended beneficiaries of these efforts – citizens and communities within recipient countries – are often lost in this process. This dissertation refocuses directly on these intended beneficiaries, highlighting the unintended political and economic consequences of top-down development.

Chapter 1 is motivated by the political implications of attempts to improve development via the distribution of foreign aid projects in Africa. In societies inundated with these projects, I argue that citizens develop distinct preferences for certain types of aid relative to others, favoring certain sectors, certain donors, and certain implementation styles. While citizen preferences are important for “local ownership” in the development process, theories of electoral accountability imply that citizen preferences are also important for politically motivated recipient elites

looking to maximize citizen support (e.g. De Kadt and Lieberman, 2017). Existing research suggests that politicians and officials indeed consider the political implications of the distribution of aid, targeting projects towards select constituencies (e.g. Jablonski, 2014; Briggs, 2014) and campaigning on delivering aid, even without true claims to a project's implementation (Cruz and Schneider, 2017). However, existing work rarely consults citizens directly, making evidence of whether governments in fact respond to citizen preferences scant.

To fill this gap, I introduce a theoretical model in which citizen preferences determine the optimal distribution of aid. I show that, once aggregated, these preferences imply the demand for each type of aid project, corresponding to the share of aid that would be allocated towards each project if citizens were fully considered by their government. I then estimate the demand for different types of aid projects using a conjoint experiment fielded in Uganda, the results of which indicate that citizen demand for social development projects like education and healthcare is strong enough to outweigh concerns of government involvement and preferences for specific donors. Comparing this demand to the observed distribution of aid in recent years, the Ugandan government has substantially over-provided transportation infrastructure. This suggests that the government likely values opportunities for corruption (e.g. Winters and Martinez, 2015) and highly visible evidence of development (e.g. Harding, 2015) more than responding to citizen demand.

Chapters 2 and 3 highlight how development decisions, often stemming from joint efforts between international actors and domestic governments, produce unintended consequences. In Chapter 2, I focus on the unintended political impli-

cations of internal displacement during civil war. I show how displacement in Northern Uganda – prioritized by the Ugandan government but made possible by international donors – altered the dynamics of vote buying after the displaced returned to their homes. I again turn to experimental methods, this time to minimize social desirability bias. Social desirability bias in this context stems from asking respondents about selling their votes in previous elections, a practice that is both illegal and social frowned upon. I use a variant of the randomized response experiment, which relies on rolls of dice to provide cover for respondents answering sensitive questions, ensuring that not even the survey enumerator knows a respondent’s true answer. The results of this experiment show that returned internally displaced peoples (IDPs) are more often targeted with vote buying than non-IDPs. I argue that this effect is most consistent with the logic of internal displacement as a severe economic shock, one that makes former IDPs more efficiently targeted than non-IDPs. I suggest that this economic shock is due in large part to the removal of IDPs from their land and difficulties regaining it post-displacement given informal land tenure.

In Chapter 3, I shift to the unexpected economic consequences of reform intended to improve development by bringing the government “closer to the people”. I show that the creation of new government units in Burkina Faso – prioritized and funded by the international donors but implemented by the Burkinabe government – resulted in perverse development outcomes for a substantial subset of communities. This analysis again draws on experimental methods, though this time with a hypothetical experiment in mind, one in which the Burkinabe govern-

ment randomly allocated the creation of administrative units across the country. Comparing development outcomes between communities that happened to be assigned a new unit with those that did not would therefore tell us something about the causal effect of government fragmentation. Since an actual experiment would be both impractical and unethical, I instead use a difference-in-differences design, which approximates this experimental ideal by leveraging the repeated measurement of local development outcomes before and after fragmentation.

This dissertation's focus on the unintended consequences of development efforts has led to very granular levels of analysis. In Chapters 1 and 2, the turn to the voter-level implications of foreign aid and internal displacement requires tailored voter-level data. To fill this gap, these chapters rely on original survey data drawn from around 1,300 households across Northern Uganda.¹ In Chapter 3, the emphasis on the community-level effects of government reform necessitates community-level development data. The availability and quality of development data across much of Africa, however, is poor, even at the country-level (Jerven, 2013). I turn to remote-sensed imagery of nighttime light intensity, sidestepping this issue by measuring the provision of electricity from space.

Taken together, this dissertation suggests that development decisions must be made with unintended consequences on the ground in mind. Like the political implications of foreign aid distribution and internal displacement in Chapters 1 and 2, these consequences may be ostensibly unrelated to the initial goals of a policy. In other cases, the consequences may be directly related but antithetical to

¹University of Maryland-College Park IRB protocol 1220744-3

a policy's purpose, as in Chapter 3. While predicting unintended consequences is more difficult than exploring them post-hoc, an understanding of the political-economic incentives created by development decisions coupled with a keen focus on context – be it post-conflict recovery and clientelistic political competition in Northern Uganda or weak and unevenly distributed administrative capacity in Burkina – will guide practitioners in the right direction.

1

The Demand for Aid

Abstract

Existing work suggests that recipient governments selectively allocate their portfolio of aid projects to draw political support from their citizens. This paper introduces a formal model that allows citizens to hold heterogeneous preferences for aid projects along both cost and non-cost dimensions, including the type of project, the donor, and the level of recipient government involvement. The results of this model indicate the politically optimal share of aid allocated to each type of aid project given citizen demand. I then directly estimate the weight citizens place on the theoretically specified cost and non-cost dimensions of aid projects using an original conjoint experiment from around 1,300 respondents in Northern Uganda. These experimental weights enter the formal model to estimate the demand for aid in Northern Uganda, the results of which imply substantial political returns to allocating social development projects and only slightly less demand for non-traditional donors. Comparing equilibrium demand to the observed distribution of aid in the region, the Ugandan government has substantially over-provided Western-funded transportation projects.

Prevailing perspectives on foreign aid suggest an important role for citizen preferences. Donors operate within the paradigm of “local ownership”, with citizen engagement often stated as crucial for effective development.¹ Beyond effectiveness, existing work suggests that the implications of electoral accountability motivate the distribution of aid, with recipient governments allocating a larger share of aid to important political constituencies (e.g. Jablonski, 2014; Briggs, 2014) and local politicians campaigning on the successful delivery of projects demanded by their voters (e.g. Cruz and Schneider, 2017). Yet academic work rarely focuses on the preferences of recipient citizens. As such, we lack a theoretical framework for conceptualizing these preferences, evidence regarding what these preferences look like, and evidence regarding how well recipient governments target the projects demanded by their voters.

This paper seeks to address these gaps, making three principle contributions. First, I specify a model which captures the stylized context in which a recipient government is fully accountable to citizen preferences for aid. Absent unlimited access to aid, targeting aid towards one type of project necessitates limiting investment elsewhere. The government must therefore define a portfolio of aid projects that balances the heterogeneous preferences of their citizens with limited resources. I use a formal model and computational algorithm to simulate a solution to this dilemma, the results of which indicate the optimal share of aid targeted

¹The United States Agency for International Development (USAID), for example, follows a framework in which “Inclusive country ownership means that development priorities are established in ways that are broadly responsive to citizen needs and aspirations. Inclusive country systems also recognize that all parts of society – certainly governments, but also civil society, the private sector, universities and individual citizens—have important resources, ideas and energy that are essential to sustaining development” (USAID, 2014, p. 3).

towards each type of project given citizen demand.

Second, I estimate citizen preferences for different types of aid projects via a conjoint experiment fielded in Northern Uganda from around 1,300 households. Whereas existing applications have used conjoint experiments for understanding individual-level political preferences, this paper offers a unique extension to the provision of development projects.² Results from this experiment show that Ugandan voters are sensitive to project cost, the type of aid provided, and the donor partner, but not the level of recipient government involvement in the project.

Third, I combine the conjoint estimates with the formal model to estimate citizen demand for 72 different configurations of aid projects in Northern Uganda. The results of this optimal choice problem indicate what the distribution of aid would look like if the Ugandan government defined an aid portfolio in the context of full citizen accountability. Constrained by their voters, the Ugandan government could maximize support by distributing social development projects – specifically, projects targeting healthcare, education, and water supply – funded by Western donors. However, citizens only slightly prefer Western donors over non-Western donors like China and Japan once accounting for the sector targeted.

I then explore the degree to which the Ugandan government responds to citizen demand in practice by comparing the model estimates to the observed distribution of aid over the last decade. Relative to citizen demand, the Ugandan

²Conjoint experiments have been recently used to estimate citizen preferences for types of immigrants (Hainmueller and Hopkins, 2015), politicians (Carlson, 2015), policy preferences (Horiuchi et al., 2018), and perceptions of terrorism (Huff and Kertzer, 2018). In an application most substantively related to this paper, Heinrich and Kobayashi (2018) present a conjoint design estimating preferences for the provision of foreign aid to different types of regimes from the perspective of citizens in donor countries.

government has substantially over-invested in roads funded by Western donors. This over-provision suggests that the opportunities for corruption that often follow large-scale infrastructure likely outweigh the potential electoral costs of slighting voter preferences (Winters and Martinez, 2015). These projects may also be over-provided because they are more “visible”, increasing the likelihood voters attribute the delivery of aid to incumbent politicians (Harding, 2015). Perhaps counterintuitively, the results also show that the Ugandan government has over-provided healthcare projects from Western donors and under-provided all projects from non-Western donors. These findings underscore the importance of considering relative demand as a function of total spending rather than baseline preferences alone and suggest that the over-provision of specific types of aid runs counter to the general demand for a diverse set of donors and projects.

By refocusing on citizen demand for projects, this paper challenges existing understandings of the politics of aid. Previous work on aid at the individual level understates the importance of project type in driving citizen preferences for projects (Findley et al., 2017a). By contrast, I show that citizens in fact exhibit strong preferences for different types of projects, with social development projects substantially preferred to infrastructure projects. Additionally, though recent work at more aggregate levels of analysis has suggested that Chinese aid is particularly susceptible to elite corruption and political manipulation (Dreher et al., 2016; Isaksson and Kotsadam, 2018), the results presented here imply that citizens are similarly averse to non-Western donors in general, including Japan, and to a lesser extent, the African Development Bank. This suggests that the perceptual differences be-

tween donors are more important than material differences in their donor ability to implement successful projects. Finally, citizens were almost entirely unresponsive to variation in levels of involvement by their recipient government in the implementation of aid projects. This result is particularly important in the context of existing evidence, which suggests that citizens prefer aid projects relative to government projects because of perceptions of corruption (Findley et al., 2017a; Milner et al., 2016).

1.1 Modeling the Demand for Aid

This section models the optimal allocation of aid projects as a function of citizen preferences, adapting the utility functions and equilibrium conditions from Arenoe et al. (2015). In a stylized context, citizen-level preferences may be used to inform the behavior of the key decision-makers that design and allocate aid projects – donors and recipient governments. Consider the scenario in which a recipient government seeks to decide how much aid to allocate towards different types of projects and from which donors. Simplifying to only two types of projects, q and j , this goal may be defined as optimizing

$$R_q = DM_q(P_q|P_j, X_q, X_j)P_q, \quad (1.1)$$

where R_q is the total return to implementing project q when project cost is P_q and the non-cost attributes are X_q . Non-cost attributes include all descriptive qualities

of a project, like the sector targeted and the donor. Similarly, P_j and X_j captures the cost and non-cost attributes for project j , respectively. Total demand for foreign aid projects is represented by the constant D , while the share of aid – referred to throughout as “aid share” – of project spending directed towards project q is M_q . The intuition of Equation 1.1 is that the share of aid allocated towards project q varies as a function of not only its own attributes, but also as a function of the attributes of project j .

I assume that the recipient government and donors are concerned with maximizing citizen utility when defining an aid portfolio. This is not to say that donors and recipients behave this way in reality; there are various reasons to believe that they do not. For example, elites within recipient governments are often decried for looking out for their own interests rather than the interests of their citizenry (see Moyo, 2009, among many others). Citizens may also fail to be heard by donors (e.g. Gibson et al., 2005) and donors often fail to coordinate their efforts (e.g. Easterly, 2007).

Yet this modeling assumption is a particularly useful one – it allows for the identification of what the distribution of aid would look like if donors and recipients did respond to citizen demand, a baseline which can then be compared with the observed distribution of aid (see Section 1.4.3). From an international development perspective, this corresponds to building a model with “local ownership” from the perspective of citizens at its core, therefore capturing a key tenant of the current aid effectiveness paradigm.³ From a political theory perspective, this

³Ownership was enshrined in the 2005 Paris Declaration on Aid Effectiveness, which was signed

assumption corresponds to the implications of full electoral accountability in the context of the public goods provision (e.g. De Kadt and Lieberman, 2017). Existing work on the subnational politics of aid suggests that recipient politicians and officials indeed consider electoral implications when distributing aid, allocating aid towards electorally valuable constituencies in Ghana (Briggs, 2012), India (Nunenkamp et al., 2017), and Kenya (Briggs, 2014; Jablonski, 2014). Local politicians also campaign on the delivery of aid projects, even in cases in which they have no credible connection to the project's allocation or implementation (Cruz and Schneider, 2017).

The assumption is therefore that recipient governments derive returns from distributing aid projects preferred by their citizens. Citizen preferences may be operationalized as

$$U_{iq} = \sum_{k=1}^K \beta_{ik} X_{kq} + A_i P_q, \quad (1.2)$$

where U_{iq} is the utility citizen i derives from project q with K attributes. The weight A_i is the disutility associated with the cost of a project for citizen i . The non-cost attribute k is present in project q when $X_{k=1}$. The utility associated with attribute k for citizen i is captured by the parameter β_{ik} . The parameters A_i and β_{ik} are indexed by citizen, allowing for the disutility associated with project cost and the utility attached to each project attribute to vary across individuals and therefore groups of interest. Following work in economics and optimal product design (e.g.

by over 100 countries and donors. Subsequent agreements like the 2008 Accra Agenda for Action further pushed the importance of country and local ownership for aid effectiveness.

McFadden, 1973, 1986; Arenoe et al., 2015), the citizen-level choice problem may be operationalized as

$$Pr(Y_i = q) = \frac{\exp(U_{iq})}{\exp(U_{iq}) + \exp(U_{ij})}, \quad (1.3)$$

with citizen i preferring project q if and only if $U_{iq} + \epsilon_{iq} > U_{ij} + \epsilon_{ij}$. By considering the average project preferences across all individuals, this specification readily becomes

$$M_q = \frac{\exp(U_q)}{\exp(U_q) + \exp(U_j)}, \quad (1.4)$$

where M_q is the share of aid allocated towards project q given citizen preferences that afford maximum returns.

1.1.1 The dimensions of aid demand

This section makes explicit the cost and several non-cost dimensions of aid projects that drive variation in U_{iq} and therefore M_q .⁴ Importantly, while some preferences may be driven by tangible factors (e.g. the need for certain types of development rather than others), this need not be the case. Perhaps more important are the less tangible factors like *perceptions* of donor and/or government competence.⁵ In the following sections, I describe the material and perceptual concerns that are likely

⁴While I draw on existing work to identify these dimensions, the model is general enough to incorporate any set of dimensions that may be important in a given application.

⁵The importance of perceptions here is analogous to the valence dimension in common spatial models of voting (e.g. Adams et al., 2005).

important.

How much will the project cost?

The first dimension of the demand for aid is project cost. While “aid” implies that donors will fund all or most of a project, this need not be the case. To be considered foreign aid, the grant portion of a project’s funding must total at least 25 percent, but donors and recipients have significant bargaining room regarding how the rest of the funding will be comprised.⁶ At one extreme, a project may be entirely a grant, with no expectation that the recipient will bear any cost. For other projects, beyond the 25 percent grant component, recipients may receive loans – concessionary or otherwise – from development finance institutions or may agree to fund portions of a project directly from their own coffers. Some aid projects also require “in-kind contributions” in which recipient communities provide inputs to a project, like labor or supplies rather than direct financial support.

Previous work at the microlevel has considered the issue of project cost as only tangentially important from the perspective of citizens. For example, Findley et al. (2017a) conducted a survey experiment in which government elites and normal Ugandan citizens were randomly assigned either government spending or foreign aid projects. All respondents were prompted that projects “may require your community to provide funding” prior to eliciting responses. According to the authors, this priming was necessary since “...aid may be perceived as ‘free money’ whereas

⁶The OECD defines official development assistance (ODA) as “Flows of official financing administered with the promotion of the economic development and welfare of developing countries as the main objective, and which are concessional in character with a grant element of at least 25 percent.”

government programs may imply increased taxes” introducing concern that “...offering a project without any noted costs might lead all subjects to support it” (Findley et al., 2017a, p. 644). To confirm that perceptions of cost did not bias their main results, Findley et al. (2017a) randomly assigned the cost prompt to half of their sample in a smaller follow-up study, the results of which indicated that the perceptions of cost were an unimportant predictor of citizen preferences for aid projects over government spending. The authors suggest that this null result is likely due to the nature of taxation Uganda: many Ugandans are not subject to an income tax because they earn too little; many citizens also avoid indirect taxation because they operate outside of the formal economy. Government projects and aid projects may both therefore be perceived as “free” by survey respondents because most Ugandan citizens do not directly contribute to their funding.

While Findley et al. (2017a) address the issue of project cost primarily for reasons of internal validity, I argue that it is a fundamentally important component of project design because of its implications for recipient citizens. Conceding that citizens in developing countries may not internalize project cost through a taxation mechanism, I suggest that, all else equal, citizens are incentivized to prefer lower cost to higher cost projects for at least two reasons. First, governments are constrained in their ability to internally fund development projects; if not, there would be no need to seek foreign aid. This budget constraint implies that, as the share of development projects funded directly by recipient countries increases, the available resources to fund additional projects falls. Second, and relatedly, a cash-strapped recipient government may instead rely on financing to fund the

non-grant portion of an aid project. Taking on external debt, however, is negatively associated with economic growth and public expenditure, implying that the negative externalities of this option will permeate down to average citizens (e.g. Nguyen et al., 2003). The empirical expectation is therefore that citizens should prefer lower cost (i.e. a larger grant component) to higher cost projects; in the language of the model, the parameter A_i should be negative.

What is the good?

The first non-cost dimension of aid demand is project type. In the most trivial sense, if citizens do not perceive a need for a particular good, it is unlikely that citizens will demand a project delivering such a good. However, in many aid-dependent countries, a weak provision of nearly all public goods implies that the intended output from most types of aid projects would fill some need. The question then becomes: given that many types of public goods and services are needed, what types of aid projects do citizens prioritize and why?⁷

The answer to this question requires a consideration of not only the intended output of a project, but also the perceived likelihood that the intended output will be realized. Existing work suggests that recipient capture is perhaps the most important barrier to aid project success in the developing world. Van de Walle (2001, p, 208) describes how projects were often manipulated by African elites for private gain in the 1980s to the detriment of successful development:

⁷Findley et al. (2017a, p. 544) make a similar comment regarding their finding that project type appeared unimportant in their Ugandan sample, stating that this "...may reflect the fact that both types of projects are desperately sought after in Uganda."

Government officials came to view donor resources as a series of free excludable benefits to be appropriated: the project vehicle, the cash for operating expenses, the 'sitting fees' to attend meetings and so on... Project jobs, fellowships, housing, cars, and various types of procurement were often doled out on the basis of family, ethnicity, or political affiliation rather than merit.

In some cases, local officials divert aid funds into private coffers. For example, Reinikka and Svensson (2005) show that over 85 percent of education funding in Uganda between 1991 and 1995 was captured by government officials and political elites. Projects may also be subject to more indirect diversion as well through manipulation of the bidding and procurement process. In a well known case, Olken (2007) estimated that the reported expenditures on road projects in Indonesia were on average 24 percent higher than actual costs, with this excess kicked back to local elites.

This type of corruption and political capture is not equally probable across all types of aid projects or for the provision of public goods more generally (e.g. Kramon and Posner, 2013). Large infrastructure projects, like the construction of roads and electrification grids, are known to be prone to both large scale capture and petty corruption. By contrast, social development projects, like those aimed at improving education and health outcomes, are less susceptible to these issues. To Winters and Martinez (2015, p. 519), "As compared to monitoring the costs and quality of input in a large infrastructure project, it is somewhat easier to monitor the delivery of medicines or vaccines in a health sector project or the provision of teachers or textbooks in an education sector project." Social development projects often have *programmatically properties* – the rules of distribution are known, public,

and enforced (Stokes et al., 2013). For example, beneficiaries of donor-sponsored programs like *Progresa/Oportunidades* in Mexico were selected on the basis of specific measures of need. According to Diaz-Cayeros et al. (2016), the reliance on this selection criteria greatly reduced the ability of the government to leverage its own discretion in allocating project benefits, which, in turn, limited the potential for project capture and ensured a wide distribution of benefits. The implication of this work is therefore that citizens likely prefer social development projects to infrastructure projects.

Who is the donor?

The second non-cost dimension influencing aid demand comes from variation across donors. The weak provision of public goods in many developing countries suggests that citizens likely support a wide swath of donor activity. The key consideration, therefore, is what types of donors are perceived as most competent in achieving their stated developmental purposes. The importance of this dimension hinges on the assumption that citizens are at least minimally aware of what donor is providing a given development project. Efforts by donors to “brand” their projects bolsters the validity of this assumption. According to Dietrich et al. (2018), donors often construct signs to convey their role in a development project to recipient citizens. In Section 1.2, I describe the presence of such branding in the empirical context of this paper.

There are two likely sources of variation in citizen perceptions of donor competence. First, existing research at the country-level has shown important variation

between bilateral and multilateral donors, which may in turn influence citizen perceptions of effectiveness. Bilateral aid – which flows from a single country – is often allocated for political-strategic purposes, rather than for development per se. In some cases, friendly donors may even distribute aid specifically to “prop up” a recipient incumbent (Licht, 2010). To the dismay of the average citizen, bilateral donors may actually prefer that recipient elites capture aid to their own political advantage.

Multilateral donors include development institutions that are funded by multiple countries, like the World Bank and European Union, as well as regional development institutions like the African Development Bank, the Asian Development Bank, and the Development Bank of Latin America. Unlike bilateral donors, multilateral institutions aggregate the political preferences of several actors, reducing the likelihood that any one country will be able to reflect its own political-strategic goals in the distribution of aid (Martens et al., 2002). Because multilateral donors are at least partially more divorced from using aid as a political tool, Milner (2006) argues that they are better able to fulfill their development mandate. Though they find only minimal evidence of variation in citizen preferences for multilateral versus bilateral donors, Findley et al. (2017b) suggests that the average Ugandan sees multilateral donors as more trustworthy and transparent than their bilateral counterparts. The empirical expectation is therefore that citizens likely prefer multilateral to bilateral aid projects.

Second, existing perspectives suggest that perceptions of donor competence likely vary between “traditional” Western donors and China. As the most signifi-

cant non-Western donor in Africa, the Chinese and their approach to development assistance has received an increasing amount of attention. Dreher et al. (2016) refer to the Chinese model as “demand-driven” – recipient governments make some request for potential development assistance and if the Chinese choose to fund the project, they do so without attaching conditions. This approach is derived from China’s policy of “non-interference,” avoiding interjections in the domestic politics of foreign countries (Brautigam, 2009). Some argue that this approach is especially sensitive to recipient capture. Tull summarizes this view:

Chinese aid tends to benefit the governments of receiving countries more directly than the policies of Western donors, who are preoccupied with the reduction of poverty. The Chinese, unlike Western countries, finance grandiose and prestigious buildings (presidential palaces, football stadiums) that African leaders highly appreciate for their own political reasons (Tull, 2006, p. 467).

Isaksson and Kotsadam (2018) show that this effect reaches average citizens, with perceptions of local corruption increasing near Chinese aid projects, while perceptions of corruption appear unaffected by World Bank projects. The implication of this discussion is therefore that citizens likely prefer non-Chinese aid to Chinese aid. Recent evidence has begun pushing back on the “rogue donor” narrative surrounding Chinese aid. For example, African citizens tend to see Chinese assistance as beneficial (see round 6 of the Afrobarometer). Of those aware of Chinese aid, 71 percent of East Africans, 73 percent of West Africans, and 53 percent of Southern Africans surveyed view it as doing somewhat or a very good job. Using both observational and experimental evidence, Blair and Roessler (2018) find that Chinese aid has little-to-no influence on citizen perceptions of their government. In the

experimental design, I contribute to adding nuance to this debate by including several other non-Western donors in addition to China.

Is the government involved?

The final non-cost dimension is the level of recipient government involvement. Aid projects fall on a spectrum from minimal to substantial government involvement. Beginning at the minimal end, donors may attempt to deliver aid to citizens without channeling through recipient government institutions. This strategy – known as “bypass aid” – is often used when recipient governments are deemed corrupt or incompetent (Dietrich, 2013). Bypass aid projects may be either implemented directly by the donor or through NGOs. At the other end of the spectrum, donors channel the implementation of other aid projects through recipient government institutions.

Existing evidence suggests that citizens likely prefer only minimal government involvement. For example, Winters et al. (2017) show that citizens exposed to information that the United States funded a development project in Bangladesh were more likely to perceive the project as successful than those without this information. Further, absent donor involvement, political actors often make dynamically inconsistent bargains that result in project incompleteness (Williams, 2017). The preference for donor-led projects is likely magnified for in the context of widespread perceptions of corruption. The average Ugandan, for example, is more likely to prefer an aid project to a government project if they view the government as corrupt (Findley et al., 2017a). The implication is that citizens likely prefer limited to

substantial government involvement.

1.1.2 Equilibrium citizen demand

The previous section has described how citizen demand for aid projects likely varies given different levels of project cost and configurations of non-cost project attributes. As specified in Equation 1.1, the government must consider how the allocation of aid towards one type of project shifts how much aid they can provide towards other projects. This implies that each project has a Nash equilibrium aid share, where changing the share of aid targeted towards a project cannot improve overall returns given the share of aid allocated towards all other projects. In the two project case, equilibrium positions are found by differentiating the return to each project with respect to cost:

$$\frac{\partial R_q}{\partial P_q} = P_q \frac{\partial M_q(P_q|P_j, X_q, X_j)}{\partial P_q} + M_q(P_q|P_j, X_q, X_j) = 0 \quad (1.5)$$

$$\frac{\partial R_j}{\partial P_j} = P_j \frac{\partial M_j(P_j|P_q, X_q, X_j)}{\partial P_j} + M_j(P_q|P_j, X_q, X_j) = 0 \quad (1.6)$$

Mapping the citizen-level utility functions in Equation 1.2 to these derivatives and generalizing to all Q projects ($Q \geq 2$, suppressing i subscripts for each citizen),

equilibrium aid shares become

$$P_q \frac{\partial \frac{\exp\left(\sum_{k=1}^K \beta_k X_{kq} + AP_q\right)}{\sum_{j=1}^1 \exp\left(\sum_{k=1}^K \beta_k X_{kq} + AP_q\right)}}{\partial P_q} + \frac{\exp\left(\sum_{k=1}^K \beta_k X_{kq} + AP_q\right)}{\sum_{j=1}^1 \exp\left(\sum_{k=1}^K \beta_k X_{kq} + AP_q\right)} = 0, \forall q \in Q. \quad (1.7)$$

To illustrate the implications of this model, I simulate data on 198 citizens, each of which are sensitive to the cost and non-cost dimensions of aid projects described above. The cost disutility parameter A_i is drawn from a normal distribution with a mean of -0.01 for each citizen and a standard deviation small enough to ensure that all prefer lower cost projects.⁸ As depicted in Figure 1.1, there are two levels per non-cost attribute. As with the cost parameter, the weight each citizen attaches to a level being present in a given project – $\beta_{i,k}$ – is drawn from a multivariate normal distribution, the mean of which is defined in the table in Figure 1.1.

