How Political Insiders Lose Out When International Aid Underperforms: Evidence from a Participatory Development Experiment in Ghana[1]

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Although participatory development often aims specifically to mitigate problems from political biases and party-based clientelism, the path is complicated and depends critically on the efficacy of underlying programs as well as how they interact with pre-existing institutions. We provide a framework to understand when participatory development is likely to generate politically biased benefits, showing that even if participatory aid is neutrally allocated, neutral benefit realizations occur only under specific circumstances. We apply this framework to a five-year randomized controlled study of a major participatory development program in Ghana, analyzing the program's effects on participation in, leadership of, and investment by pre-existing political institutions, and on households' overall socioeconomic well-being. We find the government and its political supporters acted with high expectations for the participatory approach: treatment led to increased participation in local governance and reallocation of resources. But the results did not meet expectations, resulting in a worsening of socioeconomic wellbeing in treatment versus control villages for government supporters. This demonstrates aid's complex distributional consequences.

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JEL Codes: H4; H7; O12; O17; O19

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Traditional donor aid to governments often gets allocated with bias towards those supportive of the government in power (Briggs, 2012, Briggs, 2014, Hodler and Raschky, 2014, Jablonski, 2014, Jayne et al., 2001). In response to this politicization of aid, many international donors instead give through non-governmental organizations (NGOs) as well as via participatory development processes (Dietrich, 2013, Mansuri and Rao, 2013). Participatory development approaches aim to build new local institutional structures to administer aid, with the goal of achieving more effective projects and equitable outcomes. The expectation is that the new institutions developed through these approaches should be able to deliver aid neutrally, achieving benefits for citizens across the political spectrum.

We study the expansion of a participatory development program in Ghana, and find that it interacts with pre-existing political institutions in complex ways. For a complete understanding of the distributional outcomes of international aid, scholars must consider both the direct effects of aid itself and its indirect effects on how local households and governments allocate resources they control. Incorporating insights from the literatures on political participation and distributive politics (Franck and Rainer, 2012, Golden and Min, 2013), we provide a framework for understanding the likelihood of differential crowding in and crowding out effects along political lines at various points in the causal chain between the establishment of participatory development projects and the realization of aid benefits. We demonstrate that, when considering the full effects of international aid on distributive outcomes, there may be biases along political lines due to differential response of pre-existing institutions, even if the international aid itself is neutrally administered.

We apply this framework to a five-year randomized controlled study of a participatory development program in Ghana. Approximately half of 97 village groupings in Ghana's Eastern

Region, each containing two study villages, were assigned to partake in a multi-sectoral participatory development program run by The Hunger Project (THP), an international NGO with experience implementing similar programs in eight countries for more than a dozen years prior to the study. We tracked governance and socioeconomic outcomes using two waves of household, community and leadership surveys in these 194 villages. We collected long-term follow-up data (five years after baseline), as well as a breadth of information at the household, community and institution level. This allowed us to analyze how participatory development councils compared with and affected local traditional institutions and local governments, and how the participatory development program affected resource flows from other governance structures.

We advance our understanding of the relationship between international aid and domestic politics in receiving countries in three ways. First, we demonstrate that the skills and capacity developed through participatory development programs can complement partisan connections in increasing political participation. In contrast to previous scholarship, which has mainly found null effects of participatory development programs on other forms of political participation, we find a positive effect concentrated among co-partisans of the incumbent party.[1] Second, we show how participatory development institutions can crowd out citizens' contributions to (and, to an extent, governments' investments in) other public goods projects in their communities. This highlights the opportunity costs of these projects, which have only rarely been emphasized.[2] Finally, we highlight the complexity of international aid's distributional consequences. Debate typically has centered on how to avert biases toward government supporters, with empirical studies focusing on the distribution of aid inputs versus the distribution of socioeconomic outcomes (Brass, 2012, Briggs, 2012, Briggs, 2014, Briggs, 2017, Jablonski, 2014). Bringing in theoretical insights from the literatures on political participation and redistributive politics, we show how – in the context

we study – government-aligned citizens shifted resources into the participatory approach, and then ended up worse off because the new institutions performed poorly compared to pre-existing ones. By analyzing the broad socioeconomic effects of aid across sectors, as is considered best practice in the literature on distributional politics (Kramon and Posner, 2013), we make an empirical advance in the study of international aid's distributional consequences.