In this setup, there are $2 \times 2 \times 2 = 8$ total projects available for the government to choose from. To estimate equilibrium aid shares, I use a computational algorithm that iteratively solves for the optimal aid share for each project given the shares of all others. This algorithm draws mostly from Arenoe et al. (2015), who model a market for hotels in the context of price and non-price competition and Calvo and Murillo (2019), who model electoral competition when parties make both policy and non-policy offers to voters.⁹

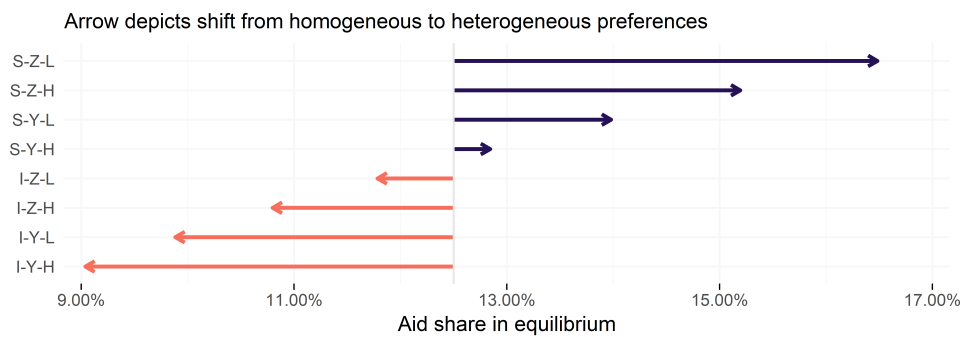
⁸ $A_i \sim (-0.01, 0.001)$.

⁹In Arenoe et al. (2015), the authors use only the average preference and cost disutility in their functions. By contrast, I define a preference set and cost disutility for each citizen, though drawn

Consider the case where citizens view all projects similarly. The weight the average citizen attaches to each level is shown in Figure 1.1 as *Homogeneous preferences*. The utility the average citizen associates with both levels within each attribute is the same. Figure 1.1 plots the equilibrium aid shares for all 8 projects. Intuitively, the optimal aid share for the entire menu of projects converges towards 0.125 ($\frac{1}{8}$) and equilibrium cost collapses to the median, though cost is not plotted in this example. Given homogeneous cost and non-cost preferences, donors and the recipient government may therefore design an aid portfolio that maximizes citizen support by directing an equal share of assistance towards all projects.

Figure 1.1: Equilibrium aid shares with simulated data

Attribute	Level	Homogeneous preferences	Heterogeneous preferences
Project	I	0.3	0.3
	S	0.3	0.6
Donor	Y	0.2	0.2
	Z	0.2	0.4
Gov. Involvement	H	0.1	0.1
	L	0.1	0.2



A general contention of this paper, however, is that citizens attach heterogeneous weights to the different dimensions of aid projects. For simplicity, I allow from the same distribution as in Calvo and Murillo (2019). The R code implementing this algorithm may be found in the Appendix.

one level within each attribute to be twice as preferred by the average citizen as the alternative level. These weights are depicted under *Heterogeneous preferences* in Figure 1.1. Movement in equilibrium positions when shifting from homogeneous to heterogeneous weights is shown by the lines and arrows emanating from the homogeneous equilibrium positions. The primary result of this exercise is that the most strongly preferred projects crowd out the lesser preferred projects in aid share. Note that the sum utility derived from even the least preferred project, I-Y-H, remains identical to its sum utility in the homogeneous case, yet because this total utility relative to the total utility of the other projects has decreased, its aid share equilibrium has also decreased.

While this section has illustrated the mechanics of estimating equilibrium aid shares, a key contribution of this model is that each theoretical parameter is estimable via survey-experimental data. The next section describes the context in which this approach is implemented.

1.2 Foreign Aid in Northern Uganda

This study focuses on estimating the demand for aid in Northern Uganda. This is a particularly important case for at least two reasons. First, Uganda is one of the most aid-dependent countries in the world. As of 2016, the country's ODA to government spending ratio – a common measure of aid dependence – totaled over 0.53; only four non-island states in the world exhibit more severe aid de-

pendence.¹⁰ Second, donors have widely touted Uganda as a model aid recipient. Since taking power in 1986, President Museveni has been willing to concede to many donor conditions. However, these concessions have tended to revolve around economic liberalization, while political change has been scarce (Englebert and Tull, 2008). In fact, Museveni and other Ugandan elites have successfully leveraged foreign aid to maintain patronage networks, ensuring the political survival of the current regime (Mwenda and Tangri, 2005). Ugandan aid has also been subject to notable corruption. In recent years, for example, the Prime Minister managed to graft around €12 million from the Irish and a few Scandinavian countries.¹¹ In 2018, for example, government officials were caught manipulating refugee numbers in order to coax more aid from the UN and the European Union.¹² While aid has been subject to both political and economic capture by Ugandan elites, the benefits of aid for the average Ugandan citizen are unclear. This has created what Jones (2009) refers to as “two Ugandas:” one dominated by development practitioners and government elites, and another occupied by the vast majority of citizens, most of whom see the donor activity yet rarely feel any progress.

Though the entire country is dependent on aid, I focus on Northern Uganda because it has been particularly inundated with donor activity in over the last decade.¹³ This influx is largely attributable to post-conflict development efforts

¹⁰In order of highest to lowest ODA to government spending ratio, these countries are Malawi, Rwanda, Mali, and Burkina Faso (see oecd.org/dac/stats/idsonline).

¹¹See transparency.org/news/feature/aid_robbed_in_uganda_what_can_be_done.

¹²See <https://dailym.ai/2zqBRM8>.

¹³This discussion draws on interviews conducted with several government officials and military officers in Northern Uganda in June of 2018.

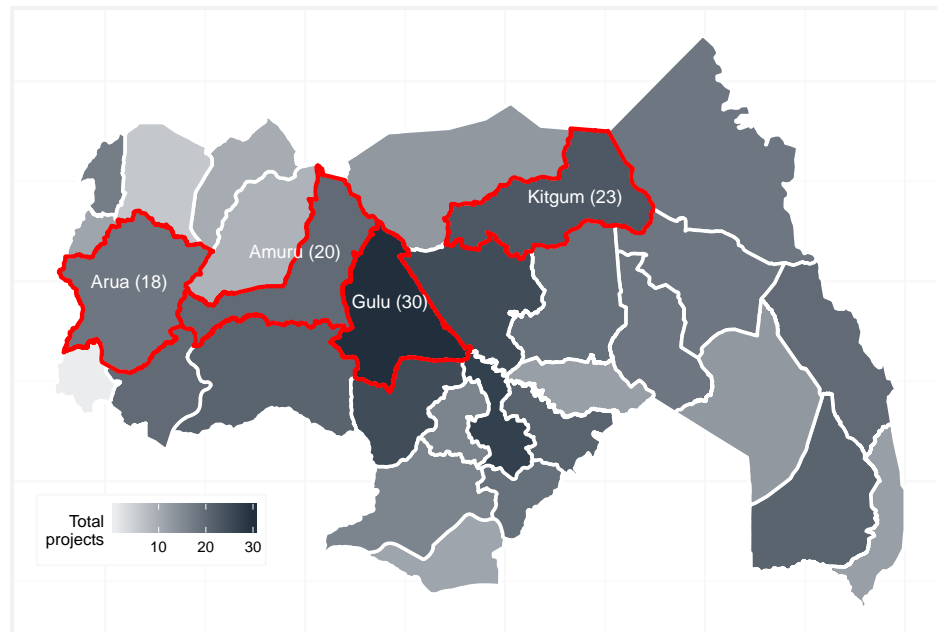
following the decades-long insurgency of the Lord's Resistance Army (LRA). The LRA terrorized almost the entire Northern half of Uganda between the late 1980s and 2006, when the rebels were pushed out of the country. Beginning in 1996, northerners were forcefully displaced into internal displacement camps. By 2003, nearly all rural northerners inhabited IDP camps (Branch, 2009). Donors were active during the insurgency, providing humanitarian assistance to sustain the internally displaced population. However, investment in more general types of development came to a halt, leaving the North substantially behind the rest of the country.

After the insurgency waned, donors took root in the North – primarily in the town of Gulu – and turned towards post-conflict reconstruction projects. Between 2009 and 2016, over 500 foreign aid projects were implemented.¹⁴ Shown in Figure 1.2, every northern district received at least some attention from donors, though projects indeed concentrated around Gulu, the district with the most projects over this time period. Some of the largest projects include a Japanese funded rural electrification project, a Chinese funded roads project, World Bank funded roads and electrification projects, and United States funded healthcare and civil society projects.

The saturation of development activity in Northern Uganda is highly visible to the surrounding citizens. On seemingly every corner, a sign describes some current or former aid project, outlining at a minimum the donor and the goal of the

¹⁴Since many foreign aid projects are divided into sub-projects and operate at multiple locations, “project” here refers more precisely to “project-location”. This data from from AidData’s 1.4.1 release for Uganda (AidData, 2016).

Figure 1.2: Aid projects in Northern Uganda, 2009-2016



Note: The aid project data comes from Uganda’s AIMS made available from AidData. The highlighted districts are those from which the sample was drawn.

project. In some cases, even implementing contractors and intended beneficiaries are outlined.¹⁵ The streets are also lined with gated donor and NGO offices. Moreover, the implementation of many projects is visible to the public. For example, it is common to see Japanese foremen – with helmets and clothes signifying that they are in fact Japanese aid workers – overseeing local laborers constructing new roads within Gulu. Citizens appear to have internalized much information from

¹⁵See the Appendix for a representative example of such signs.

this saturation, with focus groups in Gulu able to list dozens of donors, NGOs, and active or former aid projects without guidance (see Figure 1.12 for three lists put together independently by three groups of participants).

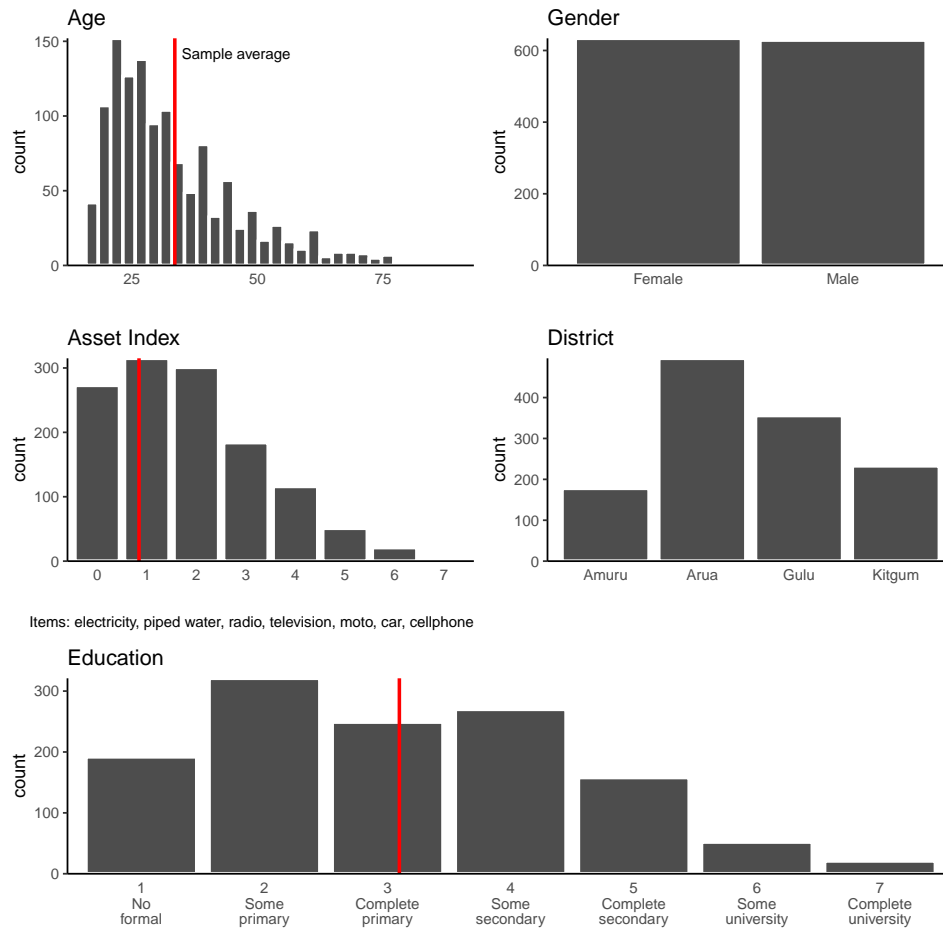
1.3 Survey and experimental design

This section introduces the experimental design used to estimate the weight citizens in Northern Uganda attach to the cost and non-cost dimensions of aid projects. In June of 2018, a team of enumerators implemented the survey in four districts in Northern Uganda (see Appendix Figure 1.10). Three of these districts – Amuru, Gulu, and Kitgum – are from the Acholi-speaking subregion of the North, while Arua is within the West Nile subregion and made up of primarily Lugbara speakers.

Sampling followed a multistaged strategy, with subcounties, parishes, and ultimately polling stations within each district randomly selected from a complete list. Enumerators used a random-walk pattern to sample households and respondents were stratified by gender. In total, the survey reach over 1,300 households, with 1,281 individuals successfully completing all modules. Depicted in Figure 1.3, which shows the characteristics of the sample, around 60 percent of the sample was drawn from the Acholi districts, while the remaining 40 percent came from the West Nile district of Arua. These sampling proportions correspond generally to the population levels within each district.¹⁶

¹⁶According to the 2014 census, the population of Arua District is around 782,000, while the population totals for Gulu, Kitgum, and Amuru Districts are around 276,000, 204,000, and 187,000,

Figure 1.3: Sample characteristics



1.3.1 Conjoint attributes and levels

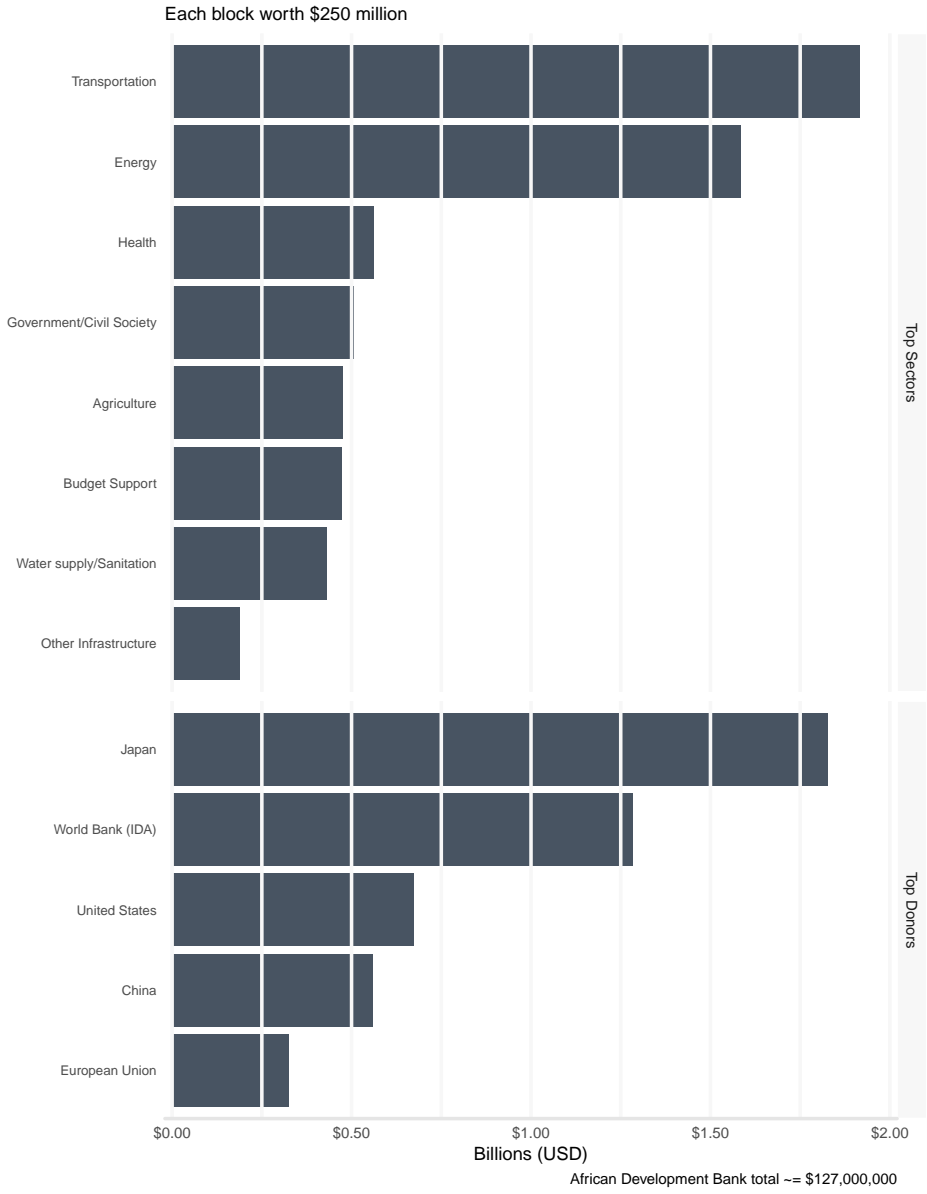
This paper focuses on the conjoint experiment embedded within this survey in which respondents were repeatedly shown pairs of aid projects and instructed to state their preferred choice within each pair. Projects were randomly assigned features that differed across four *attributes* – the project type, the donor, the level of government involvement, and cost. Project attributes were randomly assigned one of several *levels*, which Table 1.1 summarizes and I detail below.

respectively.

The first attribute – *Project* – captures variation in project type. This attribute takes six possible values: 1) electrification; 2) roads; 3) piped water supply; 4) healthcare; 5) education; and 6) conflict mitigation. These levels were selected for two reasons. First, these levels reasonably proxy the spectrum between infrastructure and social development projects. On one end, the electrification and roads project unambiguously reference traditional infrastructure investment, while healthcare, education, and conflict mitigation reference social development projects. Depending on interpretation, piped water supply may fall somewhere between infrastructure and social development. Focus group participants, for example, generally viewed piped water supply as very related to health outcomes, therefore suggesting that it may be interpreted more towards the social end of the spectrum, though there are clear infrastructural elements as well. Second, these projects are generally representative of the most common types of development projects in Uganda (see Figure 1.4). I expect the healthcare, education, and conflict mitigation projects (social development) to be preferred to the infrastructure projects (electrification and roads), while piped water supply should fall somewhere in the middle.

The second attribute is the *Donor*, which takes five possible levels: 1) the African Development Bank; 2) the World Bank; 3) the United States; 4) China; and 5) Japan. Like the *Project* attribute, these levels were selected because they both represent common donors and are differentiable in conceptually important ways (see Figure 1.4). First, there are three multilateral donors (the African Development Bank, the EU, and the World Bank) and three bilateral donors (China, Japan, and the USA). Following the second empirical expectation, the multilateral donors should be pre-

Figure 1.4: Top donors and sectors in Uganda since 2010



ferred to the bilateral donors. Second, this collection of donors allows for testing the rogue-China hypothesis, which suggests that citizens should prefer all other sources of aid to the Chinese.

The third attribute is *Government Involvement*. For simplicity, this attribute takes only two potential levels: 1) minimal and 2) substantial. I expect minimal government involvement to be preferred to substantial government involvement. The final attribute is *Project Cost*, taking three possible values: 1) zero; 2) 10 percent; and 3) 30 percent. The zero level represents an aid project that is entirely a grant, while 10 percent and 30 percent capture varying degrees of costs borne by the recipient. The expectation is that citizens will prefer low cost to higher cost projects.

Table 1.1: Conjoint attributes and levels

Attribute	Level
<i>Project:</i>	Electrification Roads Piped Water Supply Healthcare Education Conflict Mitigation
<i>Donor:</i>	African Development Bank World Bank United States China Japan
<i>Gov. Involvement:</i>	Minimal Substantial
<i>Project Cost:</i>	zero 10 percent 30 percent

1.3.2 Experimental implementation and estimation strategy

Because conjoint experiments require a substantial amount of randomization, they are typically implemented electronically with the help of online survey applications like Qualtrics. Contexts without widespread and reliable internet access make these online options impractical. The survey was therefore implemented using Qualtrics offline application on mobile tablets. Conjoint randomization, however, is not accessible offline through standard Qualtrics offerings. To get around this limitation, I modify the JavaScript code detailed by Meyer and Rosenzweig (2016), which directly embeds instructions for conjoint randomization within the survey code, making it possible to implement this design absent internet access.

Survey enumerators introduced the conjoint module with the following vignette:

Your government and other organizations will likely have to choose between a number of development projects to start in your region. I'm going to present you with a number of paired projects. Tell me which project in each pair you would prefer.

Enumerators then verbally described project pairings to respondents. For example, after reading the above vignette, the enumerator would state:

Would you prefer:

Project A: A **World Bank** project with **Minimal Government Involvement** for the development of **Roads** in which communities like your own would contribute **10 percent** of the project's total cost.

OR

Project B: A **Chinese** project with **Minimal Government Involvement** for the development of **Education** in which communities like you own would contribute **none** of the project's total cost.

Enumerators were instructed to repeat project pairings if necessary to ensure that respondents understood the options.

The experimental design closely follows the recommendations in Hainmueller et al. (2014). Project attributes were fully randomized within each round, while attribute orderings were randomized across respondents. These design choices imply that project assignment is completely independent and that there should be no profile order effects on average, therefore satisfying key assumptions necessary for the nonparametric identification of marginal effects. Respondents participated in a maximum of six rounds. Recent work has found little evidence of survey sat-
isficing with up to 30 choice tasks, a number well above the maximum applied here (Bansak et al., 2018). In rare cases, project pairs within a single round were identical across all attributes. Given identical projects, enumerators were instructed to simply move on to the next round or survey module if on the sixth round.

The causal quantities of interest are average marginal effects (AMEs), defined as the marginal effect of a given attribute averaged over the joint distribution of all other attributes (Hainmueller et al., 2014, p. 10). AMEs therefore correspond to the weight citizens attach to different components of aid projects. AMEs are estimated nonparametrically via the ANOVA strategy described by Egami and Imai (2018) and implemented in the `FindIt R` package (Egami et al., 2018). While baseline AMEs are also estimable via linear regression (Hainmueller et al., 2014), I prefer the ANOVA approach because it allows for machine learning extensions for collapsing of like-factors within conjoint levels. All models are estimated with standard errors clustered by respondent.

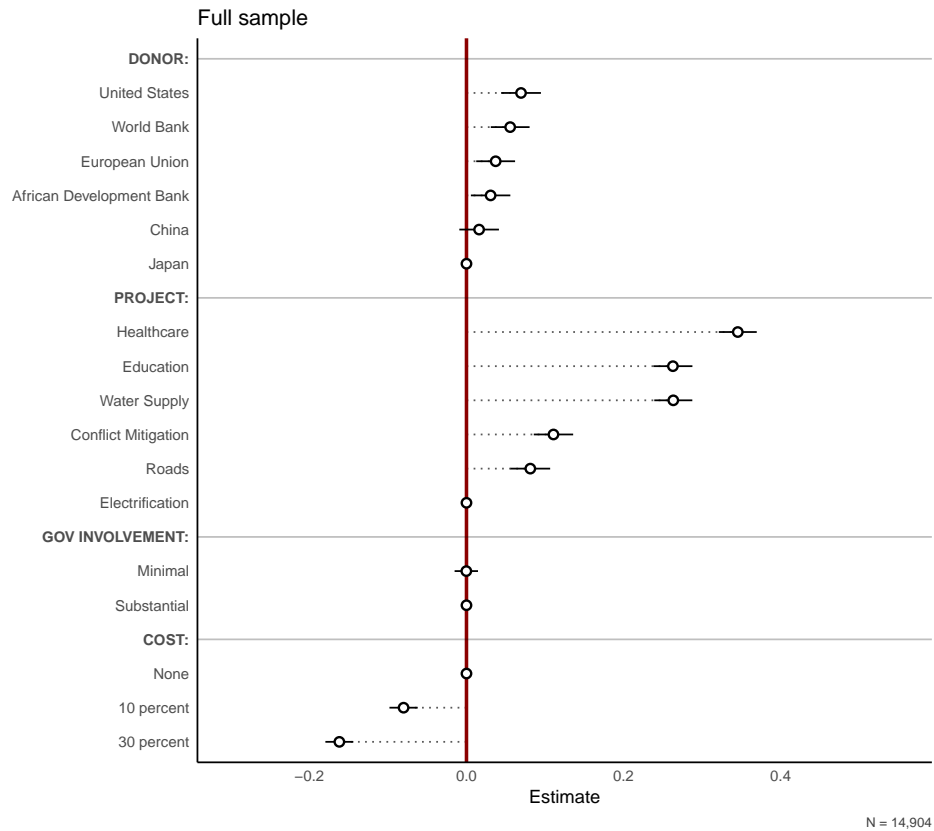
1.4 Results

I first present baseline average marginal effects (AMEs) from the conjoint experiment. Figure 1.5 plots AMEs when using the full sample. All AMEs are interpreted relative to the baseline within their attribute category, which is centered at zero. AMEs indicate the change in the probability that the average respondent would prefer a project profile if a given attribute was changed from the baseline level to the level of interest. For example, the AME for the United States is around 0.07, implying that if a project's donor was switched from Japan to the United States, the average respondent would be around 7 percentage points more likely to prefer the project. The order of levels within each attribute is fixed across all plots to facilitate comparison.

The least preferred *Donor* is Japan, though the AME for China is not statistically distinguishable from Japan's. The "traditional" Western donors, by contrast, are more strongly preferred to Japan; the average respondent is between 3.75 percentage points to 7.0 percentage points more likely to prefer aid from the EU, the World Bank, or the US than Japan. Respondents also relatively prefer the African Development Bank, with a precisely estimated AME implying that respondents are around 3.0 percentage points more likely to choose an African Development Bank project than a Japanese project.

Respondents are most sensitive to the *Project* attribute, with Electrification being significantly less preferred to all other levels. Healthcare projects, the most

Figure 1.5: Baseline results: average marginal effects across all results.



preferred level, are estimated to be around 35 percentage points more likely to be chosen than Electrification projects. Education and Water Supply projects are also very strongly preferred, with both around 26 percentage points more likely to be selected than Electrification projects. Finally, Roads and Conflict Mitigation projects are around 8 and 11 percentage points more likely to be preferred relative to Electrification, respectively.

Participants were also highly sensitive to project *Cost*. Relative to a costless project, a project in which the community would be expected to contribute to 10 percent of the project's cost is over 6 percentage points less likely to be chosen. When cost increases to 30 percent, the project is 15 percentage points less likely to

be chosen.

Turning to the final attribute, substantial *Government Involvement* is slightly less preferred to minimal involvement, though this estimate is not distinguishable from zero. Importantly, this null effect appears unrelated to measurement error since it is precisely estimated (standard error = 0.008). Instead, *Government Involvement* alone is likely uninformative of citizen preferences when considering the multidimensionality of aid projects.