A Framework for Considering Participatory Development and Partisan Favoritism

Traditional government-to-government aid is subject to numerous problems, including elite capture and diversion for political purposes (de Mesquita and Smith, 2009). Existing research has shown that donor-supported projects are frequently targeted at incumbent parties' core constituencies. In Kenya, Briggs (2014) shows that donor funds given to the government for specific projects were skewed to the incumbent president's base between 1989 and 1995; Jablonski (2014) demonstrates a similar pattern for government projects funded by the African Development Bank and the World Bank between 1992 and 2010. In Ghana, Briggs (2012) shows that a World Bank-funded electrification project was diverted to the incumbent's political base in the run-up to the 2000 elections. More generally, Hodler and Raschky (2014) show that foreign aid is associated with higher levels of regional favoritism in countries with weak political institutions.

Donor support to NGOs, which has blossomed in the past two decades, is partly a response to these problems (Dietrich, 2013). International aid to NGOs has been shown to be less politically motivated than donor aid to governments (Büthe, Major, and Souza, 2012, Faye and Niehaus, 2012). Scholars also hope it will be more neutrally allocated within countries; for example, Brass

(2012) finds that support for the incumbent does not influence the location of NGO projects in Kenya.

Participatory development, or community development, approaches can be considered an extreme example of donor responses to misallocation of aid by recipient governments. Participatory development aid is defined by its investment in new institutions that mobilize community members to participate in decision-making and project management (Mansuri and Rao, 2013, 16). The exact form this investment takes varies, but it usually involves constituting new decision-making bodies and providing leadership training to community members with the goal of enhancing participation of previously excluded groups and individuals.

The justification of this investment is based on the assumption that aid would otherwise be misallocated, due to inefficiencies in top-down approaches and intentional diversion by national leaders (Oates, 1972, Ostrom, 1996, Bardhan and Mookherjee, 2000). Participatory development is often justified as a way of ensuring the insulation of aid from political elite's decisions due to fears of embezzlement ("financial corruption") and political favoritism ("political corruption") (Bates, 1981). The most enthusiastic proponents of participatory development argue that it not only insulates public goods provided through the project from misallocation, it also generates participatory skills and creates coordinating institutions that subsequently improve government accountability (Casey, Glennerster, and Miguel, 2012, Fearon, Humphreys, and Weinstein, 2015, Nguyen and Rieger, 2017).

Although a number of scholars have examined the assumptions and empirical evidence for the claim that participatory development reduces embezzlement (Alatas et al., 2012, Casey, Glennerster, and Miguel, 2012, Olken, 2007, Fritzen, 2007, Platteau and Gaspart, 2003,

Humphreys, Sánchez de la Sierra, and Van der Windt, 2019, van der Windt, Humphreys, and Sanchez de la Sierra, 2018, Dasgupta and Beard, 2007), researchers have paid less analytic and empirical attention to whether participatory development reduces political favoritism and how citizen expectations regarding such favoritism affects their engagement in participatory development. Should we expect participatory development to allocate benefits from international aid in a politically neutral fashion?

To analyze this question, we focus on the difference between *co-partisans* of the government and *non-co-partisans*. Partisanship is conceived as the degree to which individuals *identify* with and *feel loyalty* to a political party (Michelitch and Utych, 2018). Partisanship is an analytically powerful individual trait, influencing the propensity to vote, vote choice and other forms of political participation in multiparty electoral systems, even in relatively new democracies (Brader and Tucker, 2001, Conroy-Krutz, Moehler, and Aguilar, 2016, Harding and Michelitch, 2021, Kuenzi and Lambright, 2008). Partisan identification is often based on other social cleavages, including ethnic and racial identity, social class, religion and regional affiliation, with the extent to which each of these cleavages matter varying by country (Lipset and Rokkan, 1967). In sub-Saharan Africa, partisanship often overlaps with ethnic cleavages, but the extent to which it does varies by country (Koter, 2013, Harding and Michelitch, 2021, Ichino and Nathan, 2013). We focus on partisan, rather than ethnic cleavages, due to their more universal importance in structuring citizens' relationships with the government, while acknowledging that there may be ethnic underpinnings to these identities in some countries.

We focus on whether participatory development can allocate aid benefits neutrally across *partisan lines* for both empirical and policy reasons. Considerable evidence indicates politicians favor co-partisans in their distribution of state resources (Stokes et al., 2013), including

international aid channeled through the state (Briggs, 2012, Briggs, 2014, Jablonski, 2014).[3] As a result, it is important to understand the extent to which participatory development fares better in combatting this well-established bias. In addition, as a policy matter, international donors and NGOs are often hesitant about providing aid that shores up the political base of incumbent governments and/or opens them to allegations of partisanship, given the increasing frequency of inter-partisan violence around the world (Hafner-Burton, Hyde, and Jablonski, 2018).