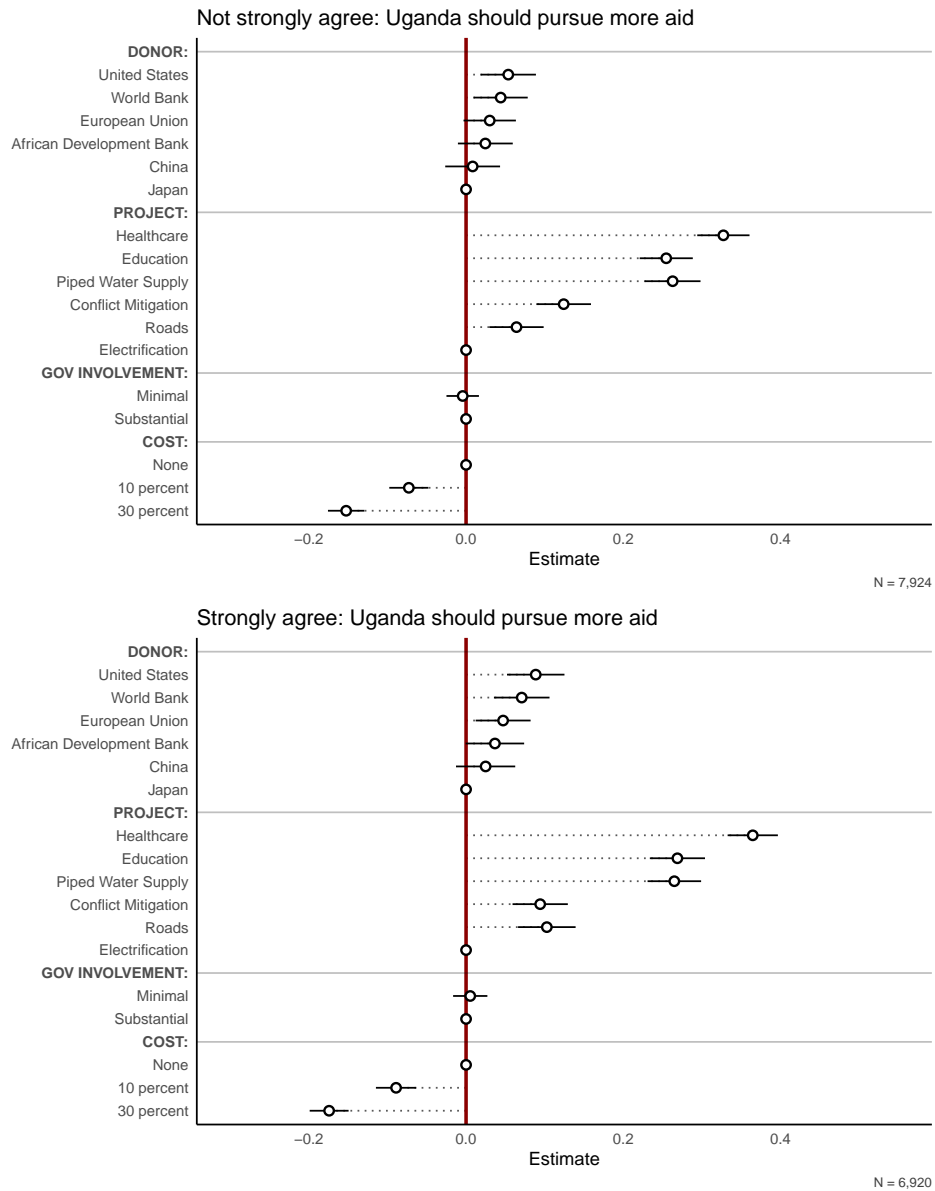
1.4.1 A manipulation check

The context of underdevelopment and donor activity suggests an important threat to the validity of these results. Namely, respondents may have been tempted to provide answers that they assume correspond donor preferences. If these assumed donor preferences deviate from the respondents' true preferences, the estimated effects will be biased.

To address this threat, I rely on a survey question that asks respondents how strongly they agree or disagree (five-point scale) with the statement that the Ugandan government should pursue more foreign aid. Respondents that strongly want more foreign aid are likely those that would be the most susceptible to biasing their responses towards assumed donor preferences. I therefore compare the subset of respondents that strongly want more aid (around 46 percent of the full sample and the modal response) with those that do not strongly want more aid. Figure 1.6 plots these estimates. The similarity in estimates between groups suggests that there is

likely little bias from respondents pandering to assumed donor preferences.

Figure 1.6: Manipulation check: average marginal effects for those that do not strongly want more aid versus those that strongly want more aid



1.4.2 Regularization

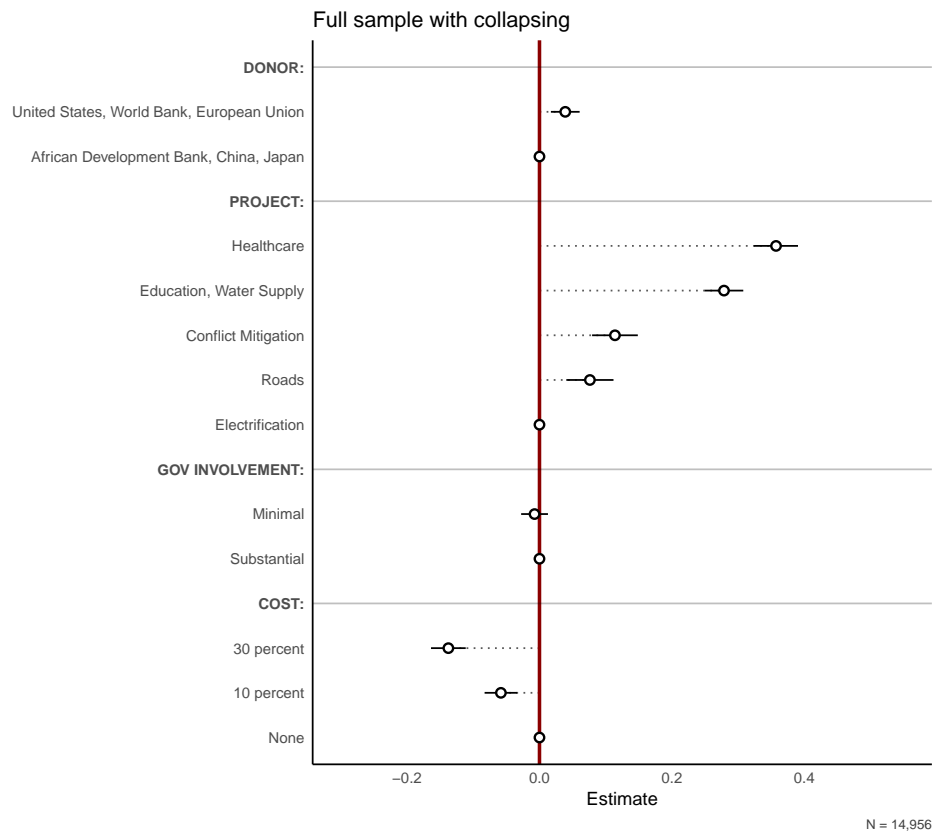
I now turn to the penalized ANOVA approach described in Egami and Imai (2018).

I leverage this approach here to collapse like-factors into groups within conjoint

levels. Collapsing factors in this way is valuable both statistically and theoretically. Statistically, it reduces the likelihood of finding false-positives. Theoretically, the collapsed levels should be conceptually similar. If the donor attribute exhibits collapsing, the collapsed levels should be along bilateral versus multilateral lines and/or among Western donors, as suggested in previous work. If there is collapsing within the project type level, it should group social development projects together and infrastructure projects together. There are not enough levels for collapsing within the cost or government involvement attributes, so there should be no change in these estimates. Following the recommendations in Egami et al. (2018), I split the sample in two, with the first half used as training data for collapsing factors and estimation of effects. The second half is then used for inference (i.e. estimating standard errors and confident intervals).

Figure 1.7 plots the results from this analysis. In the first panel, the average marginal effects with collapsing are presented. There is only limited collapsing within the *Project* attribute, with education and water supply grouped together. There is substantial collapsing within the *Donor* attribute, with the three Western donors collapsing together, while the three non-Western donors are collapsed together. These groupings cut between bilateral and multilateral donors, implying little support for any perceptual differences between these two types of donors.

Figure 1.7: Regularization: collapsing factors within levels



1.4.3 Equilibrium demand and observed aid distribution

The average marginal effects provide an estimate of how much respondents care about the individual components of aid projects. If accountable to these preferences, what would the optimal portfolio of aid projects in Northern Uganda look like?

To answer this question, I simulate preferences for a population of 198 citizens using the variance-covariance matrix from Figure 1.5. For each non-cost aid dimension, citizens are assigned a preference weight, the mean of which corresponds to the dimension's estimated AME. The weight for any single citizen may

differ from this mean according to the estimated sample variance. For the cost dimension, I rely on the implied average sensitivity to a percentage point increase in project cost, which is around -0.005. I therefore draw each citizen's cost disutility A_i from a normal distribution with a mean of -0.005.

With the citizen's set of preferences in hand, the average utility for each project is defined following Equation 1.2. For example, the utility function for the average citizen for a Chinese education project with substantial government involvement is as follows:

$$\begin{aligned} \bar{U}_{Education-Chinese-Substantial} = & 0.26 \times X_{Project=Education} + 0.02 \times X_{Donor=China} \\ & + 0.0 \times X_{Gov.Involvement=Substantial} - 0.005 \times P_{Education-Chinese-Substantial} \end{aligned}$$

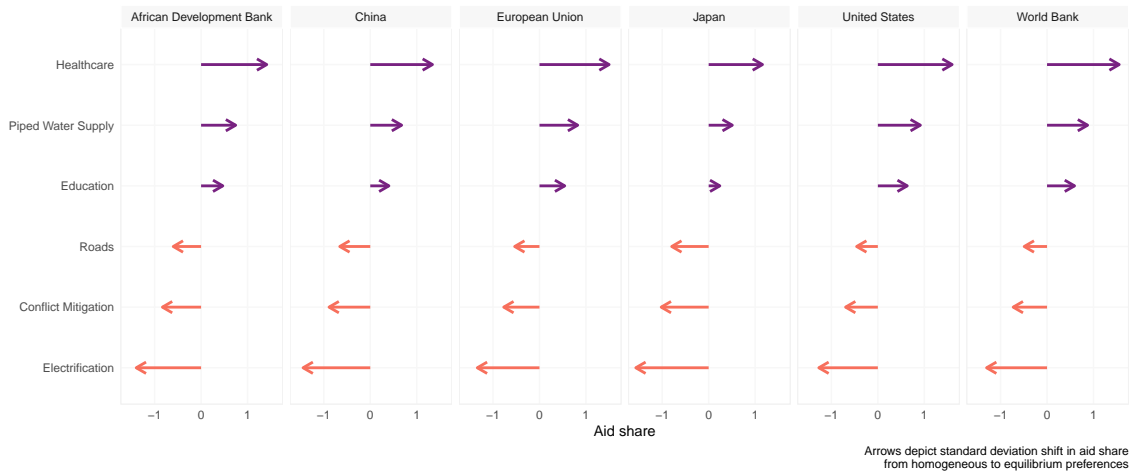
In this application, there are 72 configurations of projects, each of which present an equilibrium cost and aid share given the equilibrium position of all others estimate by computationally solving Equation 1.7.

Figure 1.8 presents the results of this exercise, with each panel differentiating donors and the y-axis differentiating project types.¹⁷ The arrows depict the shift from homogeneous preferences – that is, where citizens have no distinct preferences for aid projects – to each project's optimal aid share given the estimated preferences. These results indicate that the demand for social development projects – specifically healthcare, education, and water supply – clearly outweighs any consideration of who is providing the project. The demand for these projects is

¹⁷Since *Government involvement* does not influence citizen preferences, I do not differentiate aid shares along this dimension.

between 0.5-1.5 standard deviations greater than the baseline assuming homogeneous preferences. Though there is some differentiation in demand across donors, this variation is relatively minimal, suggesting that the statistically significant differences in preferences among donors shown in Figures 1.5 and 1.7 are substantively unimportant once aggregated. Conversely, the relative distaste for large infrastructure projects exceeds any perceptual differences citizens may have among the donors.

Figure 1.8: Equilibrium aid shares



The equilibrium aid shares may act as benchmarks to compare with the observed distribution of aid, with large deviations from demand indicating that the Ugandan government is not optimally responding to their citizens. To do so, I identify all aid project locations from in Northern Uganda since 2007, which approximates the end of the LRA insurgency (AidData, 2016). I then categorize each project by donor and type (via sector codes), subsetting to only the donors and project types that appear in the experimental design. Donors are then collapsed

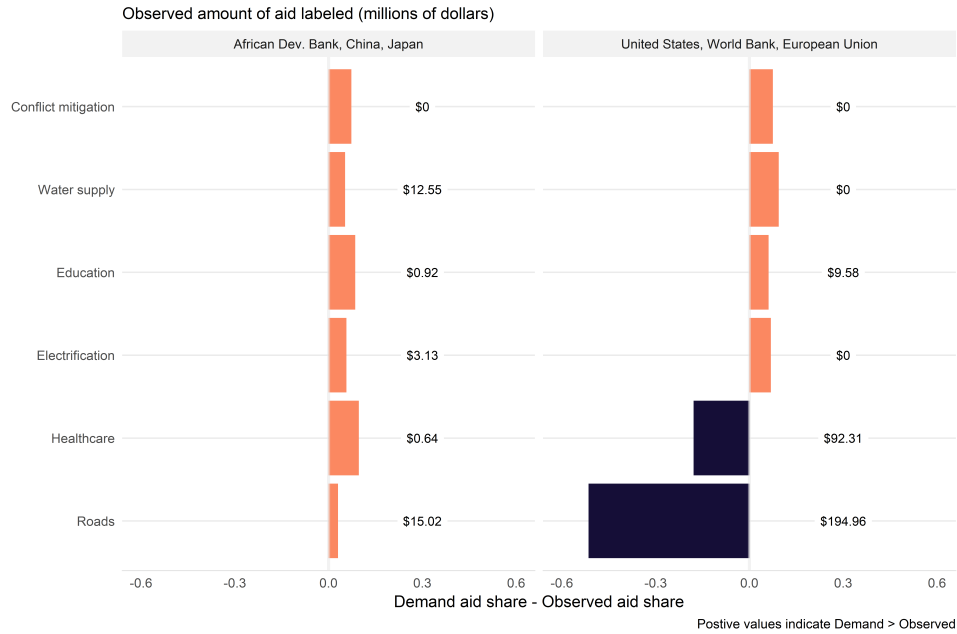
into two groups, Western and non-Western, as suggested by the regularized results in Figure 1.7. The levels of government involvement are pooled as well given that there is no discernible difference across levels according to all estimates. Finally, I compare the summed dollar amount per project type by donor category to the implied aid shares from Figure 1.8.¹⁸

Figure 1.9 plots deviations in equilibrium from observed aid shares, with bars to the left of the zero vertical line indicating more observed aid than demanded, and bars to the right of the zero vertical line indicating that there is greater demand than observed. A few key results stand out. First, the distribution of roads projects by Western donors in recent years, totaling nearly \$200 million dollars, far outweighs citizen demand in equilibrium. This suggests that the Ugandan government likely derives returns from targeting transportation infrastructure that do not come from responding to citizen. This over-provision may come from the government preferring projects with opportunities for elite capture (Winters and Martinez, 2015) or from preferring projects that are highly visible to their voters (Harding, 2015). Western donors' focus on healthcare projects is also too strong relative to citizen demand. Finally, the demanded aid shares are larger than the observed aid shares for all non-Western project types. These final two points are perhaps counterintuitive given that, on average, citizens often prefer Western donors and healthcare projects and do not prefer non-Western donors. Yet as formalized in the theoretical model in this paper, baseline preferences are only useful in equilibrium

¹⁸This analysis is limited to projects that are geocoded and are coded for dollar amounts, corresponding to around 60 percent of all project locations. The actual distribution of aid is during this time period is therefore higher than reported here.

when considering investments and preferences for all other potential projects. The recent focus on Western roads and healthcare projects has thus overwhelmed the diverse demands of Northern Ugandans.

Figure 1.9: Difference between equilibrium and observed aid shares in Northern Uganda



1.5 Conclusion

This paper considers the unintended political implications of the distribution of aid projects. I model the distribution of foreign aid as a function of citizen demand for different aid projects, capturing the stylized context in which a recipient government is fully constrained by the preferences of their voters. Using a conjoint experiment, I estimate the weight Northern Ugandans attach to several varying dimensions of aid projects, including the donor, the sector targeted, the level of

government involvement, and project cost. The combination of the formal model and experimental estimates suggests that the Ugandan government would primarily target social development projects and partner with Western donors if fully constrained by voter preferences. By contrast, the returns to infrastructure projects and projects funded by non-Western donors are more limited.

Comparing citizen demand to the observed distribution of aid, the Ugandan government has over-provided Western healthcare projects even though the baseline demand for these projects is high. This finding is likely the product of USAID's emphasis on healthcare projects in the region in recent years, an emphasis that has crowded-out a baseline demand for diverse investment. The Ugandan government has also substantially over-provided Western-funded transportation infrastructure. This mismatch between citizen preferences and government's provision suggests that there is likely an important role for returns unrelated to voter demand. For example, Ugandan elites may themselves prefer roads projects because they provide opportunities for economic kickbacks (Winters and Martinez, 2015; Olken, 2007), while average citizens relatively prefer other projects because of these corrupt tendencies. Additionally, political elites may prefer targeting large and highly visible transportation projects because they are more attributable to incumbent politicians (Harding, 2015). Thus, when attempting to electorally leverage aid projects, the government likely considers not only voter preferences, but also whether or not voters will see the investment.

Taken together, these findings suggest a nuanced understanding regarding the micro-level political implications of aid distribution. On one hand, citizens in-

deed have distinct preferences for aid, implying that the government may be electorally rewarded by targeting projects in a way that matches these preferences. On the other hand, the uncovered mismatch between voter demand and the actual distribution of aid suggests that electoral mechanisms used to explain the subnational distribution of aid may be less important than previously expected (Jablonski, 2014; Briggs, 2014; Nunnenkamp et al., 2017; Briggs, 2012).

A primary limitation of this study is that the experimental design was implemented in only one region of one country. While worth noting, this limitation is minimized by the importance of the context, the robustness of the general findings, and the generalizability of the theoretical model and experimental design. Shown in the Appendix, results from a piloted conjoint experiment implemented in Ghana largely mirrored several empirical patterns shown here.¹⁹

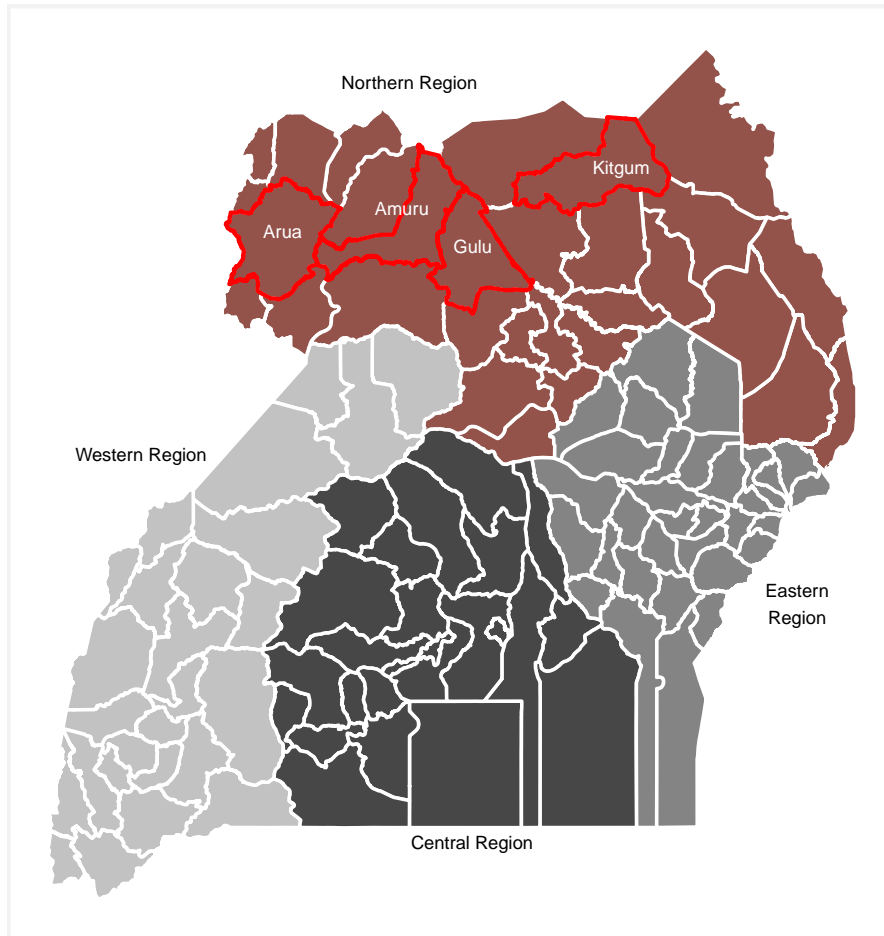
The findings presented in this paper, as well as the flexibility of the theoretical and empirical approach detailed, suggest a few avenues for future work. First, except for a manipulation check, I did not explore heterogeneity across non-experimental variables. This choice was purposive – introducing non-experimental variation introduces additional threats to internal validity. However, exploratory subgroup analysis may be fruitful for understanding the mechanisms driving the demand for aid. Since this paper primarily sought to establish this baseline causal estimates, I leave this type of exploratory analysis for future work. Also regarding

¹⁹In the piloted conjoint experiment, citizens also substantially preferred social development projects (healthcare and education) to infrastructure projects (roads and electrification). The least preferred donor was the Chinese, while the most preferred was the World Bank. Respondents also narrowly preferred minimal government involvement to substantial. There was no cost dimension in the piloted experiment.

non-experimental heterogeneity, the model may incorporate extensions to recipient governments looking to optimally target projects towards groups with potentially heterogeneous preferences, such as geographically segregated ethnic groups as in Ejdemyr et al. (2017). Finally, while the current substantive application focuses on the demand for foreign aid projects and politically optimal recipient behavior, the theoretical-empirical approach advanced in this paper is applicable to the public goods provision literature in general, suggesting that this approach travels broadly to a wide variety of contexts.

1.6 Appendix

Figure 1.10: Map of the sampled region



1.6.1 Equilibrium algorithm

This section outlines the R code used to estimate equilibrium aid positions.

```
# betas = conjoint estimates for each attribute
# data = matrix with dummies given presence of an attribute
# A = cost disutility term; length of total citizens
# Pmin = minimum starting price
# step = size of step for finite differencing
# reps = number of iterations

function(betas, data, A, Pmin, step = 0.01, reps = 100) {

  citizens <- length(betas[, 1]) # total number of citizens
  ncols <- length(data[1, ]) # total number of betas
  nrows <- length(data[, 1]) # total number of projects

  P <- runif(nrows, Pmin, Pmin * 2) # randomly assign initial prices
  U1 <- array(0, dim = c(citizens, nrows)) # citizen utilities
  U2 <- array(0, dim = c(citizens, nrows)) # citizen utilities + step
  store.p <- array(0, dim = c(reps, nrows)) # store prices
  store.mkt <- array(0, dim = c(reps, nrows)) # store aid shares

  for(j in 1:reps) { # iterations
    for(i in 1:citizens) { # citizens
      for(k in 1:nrows) { # projects

        Ps <- P + step
        U1[i, k] <- sum(betas[i,] * data[k, ]) + A[i] * P[k]
        U2[i, k] <- sum(betas[i,] * data[k, ]) + A[i] * Ps[k]

      }
    }

    # bottom of logits
    expsum1 <- rowSums(exp(U1))
    expsum2 <- rowSums(exp(U2))

    # probability each project is preferred (aid shares)
    prob1 <- exp(U1) / expsum1
    prob2 <- exp(U2) / expsum2

    # f'(x)
    m1 <- A * prob1 * (1 - prob1)
  }
}
```

```

r1 <- P * colMeans(m1) + colMeans(prob1)

# f'(x) with P + step
m2 <- A * prob2 * (1 - prob2)
r2 <- Ps * colMeans(m2) + colMeans(prob2)

# approximation of f''(x)
rs <- (r2 - r1) / step

# newton-raphson update
P <- P - r1 / rs

# store prices and aid shares
store.p[j, ] <- P
store.mkt[j, ] <- colMeans(prob1)

}

list(store.p = store.p, store.mkt = store.mkt)

}

```

1.6.2 The visibility of aid in Northern Uganda

Figure 1.11 depicts a representative example of foreign aid signs commonly seen in Uganda and other African countries. In this example, there are two signs. The first, covering a majority of the image, is an African Development Bank project for “Construction of Gulu Market in Gulu Municipal Country.” This sign notes that the Government of Uganda is a key partner and the Ministry of Local Government is the implementing agency. The sign also depicts the intended beneficiaries, as well as some private contractors. Less visible to the right is a second project for the construction of roads funded by the Japanese.

Figure 1.11: Examples of donor signs



Figure 1.12: Lists of aid projects by focus group participants in Gulu

projects which used to be in Northern Uganda

Mano tree program

- 1 - Nuth
- 2 - Nuths
- 3 - Nuths
- 4 - wuduini
- 5 - CCF
- 6 - CCF
- 7 - some te chich
- 8 - TPO
- 9 - zaid HAWGS
- 10 - wood food
- 11 - Aid Afric
- 12 - NRC
- 13 - Termmware
- 14 - WSC
- 15 - WSC
- 16 - Envisible chich
- 17 - z-ceds

spansungu construction, 8 vehicles, 20 weccombed, HIV/AIDS, work with Agnus, Agnus livelihood, Rehabilitation, Agnus Wn, sponsoring, community council, sponsoring, school, neth, neth, physio, syringe, power of food items, distribute of food to 10Ps & refugees, sponsoring, distribute, food clinics, construction, Rehabilitation, Sponsoring, Sponsoring (school), Agnus, Agnus

donor

FUNDING

- 1. JICA - Japanese International Government Agency
 - Road construction
 - Education
 - Health department
- 2. HFFER International
 - Environmental Conservation (Biogas)
 - Restocking & improving livestock
 - Seeds distribution
 - Facilitation on agriculture
- 3. World Bank
 - Road construction
 - Education (classrooms)
 - Health (TASO, MARIC-SCOPE)
- 4. World Food Program
 - Food & Non-food items
- 5. Red Cross
 - Rescue teams (esp. in War Zone area)
- 6. World Vision
 - Early sector, Rehabilitation & death
- 7. USAID (ACID VOCA)
 - Early, Health, Infrastructure
- 8. UNICEF
 - Protection, Health, e.g. Immunization
- 9. Plan International
 - Biogas
- 10. Save the Children
 - Early, Save H2O, Roads construction
- 11. UNHCR
 - Early, protection, Health, etc.
- 12. AVSI
 - Early, protection, Health, Save H2O

NB: KASSTH -> H2O, Sanitation & Hygiene

USAID - American Agency for Development

- USAID
- WFP
- DFD
- OXFAM
- NRC
- Save the Children
- UNICEF
- GTZ
- AVSI
- WFP
- Bantwana World Education
- WSO
- US PACE CORPS - Peace core Uganda
- SASSA CORPS
- IGTB
- UN - with
 - UNICEF
 - UNDP
 - UNFP
 - WFP
- ADRA
- NRC - Norwegian Refugee Council
- Windows Trust
- WCC
- WCH
- CFI - child fund international
- Lions Aid
- charity for peace foundation
- CARITAS
- Action Against Hunger (CARE)
- Mercy Corp

2/1/11

1.6.3 Piloted conjoint experiment in Ghana

This section presents a piloted conjoint experiment conducted in Ghana. In this pilot, respondents stated preferences regarding aid projects that varied along 3 non-cost dimensions. The first attribute – *Donor* – takes four possible levels: 1) the U.S.; 2) China; 3) the World Bank; and 4) the African Development Bank. The U.S. and China represent the most important Western and non-Western bilateral donors in the region, respectively, while the World Bank and the African Development Bank act as the most multilateral lenders in the region. The second attribute – *Project* – captures variation in project type. This attribute also takes four levels: 1) electrification; 2) roads; 3) education; and 4) healthcare. The first two levels proxy infrastructure projects, while the last two proxy social development projects. The final attribute, *Government Involvement* – references the amount of discretion the recipient will have in the project implementation process and can either be 1) minimal or 2) substantial.