Is participatory development likely to result in non-partisan distribution of aid benefits? Participatory development might appear to solve the problem of partisan aid allocation by taking distribution decisions out of the hands of politicians. Assuming the NGO responsible for initiating participatory development desires to provide its aid neutrally and political actors cannot steer it toward serving particular communities – either directly, by granting permission, or indirectly, by providing infrastructure like roads necessary for community access – participatory development might be expected to be allocated in a politically neutral fashion.

But even in this best-case scenario, the benefits of participatory development may not be neutrally allocated for two reasons. First, partisanship has consequences for interactions and information processing in a variety of social settings, potentially including participatory development projects (Carlson, 2016, Michelitch, 2015). Second, participatory development projects interact with existing government institutions, which are rarely politically neutral in their allocation decisions (Stokes et al., 2013, Mares and Young, 2018), to realize socioeconomic benefits. There is a long causal path between the establishment of participatory development institutions and the realization of aid benefits, with the potential for partisan differences in effort and investment at each step. As a result, participatory development will only result in neutral allocation of aid benefits under a very specific set of circumstances.

We demonstrate this by outlining the causal chain between the establishment of participatory development projects and the realization of aid benefits in Figure 1. The purpose of this diagram is to highlight the numerous points in the causal chain where partisan differences in socioeconomic benefits may be introduced. Once a participatory development project is initiated by an NGO, community members face two key decisions. They decide whether and the extent to which they are willing to participate in the project. They also decide how much to contribute to other public goods organized by other institutions in their communities. Two important outside factors (which may themselves be endogenous to the participation decisions) are revealed. First, governments decide how much to contribute to public goods across communities. And second, the quality of the public good provided through the participatory development project is realized. Together, these decisions and factor revelations affect the socioeconomic outcomes realized by citizens. But, at each step of the chain, existing research suggests the possibility of partisan variation in effort and investment, as explained below.

In Figure 1, the first point at which we might expect differential partisan effects is in decisions to participate in participatory development projects. Even in contexts in which NGOs initiate participatory development projects across communities in a politically neutral fashion, there may be differential participation in these projects along partisan lines. In many countries, partisans have different social and information networks, even within local communities (Auerbach and Thachil, 2020, Brierley and Nathan, 2021, Carlson, 2016). As a result, party members may have different levels of information about initiated projects, or they may attach different credibility to information about them (Larson, Lewis, and Rodriguez, 2022) They are also likely to value participatory development projects differently as a result of differential expectations about assistance through existing networks (Calvo and Murillo, 2013). This may result in different

levels of participation by partisanship, even if the project itself is not politically targeted. It is plausible that either government partisans or opposition partisans could be more likely to participate, depending on how information is circulated and expectations of support from existing networks.