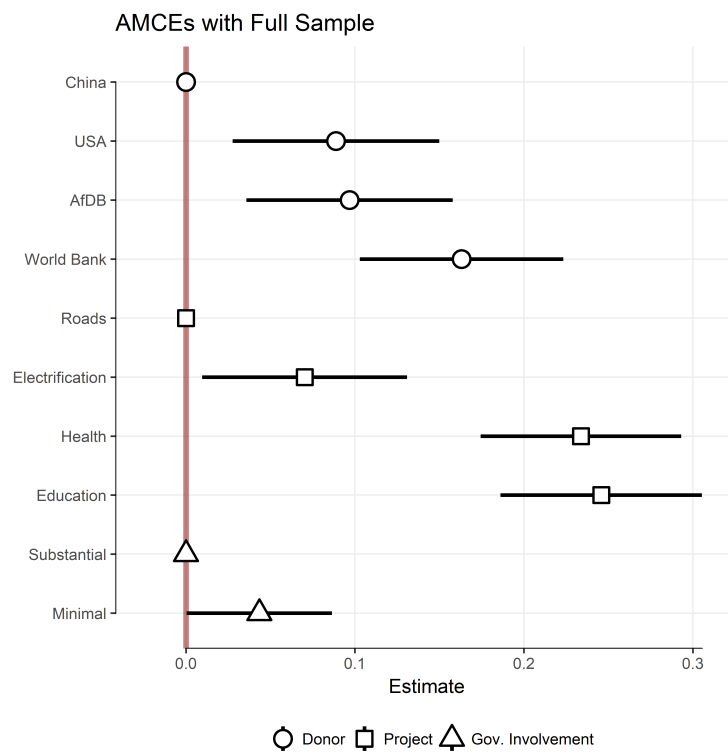
Respondents were randomly exposed to pairs of projects, of which they were instructed to state their preferred choice. Project attributes were randomly assigned within each pairing, while attribute orderings were randomly assigned within respondents. The sample was drawn from the Central Region of Ghana by first identifying several population centers.²⁰ Within these population centers, enumerators randomly sampled every third or fifth household (depending on population density) from a fixed starting point. Within each household, respondents

²⁰These towns and villages included Abura, Aseba, Kwamakese, Cape Coast Municipal, Elmina, Komenda, Edina, Eguafo, and Abirem.

were randomly selected after stratifying by gender. In total, around 220 respondents were shown a maximum of 5 project pairs. Removing the round of piloted responses and non-responses results in a sample of 1980 evaluated projects, or 990 project pairings.

Figure 1.13 presents the average marginal component effects (AMCEs) for each project attribute. All AMCEs are estimated using the non-parametric strategy described in Hainmueller et al. (2014) with standard errors clustered by respondent. For all levels, estimates are relative to option centered at zero. Respondents substantially prefer World Bank projects to those funded by the Chinese, while U.S. and African Development Bank projects are also significantly preferred to Chinese projects, albeit less so. Both social development projects – health and education – are strongly preferred to the infrastructure projects, with roads being the least preferred. Finally, the average participant preferred minimal to substantial government involvement, a result that is narrowly statistically significant at the 0.05 level.

Figure 1.13: AMCEs of attributes on project preferences in Ghana



Note: standard errors clustered by respondent. Error bars denote 95 percent confidence intervals. Effects within each level relative to baseline attribute at zero.

2

Buying Votes from IDPs: a randomized response experiment in post-conflict Uganda

Abstract

With the help of international donors, governments often internally displace their citizens in response to armed conflict. I argue that the severe economic and social network shocks associated with displacement have implications for the targeting of vote buying post-conflict. I present an original randomized response experiment fielded in Northern Uganda, which provides cover for respondents that may otherwise be hesitant to report selling their votes. The results of this experiment show that former IDPs are more often targeted with vote buying than non-IDPs, a finding that suggests displacement as an economic shock restructures the nature of clientelism after conflict.

Millions of people are forced into internally displaced persons (IDP) camps each year due to armed conflict. As of 2017, the number of IDPs reached 40 million, including 6.5 million in both Syria and Colombia, nearly 4.5 million in the Democratic Republic of the Congo, 1.6 million in Iraq, around 2 million in Sudan, South Sudan, and Yemen, and 1.7 million in Nigeria.¹ Most research focuses on the devastating patterns associated with internal displacement during conflict, from increasing the spread of violence (e.g. Bohnet et al., 2018) to increasing the spread of disease (e.g. Omole et al., 2015). Less attention is paid to the effects of displacement on society after violence wanes and IDPs return to their former homes. This paper argues that the return of IDPs has important implications for the nature of political competition in the post-conflict period.

Political competition in contexts susceptible to civil conflict and internal displacement is oftentimes clientelistic, based on the selective distribution of goods to voters by politicians and their brokers in return political support (Hicken, 2011; Mares and Young, 2016).² I develop an argument that views internal displacement as a shock to two features of the electorate that politicians and brokers use to target vote buying, a particular clientelistic strategy. On one hand, IDPs experience a substantial economic shock because they are removed from their land and often struggle to find income-generating opportunities during and after displacement. This shock makes IDPs poorer than they would have been absent displacement,

¹All references to IDP data at the country-level come from the Internal Displacement Monitoring Centre (iDMC).

²At the broadest level, underdevelopment is a robust predictor of civil conflict (e.g. Fearon and Laitin, 2003). While clientelism is not unique to developing countries, it is very common throughout the developing world (Kitschelt et al., 2007). Thus, there is clear overlap between conflict-affected countries and countries with pervasive clientelism.

implying that they may be more cheaply bought off than non-IDPs (e.g. Dixit and Londregan, 1996; Stokes, 2005; Calvo and Murillo, 2004) and need to rely on favors to regain access to their pre-displacement land. On the other hand, displacement is also a substantial shock to social networks, severing the ties that embed voters within political networks. Since politicians and brokers can more easily identify and monitor voters embedded within key networks (e.g. Stokes et al., 2013) and voters within dense social networks more generally (Cruz, 2019), the network disruption felt by IDPs suggests that they may instead be inefficient vote buying targets.

The twin economic and social network shocks therefore imply competing implications for the targeting of vote buying. To explore these implications, I use an original randomized response experiment to estimate which respondents were likely targeted with vote buying in the 2016 elections in Northern Uganda. Like the more common list experiment, the randomized response method provides cover for respondents when answering sensitive questions, therefore reducing the social desirability that often plagues studies of vote buying. Using recently developed multivariate regression techniques for analyzing randomized response experiments (Blair et al., 2015a), I show that citizens that were displaced during the LRA insurgency are more often the target of vote buying than non-former IDPs, a result most consistent with the logic of displacement as an economic shock.

Methodologically, this paper contributes to the empirical literature on vote buying that seeks to address the inherent sensitivity of the topic. Others, including Corstange (2012, 2018) in Lebanon, Gonzalez-Ocantos et al. (2012) in Nicaragua,

and Kramon (2016) in Kenya, have shown the list experiment to be a powerful tool for this purpose. I show that the randomized response technique may be similarly powerful for estimating the vote buying and its causes. The application of this design is especially important following the results from Rosenfeld et al. (2016), who show that the randomized response technique generates estimates closer to observed behavior than the list experiment. Future studies of vote buying may therefore be improved by considering the randomized response design alone or in tandem with the list experiment alternative.

2.1 Internal Displacement and Vote Buying

Vote buying occurs when politicians and their brokers offer rewards, like money, gifts, or favors, to citizens in return for their vote (Mares and Young, 2016). Because the reward is contingent on the voter's behavior, it is a political strategy under the umbrella of clientelism (Hicken, 2011). Clientelistic electoral strategies are common throughout the developing world where programmatic party-based competition is limited (Kitschelt et al., 2007). Despite the widespread use of this type of these strategies, all voters are not equally likely targets. Given resource constraints, politicians cannot attempt to buy off every voter. Instead, certain voters may be more efficiently targeted with vote buying than others.

Existing work suggests that two characteristics of voters – where they fall in the poverty distribution and their embeddedness in certain social networks – are crucial for the targeting of clientelistic exchange. This section describes how in-

ternal displacement acts as an economic and social network shock and details the implications of these shocks for the targeting of vote buying post-conflict.

2.1.1 Displacement as an economic shock

Models of clientelism often imply that that poorer voters are especially efficient targets for vote buying. On the margin, a personal handout is more important for voters at the lower end of the income distribution, suggesting that poorer voters may be bought off more cheaply than the richer voters (Dixit and Londregan, 1996; Stokes, 2005; Calvo and Murillo, 2004).³ Civil conflict and the destruction of human and physical capital that follows in its wake alters the distribution of poverty. The average person within a conflict-affected region is likely poorer than they would have been absent conflict. However, the efficiency of targeting the poor with vote buying is due not to absolute poverty, but to some voters being relatively poorer than others. For conflict to increase vote buying through an income shock mechanism, it must do so because it is more economically destructive for subsets of certain voters.

The economic costs associated with displacement further induces poverty for the displaced beyond that of the general post-conflict population, implying that former IDPs may be especially efficient targets of vote buying. Within camps, income generating opportunities are severely limited and the jobs available are often

³Empirical tests of this model in Africa are mixed. Jensen and Justesen (2014), for example, show that poverty does predict vote buying at the individual and country levels across the region. Yet when disaggregated the effects by country, Mares and Young (2016) suggest that the relationship is context specific, with richer voters in certain countries – including Uganda – reporting a higher propensity of vote buying than the poor.

informal (e.g. Aysa-Lastra, 2011). In Northern Uganda, some IDPs generated income from selling items like firewood and charcoal to others, or found sporadic manual labor (e.g. construction, digging). These strategies, however, generated only little economic value beyond subsistence (Horn, 2009). Relative to the non-displaced, IDPs are therefore subjected to several years of stagnant economic productivity. Upon return, economic opportunities for IDPs are also often limited. Following civil war in Bosnia and Herzegovina, for example, returnees were substantially less likely to be working than non-IDPs (Kondylis, 2010). Even two years after displacement in Uganda, Fiala (2015) shows that returned IDPs still significantly lagged behind the non-displaced in both consumption and assets. This persistent negative economic shock therefore suggests that former IDPs may be more likely targeted with vote buying because of their relative poverty.

In normal times, citizens in contexts like Northern Uganda rely on their land as their most productive asset. The lack of income-generating opportunities during displacement is therefore due in no small part to the removal of citizens from their land. However, beyond fueling the more general income shock, this removal has implications for vote buying post-conflict because citizens often struggle to recover their pre-displacement land. According to data from Adelman and Peterman (2014), returnees in Northern Uganda lost an average of 3.4 acres of land during the first 7 years of resettlement and spent 61 percent of a year's consumption expenditure on land disputes (\$356). These difficulties are due primarily to the informal nature of land tenure in many post-conflict settings.⁴

⁴As estimated by Deininger (2004), around 90 percent of land in sub-Saharan Africa is unregis-

Evidence suggests that politicians and their brokers leverage the informal nature of land tenure to selectively distribute a specific type of favor – land titles – to buy votes from IDPs. As argued by Albertus (2013), land is a particularly useful good for buying votes because it results in inter-temporal interactions between voters, brokers, and politicians. This is in contrast to the usual goods that are used to buy votes, like cash handouts, that are one-time payments and therefore susceptible to the commitment problems associated with clientelism. This practice has been common in recent elections in Northern Uganda. Médard and Golaz (2013), for example, describes the practice of “gift giving” – or the direct transfer of land or land titles – to voters that would otherwise lack access to official titling. Local government officials act as the key brokers in this process. According to Meinert and Kjaer (2016, p. 779), “...there are many reports of LC1, 2, and 3 councillors being involved in the business of buying votes for land.” This suggests that former IDPs may be more often targeted with vote buying because of the specific effects of removal from land that go beyond the negative effects of displacement as a broader income shock.

2.1.2 Displacement as a shock to social networks

Variation in voter social networks also influence the targeting of vote buying. While relative poverty increases vote buying because of the increasing returns to targeting the poor, embeddedness in social networks increases vote buying by making it easier to identify willing voters and to monitor their voting behavior. Monitoring

tered and untitled; 60 percent of African households fall on this land (Boone, 2009).

of this sort ensures that voters will either uphold their end of the vote buying bargain or be punished for renegeing (Stokes et al., 2013). Depending on the political context, key networks may be partisan (e.g. Calvo and Murillo, 2013) or based on a shared identity like ethnicity (e.g. Van de Walle, 2007; Baldwin, 2016).

Existing work highlights the importance of network linkages that connect voters to politicians, be it through personal connections like familial ties or through intermediaries embedded in local communities (Cruz et al., 2017; Fafchamps and Labonne, 2016). Cruz (2019) argues that even absent direct links to politicians and brokers, voters with large social networks are useful targets because of opportunities for group-level monitoring and social pressures to adhere to the clientelistic deal. Well-networked voters, with linkages either to politicians and broker or simply many linkages in general, are therefore more likely to be targeted with vote buying.

The uprooting of families subjected to displacement ruptures the structure of existing social networks. In Northern Uganda, mothers described the process of displacement as “rapid, unexpected and chaotic” and that “...the degree to which households ended up living with pre-displacement network members was largely out of households’ control” Adelman (2013, p. 286).⁵ Depending on the degree of disruption, families were left with only limited contact with their pre-displacement connections. The lack of regular interaction with family, clan members, and village elders made everyday practices like disciplining children and monitoring the

⁵Using the randomness associated with this shock to social networks, Adelman (2013) shows that children in families with severely disrupted social networks experienced worse nutrition outcomes.

behavior of community members difficult (Adelman, 2013), contributing to what Baines and Rosenoff Gauvin (2014, p. 8) refer to as a “loss of social control.”

Displacement therefore severs many of the social ties that link voters together pre-displacement. The implications of this shock for vote buying likely depend on how well former IDPs can rebuild social networks upon return. If networks are slow to rebuild, the lack of social ties connecting returned IDPs to other voters and linking them to politicians implies that former IDPs will be less likely targeted with vote buying than non-IDPs. By contrast, if returned IDPs are able to rebuild networks, their linkages may look similar to non-IDPs, implying that the network shock should have no effect on the targeting of vote buying.

2.2 Displacement and Vote Buying in Northern Uganda

I focus relationship between internal displacement and vote buying in Northern Uganda. As summarized in Figure 2.1, this region was under intense violence for decades beginning in the late 1980s. This violence was due primarily to the Lord’s Resistance Army’s insurgency, led by the well-known Joseph Kony. Other than a small number of early volunteers, nearly all of the LRA were forcibly conscripted children. The LRA typically raided villages at nighttime, terrorizing the rural population.⁶ The Ugandan government responded to this violence by forcibly displacing the rural population into IDP camps. Branch (2009, p. 480) describes how the Ugandan People’s Defense force (UPDF, the Uganda military) executed this

⁶See Annan and Blattman (2008) for a complete discussion of the LRA and child soldiering.

displacement:

The UPDF drove hundreds of thousands of Acholi peasants out of their villages and into camps through a campaign of murder, intimidation, and the bombing and burning of entire villages. After the formation of the camps, the UPDF announced that anyone found outside of the camps would be considered a rebel and killed.

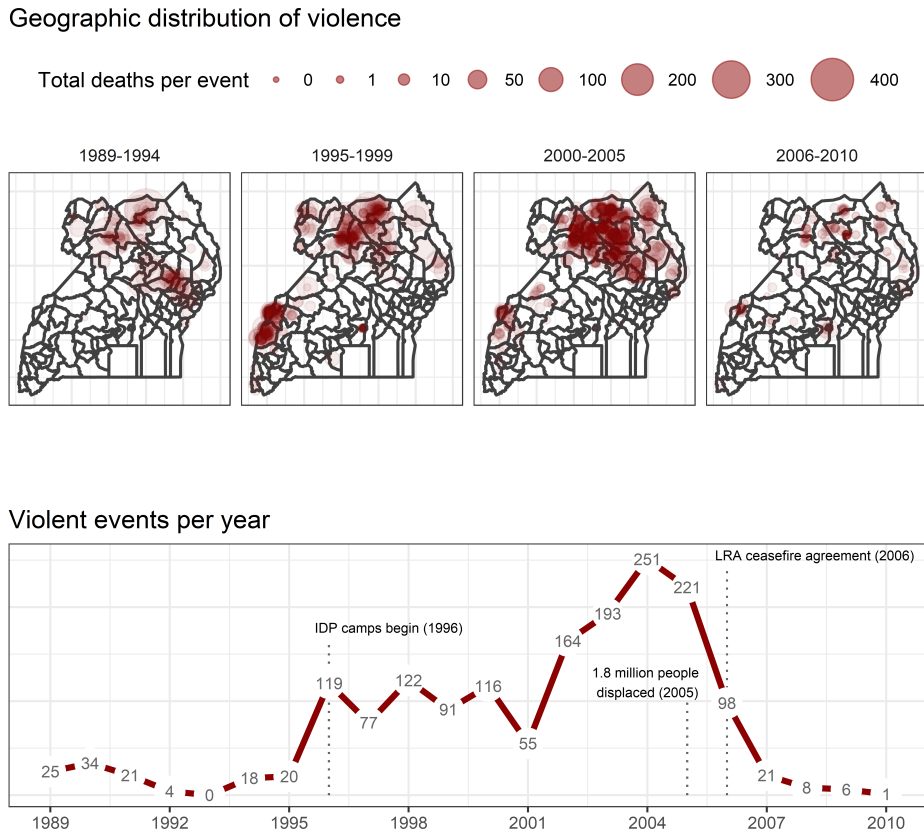
The move into IDP camps was therefore anything but voluntary. As the insurgency peaked around 2005, 1.8 million Ugandans in the North were displaced into camps. The slow return process began following a ceasefire in 2006. By 2009, nearly 450,000 citizens were in the camps; until 2015, this number remained as high as 30,000 (data from iDMC).

To test the relationship between internal displacement and vote buying, this study presents the results from an original survey and randomized response experiment fielded in Northern Uganda in May of 2018. Respondents were drawn from three districts in the Acholi sub-region, including Amuru, Gulu, and Kitgum, corresponding to the epicenter of the LRA insurgency.

Sampling followed a multistaged strategy, with subcounties, parishes, and ultimately polling stations within each district randomly selected from a complete list. Enumerators used a random-walk pattern to sample households and respondents were stratified by gender. A team of enumerators implemented the survey in either Acholi or English, depending on the respondent's preference.⁷ The sample totals 774 respondents, with 180 coming from Amuru, 360 from Gulu, and 234

⁷The West Nile district Arua was also sampled as part of the larger survey effort, but a low prevalence of former IDPs in this region makes including respondents from this region inappropriate. Including the Arua sample results in nearly identical point estimates and standard errors decrease in size as expected with larger sample.

Figure 2.1: The distribution of violence in Uganda, 1989-2010



Note: Conflict data from UCDP-GED (Croicu and Sundberg, 2015).

from Kitgum, proportions that correspond generally to the relative population levels among the districts.⁸ After adjusting for non-response across the variables of interest and covariates in the baseline estimates, the final sample consists of 759 observations.

2.2.1 A randomized response experiment to estimate vote buying

Vote buying in Uganda, as elsewhere, is a sensitive topic. The practice is not only perceived as socially undesirable – it is illegal and punishable with up to three

⁸According to the 2014 census, the population totals for Gulu, Kitgum, and Amuru Districts are around 276,000, 204,000, and 187,000, respectively.

years in prison. Direct questioning therefore unsurprisingly runs the risk of underestimating the true prevalence of vote buying. This problem is not necessarily problematic since vote buying in this study is the dependent variable, implying that estimated effects may simply be understated. However, if responses are correlated with other factors, like political preferences or being formerly displaced, estimates of the effects of these factors will be biased (Gonzalez-Ocantos et al., 2012).

To avoid this pitfall, this paper relies on a randomized response experiment. In particular, I use a “forced response design” (Blair et al., 2015a), in which respondents were instructed to answer “yes”, “no”, or state their truthful answer depending on the roll of a dice. The goal of this strategy is similar to that of the list experiment used to estimate vote buying by Corstange (2012, 2018) in Lebanon, (Gonzalez-Ocantos et al., 2012) in Nicaragua, and Çarkoğlu and Aytaç (2015) in Turkey. According to Rosenfeld et al. (2016), though the randomized response design is marginally more complex than the list experiment alternative, it does better in terms of ensuring respondent privacy and minimizing bias and variance.

Following the design in Blair et al. (2015a), respondents were read the following prompt prior to being questioned about vote buying (enumerator instructions in brackets):

For this question, I want you to answer yes or no. But I want you to consider the number of your dice throw. If 1 shows on the dice, tell me no. If 6 shows, tell me yes. But if another number, like 2 or 3 or 4 or 5 shows, tell your own opinion about the question that I will ask after you throw the dice. [TURN AWAY FROM THE RESPONDENT] Now you throw the dice so that I cannot see what comes out. Please do not

forget the number that comes out [WAIT TO TURN AROUND UNTIL RESPONDENT SAYS YES TO] Have you thrown the dice? Have you picked it up?

These instructions are derived from a few important design features. First, $\frac{1}{6}$ of the time, the dice instructs respondents to answer “no”, $\frac{1}{6}$ of the time “yes”, and $\frac{2}{3}$ of the time to answer either their true response, be it “yes” or “no”. Second, only the respondent is aware of their dice roll and whether or not they answered the question truthfully. This feature minimizes the concern that a respondent will bias their answer towards the what they assume the interviewer believes is socially desirable. Third, because the roll of the dice is not known, the truthfulness of any given respondent’s answer cannot be known for certain. However, the known dice roll probabilities may be used in to model the probability that a respondent would answer “yes” truthfully (Blair et al., 2015a).

After introducing the rules of the dice and walking through several practice rounds, the enumerators read the following question regarding vote buying:

During the most recent elections in 2016, did a candidate or someone form a political party offer you something, like money, a gift, food, or a service, in return for your vote?

This phrasing is nearly identical to that used by the Afrobarometer, but adds the phrase “or a service” following Corstange (2018). This prompt is therefore general enough to incorporate land-related gifts and services that are appear important in Northern Uganda, while also accounting for more traditional goods. Around 68 percent of those answering the question responded “No”, while just over 32 percent answered “Yes.” Adjusting for the design parameters, a simple estimate of

the prevalence of truthful “Yes” responses is 0.2336, suggesting around 23 percent of the sampled population was targeted with vote buying.⁹

2.2.2 Modeling the targeting of vote buying

The primary independent variable is a binary indicator of whether or not a respondent was in an IDP camp during the LRA insurgency. Shown in Table 2.1, just over 70 percent of respondents reported being internally displaced during the war. Several other independent variables also enter the model. To proxy poverty, I rely on three indicators, the first of which takes the value of 1 if a surveyed household has a thatched roof and 0 otherwise. Nearly 70 percent of those sampled have thatched roofs. The other two poverty indicators track whether or not a household has electricity and/or running water. Around 26 percent of respondents report having at least one of these goods.

Table 2.1: Summary of covariates

Variable	Mean	Range
IDP camp	0.705	1/0
Female	0.504	1/0
Age/10	3.37	continuous
Age sqd./10	129.322	continuous
Education	3.126	1-7
Thatched roof	0.695	1/0
Electricity	0.256	1/0
Water	0.26	1/0
NRM support	0.284	1/0
FDC support	0.335	1/0
Other/none support	0.381	1/0

⁹The probability of truthful a “Yes” response is $Pr(Z_i) = \frac{Pr(Y_i) - Pr_{forced\ yes}}{1 - Pr_{forced\ yes} - Pr_{forced\ no}}$.

I model political preferences via indicators for *Political support*, derived from a question regarding which party the respondent would vote for if elections were held tomorrow. Shown in Table 2.1, around 28.4 percent of the sample claimed to support the National Resistance Movement (NRM), the party that has been in power since the 1980s. Northern Ugandans are generally less supportive of the NRM relative to the rest of the country, a finding consistent with the estimate presented here. Another 33.5 percent of respondents support the Forum for Democratic Change (FDC), which acts as the main position party to the NRM. The final 38.1 percent reported no party support or support one of many small parties.

Existing work has found significant variation between males and females regarding the targeting of vote buying (e.g. Gonzalez-Ocantos et al., 2012), suggesting that this factor might confound the estimated effect of *IDP camp*. I use the indicator *Female*, which takes the value of 1 if a respondent is female and 0 if male to adjust for differences between sexes. Shown in Table 2.1, around 50 percent of the sample are female as expected given stratification by gender. I adjust for *Age* (divided by 10 to ease interpretation) and its square. While the sample is limited to those over the age of 18, age is likely related to being internally displaced during the war since older citizens were alive during a larger time period. The average respondent is around 33 years old. Finally, I adjust for respondent *Education*, ranging from no formal schooling to complete secondary schooling. The average respondent has completed primary school. Conditioning on education is especially important with the randomized response design, for which some respondents may grasp more readily than others. I also use district fixed effects to adjust for baseline

variation across the sampled geographic areas.

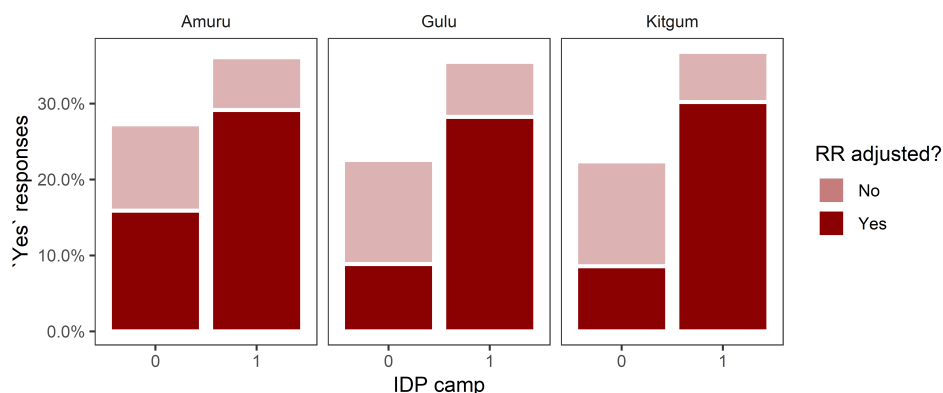
Blair et al. (2015a) provide a multivariate logistic regression estimator for modeling the probability of truthful “yes” responses adjusting for the randomized response design parameters. This estimator improves upon earlier list experiments that relied on comparing means across subgroups as in Gonzalez-Ocantos et al. (2012). I use the `rr` package in R to estimate all randomized response regression models throughout this paper (Blair et al., 2015b).

2.3 Results

Prior to presenting the full regression results, I first explore descriptive variation in *IDP camp* and *Vote buying*. Shown in Figure 2.2, respondents in all districts that were in IDP camps were more likely to answer “yes” to the vote buying randomized response treatment. In particular, those in IDP camps were between 9 and 14 percentage points more likely to answer “yes”. Adjusting for the experimental design parameters, this difference increases to between around 14 and 20 percentage points. Thus, at least descriptively, there is a strong, positive association between being in an IDP camp and being the target of vote buying in the sample.

To test this relationship adjusting for covariates, Table 2.2 presents logistic regression estimates adjusted for the forced choice randomized response probabilities. The indicator for *IDP camp* is positive with a standard error implying a statistically meaningful estimate (95 percent CI 0.54 and 2.63). This result strongly suggests that former IDPs are more often targeted with vote buying than non-former

Figure 2.2: Displaced peoples are more likely to answer yes to the vote buying randomized response instrument



IDPs across Northern Uganda.

Table 2.2: Randomized response logistic regression.

Variable	Estimate	SE	CI lower	CI upper
IDP camp	1.57	0.54	0.51	2.63
Thatched roof	-0.43	0.39	-1.19	0.33
Electricity	0.53	0.43	-0.31	1.37
Water	0.70	0.39	-0.06	1.46
NRM support	1.08	0.41	0.27	1.88
FDC support	0.49	0.41	-0.31	1.30
Female	0.42	0.33	-0.23	1.07
Age/10	0.25	0.77	-1.26	1.77
Age sqd/10	-0.00	0.01	-0.02	0.02
Education	0.05	0.12	-0.19	0.29
Intercept	-3.37	1.60	-6.51	-0.22
Gulu district	-0.57	0.41	-1.38	0.24
Kitgum district	-0.72	0.46	-1.61	0.17

Amuru is the omitted district and Other/none is the omitted political support category. CIs are 95 percent. N = 759.

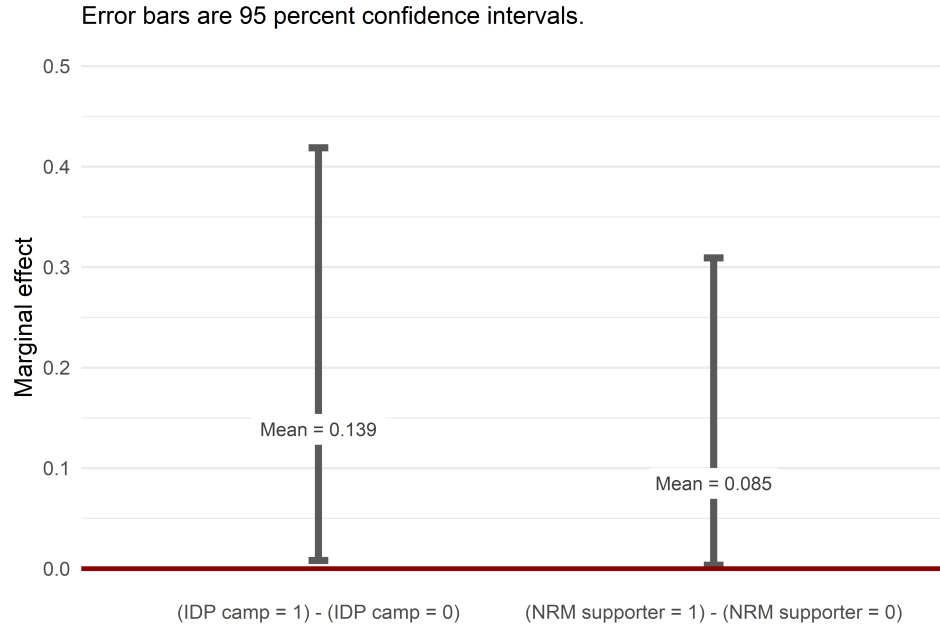
Supporters of the NRM are significantly more likely to report vote buying than non-partisans (95 percent CI 0.27 to 1.88), while FDC supporters are not (95 percent CI -0.31 to 1.30). Neither *Thatched roof*, *Electricity*, nor *Water* show statistically meaningful associations with vote buying. Therefore poverty alone, holding dis-

placement status constant, does not predict vote buying in the sample.

To put these estimates into substantive terms, I run a series of 10,000 simulations drawn from a multivariate distribution using the covariance matrix from the model presented in Table 2.2. Shown in Figure 2.3, the average marginal effect of a discrete change in *IDP camp* from 0 to 1 is around 0.14, suggesting that, on average, formerly displaced peoples are 14 percentage points more likely to be targeted with vote buying than non-former IDPs. As shown by the confidence intervals, over 95 percent of the simulated effects are positive, implying that, even after introducing added noise from the randomized response technique, these estimates are unlikely due to chance or measurement error. Compare these estimated effects to those in Figure 2.3 for *NRM supporter*, which hold *IDP camp* constant at 0 and shift *NRM supporter* from 0 to 1. The average marginal effect suggests that supporters of the ruling party are around 9 percentage points more likely the target of vote buying than non-NRM supporters. Nearly all simulated differences are positive, again suggesting that these estimates are unlikely due to chance.

There are two primary implications of these results. First, the clear positive relationship between displacement and vote buying suggests that the negative social network shock did not make former IDPs less likely targets. Instead, the logic of displacement as an economic shock is more plausible. However, the lack of association between measure of poverty and vote buying implies a complex relationship. These findings – a positive association between displacement and no association with baseline poverty – may imply an important role for the poverty faced by former IDPs uncaptured in the covariates. Likely important here is the role of land,

Figure 2.3: Marginal effects of IDP camp and NRM support



though this relationship cannot be test without additional data.

2.3.1 Validating results with of distributional expectations

As a supplemental test, this section explores whether internal displacement predicts expectations of future electoral handouts. I follow Calvo and Murillo (2013, 2019) and rely on a survey measure which asks respondents how likely it would be, after a successfully winning the next Presidential election, the NRM or an opposition party would provide them with material benefits. Importantly, unlike the randomized response indicator, this measure does not attempt to minimize social desirability bias, implying that estimating effects will likely be understated and potentially biased. However, if expectations of future handouts are correlated with previous experiences with vote buying, these measures may at least partially validate the previous results.

Table 2.3 presents two linear regression models, the first for expectations of handouts from the NRM and the second from an opposition party, with the dependent variable ranging from 1 (very unlikely) to 4 (very likely). Note that the sample size decreases from 759 in the randomized response regressions to 701 and 682 for the models 1 and 2 in Table 2.3, respectively. This suggests that respondents were likely more hesitant to answer the direct electoral handout questions than the randomized response vote buying question.

The estimate for *IDP camp* for expectations of future NRM handouts is positive, with a 95 percent confidence interval ranging from -0.025 to 0.126. This estimate is therefore consistent with the previous estimates, though itself not statistically significant at the 0.05 level. The *IDP camp* estimate for opposition parties is again positive, with a 95 percent confidence interval from 0.022 to 0.188. Taken together, these results largely validate those from the randomized response experiment: former IDPs are more likely to expect to be targeted with vote buying in future elections than non-IDPs.

2.4 Conclusion

In response to the brutal LRA insurgency, the Ugandan government and international donors displaced millions of Northerners into camps. While this decision was motivated by counter-insurgency and humanitarian concerns (Branch, 2009), this paper shows that the political consequences of internal displacement have permeated throughout the post-conflict period. In particular, this paper shows

Table 2.3: Linear regression: dependent variable is the likelihood (1-4) of receiving electoral handouts in an upcoming election.

Variable	Model 1: NRM handouts			Model 2: Opposition handouts		
	Est.	SE	CI lower CI upper	Est.	SE	CI lower CI upper
IDP camp	0.050	0.039	-0.025 0.126	0.105	0.042	0.022 0.188
Thatched roof	-0.046	0.043	-0.130 0.038	0.097	0.047	0.005 0.189
Electricity	0.112	0.048	0.017 0.207	0.062	0.053	-0.043 0.166
Water	-0.191	0.042	-0.274 -0.108	0.212	0.047	0.120 0.304
NRM support	0.292	0.042	0.209 0.376	-0.149	0.047	-0.241 -0.057
FDC support	-0.077	0.041	-0.157 0.002	0.005	0.044	-0.082 0.091
Female	-0.006	0.035	-0.074 0.062	0.016	0.038	-0.059 0.091
Age/10	0.109	0.067	-0.022 0.240	0.038	0.074	-0.107 0.184
Age sqd/10	-0.001	0.001	-0.003 0.000	-0.001	0.001	-0.002 0.001
Education	0.023	0.013	-0.002 0.048	0.009	0.014	-0.019 0.037
Intercept	0.075	0.150	-0.219 0.369	0.294	0.164	-0.028 0.616
Gulu district	-0.108	0.045	-0.197 -0.019	-0.041	0.050	-0.138 0.057
Kitgum district	0.040	0.049	-0.056 0.137	0.026	0.054	-0.079 0.131

Amuru is the omitted district and Other/none is the omitted political support category.

CIs are 95 percent.

N = 701 for model 1 and 682 for model 2.

Northern Ugandans internally displaced during the LRA insurgency are the targets of vote buying much more often than those that were not displaced. This positive relationship is consistent with the logic of displacement as a severe economic shock, with IDPs poorer than non-IDPs and without access to their pre-displacement land, making them efficient targets for vote buying.

This finding is built on a randomized response experimental research design tailored to elicit truthful responses to a topic as sensitive as vote buying. While others have used the list experiment for similar reasons, the randomized response technique has yet to be embraced in studies of vote buying. Compared to the list experiment, randomized response has been shown to produce estimates closer to ground truth (Rosenfeld et al., 2016). Future work should therefore consider following the randomized response to estimate vote buying applied as an alternative to or along with a list experiment.

There are two primary limitations in this paper. First, without additional data on pre-displacement economic status and land access, I cannot directly observe the general economic shock mechanism or tease out the specific role of removal from land. Future data collection efforts should prioritize the collection of such data. Descriptions of recent elections in Uganda do, however, suggest that land is an important factor for targeting IDPs, with reports of local officials using land to buy votes in the Northern region (Meinert and Kjaer, 2016; Médard and Golaz, 2013).

A second limitation is that I have only presented evidence from one region within one country. This limitation is due to the resource-intensive nature of original data collection at the individual level in the developing world. Yet even absent

additional data collection, the comparative implications of this study are clear: we should expect IDPs to be targeted with vote buying in post-conflict settings, especially where land rights are informal. For example, this logic should hold in a country like South Sudan with around 2 million IDPs and widely customary land rights once violence calms. Contexts outside of Africa with informal land rights and severe internal displacement, including Yemen (2.34 million IDPs) and Colombia (5.7 million IDPs), should also see returning IDPs targeted with vote buying. By contrast, the 800,000 IDPs in Ukraine will unlikely be similarly targeted because land rights in this country are generally formalized. I leave the validation of these comparative implications for future work.

3

Government Fragmentation, Administrative Capacity, and Public Goods: the negative consequences of reform in Burkina Faso

Abstract

While countries throughout the developing world continue to increase their number of subnational administrative units, the consequences of administrative unit creation remain poorly understood. This paper argues that newly created administrative units face relative difficulty generating resources and staffing a full and competent bureaucracy, and as a result, are less capable of providing public goods to their constituencies. These challenges to administrative capacity are less consequential within mother units that were carved apart to create new splinter units and are entirely absent in non-splitting units. Proxying the local provision of public goods with a measure of nighttime light intensity in Burkina Faso, the findings indicate that the public goods provision in newly created splinter provinces dropped significantly relative to pre-fragmentation levels, while other administrative units remained largely unaffected.

A published version of this chapter may be found at:

Billing, T. (2019). Government Fragmentation, Administrative Capacity, and Public Goods: The Negative Consequences of Reform in Burkina Faso. *Political Research Quarterly* 72.3 (2019): 669-685. doi:10.1177/1065912918800820.

The international development community has long viewed decentralized governance as crucial for an effective provision of public goods and services. The World Bank went as far as to designate decentralization as one of only a few development priorities in the 21st century (Yusuf et al., 1999). It is therefore unsurprising that donors have recommended this type of reform across several highly centralized countries throughout the developing world (Bardhan and Mookherjee, 2006). In recent decades, many developing countries have also experimented with drastic increases in their number of subnational administrative units. This process – known as *government fragmentation* or *administrative unit proliferation* – is often implemented in conjunction with broader decentralization reforms under the guise of bringing government “closer to the people.”¹ However, as argued by Resnick (2017, p. 48), “...progress on decentralization is sometimes solely equated with the number of subnational governments rather than how well those new sub-units actually function.”

Though donor commitment to decentralization stems from a motivation to improve the provision of public goods within developing countries, I argue that a tendency of reforming governments to respond with administrative unit proliferation has consequences in opposition to the ostensible purpose of decentralization. In short, newly created subnational units lack sufficient *administrative capacity* to deliver public goods to their constituents. Drawing on recent work on state/organizational capacity (Centeno et al., 2017) and administrative unit proliferation

¹Decentralization refers to the delegation of administrative, political, and/or financial authority to subnational governing units (Falleti, 2005), while government fragmentation references only the size and number of subnational units, not their authority.

(Grossman and Lewis, 2014; Lewis, 2014), I conceptualize administrative capacity as a function of access to resources from local taxation and central government transfers, and the quantity and quality of local bureaucracy. Localities within administrative units that are not affected by fragmentation are better able to both tax their citizens and bargain for transfers from the center, while also holding over their bureaucratic experience and staff from the pre-fragmentation period. Mother units – those carved in order to provide territory for the newly created splinter units – have similar bureaucratic experience and ability to tax, though their bargaining position in the competition for centrally distributed resources is diminished by their shrunken territory. The newly created splinter units, however, are placed in the most limited position to derive resources and face severe bureaucratic constraints.

The argument in this paper implies a puzzling result: the commitment of the donor community to decentralization may spur developing countries to create administrative units too weak to effectively provide public goods. Thus, though donors may be motivated by developmental goals when pushing decentralization, governments that respond with premature administrative unit creation likely face consequences antithetical to development.

In an era in which fragmentation is commonplace in the developing world, understanding how administrative capacity mediates the effectiveness of the provision of public goods is of clear importance. However, absent experimentally assigning communities to different fragmentation types, it is very difficult to tease out the effects of fragmentation on the public goods provision absent confounding

factors. This paper offers a second-best alternative research design to this experimental ideal by presenting evidence from the substantial increase in provinces in Burkina Faso, a case that has received very limited attention in the study of the politics of development in Africa (Briggs, 2017). I compile data on the local provision of public goods – proxied by a measure of nighttime light intensity – within departments, the administrative unit that falls just below the province. Because departments remain fixed before and after provincial fragmentation, I am able to compare patterns of the public goods provision over time within departments under different provincial configurations, implying that changes in public goods outcomes can be attributed to falling into an alternative provincial state. Difference-in-differences estimates strongly suggest that departments within the entirely new splinter provinces are significantly worse-off relative to those within non-splitting provinces than they were prior to splitting. Departments within mother provinces, however, appear only slightly worse-off than non-splitters. Communities within splinter provinces appear to experience a worse public goods provision from fragmentation across different specifications of the post-fragmentation period, an effect that is unrelated to endogenous selection into fragmentation types.

This paper is one of only a few studies to rigorously estimate the effects of fragmentation on the provision of public goods (see Grossman et al., 2017; Asher and Novosad, 2015), and, to my knowledge, constitutes the first evidence of robust and negative distributional consequences. This evidence therefore also contributes to the broader literature on the limitations of political and economic reform in sub-Saharan Africa (e.g. Van de Walle, 2001) and the literature on the limitations of ad-

ministrative unit creation specifically, which has to date noted that fragmentation may be exploited for political reasons and may lead to recentralization (see Grossman and Lewis, 2014; Lewis, 2014; Green, 2010; Malesky, 2009, among others), but has yet to show the negative consequences for the provision of public goods. While existing perspectives have noted the potential for distributional effects from an altered political landscape (Grossman et al., 2017), the theoretical framework proposed here offers an alternative perspective that prioritizes the unique challenges of governance in the developing world that stem from limited administrative capacity. These challenges have been previously described in the context of decentralization in general (e.g. Bardhan, 2002) and government fragmentation in particular (e.g. Lewis, 2014), but have yet to be explicitly linked to the provision of public goods after reform.

3.1 Related Work

Contemporary work has primarily focused on explaining the implementation of government fragmentation, centering broadly on two categories of causes. Arguments within the first category view administrative unit creation as stemming from demands for political autonomy and improved access to state resources from below. In Indonesia, for example, Pierskalla (2016b) shows that district splits were largely a function of demand for more ethnically homogeneous districts. Kimura (2010) argues that alliances in Indonesia formed across multiple territorial levels, creating coalitions demanding new districts and provinces. Similarly, in Nigeria,

territorial structure has been altered by redrawing state boundaries to better capture the distribution of ethnic groups (Akinyele, 1996).

The second category of causes instead focuses on top-down mechanisms driving fragmentation, highlighting the political incentives of a survival-driven central government. For example, in Vietnam, new provinces were created in order to secure sufficient political support for previously untenable economic reforms (Malesky, 2009). Resnick (2017) shows that incumbents in Ghana created additional units out of non-competitive districts to secure a larger share of legislative seats in future elections. Evidence also suggests that central governments in some cases, including Nigeria (Kraxberger, 2004) and Senegal (Resnick, 2014), have used fragmentation as a “divide and rule” strategy, aiming to weaken the political opposition. An additional top-down explanation sees new units as a vehicle for maintaining and expanding patronage networks. According to this logic, the creation of a new administrative unit increases access to centrally distributed resources, spurs local construction projects necessary for a functioning regional government, and substantially increases the number of local government jobs. Green (2010) argues that President Museveni relied on district splitting to fuel patronage in Uganda as other sources of patronage dried up. Hassan (2016) presents evidence suggesting that Kenyan leaders have exploited district creation as patronage as well, targeting unaligned ethnic minority groups. Hassan and Sheely (2017) argue that in the context of lower level administration unit proliferation, there is unlikely a direct neopatrimonial connection between the president and local actors because they are too administratively distant. Instead, a neopatrimonial chain links local adminis-

trators to legislators, and legislators to the executive.

Grossman and Lewis (2014) connect both bottom-up and top-down logics, arguing that fragmentation is best understood as a function of both local demands and political incentives from the vantage point of the central government. According to this reasoning, national elites are more likely to create additional subnational units when they need to secure the support of politically, economically, and/or ethnically marginalized regions. In Uganda, for example, district councils were able to express demand for a new district as long as a majority of councilors approved the separation of one or more counties. However, these demands were sent up as formal requests to the Ministry of Local Government and national parliament for approval (Grossman and Lewis, 2014, p. 203).

While political scientists have been interested in why government fragmentation occurs, economic theorists have long viewed smaller governing units as positively related to economic performance. According to these classic perspectives, the benefits from fragmentation may come from the information advantage possessed by local government regarding local preferences relative to the central government (e.g. Hayek, 1945), the creation of inter-jurisdictional competition that allows citizens to 'vote with their feet' if unsatisfied with their local government (e.g. Tiebout, 1956), or the efficiency gains from appropriately assigning taxation and expenditure roles to different levels of government (e.g. Oates, 1972). From this line of work, the most important constraint on the effectiveness of small administrative units is their lack of economies of scale in service provision, tend favor greater centralization (Oates, 1985). Political theorists dating to classical Greece

have also generally found small units to be favorable, claiming that smaller units empower a more robust democratic polity, with citizens better able to hold locally elected officials accountable for government performance (see Faguet, 2012, ch. 5 for a review).

Though the theoretical arguments from economics regarding administrative unit creation seem uniformly positive, the empirical consequences of fragmentation remain understudied. In a recent review, Pierskalla (2016a, p. 24) argues that this lack of clarity is due, at least in part, to both “a disparate and small set of empirical studies” and a “dearth of strong research designs.” Nevertheless, a limited set of recent work has shown the potential benefits of fragmentation. Using a border regression discontinuity design, Asher and Novosad (2015) find that villages in newly created states in India experienced an improvement in nighttime light intensity and education outcomes. Grossman et al. (2017) show that the provision of public goods depicts an inverted U-shaped relationship with a measure of government fragmentation at the country level. Using geo-coded data from Nigeria, Malawi, and Uganda, the authors also find improved healthcare outcomes within regions that have been fragmented. To Grossman et al. (2017), these results are attributable to the influx of capable leaders within newly created units, increased competition between these leaders, and the incentives to target resources toward new regional governments which were previously under-served. However, these positive effects are tempered by excessive fragmentation, which reduces economies of scale in the public goods provision and increases the likelihood of local capture.

This paper intends to contribute to this line of research by making a theoretical departure motivated by the unique challenges faced by fragmenting governments in certain parts of the developing world, particularly in Africa. Here, I argue that the most important factor influencing public goods outcomes after fragmentation stems from variation in *administrative capacity* across subnational governing units. In the conclusion, I conjecture as to what contexts administrative capacity most likely conditions the effects of fragmentation. The next section develops the mechanisms linking fragmentation to the challenges of administrative capacity and the public goods provision.

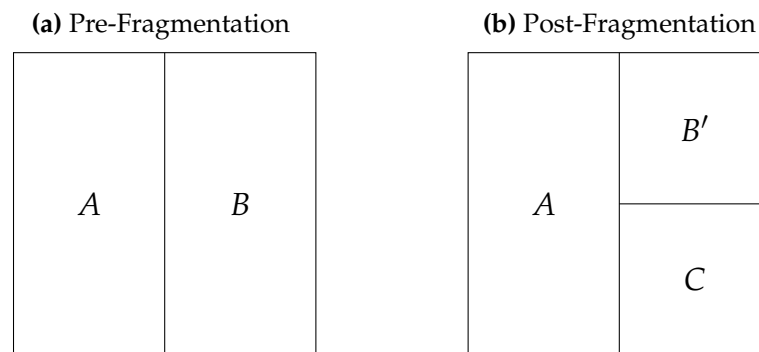
3.2 Fragmentation, Administrative Capacity, & Public Goods

Though factors like ethnic diversity (e.g. Habyarimana et al., 2007; Easterly and Levine, 1997) and income inequality (e.g. Acemoglu and Robinson, 2006) may condition social preferences for public goods and other development outcomes, society's preferences are unlikely translated into policy-outputs without a sufficiently able government. To Ziblatt (p. 276 2008), local governments must be "*capable* of implementing policy that might reflect social preferences." Thus, a local government's capacity to implement policy is a fundamental determinate of the provision of public goods.

The key contention of this paper is that government fragmentation restructures

the distribution of administrative capacity across different types of subnational units, which in turn results in heterogeneous public goods outcomes. To make this claim clear, consider a stylized government fragmentation scenario in Figure 3.1. Prior to fragmentation, there are two units – *A* and *B*. Though subnational, these units are not the lowest level of government and may thus be thought of as provinces, states, or districts that preside over lower-level units like departments or counties. After fragmentation, unit *A* retains its territorial extent and is therefore denoted *non-splitting*. Following the language in Grossman and Lewis (2014), unit *B* is fragmented into two units: the *mother* and the *splinter*. The mother – *B'* – retains some of its geography from the pre-fragmentation period, as well as the administrative capital. The excess territory is therefore granted to the entirely new splinter unit *C*.

Figure 3.1: Hypothetical administrative unit fragmentation



A: non-splitting
 B': mother
 C: splinter

Administrative capacity in the context of government fragmentation is largely a function of two factors: 1) access to resources and 2) the quantity and quality

of bureaucrats.² Centeno et al. (2017) describe the importance of these factors as well, though in the context of “state” and “organizational” capacity more generally, rather than in the context of subnational administrative unit creation.³ I argue that these factors can be mapped onto the fragmentation types in Figure 3.1 to show how administrative capacity likely varies across types from fragmentation and how this variation results in heterogeneous public goods outcomes.

In order to provide public goods, administrative units must have access to sufficient *resources*. To build and maintain roads, for example, an administrative unit is required to, at a minimum, purchase materials and pay laborers. Access to resources, however, is not equal across fragmentation types. This inequality stems from the two ways in which units derive resources. First, units are often tasked with collecting local revenue. Yet, across much of Africa, taxation is known to be extremely difficult (Kasara, 2007). As administrative units become more peripheral, this difficulty becomes even greater. As noted by Grossman and Lewis (2014), more often than not, splinter units are less developed and more rural than non-splitting and mother units, implying that revenue collection will be especially difficult in splinter units. Thus, the relative local capacity to tax post-fragmentation is $A = B' > C$.

To Falleti (2005, p. 329), “...the delegation of taxing authority to subnational units that lack the administrative capacity to collect new taxes can set serious con-

²Previous work on the local provision of public goods has documented the importance of these two factors as well. For example, Ziblatt (2008) shows that resources and local staff experience were the key variables driving health public goods outcomes in German cities in 1912.

³Centeno et al. (2017, p. 9-10) also describe ‘coherence’ and ‘the presence of the state’ as important factors influencing capacity. Though important in general, these factors less clearly map onto the present context and/or uniformly affect administrative capacity across all fragmentation types.

straints on local budgets and increase the dependence of local officials on transfers from the center.” Splinters therefore perhaps turn towards a second source of resources – those distributed from the central government – to fund the provision of public goods. Yet, access to centrally distributed resources is often the product of intra-governmental bargaining between subnational units, the structure of which is altered from fragmentation’s necessary change in territorial control. Grossman and Lewis (2014, p. 202) argue that the bargaining leverage of any given administrative unit varies as a function of two factors. First, access to centrally distributed resources increases with territorial size. In other words, larger units are in a privileged position relative to smaller units to derive central funds.⁴ Second, as the total number of subnational units increases, the sum bargaining power of all subnational units falls relative to the central government because coordination becomes more difficult. As described by Lewis (2014, p. 575), “the leverage of the many newly split localities will be diminished relative to their former bargaining power as a larger, single unit.”

Prior to fragmentation, the bargaining position and therefore access to centrally distributed resources is $A = B$. However, post-fragmentation, the mother unit B' loses some of its territorial extent, while A remains fully intact. Further, the splinter unit C would have to coordinate with the mother unit B' in order to retain the same level of bargaining power as in the pre-fragmentation period under the unified unit B . Ranking access to centrally distributed resources after fragmentation thus

⁴Lewis (2014, p. 575) asserts that it is an “uncontroversial assumption” that “...a local unit’s bargaining power vis-a-vis the centre is increasing in its territorial size.”

implies that $A > B' = C$.

Administrative capacity also varies as a function of the quantity and quality of the civil service and bureaucrats within each unit. Unlike non-splitting and mother units, which both retain not only the capital city, but also staff from the pre-fragmentation period, splinters must organize and staff entirely new regional governments.⁵ Bardhan (2002, p. 189) aptly describes this issue in the context of decentralization in developing countries, "...where the quality of staff in local bureaucracies – including basic tasks like accounting and record keeping – is very low. Even their more professional and technical people suffer from the disadvantages of isolation, poor training and low interaction with other professionals." Bardhan (2002, p. 190) notes further that this relative bureaucratic weakness likely manifests most drastically in the provision of public goods and services that require "sophisticated expertise," like "...power production and transmission, bulk supply of clean water, and public sanitation."

Existing work on fragmentation in Uganda has shown the validity of these concerns, with new administrative units both severely understaffed and lacking sufficient technical expertise necessary to effectively fill bureaucratic duties (Lewis, 2014). According to Nsamba (2009), of the total positions within the newly created Ugandan districts in 2006, only 9 percent of positions were filled. Comparing the quantity and quality of the civil service and bureaucracy across post-fragmentation

⁵While, in some cases, experienced civil servants may be transferred to the newly created units, attenuating the effect of this mechanism. However, the tendency of well-experienced bureaucrats to be placed in relatively pleasant regions minimizes this potential given that newly-created units tend to be the most rural and underdeveloped in fragmenting countries (Grossman and Lewis, 2014).

types, splinter units are at a clear disadvantage relative to their non-splitting and mother counterparts, both of which retain their pre-fragmentation staff and expertise. This implies that $A = B' > C$ when considering relative bureaucratic capacity post-fragmentation.

3.2.1 Empirical expectations

This paper has argued that the provision of public goods will vary after government fragmentation because administrative capacity across non-splitters, mothers, and splinters will be significantly heterogeneous. This section specifies the key empirical expectations that should follow by considering the relative ranking of each fragmentation type after reform.

Splinter units are in the most limited position to tax relative to non-splitters and mothers. At the same time, both splinters and mothers are in a weakened bargaining position to access centrally distributed resources. Thus, when considering the influence of resources on administrative capacity, the relative ranking across fragmentation types is $A > B' > C$. Factoring in variation in bureaucratic capacity reinforces this ranking, with non-splitters and mothers both better equipped than splinters, implying that the total ranking across fragmentation in terms of relative administrative capacity is $A > B' > C$. Thus, if government fragmentation results in heterogeneous public goods outcomes across fragmentation types because of variation in administrative capacity, *we should expect splinter units to experience a lower provision of public goods relative to non-splitting and mother units after fragmenta-*

tion, while mother units will experience a lower provision of public goods relative only to non-splitting units after fragmentation.

3.3 Fragmentation in Burkina Faso

To test the validity of this argument, this paper focuses on the case of Burkina Faso. The political trajectory of Burkina mirrors that of several other African cases, gaining independence from the French in 1960, followed by years of instability and autocratic rule. Control of the state was seized by Blaise Compaoré in 1987 and he remained in power until being removed following a popular uprising in 2014, an era that spans the temporal scope of this paper. Like most former French colonies in the region, political power was highly centralized until decentralization reforms were pushed by the World Bank and the IMF as part of structural adjustment programs in the 1990s (Englebert and Sangaré, 2014). There is little evidence suggesting that local demands for administrative unit creation spurred fragmentation, as in Indonesia (Pierskalla, 2016b). In fact, the World Bank (p. 10 2002) found that decisions regarding administrative unit creation were generally ad hoc, while a United States Agency for International Development (USAID) commissioned assessment claimed that Burkina undertook reform “Plainly, because donors wanted it” (Englebert and Sangare, 2010, p. 17). Fragmentation in Burkina therefore appears to have been undertaken to show tangible evidence of decentralization reform.