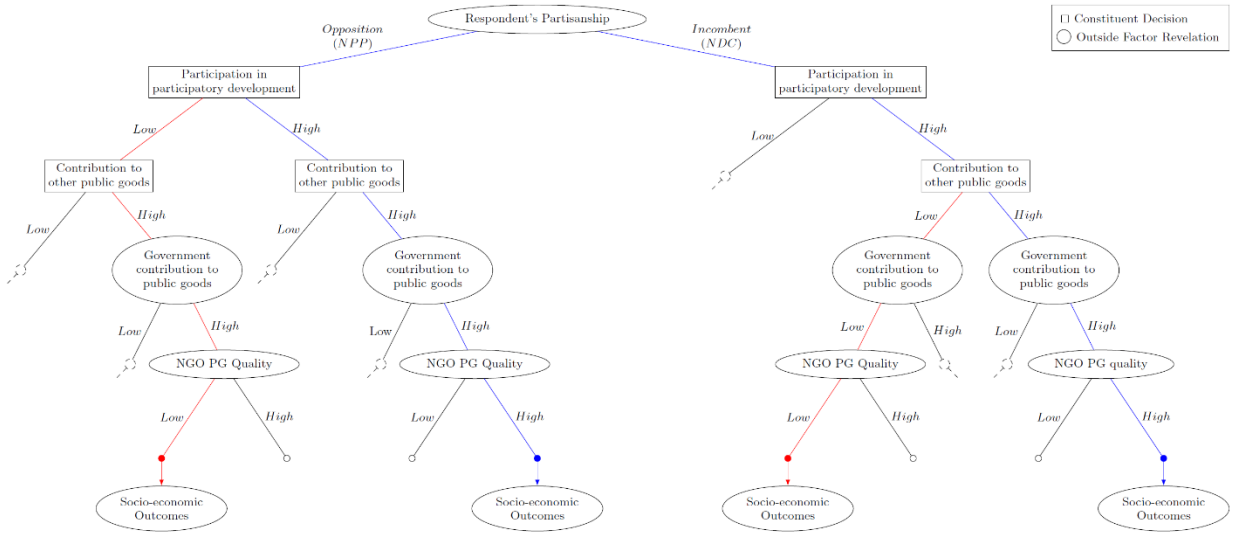

Figure 1. Under What Conditions Will Participatory Development Have Politically Neutral Distributional Effects?

The benefits from participatory development projects also depend on how these projects interact with existing institutions for providing public goods in the community. Other projects may act as complements to or substitutes for the public good provided through participatory development. As a result, in addition to considering the possibility for partisan differences in citizens' participation in participatory development projects, we also consider the likelihood of partisan differences in community members' contributions to other public goods and the government's investment in public goods. In Figure 1, this is the second point in the causal chain. As a result of

partisan differences in information and social networks, community members belonging to different parties will often have baseline differences in their inclination to participate in other public goods. In addition, if community members are differentially mobilized into participatory development projects, this may change contributions to other public goods too. If participatory development projects build skills and networks that facilitate other types of collective action, it may increase contributions to other public goods (Casey, Glennerster, and Miguel, 2012), but if participatory development projects crowd out other activities, it could decrease contributions (Khilji and Zampelli, 1994, Torpey-Saboe, 2015, Labonne and Chase, 2011). Insofar as other public goods either complement or substitute for the public goods provided through participatory development projects, this affects how the benefits from participatory development are allocated.

The third point in Figure 1's chain is government investment in public goods. In many cases, government investment exhibits partisan bias. A large body of evidence finds partisan effects in the allocation of government-financed public goods. Theoretically, we might expect either the incumbent party's core supporters or non-aligned ("swing") voters to be targeted (Lindbeck and Weibull, 1987, Dixit and Londregan, 1996), with either type of targeting inducing a type of partisan bias. However, empirically, the bulk of the evidence suggests that – when government investment has a partisan bias – co-partisans of the incumbent party receive a larger share of government investment (Burgess et al., 2015, Franck and Rainer, 2012, Golden and Min, 2013, Kramon and Posner, 2016). In addition, insofar as the amount of government resources provided to communities is endogenous to participatory development projects, as hypothesized by participatory development advocates, any partisan differences in uptake may translate into partisan differences in allocation of government resources.

The final point in the chain in Figure 1 is the realization of the quality and type of public goods provided through the participatory development project. The extent to which the public good provided benefits a particular community member depends on both its quality and the extent to which it matches their needs. Theoretically, it is possible that the public good provided will better match the needs of community members belonging to one party. Participatory development projects may be designed to provide public goods that are differentially needed across party lines. Participatory councils may also decide to provide public goods that are prioritized by one group to the extent that that group has higher participation levels in the project. We mention this as a theoretical possibility but, as an empirical matter, existing research suggests significant homogeneity in the prioritization of public goods within villages. For example, the evidence in Labonne and Chase (2009) and Olken (2010) suggest minimal differences in project prioritization between elites and non-elites within villages, and Lieberman and McClendon (2013) find minimal differences in policy priorities across ethnic groups within the same locality. As a result, we expect the first three points in the chain to be more important in generating partisan differences than the last.

This discussion highlights that possibility for partisanship in the allocation of benefits from participatory development aid, even when the aid is neutrally allocated by the NGO initiating the project. Except in cases of consistent null partisan effects at each stage in Figure 1's chain (which the existing literature suggests is unlikely) or differently signed partisan effects at each stage that ultimately cancel each other out (which is one of many possibilities), there will be partisan bias in the benefits from participatory development projects. Situations in which participatory development projects allocate benefits from international aid in a politically neutral fashion should be considered exceptional, rather than the rule. The best-case scenario for

participatory development, in which both partisans and non-co-partisans of the government are consistently positively mobilized at each step of the chain – illustrated by the blue lines in Figure 1 – is a particularly rare scenario. In the setting we study, we instead find partisan differences in effects and low quality NGO public goods, as illustrated by the red lines in Figure 1, ultimately leaving government partisans worse off in treatment versus control communities.