The beginnings of the fragmentation period can be traced to the constitution

adopted in 1991, which organized the country into local authorities (Article 143) subject to local democratic competition (Article 145). In 1993, a series of laws formally established the roles of subnational jurisdictions, though the territorial units had been in place for several years. *Provinces* are the intermediary unit between regions and departments. Served by a high commissioner appointed by the central government, provinces supervise the administration of governance within their borders (Dafflon and Madies, 2012, ch. 2). The government fragmentation laws were passed in 1996, culminating in the addition of 15 new provinces, an increase from the 30 prior (Englebert and Sangaré, 2014).⁶ Within each province sit several *departments*. Unlike provinces, departments are served by both an elected official – the mayor – as well as an appointed official – the prefect.⁷

Departments are legally responsible for the provision of public goods and services across nearly every sector, including the management of electricity infrastructure, public lighting, wells, school construction, public hygiene, and land titling, among many others (see p. 7-8 Englebert and Sangare, 2010, for additional responsibilities). Departments adopt their own budgets in order to fulfill these responsibilities. However, budgets are subject to approval by arms of the central government, including the Ministry of Decentralization and Territorial Control and

⁶Figure 3.8 in the Appendix displaying provincial boundaries before and after fragmentation, differentiating between non-splitting, mother, and splinter provinces. Fragmentation types were identified using the documentation provided in the Statoids project (Law, 2017). This information was then used to create all shapefiles used throughout.

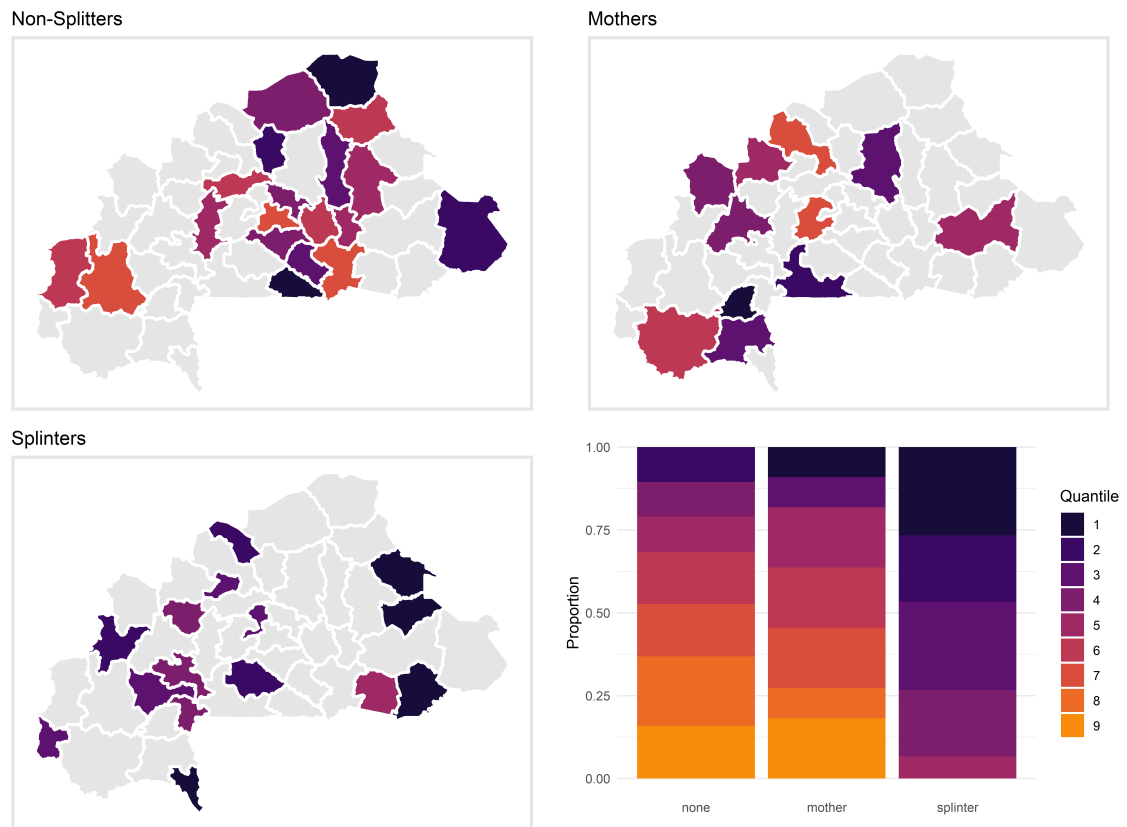
⁷More precisely, mayors serve the *commune*. However, communes and departments are territorially the same. Generally, this governmental level is referred to as the department when referring to the deconcentration of services and authority and the commune when referring to democratic decentralization. Since these terms refer to identical territories, I only refer to departments throughout this paper.

the Ministry of Economy and Finance. Moreover, appointed authorities, including high commissioners at the provincial level, exercise substantial tutelage over departmental decision-making, especially when these decisions involve transfers of financial resources from the central government (Englebert and Sangare, 2010).

As argued before, localities within splinter units are placed in a weakened bargaining position when attempting to access centrally distributed funds relative to non-splitting units. Descriptive evidence from Burkina supports this proposition, with departments within splinter provinces receiving the most limited amount of assistance from the center. Consider the transfers from the central government, depicted in Figure 3.2. The 45 provinces are split into 9 quantiles by total transfers from the center between 2009 and 2014 – the years in which data were available. These data were obtained directly from Burkina’s Ministry of Decentralization and Territorial Administration. Though the causal identification would require data for the years before and after fragmentation, this information is likely unobtainable. Analysts within the Ministry indicated that many documents were lost in the arson of multiple government buildings during the 2014 uprising. The same discussions implied that if not lost from arson, this information may not have been formally collected and maintained for the time period of interest. However, the available data presents a clear pattern. As indicated by the large number of darkly shaded provinces in the non-splitting map and the bar plot, most non-splitting provinces are in the top quantiles of government transfers. Mother provinces are also mostly in the top quantiles of transfers. However, all splinter provinces are in the bottom

five quantiles of transfers, with most falling in the bottom 3.⁸

Figure 3.2: Access to financial resources, 2009-2014



Englebert and Sangaré (2014) note a similar pattern in 2008 with funds slated specifically for decentralization. The 49 urban departments – most of which are in non-splitting provinces – received 96 percent of external resources allocated specifically for decentralization (loans and grants from international institutions), while the 302 rural departments received only the leftover 4 percent.⁹ Figure 3.9 in the Appendix provides further evidence from province-level expenditures in

⁸When explaining access to central funds, separating the effects of bargaining power from population is inherently difficult. The effect of population on access to transfers, for example, may operate through a bargaining mechanism. With this in mind, this discussion has avoided a strong causal interpretation.

⁹Reports regarding subnational funding in Burkina often group spending statistics in terms of rural versus urban departments, with some population threshold dictating this distinction. To my knowledge, the specific funding patterns within departments are not publicly reported.

2003 – the only year for which expenditures are available. Specifically, 14 of the 15 provinces with the lowest expenditures were fragmented, with the bottom 9 being splinter provinces. Thus, though local governments were placed in the position of de jure responsibility for the provision of public goods, unequal access to resources suggests that the capacity to deliver these goods has likely been limited for departments within splinter provinces.

Prior to fragmentation, bureaucratic capacity was severely limited country-wide. According to Harsch (2017, ch. 5), as of 1987, for every 1,000 Burkinabe citizens, there were only 3.5 civil servants, while in nearby Ghana, there were over 22 civil servants per 1,000 citizens. After fragmentation, this weak bureaucracy was forced to stretch across a growing number of local governments. The World Bank, for example, concluded in a review of Burkina’s reform that local offices were upgraded to the provincial level, “...without their having the human resources and skills required to actually manage these new offices” (World Bank, 2002, p. 10). Limited bureaucratic capacity was stretched the most thin in the splinter provinces, likely because they were already more rural than their non-splitting and mother counterparts. To Englebert and Sangare (2010, p. 15), a “lack of permanent salaried staff” has been a key cause of limited capacity at the local level in rural areas of the country. This relative bureaucratic weakness seems to have been well-known. The High Commissioner of the splinter province Komoedouma in eastern Burkina directly echoed this sentiment, stating that “...we obviously didn’t have as much to begin with, but they expect us to catch up on our own.”¹⁰ The

¹⁰Interview conducted in June of 2017.

problem is compounded by the fact that, according to Mahieu and Yilmaz (2010, p. 337), “...the small pool of qualified civil servants [in Burkina are] reluctant to accept positions outside the capital or major urban centers.” Weak bureaucratic capacity in many rural local communities became such a problem that by 2006, the government adopted a decree to draw and retain quality staff to these units.¹¹ However, this decree appears to have been ineffective in achieving these aims (Mahieu and Yilmaz, 2010).

This section has described the context of fragmentation in Burkina, noting that access to resources and bureaucratic capacity was most limited for localities falling within splinter provinces. The next section develops a design to test whether these limitations in fact influenced public goods outcomes as the theory predicts.

3.3.1 Research design

The proposed theoretical framework implies that province fragmentation should have significantly heterogeneous effects on the provision of public goods across fragmentation types. This expectation poses two methodological issues. First, the fragmenting units – *provinces* – are not comparable before and after fragmentation since the units do not remain geographically intact. Following Grossman and Lewis (2014), the unit of analysis is therefore scaled down to the *department* – one level below the province. Thus, though each department remains fixed throughout the entire sample period, the fragmentation status of the provinces under which

¹¹LOI N° 027-2006/An portant régime juridique applicable aux emplois et aux agents des collectivités territoriales.

any given department lies may change.

Second, the theoretical expectations imply that by placing a department in a counterfactual fragmentation type – that is, a fragmentation type that differs from the department’s observed type – the resulting public goods outcome would have differed. However, because of the fundamental problem of causal inference, it is impossible to simultaneously observe a single unit in multiple treatment states (Holland, 1986). To get around this issue, I use a difference-in-differences approach, which compares differences in public goods trends in departments across non-splitting, mother, and splinter provinces before and after fragmentation (Angrist and Pischke, 2008). The parameters of interest are estimated using the following regression model:

$$Y_{dpt} = \gamma_d + \lambda_t + \delta(M_{pt} \cdot d_t) + \rho(S_{pt} \cdot d_t) + X'_{dpt-1}\beta + \epsilon_{dpt},$$

where the variable S_{pt} takes the value of 1 in all department-years for departments in splinter provinces and 0 for non-splitters and mothers, while M_{pt} is coded 1 only for mother provinces. The pre-treatment and post-treatment period is indicated by d_t and is coded 0 for all observations prior to fragmentation and 1 thereafter. The post-treatment period is modeled to begin in 1997, allowing for the fragmentation law passed in 1996 to plausibly have an impact on the provision of public goods.

Department fixed effects are captured by γ_d , which eliminate any time-invariant factors that may confound the effect of fragmentation reform on the public goods provision. Importantly, the inclusion of unit-level fixed effects rules out many al-

ternative explanations that do not vary throughout the sample period; several are worth briefly noting. First, Hodler and Raschky (2014) argue that regional inequality is partly a function of favoritism to the birth region of a state's leader. In this case, Compaoré remained in office throughout the entire sample period and therefore regional favoritism towards his birth region cannot explain any variation uncovered. Second, the distribution of ethnic groups in the country also remained constant, thus eliminating ethnic favoritism as an alternative explanation (Alesina et al., 2016). Third, potentially important geographic factors like terrain and land-use are eliminated given their lack of variation over time (at least in the relatively short-run). Finally, though the structure of party systems might influence patterns and effects of decentralization (Riedl and Dickovick, 2014), this factor also remained fixed with a single dominant party in power. Further, time fixed effects are denoted by λ_t , thereby removing the effects of year-specific shocks that are common to all departments, like the country-wide local elections in April of 2006. In additional specifications, a linear time trend is also included and interacted with the control variables described below.

3.3.2 Measuring public goods at the local level

This research design requires a measure of the public goods provision at the department level that spans the pre- and post-fragmentation period. A first option may be to use the Demographic and Health Surveys, which provide geocoded responses to a battery of questions health and education outcomes as well as access

to public services. Grossman et al. (2017) take this approach in their study of fragmentation's affect on child and infant mortality in Malawi, Nigeria, and Uganda. Though this data may be the ideal option, it cannot be appropriately used to study public good outcomes in Burkina at the department level. The DHS surveys are designed to be representative at two levels: 1) the country and 2) the 'DHS region.' In most countries – including Burkina – the DHS region corresponds roughly to the first administrative unit-level. The DHS region in this context is therefore one level above the splitting units (provinces) and two levels above the unit of analysis (departments). Thus, while the geocoded DHS data provides specific coordinates referring to sampling clusters that appear usable at very granular levels of precision, these clusters were not designed to be used as such. The DHS even cautions against this type of use, stating that analyses below the DHS region may be “highly unreliable” and “are not representative of the population living at that exact place.”¹²

With this constraint in mind, I therefore propose the average nighttime light intensity as a reasonable proxy for the provision of public goods at the departmental level. *Lights* is processed by the NOAA's National Geophysical Data Center after collection by the US Air Force Weather Agency (Version, 2014). The raw nighttime light intensity data comes as a high resolution spatial grid and runs from 0 to 63. *Lights* is aggregated by taking the mean grid-cell value in each department-year. Prior to log-transforming, the average in the sample *Lights* is around 0.12,

¹²See dhsprogram.com/faq.cfm for details (accessed May 1, 2018).

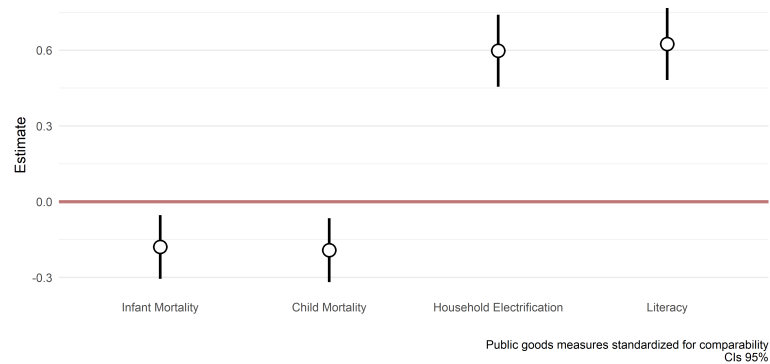
though the highest department-level mean in the sample is just over 33.¹³ Following previous empirical studies (Hodler and Raschky, 2014; Alesina et al., 2016), I add a small constant (0.001) to all *Lights* observations to avoid dropping zeros after log-transforming. Shown in Figure 3.10 in the Appendix, the distribution of *Lights* improves after the log transformation, though the variable remains right-skewed. Transforming *Lights* using the inverse hyperbolic sine, for which zero is defined and therefore adding a constant is unnecessary, results in nearly identical estimates.

For *Lights* to be an appropriate proxy for public goods, the measure should exhibit two properties. First, it should correlate well with the ideal measures from the DHS. To test this relationship, I first aggregate *Lights* to the first administrative unit level, corresponding to the lowest level of appropriate subnational analysis in the DHS data. I then combine DHS survey waves from 1993, 1999, 2003, 2010, and 2014 and create four measures of public goods: 1) household electrification; 2) literacy; 3) child mortality; and 4) infant mortality. Each measure represents the mean response within each DHS region. Figure 3.3 presents a series of linear regressions in which *Lights* predicts each of these alternative public goods measures. In all models, survey wave fixed effects are included to remove year-specific effects. *Lights* is positively related to household electrification and literacy, while negatively associated with child and infant mortality. Further, these relationships

¹³Summary statistics appear in Table 3.1 in the Appendix. The relatively low levels of nighttime light intensity, even in the most developed parts of the country, imply that top-coding (i.e. high levels of intensity that actually vary get lumped into the top value of the scale) is unproblematic. Further, because I use the “stable” version of the nighttime light intensity data, “unstable” sources of light unrelated to the provision of public goods like gas flares or forest fires are removed.

are all statistically significant at the 0.05 level. Taken together, this exercise suggests that *Lights* is a relatively reasonable proxy for the provision of public goods at the local level in Burkina Faso.

Figure 3.3: The relationship between *Lights* and alternative measures of public goods at the region-level



Note: all models include year fixed effects. *Lights* is logged. Error bars denote 95 percent confidence intervals.

Second, the provision of electricity must also plausibly arise as a function of subnational governance. Widespread electrification is generally dependent on government activity (Min, 2015). This is particularly true in Burkina, with the state-owned National Company of Electricity primarily responsible for the supply and distribution of electricity throughout the country Ouédraogo (2010). However, as described earlier, local governments are responsible for devising their own budget and development plans. Several factors related to nighttime light intensity are under the umbrella of local government responsibility, including the creation and management of energy infrastructure, public lighting, and participation in the design of regional electric networks (p. 8 Englebort and Sangare, 2010). The ability of departments to improve their provision of electricity remains conditional on in-

put from the central government, with development plans and budgets subject to state approval. The provision of electricity is therefore the result of an interaction between local planning and budgeting and the prerogative of the central government. In this context, bureaucratic capacity and ability to lobby for access to state resources are especially important, implying that nighttime light intensity represents a particularly appropriate measure of public goods as a test for the proposed theory.

3.3.3 Control variables

Two time-varying department-level controls are captured by X'_{pt-1} . First, as a landlocked country in the Sahel, economic production in Burkina is sensitive to climactic variation. Thus, I introduce *Drought Index*, which controls for variation in rainfall across departments. This variable is derived from the Standardized Precipitation and Evapotranspiration Index (SPEI) (Beguería et al., 2014) and indicates the proportion of a year for which a department experienced drought. Originally represented by a 0.05x0.05 decimal degree spatial grid, the SPEI data is aggregated to the department level by taking the mean value grid-cell value within each department. Since domestic energy production in Burkina is dependent on hydro-electrical sources (Ouédraogo, 2010), drought is expected to correlate negatively with *Lights*. Second, logged *Population Density* enters the model to ensure that variation in mean nighttime light intensity is not simply due to population changes. Population estimates come from the Gridded Population of the World

(GPW) project (GPW, 2005). Estimates are available every five years beginning in 1990. This data limitation requires the filling of population estimates for years in which there was no dedicated estimation. For example, years 1995 through 1999 employ the population estimate from 1995, while years 2000 through 2004 use the estimates from 2000. *Population Density* is aggregated to the department level by taking the average grid-cell population density per department. Both controls are lagged 1 year to avoid post-treatment bias.

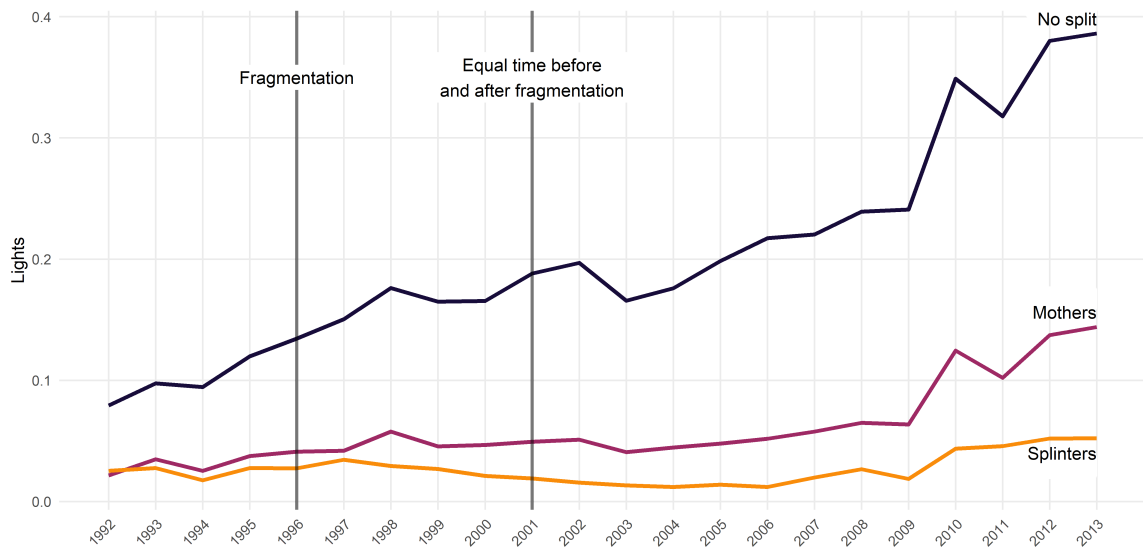
3.4 Results

Figure 3.4 depicts the variation in *Lights* across fragmentation types. Prior to fragmentation, the average nighttime light intensity in departments within *non-splitting* provinces was higher than that for *Mother* and *Splinter* provinces. After fragmentation, *Lights* continued along an upward trajectory for *non-splitters*, while *Mother* and *Splinter* provinces appear to experience significant stagnation. Moreover, average nighttime light intensity in departments within *Splinter* provinces *worsened* for several years after fragmentation. *Splinters* therefore appear descriptively the most worse-off from fragmentation.

Table 3.2 presents the primary regression estimates, while Figure 3.5a plots the difference-in-difference estimates for *Mothers* and *Splinters* using the entire sample period (1992-2013).¹⁴ All models include standard errors clustered by province,

¹⁴Following Kastellec and Leoni (2007), I rely on coefficient plots of the causal variables for interpretation.

Figure 3.4: Average nightlights over time and by province fragmentation type



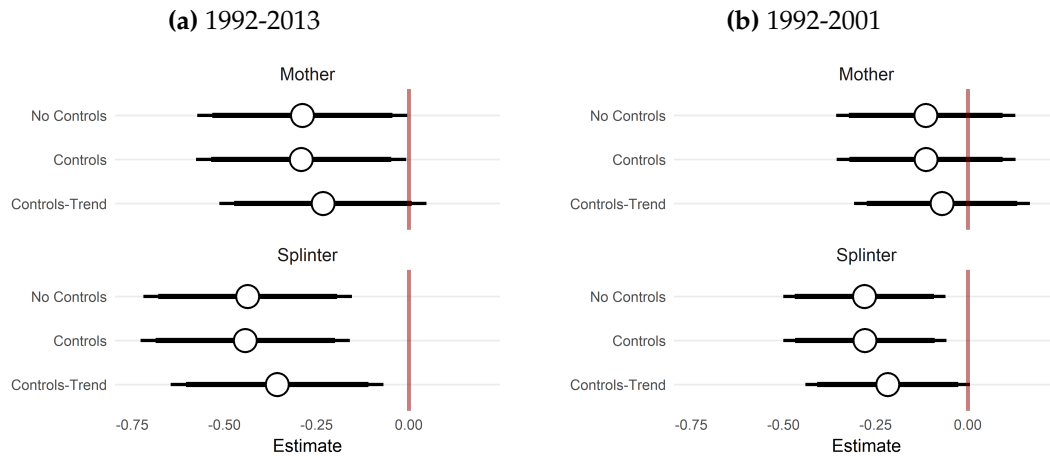
the highest level of aggregation (Cameron and Miller, 2015).¹⁵ The estimates can be interpreted relative to the omitted category of *non-splitting* provinces. When omitting time-varying controls, both *Mothers* and *Splinters* present negative and statistically significant estimates. Introducing controls for *Population* and *Drought Index* slightly increases the size of each estimate. In the final model, a linear time trend is interacted with each time-varying control. *Mother* remains negative and of similar size, but is no longer statistically significant at conventional levels. *Splinter*, on the other hand, remains negative and highly statistically significant.

The estimates in Figure 3.5a suggest departments within mother provinces experienced between 21.82 and 26.15 percent less nighttime light intensity on average because of fragmentation.¹⁶ However, this negative impact should be treated

¹⁵Models are estimated using the PLM package in R. All standard errors are also heteroscedasticity-consistent (i.e. “robust”) and follow an “HC1” degrees of freedom adjustment.

¹⁶The semi-logarithmic setup of each regression with dummy independent variables necessitates care in interpreting the impact of *Mother* and *Splinter* on *Lights*. Following Giles et al. (2011), these estimates are converted to percentage impacts by using $100(\exp(c - \frac{1}{2}v(c)) - 1)$, where c is the estimated coefficient and v is the estimated variance (i.e. the square of the standard error).

Figure 3.5: The effect of province fragmentation on *Lights*



Note: all models include department and year fixed effects. Standard errors clustered by province. Error bars around estimates denote 90 and 95 percent confidence intervals. Time-varying controls include *Population Density* and *Drought Index*. Controls-trend interacts time-varying controls with time trend.

with caution due to variation in standard errors across specifications. On the other hand, departments within splinter provinces are clearly substantively and statistically worse-off, experiencing on average between 31.13 and 36.46 percent less nighttime light intensity because of fragmentation.

3.4.1 Restricting the sample period

One empirical challenge to the primary results described thus far may be that the uneven distribution of time periods before and after reform are driving the estimates. The following estimates subset the sample to include only 1992 to 2001. By moving the end of the sample period closer to the date of fragmentation, we can more plausibly ensure that unmeasured factors not captured in the fixed effects or time trend are not confounding the results.

Shown in Figure 3.5b, *Mother* is consistently negative, though is never distin-

guishable from zero across specifications. The estimates for *Splinter*, when either omitting or including time-varying controls, remain negative and statistically significant at the 0.05 level. When interacting a linear time trend with the control variables, the estimate diminishes in size slightly and becomes significant at the 0.1 level, though the 95 percent confidence interval just barely crosses zero. Substantively, departments within splinter provinces experienced between 25.09 and 20.19 percent less nighttime light intensity on average from fragmentation until 2001. These results largely confirm that the public goods disparity between splinter provinces and non-splitters worsened due to fragmentation.

3.4.2 Parallel trends and endogenous selection

Another empirical issue may be that the identification assumptions required for plausible difference-in-differences estimates are not met. Namely, identifying the effects of fragmentation in this framework relies on the *parallel trends assumption*, which states that prior to fragmentation, trends in nighttime light intensity were similar across fragmentation types, but fragmentation in 1996 prompted deviation from this common trend (Angrist and Pischke, 2008, ch. 5). Crucially, this assumption does not require similarity in *levels* of nighttime lights across fragmentation types prior to reform, but only similar changes over time. Conditioning on department fixed effects increases the plausibility of this assumption. Further, as shown in Figure 3.4, though mothers and splinters start below non-splitters, the yearly changes prior to fragmentation are similar. For example, between 1992 and

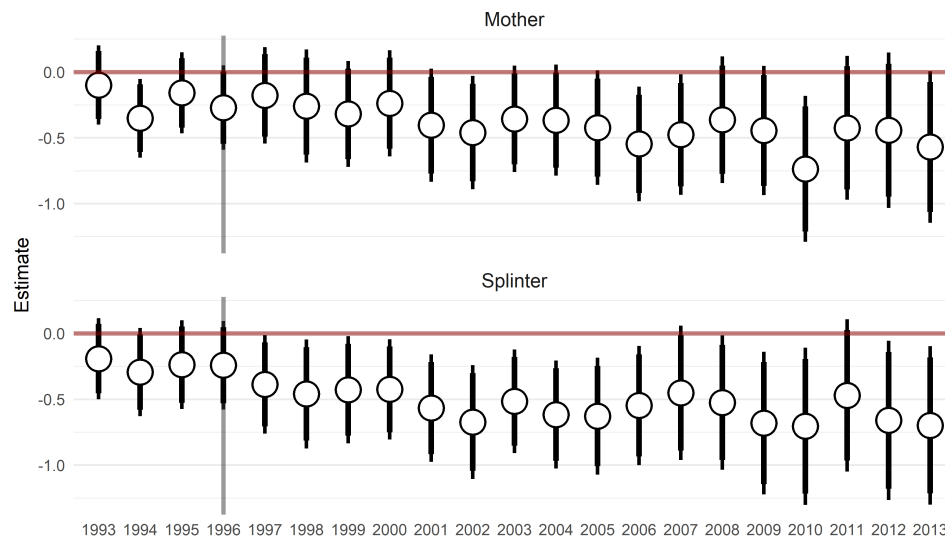
1993, all three types saw increased nighttime light intensity, while lights decreased slightly for all types between 1993 and 1994.

Parallel trends can be inspected more directly by interacting each fragmentation type with yearly indicators (Autor, 2003). If the effect of fragmentation is statistically significant prior to reform, the parallel trends assumption may be in question and we can surmise that unmeasured differences across fragmentation types unrelated to fragmentation are confounding the results. Said otherwise, departments that were already going to experience a significantly worse trend after 1996 may have endogenously selected into splinters, while those that were going to experience slightly worse trends selected into mothers, and those that were going to experience a significant improvement selected into non-splitters. However, if there is no effect prior to fragmentation, yet the effect after remains, we can be confident in the plausibility of parallel trends.

Figure 3.6 presents the results from this exercise, relying on the most conservative modeling strategy, which includes time-varying controls interacted with a linear time trend, as well as department and year fixed effects. As shown in the first panel, the effect of *Mother* is only statistically significant in one of the pre-fragmentation years. After fragmentation, *Mother* is not consistently statistically significant. Prior to fragmentation, *Splinter* is never distinguishable from zero, indicating that these departments were not significantly different than non-splitters before reform. However, beginning one year after fragmentation, *Splinter* is negative and statistically significant for several years in a row, with most substantively severe effects appearing between 2001 and 2010. Thus, the negative effect of falling

within a splinter province is unlikely related to pre-reform differences.

Figure 3.6: The effect of province fragmentation over time



Note: this model includes department and year fixed effects as well as time-varying controls for *Population* and *Drought Index* interacted with linear time-trend. Standard errors clustered by province. Error bars around estimates denote 90 and 95 percent confidence intervals. The vertical bar indicates province fragmentation in 1996.

3.4.3 Influential departments

As a final empirical check, Figure 3.7 presents the distribution of estimates when iteratively excluding one department per regression, therefore examining the potential that changes in nighttime light intensity within one department over time are driving the results. This ensure that the departments with relatively significant nighttime light intensity, like those that the house majors cities of Ouagadougou (the capital) or Bobo-Dioulasso are not overly-influential in generating the effects. This exercise involves estimating 350 individual regressions (the total number of departments minus 1). All models include controls for both population density

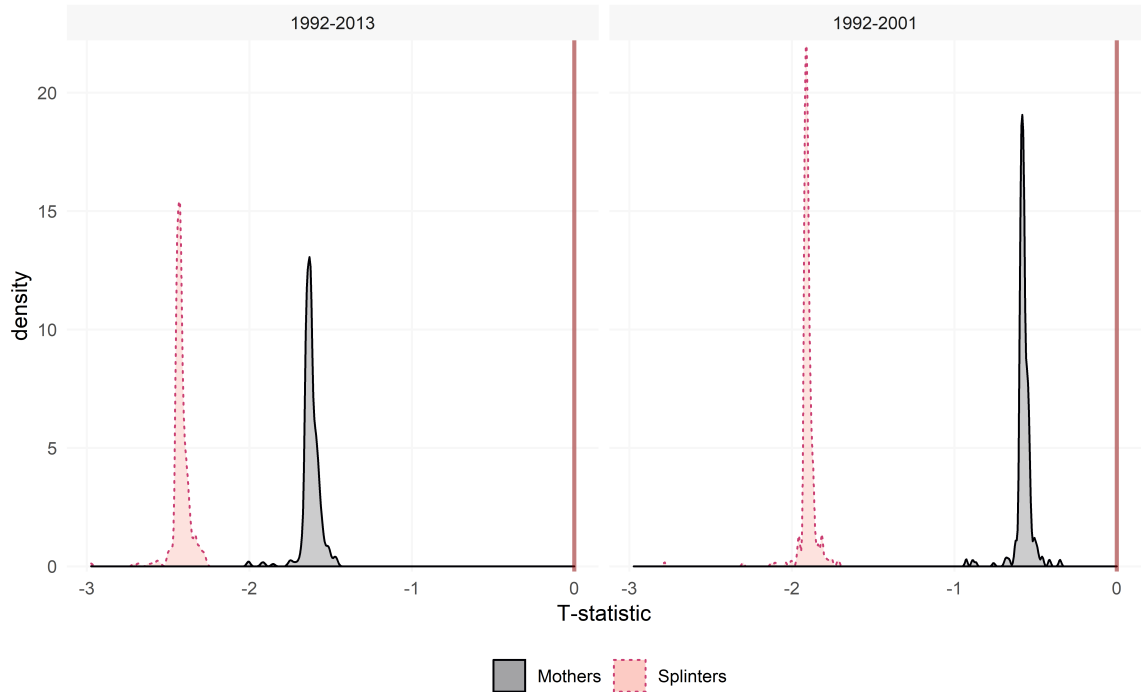
and drought as well as their interactions with a linear time trend to ensure the most stringent test is used. I plot the distribution of t-statistics in order to summarize both coefficients and their variance simultaneously.

Shown in the first panel, the t-statistics for *Splinter* are all between -2.0 and -3.0, indicating that this coefficient is always statistically significant at the 0.05 level or better for each iteration. When sub-setting to only 1992-2001, the density of t-statistics for *Splinter* remains just below -2.0 and all iterations are above -1.68, implying consistent statistical significance at least at the 0.10 level. Thus, the primary result of this paper – that departments within *Splinter* provinces experienced a lower provision of public goods after fragmentation – appears unattributable to the influence of any one department.

3.5 Alternative explanations

The previous tests have ruled out several empirical challenges to the core argument in this paper. Considering the reviewed literature on the motivations of fragmentation, a few alternative explanations must be addressed. First, several perspectives rooted in economic theory imply that the provision of public goods should improve as units become smaller (e.g. Hayek, 1945; Tiebout, 1956; Oates, 1972). If important here, departments within the newly shrunken units – mothers and splinters – should have experience improved public goods outcomes relative to non-splitters after fragmentation. However, all empirical tests are explicitly contrary to this expectation.

Figure 3.7: Distribution of estimates when iteratively excluding departments



Note: the density plots present the results of 350 regressions, each of which excludes one department. All models include department and year fixed effects as well as time-varying controls for *Population* and *Drought Index* interacted with a linear time-trend. Standard errors are clustered by province.

Second, recent work has shown that political elites often leverage the creation of new units as a vehicle for maintaining and expanding patronage networks (see Green (2010) and Hassan (2016); Hassan and Sheely (2017) for examples in Uganda and Kenya, respectively). As described before, fragmentation decisions in Burkina did not appear to follow a distinct political logic of this sort and were instead fairly “ad hoc” (p. 10 World Bank, 2002). Though subnational patterns of political support may allow for a systematic evaluation of whether unit creation followed patrimonial patterns found in other cases, this data is not available. Moreover, a general lack of institutionalized political competition likely prohibits the useful-

ness of most standard measures of subnational political support.¹⁷ Nonetheless, the implications of the patronage perspective may be evaluated indirectly given the evidence presented in this paper. According to this logic, newly created units pull in centrally distributed funds and spur local construction projects necessary for a functioning regional government, in turn, creating a sizable number of local government jobs which can be distributed to political supporters. If the patronage logic were plausible, splinter units should have experienced the largest influx of resources and jobs. Across all tests, however, splinters were shown to experience the poorest trend in the provision of public goods after fragmentation. Further, splinters appear to pull in the least amount of centrally distributed resources, while non-splitters and mothers pull in the most (see Figures 3.2 and 3.9).

A final argument suggests that, in certain cases, local demands for ethnically homogeneous units spur government fragmentation (see Pierskalla (2016b) and Akinyele (1996) for examples in Indonesia and Nigeria, respectively). If this logic is valid, units may have been made more homogeneous, which in turn may improve the provision of public goods (see Habyarimana et al., 2007, for the relationship between ethnic diversity and public goods). While there is little evidence suggesting that local demands structured fragmentation in Burkina in this way, concerns of this potentially confounding pathway may be assuaged by considering a few factors. Most simply, political competition is generally not mobilized along ethnic lines in Burkina. For example, taking Posner's (2004) Politically Relevant Ethnic

¹⁷For example, in the presidential election in 1991, official numbers stated that Compaorè won 86.42 percent of all votes and 100.00 percent of all "valid" votes. In the National Assembly election of 1997, the year immediately following fragmentation, Compaorè's Congress for Democracy and Progress (CDP) won 91 percent of the 111 total seats.

Groups (PREG) measure, for example, Burkina is tied for the least ethnically fractionalized country in Africa (PREG of 0.00). Similarly, the Ethnic Power Relations geocoded release (geoEPR) excludes Burkina because of ethnicity's lack of political relevance within the country (Wucherpfennig et al., 2011).

Additionally, geographic variation in ethnicity poorly predicts which departments were subject to which types of splitting. Figure 3.11 in the Appendix displays density plots for each of Burkina's primary ethnic groups, with the proportion of a given department's population that identifies with each ethnic group depicted on the horizontal axis. These densities are further differentiated along the vertical axis by whether a department was a non-splitter, mother, or splinter. Each proportion is derived from the Spatially Interpolated Data on Ethnicity (SIDE) dataset from Schweinitz and Hunziker (2018).¹⁸ Note that for nearly all ethnic groups, the proportion densities are very similar, regardless of the split type. For one group – the Mossi – there is a larger density of high proportions for non-splitters relative to mothers and splinters. However, even a simple multinomial logit, controlling only for population, suggests that this variation is not a statistically meaningful determinant of fragmentation.¹⁹ Finally, by including de-

¹⁸As outlined before, DHS geocoded data cannot be used appropriately alone at the department level in Burkina. However, Schweinitz and Hunziker (2018) develop a machine learning approach to interpolate the information provided regarding ethnic identification in a country's limited number of geocoded DHS clusters continuously across space. Interpolation of this sort may offer benefits in exploring variation in other DHS indicators of public goods, though adapting their machine learning approach to this context is beyond the scope of this paper.

¹⁹In this multinomial logit, the dependent variable is *Split Type*, which can either be non-splitting, mother, or splinter. The primary independent variable is the proportion of each department's population that identifies as Mossi, while population density enters as a control variable. With standard errors clustered by province, the 95 percent confidence interval for the logit coefficient on *Proportion Mossi* for the probability that a department is a mother relative to a non-splitter is (-6.50, 0.30); for the probability that a department is a splinter relative to a non-splitter, the 95 percent confidence interval is *Proportion Mossi* is (-6.74, 0.74).

partment fixed effects, the research design bluntly controls for baseline variation in ethnic diversity at the unit level. As long as there is not significant ethnic migration across departments before and after fragmentation, department-level ethnic diversity cannot be a plausible alternative explanation.

3.6 Conclusion

This paper has shown that communities within splinter units in Burkina Faso experienced a worsened provision of public goods from government fragmentation relative to non-splitting units, while the units used to create the new units were only partially negatively affected. The theoretical framework put forth explains this finding as arising from variation in administrative capacity across splinter, mother, and non-splitting units. In short, communities splintered into new units are in a weaker position to tax, access centrally distributed resources, and have a more limited bureaucracy than others. These findings resonate with the perspective that fragmentation has distributional consequences (Grossman et al., 2017). However, this paper argues that these consequences can be perverse, limiting the provision of public goods in the communities most affected by fragmentation relative to those least affected.

Though I have provided evidence from only Burkina Faso, the importance of administrative capacity in producing heterogeneous public goods outcomes after fragmentation likely travels in predictable ways. Administrative capacity throughout Burkina, for example, was severely limited both before and after fragmentation

(Harsch, 2017). As baseline administrative capacity increases within a reforming country, the likelihood that fragmentation will substantially affect administrative capacity likely decreases. Future work should therefore explore how baseline administrative capacity influences the consequences of fragmentation on the provision of public goods.

Burkina Faso also had very little experience with subnational governance prior to fragmentation. In other cases, perhaps especially those with links to indirect rule under the British colonial system, decentralized governance and local political competition may have a stronger precedent. In these contexts, variation in administrative capacity within the fragmenting government may be less important, while mechanisms rooted in altered political competition like those proposed by Grossman et al. (2017) may be more probable. Interestingly, these authors show that individuals within splinter units experience improved public health outcomes after fragmentation in Malawi, Nigeria, and Uganda, all countries which have historical links to indirect rule under the British colonial system. Moreover, in cases in which demands for administrative unit creation came from below – as in the case of Indonesia (Pierskalla, 2016b) – fragmentation may less likely result in administratively weak units. Additional work should explore how the historical and political origins of administrative capacity structure the effects of fragmentation.

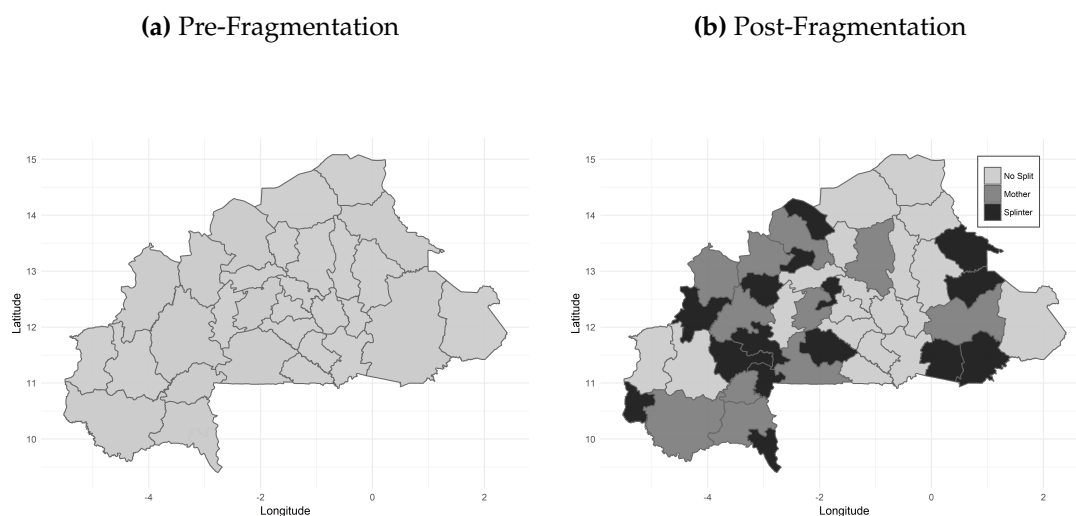
The primary limitations of this study come from data unavailability. In particular, I am only able to evaluate the causal effect of fragmentation on the provision of one public good – electricity. At the same time, I have taken care to show that 1) electricity is a reasonable proxy for the provision of other public goods; and 2) the

theoretical mechanisms developed plausibly produce variation in electricity. Similarly, quality data on public employment and government transfers that would be useful as a direct test of mechanisms is generally not available. Instead, I relied on all data made available through meetings with analysts within Burkinabé ministries and qualitative assessments conducted by others to substantiate the theoretical argument. The contributions of focusing on Burkina Faso, even given the data constraints partly unique to the country, outweigh the costs leaving it critically understudied (Briggs, 2017).

To conclude, this paper may be read as a cautionary tale for policymakers seeking to improve governance in the developing world through decentralization reform. In particular, “progress on decentralization” should not be “equated with the number of subnational governments” (Resnick, 2017, p. 48). Instead, government fragmentation should be perceived with an eye towards context. Specifically, policymakers should ask whether newly created units possess the capacity to fulfill the duties of an effective subnational government. Without such administrative capacity, the goals of bringing the government “closer to the people” may in fact leave many behind.

3.7 Appendix

Figure 3.8: Provinces in Burkina Faso



Note: Map 3.8a shows the 30 provinces in Burkina Faso prior to government fragmentation, while Map 3.8b shows the provinces updated borders after fragmentation, which resulted in 45 total provinces. The shading in Map 3.8b differentiates between non-splitting, mother, and splinter provinces.

Table 3.1: Summary Statistics

Statistic	N	Mean	St. Dev.	Min	Max
Lights	7,722	0.119	1.219	0.000	33.271
log(Lights)	7,722	-5.991	2.024	-6.908	3.505
Mother	7,722	0.214	0.410	0	1
Splinter	7,722	0.196	0.397	0	1
log(Population Density)	7,722	3.737	0.749	0.850	8.194
Drought Index	7,722	0.046	0.044	0.000	0.333

Note: sample includes 351 departments.

Table 3.2: Estimated effect of province fragmentation on department light intensity

	<i>Dependent variable:</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
	Lights					
Mother	-0.289** (0.145)	-0.292** (0.145)	-0.233 (0.143)	-0.114 (0.124)	-0.113 (0.124)	-0.070 (0.122)
Splinter	-0.437*** (0.144)	-0.444*** (0.145)	-0.357** (0.147)	-0.280** (0.112)	-0.279** (0.113)	-0.217* (0.114)
Population		0.016 (0.225)	-0.127 (0.230)		-0.097 (0.284)	-0.279 (0.291)
Drought Index		-0.476 (0.333)	-1.497** (0.612)		0.051 (0.396)	-0.912 (0.902)
Trend:Population			0.022*** (0.007)			0.032*** (0.012)
Trend:Drought Index			0.091* (0.052)			0.148 (0.156)
Observations	7,722	7,722	7,722	3,510	3,510	3,510
R ²	0.007	0.008	0.019	0.006	0.006	0.015

Note:

* p<0.1; ** p<0.05; *** p<0.01
 All models include department and year fixed effects
 Standard errors clustered by province are in parentheses
 Models 1 – 3: 1992-2013
 Models 4 – 6: 1992-2001

Figure 3.9: Province expenditure: 2003

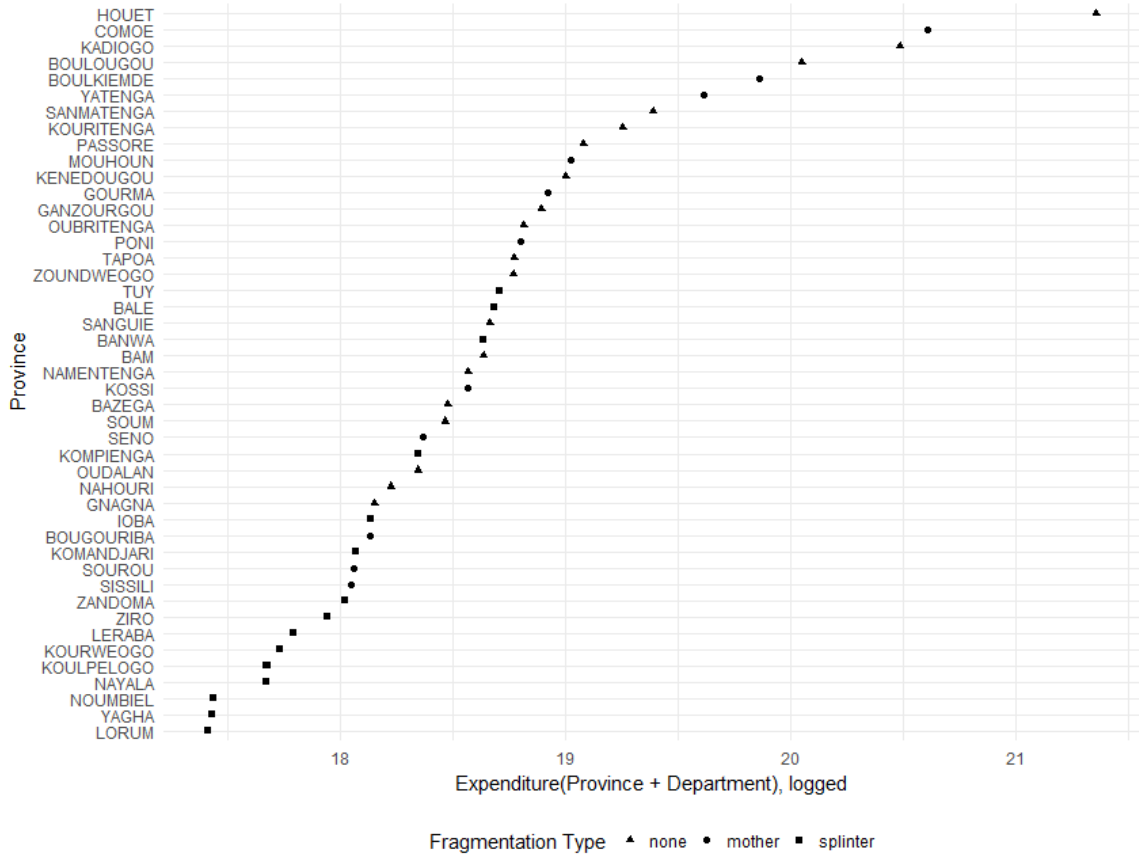


Figure 3.10: Density plots: *Lights*

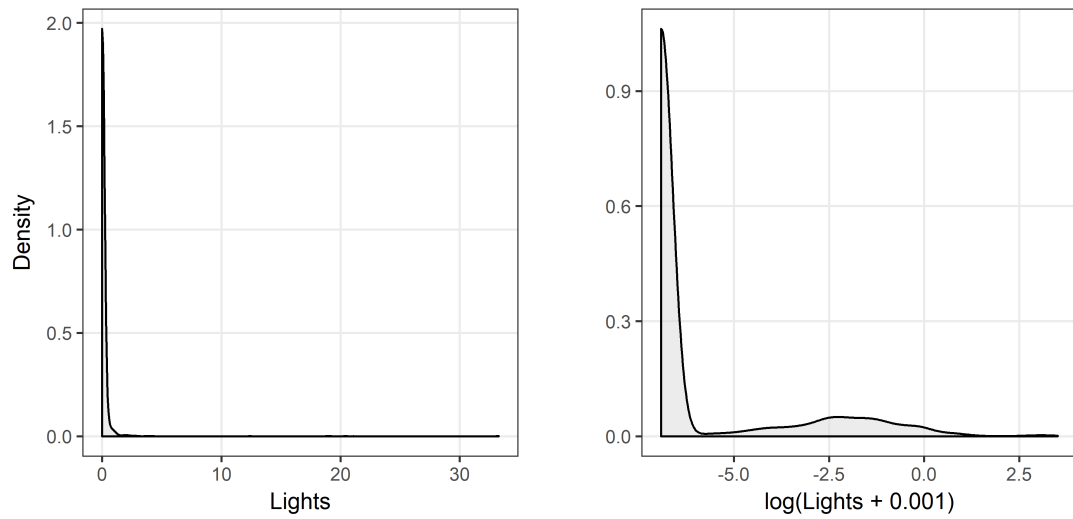
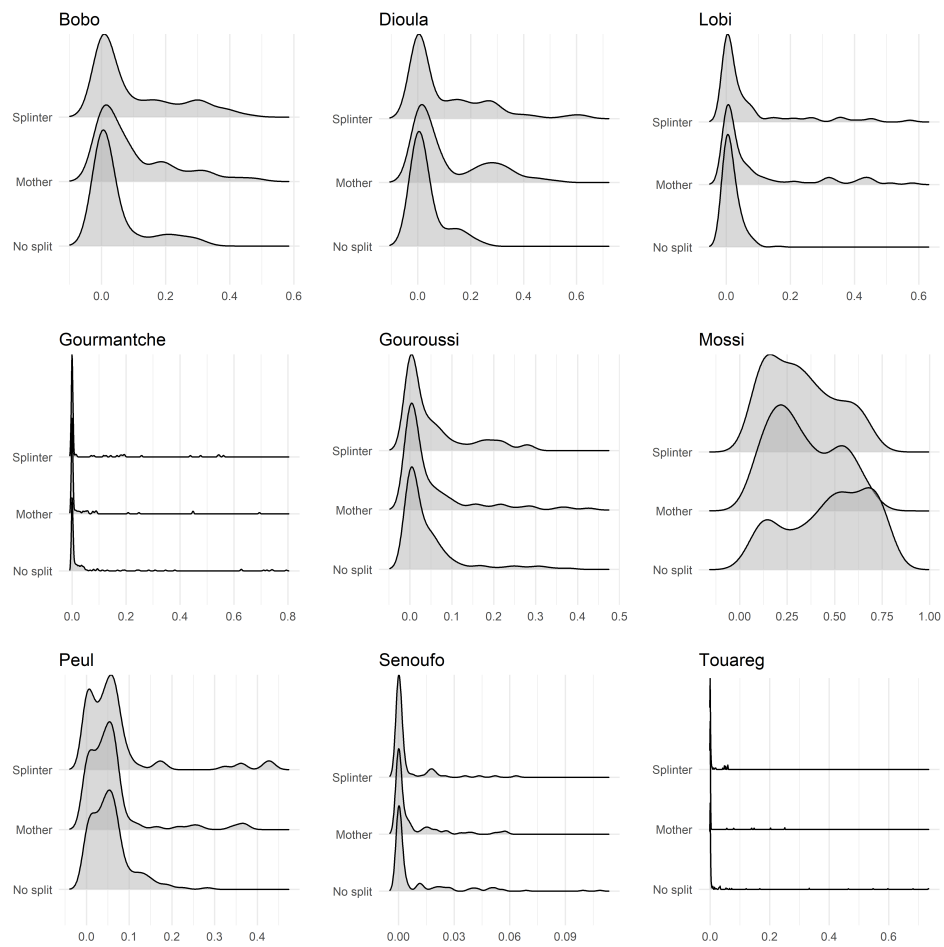


Figure 3.11: Proportion of ethnic group (1993) within a department and split type



Conclusion

While international development projects, policies, and reforms often stem from the top-down, the political and economic consequences of these decisions fall on citizens on the ground. To understand these consequences, I began with a theoretical and empirical approach for estimating citizen preferences among different types of foreign aid projects in Chapter 1. I showed that though citizens have distinct preferences for different types of aid, the Ugandan government appears to target projects divorced from these preferences. In Chapter 2, I presented evidence that internal displacement in Northern Uganda – a decision prioritized by the Ugandan government and supported by donors – altered the targeting of vote buying post-conflict. In Chapter 3, I estimated the consequences of government fragmentation on the provision of public goods in Burkina Faso at the local level. This reform, which was prioritized by international donors and implemented by the Burkinabe government, resulted in worse public goods outcomes for many communities. This concluding chapter considers some key lessons and implications from this dissertation and notes potential directions for future work.

The view of aid from below

Citizens within aid-receiving countries are the supposed beneficiaries of foreign aid, yet researchers rarely consult them directly. Instead, the vast majority of studies focus on the distribution and effectiveness of aid at the country (see Qian (2015) for a review) or at the subnational levels (e.g. Jablonski, 2014; Briggs, 2014). Though these approaches have been fruitful in their own right, they necessarily fall short of understanding the perceptions and preferences of citizens on the ground.

In Chapter 1, I offered a theoretical and empirical approach for directly consulting citizens on foreign aid. In doing so, I showed that citizens in Northern Uganda have clear preferences for certain types of aid rather than others. Project type is by far the most important factor driving citizen preferences, a possibility that has been understated in previous work on aid at the individual level (Findley et al., 2017a). Citizens particularly prefer social development projects like healthcare and education relative to investment in infrastructure like roads and electrification. The robust preference for social development relative to large infrastructure speaks to existing work at more aggregate levels, which notes that infrastructure projects are more often subject to corruption and failure (i.e. Winters and Martinez, 2015).

I also showed that a common narrative regarding African aid – that Chinese projects are uniquely corruptable (e.g. Dreher et al., 2016; Isaksson and Kotsadam, 2018) – may be overstated, at least from the perspective of average citizens. Northern Ugandans only slightly preferred traditional donors like the World Bank and European Union to Chinese projects. Moreover, preferences for Chinese projects

are very similar to preferences for projects from other non-Western donors like Japan, suggesting that citizens unlikely view Chinese aid as especially corruptable.

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Though citizens do have distinct preferences, the Ugandan government does not appear to take these preferences very seriously. Most strikingly, the government has substantially over-provided roads projects from Western donors relative to citizen demand. This pattern suggests that a model of subnational aid distribution that hinges on electoral returns – like that from Jablonski (2014) in Kenya – unlikely holds in Uganda, at least a version in which politicians respond to voter preferences. A model of aid distribution that considers elite-level political returns may instead be more relevant in this context. For example, the over-provision of roads may come from increased opportunities for elite corruption (Winters and Martinez, 2015) or from the fact that these projects are highly visible and therefore represent tangible progress on development attributable to incumbent politicians (Harding, 2015).

Context and consequences

Several important implications in this dissertation come from focusing on under-explored political and institutional contexts. The mismatch between citizen preferences for aid and the behavior of the government presented in Chapter 1, for example, may be due in part to limited democratic institutions in Uganda. While

²⁰See Blair and Roessler (2018) for another recent example challenging the “rogue Chinese aid” narrative.

the voters in this context do hold some political power, especially in the North, where voters overwhelmingly challenge the ruling party, the NRM has controlled the state for several decades. In contexts where the central government is more fully accountable to electoral pressures, we might expect the provision of aid to more closely match the preferences of average citizens. While beyond the scope of this dissertation, this is an important empirical question that follows from the formal model specified in Chapter 1, which assumes that the government is indeed accountable to their voters. Future work should explore the degree to which electoral constraints condition the match between citizen preferences for aid and the government's behavior.

In Chapter 2, I argued that the twin contextual factors of clientelistic political competition and informal land tenure produced a shift in the targeting of vote buying following the LRA insurgency. The context-specific nature of this argument again has comparative implications. We shouldn't expect IDPs in a country like Ukraine, for example, to be increasingly targeted with vote buying upon their return home because the land tenure system in this country is formal. By contrast, when conflict finally wanes in countries with informal land tenure systems like South Sudan, Yemen, and Colombia, we will likely observe a shift in the targeting of vote buying. Policymakers interested in democratic governance post-conflict should therefore consider a potential influx in clientelism in these contexts.

The negative economic consequences for newly-created administrative units in Burkina Faso presented in Chapter 3 were due in large part to the context of very weak administrative capacity, with these units lacking the basic funding and bu-

reaucracy necessary to fulfill the provision of public goods. Moreover, unlike contexts like Indonesia, where bottom-up pressures led the government to fragment (Pierskalla, 2016b), fragmentation in Burkina was imposed from above by the central government in response to international pressures for progress on decentralization. Fragmentation in Burkina was therefore not demand-driven, suggesting that like Northern Uganda, there was a mismatch between the citizen demand government decision-making. Though only one example, this case suggests that ineffective development policies may follow from a mismatch between decisions from above and citizen demand.

Decisions from above, consequences on the ground

This dissertation has shown how decisions made by governments and international organizations impact average citizens and communities on the ground. Though less common than more aggregate approaches, a turn to granular levels of analysis is often necessary because many unintended consequences of international development are unobservable from above.

For example, if analyzed at the country-level, administrative unit creation in Burkina may look successful, with the overall provision of public goods improving since fragmentation. Yet this aggregate improvement masks substantial heterogeneity within the country, with the positive effects largely due to the subset of non-fragmenting communities. Similarly, though foreign aid decisions are made well above average citizens, understanding citizen preferences tells us something

about the motivations of the government. In Northern Uganda, for example, the mismatch between citizen preferences and the government's behavior suggests that the government is unlikely motivated by electoral pressures to respond to voter preferences.

While valuable for understanding the politics and economic consequences of development on the ground, this approach comes with important challenges. First, micro-level data in Africa are scarce, especially in post-conflict settings like Northern Uganda and under-studied countries like Burkina Faso. Though there are some publicly available geo-coded surveys, as described in Chapter 3, these sources are generally not fit for use at local levels. Second, measuring citizen preferences, voter experiences, and community-level development outcomes is exceedingly complex. Considering just the examples in this dissertation, aid projects are multidimensional, vote buying is illegal and socially undesirable, and the relationship between government fragmentation and the provision of public goods is rife with confounding and selection bias.

To address these challenges, I collected original data from a single context (Northern Uganda), relied on an innovative data source for a single public good (night-time light intensity and electrification), and developed innovative experimental and observational research designs uniquely suited to address the problems for each question. In contrast to more common approaches, which rely on off-the-shelf data and research designs, these tailored approaches necessarily limited the empirical scope of each chapter. However, an understanding of the consequences of international development for the intended beneficiaries requires an embrace

of this limitation. Scholars and funders should similarly embrace this limitation, prioritizing tailored research designs and data collection efforts to make progress on understanding the consequences of international development on the ground.

Bibliography

- Acemoglu, D. and Robinson, J. A. (2006). Economic backwardness in political perspective. *American Political Science Review*, 100(1).
- Adams, J. F., Merrill III, S., and Grofman, B. (2005). *A unified theory of party competition: a cross-national analysis integrating spatial and behavioral factors*. Cambridge University Press.
- Adelman, S. (2013). Keep your friends close: The effect of local social networks on child human capital outcomes. *Journal of Development Economics*, 103:284–298.
- Adelman, S. and Peterman, A. (2014). Resettlement and gender dimensions of land rights in post-conflict Northern Uganda. *World Development*, 64:583–596.
- AidData (2016). *UgandaAIMS GeocodedResearchRelease Level1 v1.4.1 geocoded dataset*. AidData.
- Akinyele, R. (1996). States creation in nigeria: The willink report in retrospect. *African Studies Review*, 39(2):71–94.
- Albertus, M. (2013). Vote buying with multiple distributive goods. *Comparative Political Studies*, 46(9):1082–1111.

- Alesina, A., Michalopoulos, S., and Papaioannou, E. (2016). Ethnic inequality. *Journal of Political Economy*, 124(2):428–488.
- Angrist, J. D. and Pischke, J.-S. (2008). *Mostly harmless econometrics: An empiricist's companion*. Princeton university press.
- Annan, J. and Blattman, C. (2008). Child combatants in northern Uganda: Reintegration myths and realities. In *Security and Post-Conflict Reconstruction*, pages 123–145. Routledge.
- Arenoe, B., van der Rest, J.-P. I., and Kattuman, P. (2015). Game theoretic pricing models in hotel revenue management: An equilibrium choice-based conjoint analysis approach. *Tourism Management*, 51:96–102.
- Asher, S. and Novosad, P. (2015). The impacts of local control over political institutions: Evidence from state splitting in india. *Unpublished manuscript*.
- Autor, D. H. (2003). Outsourcing at will: The contribution of unjust dismissal doctrine to the growth of employment outsourcing. *Journal of Labor Economics*, 21(1):1–42.
- Aysa-Lastra, M. (2011). Integration of internally displaced persons in urban labour markets: a case study of the idp population in soacha, colombia. *Journal of Refugee Studies*, 24(2):277–303.
- Baines, E. and Rosenoff Gauvin, L. (2014). Motherhood and social repair after war and displacement in Northern Uganda. *Journal of Refugee Studies*, 27(2):282–300.

- Baldwin, K. (2016). *The paradox of traditional chiefs in democratic Africa*. Cambridge University Press.
- Bansak, K., Hainmueller, J., Hopkins, D. J., and Yamamoto, T. (2018). The number of choice tasks and survey satisficing in conjoint experiments. *Political Analysis*, 26(1):112–119.
- Bardhan, P. (2002). Decentralization of governance and development. *The Journal of Economic Perspectives*, 16(4):185–205.
- Bardhan, P. and Mookherjee, D. (2006). *Decentralization and local governance in developing countries: a comparative perspective*, volume 1. The MIT Press.
- Beguería, S., Vicente-Serrano, S. M., Reig, F., and Latorre, B. (2014). Standardized precipitation evapotranspiration index (spei) revisited: parameter fitting, evapotranspiration models, tools, datasets and drought monitoring. *International Journal of Climatology*, 34(10):3001–3023.
- Billing, T. (2019). Government fragmentation, administrative capacity, and public goods: The negative consequences of reform in Burkina Faso. *Political Research Quarterly*, 72(3):669–685.
- Blair, G., Imai, K., and Zhou, Y.-Y. (2015a). Design and analysis of the randomized response technique. *Journal of the American Statistical Association*, 110(511):1304–1319.
- Blair, G., Zhou, Y.-Y., and Imai, K. (2015b). rr: Statistical methods for the random-

- ized response. Available at the Comprehensive R Archive Network, <http://CRAN.R-project.org/package=rr>.
- Blair, R. A. and Roessler, P. (2018). The effects of chinese aid on state legitimacy in Africa: Cross-national and sub-national evidence from surveys, survey experiments, and behavioral games. http://docs.aiddata.org/ad4/pdfs/WPS59_The_Effects_of_Chinese_Aid_on_State_Legitimacy_in_{Africa}.pdf.
- Bohnet, H., Cottier, F., and Hug, S. (2018). Conflict-induced idps and the spread of conflict. *Journal of Conflict Resolution*, 62(4):691–716.
- Boone, C. (2009). Electoral populism where property rights are weak: land politics in contemporary sub-saharan Africa. *Comparative Politics*, 41(2):183–201.
- Branch, A. (2009). Humanitarianism, violence, and the camp in Northern Uganda. *Civil Wars*, 11(4):477–501.
- Brautigam, D. (2009). *The dragon's gift: the real story of China in Africa*. Oxford University Press.
- Briggs, R. C. (2012). Electrifying the base? aid and incumbent advantage in ghana. *The Journal of Modern African Studies*, 50(4):603–624.
- Briggs, R. C. (2014). Aiding and abetting: project aid and ethnic politics in kenya. *World Development*, 64:194–205.
- Briggs, R. C. (2017). Explaining case selection in African politics research. *Journal of Contemporary African Studies*, 35(4):565–572.

- Calvo, E. and Murillo, M. V. (2004). Who delivers? partisan clients in the argentine electoral market. *American journal of political science*, 48(4):742–757.
- Calvo, E. and Murillo, M. V. (2013). When parties meet voters: Assessing political linkages through partisan networks and distributive expectations in argentina and chile. *Comparative Political Studies*, 46(7):851–882.
- Calvo, E. and Murillo, M. V. (2019). *Non-policy Politics: Richer Voters, Poorer Voters, and the Diversification of Electoral Strategies*. Cambridge University Press.
- Cameron, A. C. and Miller, D. L. (2015). A practitioner’s guide to cluster-robust inference. *Journal of Human Resources*, 50(2):317–372.
- Çarkoğlu, A. and Aytaç, S. E. (2015). Who gets targeted for vote-buying? evidence from an augmented list experiment in Turkey. *European Political Science Review*, 7(4):547–566.
- Carlson, E. (2015). Ethnic voting and accountability in Africa: A choice experiment in Uganda. *World Politics*, 67(2):353–385.
- Centeno, M. A., Kohli, A., and Yashar, D. J. (2017). Unpacking states in the developing world: Capacity, performance, and politics. *States in the Developing World*, pages 1–31.
- Corstange, D. (2012). Vote trafficking in lebanon. *International Journal of Middle East Studies*, 44(3):483–505.

- Corstange, D. (2018). Clientelism in competitive and uncompetitive elections. *Comparative Political Studies*, 51(1):76–104.
- Croicu, M. and Sundberg, R. (2015). Ucdp georeferenced event dataset codebook version 4.0. *Journal of Peace Research*, 50(4):523–532.
- Cruz, C. (2019). Social networks and the targeting of vote buying. *Comparative Political Studies*, 52(3):382–411.
- Cruz, C., Labonne, J., and Querubin, P. (2017). Politician family networks and electoral outcomes: Evidence from the philippines. *American Economic Review*, 107(10):3006–37.
- Cruz, C. and Schneider, C. J. (2017). Foreign aid and undeserved credit claiming. *American Journal of Political Science*, 61(2):396–408.
- Dafflon, B. and Madies, T. (2012). *The political economy of decentralization in Sub-Saharan Africa: a new implementation model in Burkina Faso, Ghana, Kenya, and Senegal*. World Bank Publications.
- De Kadt, D. and Lieberman, E. S. (2017). Nuanced accountability: Voter responses to service delivery in southern Africa. *British Journal of Political Science*, pages 1–31.
- Deininger, K. (2004). Land policies for growth and poverty reduction: key issues and challenges ahead. In *Special Forum 'The Development of Land Information Policies in the Americas'*, Aguascalientes, Mexico, pages 26–27.

- Diaz-Cayeros, A., Estevez, F., and Magaloni, B. (2016). *The political logic of poverty relief: Electoral strategies and social policy in Mexico*. Cambridge University Press.
- Dietrich, S. (2013). Bypass or engage? explaining donor delivery tactics in foreign aid allocation. *International Studies Quarterly*, 57(4):698–712.
- Dietrich, S., Mahmud, M., and Winters, M. S. (2018). Foreign aid, foreign policy, and domestic government legitimacy: Experimental evidence from bangladesh. *The Journal of Politics*, 80(1):133–148.
- Dixit, A. and Londregan, J. (1996). The determinants of success of special interests in redistributive politics. *the Journal of Politics*, 58(4):1132–1155.
- Dreher, A., Fuchs, A., Hodler, R., Parks, B., Raschky, P., and Tierney, M. J. (2016). Aid on demand: African leaders and the geography of china’s foreign assistance. http://docs.aiddata.org/ad4/files/wps3_aid_on_demand_{Africa}n_leaders_and_the_geography_of_chinas_foreign_assistance.pdf.
- Easterly, W. (2007). Are aid agencies improving? *Economic Policy*, 22(52):634–678.
- Easterly, W. and Levine, R. (1997). Africa’s growth tragedy: policies and ethnic divisions. *The Quarterly Journal of Economics*, 112(4):1203–1250.
- Egami, N. and Imai, K. (2018). Causal interaction in factorial experiments: Application to conjoint analysis. *Journal of the American Statistical Association*, (Forthcoming):1–34.

- Egami, N., Ratkovic, M., and Imai, K. (2018). Findit: Finding heterogeneous treatment effects. *R package available at CRAN*.
- Ejdemyr, S., Kramon, E., and Robinson, A. L. (2017). Segregation, ethnic favoritism, and the strategic targeting of local public goods. *Comparative Political Studies*, 0(0):0010414017730079.
- Englebert, P. and Sangare, N. (2010). Comparative assessment of decentralization in Africa: Burkina Faso desk study. *Washington, DC: United States Agency for International Development (USAID)*.
- Englebert, P. and Sangaré, N. (2014). Burkina Faso: Limited decentralization under tight oversight. *Decentralization in Africa*. Lynne Rienner, Boulder, CO, pages 45–68.
- Englebert, P. and Tull, D. M. (2008). Postconflict reconstruction in Africa: Flawed ideas about failed states. *International security*, 32(4):106–139.
- Fafchamps, M. and Labonne, J. (2016). Family networks and distributive politics. *Journal of the European Economic Association*.
- Faguet, J.-P. (2012). *Decentralization and popular democracy: Governance from below in Bolivia*. University of Michigan Press.
- Falleti, T. G. (2005). A sequential theory of decentralization: Latin American cases in comparative perspective. *American Political Science Review*, 99(03):327–346.
- Fearon, J. D. and Laitin, D. D. (2003). Ethnicity, insurgency, and civil war. *American political science review*, 97(1):75–90.

- Fiala, N. (2015). Economic consequences of forced displacement. *The Journal of Development Studies*, 51(10):1275–1293.
- Findley, M. G., Harris, A. S., Milner, H. V., and Nielson, D. L. (2017a). Who controls foreign aid? elite versus public perceptions of donor influence in aid-dependent uganda. *International Organization*, 71(4):633–663.
- Findley, M. G., Milner, H. V., and Nielson, D. L. (2017b). The choice among aid donors: The effects of multilateral vs. bilateral aid on recipient behavioral support. *The Review of International Organizations*, 12(2):307–334.
- Gibson, C. C., Andersson, K., Ostrom, E., Shivakumar, S., et al. (2005). *The Samaritan's dilemma: the political economy of development aid*. Oxford University Press on Demand.
- Giles, D. E. et al. (2011). Interpreting dummy variables in semi-logarithmic regression models: exact distributional results. *University of Victoria Department of Economics Working Paper EWP*, 1101.
- Gonzalez-Ocantos, E., De Jonge, C. K., Meléndez, C., Osorio, J., and Nickerson, D. W. (2012). Vote buying and social desirability bias: Experimental evidence from nicaragua. *American Journal of Political Science*, 56(1):202–217.
- GPW (2005). Center for international earth science information network (ciesin) and centro internacional de agricultura tropical (ciat). *Gridded Population of the World, Version 3 (GPWv3): Population Count Grid*.

- Green, E. (2010). Patronage, district creation, and reform in Uganda. *Studies in Comparative International Development*, 45(1):83–103.
- Grossman, G. and Lewis, J. I. (2014). Administrative unit proliferation. *American Political Science Review*, 108(01):196–217.
- Grossman, G., Pierskalla, J. H., and Dean, E. B. (2017). Government fragmentation and public goods provision. *Journal of Politics*.
- Habyarimana, J., Humphreys, M., Posner, D. N., and Weinstein, J. M. (2007). Why does ethnic diversity undermine public goods provision? *American Political Science Review*, 101(4):709–725.
- Hainmueller, J. and Hopkins, D. J. (2015). The hidden american immigration consensus: A conjoint analysis of attitudes toward immigrants. *American Journal of Political Science*, 59(3):529–548.
- Hainmueller, J., Hopkins, D. J., and Yamamoto, T. (2014). Causal inference in conjoint analysis: Understanding multidimensional choices via stated preference experiments. *Political Analysis*, 22(1):1–30.
- Harding, R. (2015). Attribution and accountability: Voting for roads in Ghana. *World Politics*, 67(4):656–689.
- Harsch, E. (2017). *Burkina Faso: A History of Power, Protest, and Revolution*. Zed Books.

- Hassan, M. (2016). A state of change: district creation in kenya after the beginning of multi-party elections. *Political Research Quarterly*, 69(3):510–521.
- Hassan, M. and Sheely, R. (2017). Executive–legislative relations, party defections, and lower level administrative unit proliferation: Evidence from kenya. *Comparative Political Studies*, page 0010414016679179.
- Hayek, F. A. (1945). The use of knowledge in society. *The American Economic Review*, pages 519–530.
- Heinrich, T. and Kobayashi, Y. (2018). How do people evaluate foreign aid to ‘nasty’ regimes? *British Journal of Political Science*, pages 1–25.
- Hicken, A. (2011). Clientelism. *Annual review of political science*, 14:289–310.
- Hodler, R. and Raschky, P. A. (2014). Regional favoritism. *The Quarterly Journal of Economics*, page qju004.
- Holland, P. W. (1986). Statistics and causal inference. *Journal of the American Statistical Association*, 81(396):945–960.
- Horiuchi, Y., Smith, D. M., and Yamamoto, T. (2018). Measuring voters’ multidimensional policy preferences with conjoint analysis: Application to japan’s 2014 election. *Political Analysis*, 26(2):190–209.
- Horn, R. (2009). Coping with displacement: problems and responses in camps for the internally displaced in kitgum, Northern Uganda. *Intervention*, 7(2):110–129.

- Huff, C. and Kertzer, J. D. (2018). How the public defines terrorism. *American Journal of Political Science*, 62(1):55–71.
- Isaksson, A.-S. and Kotsadam, A. (2018). Chinese aid and local corruption. *Journal of Public Economics*, 159:146–159.
- Jablonski, R. S. (2014). How aid targets votes: the impact of electoral incentives on foreign aid distribution. *World Politics*, 66(2):293–330.
- Jensen, P. S. and Justesen, M. K. (2014). Poverty and vote buying: Survey-based evidence from Africa. *Electoral Studies*, 33:220–232.
- Jerven, M. (2013). *Poor numbers: how we are misled by African development statistics and what to do about it*. Cornell University Press.
- Jones, B. (2009). The two sides of Uganda. <https://www.theguardian.com/society/katineblog/2009/may/26/uganda-and-poverty>.
- Kasara, K. (2007). Tax me if you can: Ethnic geography, democracy, and the taxation of agriculture in Africa. *American Political Science Review*, 101(1):159–172.
- Kastellec, J. P. and Leoni, E. L. (2007). Using graphs instead of tables in political science. *Perspectives on Politics*, 5(4):755–771.
- Kimura, E. (2010). Proliferating provinces: Territorial politics in post-suharto indonesia. *South East Asia Research*, 18(3):415–449.
- Kitschelt, H., Wilkinson, S. I., et al. (2007). *Patrons, clients and policies: Patterns of democratic accountability and political competition*. Cambridge University Press.

- Kondylis, F. (2010). Conflict displacement and labor market outcomes in post-war bosnia and herzegovina. *Journal of Development Economics*, 93(2):235–248.
- Kramon, E. (2016). Electoral handouts as information: Explaining unmonitored vote buying. *World Politics*, 68(3):454–498.
- Kramon, E. and Posner, D. N. (2013). Who benefits from distributive politics? how the outcome one studies affects the answer one gets. *Perspectives on Politics*, 11(2):461–474.
- Kraxberger, B. (2004). The geography of regime survival: Abacha's nigeria. *African Affairs*, 103(412):413–430.
- Law, G. (2017). Statoids: Administrative divisions of countries.
- Lewis, J. I. (2014). When decentralization leads to recentralization: Subnational state transformation in Uganda. *Regional and Federal Studies*, 24(5):1–18.
- Licht, A. A. (2010). Coming into money: The impact of foreign aid on leader survival. *Journal of Conflict Resolution*, 54(1):58–87.
- Mahieu, S. and Yilmaz, S. (2010). Local government discretion and accountability in Burkina Faso. *Public Administration and Development*, 30(5):329–344.
- Malesky, E. (2009). Gerrymandering—vietnamese style: escaping the partial reform equilibrium in a nondemocratic regime. *The Journal of Politics*, 71(1):132–159.

- Mares, I. and Young, L. (2016). Buying, expropriating, and stealing votes. *Annual Review of Political Science*, 19:267–288.
- Martens, B., Mummert, U., Murrell, P., and Seabright, P. (2002). *The institutional economics of foreign aid*. Cambridge University Press.
- McFadden, D. (1973). Conditional logit analysis of qualitative choice behavior. <https://eml.berkeley.edu/reprints/mcfadden/zarembka.pdf>.
- McFadden, D. (1986). The choice theory approach to market research. *Marketing science*, 5(4):275–297.
- Médard, C. and Golaz, V. (2013). Creating dependency: land and gift-giving practices in Uganda. *Journal of Eastern African Studies*, 7(3):549–568.
- Meinert, L. and Kjaer, A. M. (2016). “land belongs to the people of Uganda”: politicians’ use of land issues in the 2016 election campaigns. *Journal of Eastern African Studies*, 10(4):769–788.
- Meyer, A. and Rosenzweig, L. R. (2016). Conjoint analysis tools for developing country contexts. <https://thepoliticalmethodologist.com/2016/02/18/conjoint-analysis-tools-for-developing-country-contexts>.
- Milner, H. V. (2006). Why multilateralism? foreign aid and domestic principal-agent problems. *Delegation and agency in international organizations*, 107.
- Milner, H. V., Nielson, D. L., and Findley, M. G. (2016). Citizen preferences and

- public goods: comparing preferences for foreign aid and government programs in Uganda. *The Review of International Organizations*, 11(2):219–245.
- Min, B. (2015). Power and the vote: Elections and electricity in the developing world.
- Moyo, D. (2009). *Dead aid: Why aid is not working and how there is a better way for Africa*. Macmillan.
- Mwenda, A. M. and Tangri, R. (2005). Patronage politics, donor reforms, and regime consolidation in Uganda. *African affairs*, 104(416):449–467.
- Nguyen, T. Q., Clements, M. B. J., and Bhattacharya, M. R. (2003). *External debt, public investment, and growth in low-income countries*. Number 3-249. International Monetary Fund.
- Nsamba, M. A. (2009). Breeding fragmentation? issues in the policy and practice of decentralisation in Uganda. *Beyond Juba, Issue Paper*, (1).
- Nunnenkamp, P., Öhler, H., and Sosa Andrés, M. (2017). Need, merit and politics in multilateral aid allocation: A district-level analysis of world bank projects in india. *Review of Development Economics*, 21(1):126–156.
- Oates, W. E. (1972). Fiscal federalism.
- Oates, W. E. (1985). Searching for leviathan: An empirical study. *The American Economic Review*, 75(4):748–757.

- Olken, B. A. (2007). Monitoring corruption: evidence from a field experiment in indonesia. *Journal of political Economy*, 115(2):200–249.
- Omole, O., Welye, H., and Abimbola, S. (2015). Boko Haram insurgency: implications for public health. *The Lancet*, 385(9972):941.
- Ouédraogo, I. M. (2010). Electricity consumption and economic growth in Burkina Faso: A cointegration analysis. *Energy Economics*, 32(3):524–531.
- Pierskalla, J. (2016a). The proliferation of decentralized governing units. *Unpublished Manuscript*, pages 249–268.
- Pierskalla, J. H. (2016b). Splitting the difference? the politics of district creation in indonesia. *Comparative Politics*, 48(2):249–268.
- Posner, D. N. (2004). Measuring ethnic fractionalization in Africa. *American Journal of Political Science*, 48(4):849–863.
- Qian, N. (2015). Making progress on foreign aid. *Annu. Rev. Econ.*, 7(1):277–308.
- Reinikka, R. and Svensson, J. (2005). Fighting corruption to improve schooling: Evidence from a newspaper campaign in Uganda. *Journal of the European economic association*, 3(2-3):259–267.
- Resnick, D. (2014). Strategies of subversion in vertically-divided contexts: Decentralisation and urban service delivery in senegal. *Development Policy Review*, 32(s1).

- Resnick, D. (2017). Democracy, decentralization, and district proliferation: The case of Ghana. *Political Geography*, 59:47–60.
- Riedl, R. B. and Dickovick, J. T. (2014). Party systems and decentralization in Africa. *Studies in Comparative International Development*, 49(3):321–342.
- Rosenfeld, B., Imai, K., and Shapiro, J. N. (2016). An empirical validation study of popular survey methodologies for sensitive questions. *American Journal of Political Science*, 60(3):783–802.
- Schweinitz, C. V. and Hunziker, P. (2018). New spatial data on ethnicity: Introducing side. *Journal of Peace Research*, pages 1–12.
- Stokes, S. C. (2005). Perverse accountability: A formal model of machine politics with evidence from Argentina. *American political science review*, 99(3):315–325.
- Stokes, S. C., Dunning, T., Nazareno, M., and Brusco, V. (2013). *Brokers, voters, and clientelism: The puzzle of distributive politics*. Cambridge University Press.
- Tiebout, C. M. (1956). A pure theory of local expenditures. *Journal of Political Economy*, 64(5):416–424.
- Tull, D. M. (2006). China's engagement in Africa: scope, significance and consequences. *The Journal of Modern African Studies*, 44(3):459–479.
- USAID (2014). Local systems: A framework for supporting sustained development.

- Van de Walle, N. (2001). *African economies and the politics of permanent crisis, 1979-1999*. Cambridge University Press.
- Van de Walle, N. (2007). Meet the new boss, same as the old boss? the evolution of political clientelism in Africa. *Patrons, clients and policies: Patterns of democratic accountability and political competition*, pages 50–67.
- Version, N. (2014). Dmsp-ols nighttime lights time series.
- Williams, M. J. (2017). The political economy of unfinished development projects: corruption, clientelism, or collective choice? *American Political Science Review*, 111(4):705–723.
- Winters, M. S., Dietrich, S., and Mahmud, M. (2017). Perceptions of foreign aid project quality in bangladesh. *Research & Politics*, 4(4):2053168017735200.
- Winters, M. S. and Martinez, G. (2015). The role of governance in determining foreign aid flow composition. *World Development*, 66:516–531.
- World Bank (2002). Burkina Faso improving service delivery at the local level.
- Wucherpfennig, J., Weidmann, N. B., Girardin, L., Cederman, L.-E., and Wimmer, A. (2011). Politically relevant ethnic groups across space and time: Introducing the geoepr dataset 1. *Conflict Management and Peace Science*, 28(5):423–437.
- Yusuf, S. et al. (1999). *Entering the 21st Century: World Development Report, 1999/2000*, volume 22. World Bank Publications.

Ziblatt, D. (2008). Why some cities provide more public goods than others: A sub-national comparison of the provision of public goods in german cities in 1912. *Studies in Comparative International Development*, 43(3-4):273–289.