Local Governance in Ghana's Eastern Region

We study participatory development's effects on preexisting governance structures in the context of Ghana's Eastern Region. Community-driven development projects are common across low and middle-income countries (Mansuri and Rao, 2013, White, Menon, and Waddington, 2018). However, most existing experimental research on the effects of community-driven development has focused on post-conflict settings and "failed states" (Avdeenko and Gilligan, 2015, Casey, Glennerster, and Miguel, 2012, Fearon, Humphreys, and Weinstein, 2015, Humphreys, Sánchez de la Sierra, and Van der Windt, 2019). We study the impact of participatory approaches in a poor but peaceful setting with strong pre-existing political institutions. The effects of participatory development programs on preexisting institutions are arguably particularly important in settings with strong existing governance structures. Our study took place in villages across Ghana's Eastern Region.[4] These communities are governed by traditional chieftaincy institutions, in addition to elected local governments and national governments.

The chieftaincy structure is broadly similar across our study communities. At the top of the traditional hierarchy is the chief (*omahene*), with divisional chiefs (*ohene*) and village chiefs (*odikro*) below them. For most rural citizens, the most relevant of these leaders are village chiefs, who are selected from within the village's ruling family and typically rule for life. They normally

govern their villages with the assistance of a council, which includes other family heads (*abusuapanyin*) and elders (*panyin*) (Arhin, 1985). Village chiefs play critical roles in local dispute resolution, land allocation, meeting organization and community mobilization. However, they do this without salaries, budgets, or formal support from the government.[5] Instead, they depend on informal norms to underpin their power and voluntary contributions from community members to accomplish projects ("self-help projects").

In parallel to the chieftaincy structure, communities in Eastern Ghana are also governed by district governments. Much of the power lies with the District Chief Executive, who is appointed by the president and combines executive and administrative functions. As a result, the party winning the national presidency has significant control over the allocation of resources within districts. Each district also has a district assembly; two thirds of its members are popularly elected from single-member electoral districts composed of groups of villages/neighborhoods (with total populations of around 10,000 each) and the other third is appointed. District elections are held every four years, with one set held during our study (in late 2010/early 2011). Officially, these elections are non-partisan, although the political affiliations of candidates are often well-known locally, and the position of assemblymember is a part-time volunteer position. The district assembly is responsible for approving the district budget and providing oversight of the district administration. District assemblymembers are expected to lobby for resources from the district budget to support local projects, especially in the areas of basic education, primary health care, local roads, environmental protection, water and sanitation. In all of our study areas, the vast majority of the district budget comes from transfers from the national government using a formula-based fund.

Citizens also participate in national elections to determine control of the parliament and presidency. National politicians are inaccessible to most rural Ghanians but these elections

structure partisan identities, and are highly competitive between two major parties, the National Democratic Congress (NDC) and the New Patriotic Party (NPP). The two parties have strong regional and ethnic bases of support, and many Ghanaians have stable partisan preferences. For example, Lindberg and Morrison (2005) finds that 82 percent of parliamentary voters in the 2000 election had voted for the same party in 1996, and Weghorst and Lindberg (2013) finds that only 22 percent of voters split their presidential and parliamentary vote between different parties in any of the three elections covered by their study (1996, 2000 and 2004). The NDC was the national incumbent party for almost all of the period of our study, taking over the presidency after the December 2008 election, and winning re-election in December 2012.

Ghana's Eastern Region is uniquely divided between NDC and NPP supporters, largely due to the fact it includes both Ewe and Krobo ethnic groups (traditionally support the NDC) as well as Akan groups (Akyem and Akuapem, traditionally support the NPP).[6] Importantly, NPP and NDC supporters are intermingled within districts and even villages in our study, with at least 95 percent of villages containing households that supported different parties at baseline. Figure 2 displays the distribution of NDC support across the region at baseline, indicating the proportion of NDC-aligned households within our study villages in each district in the image on the left and the proportion of NDC-aligned villages (defined as villages in which at least 30 % of households are NDC aligned) in the image on the right.[7] Copartisanship with the national government is extremely important for distributive outcomes in Ghana, influencing the distribution of funds from both the national government and district governments, given the role of the president in appointing the powerful District Chief Executive (Asunka, 2017, Nathan, 2019). As a result of the importance of presidential appointees to district-level politics in Ghana, we focus on co-partisanship with the national-level incumbent throughout our study.

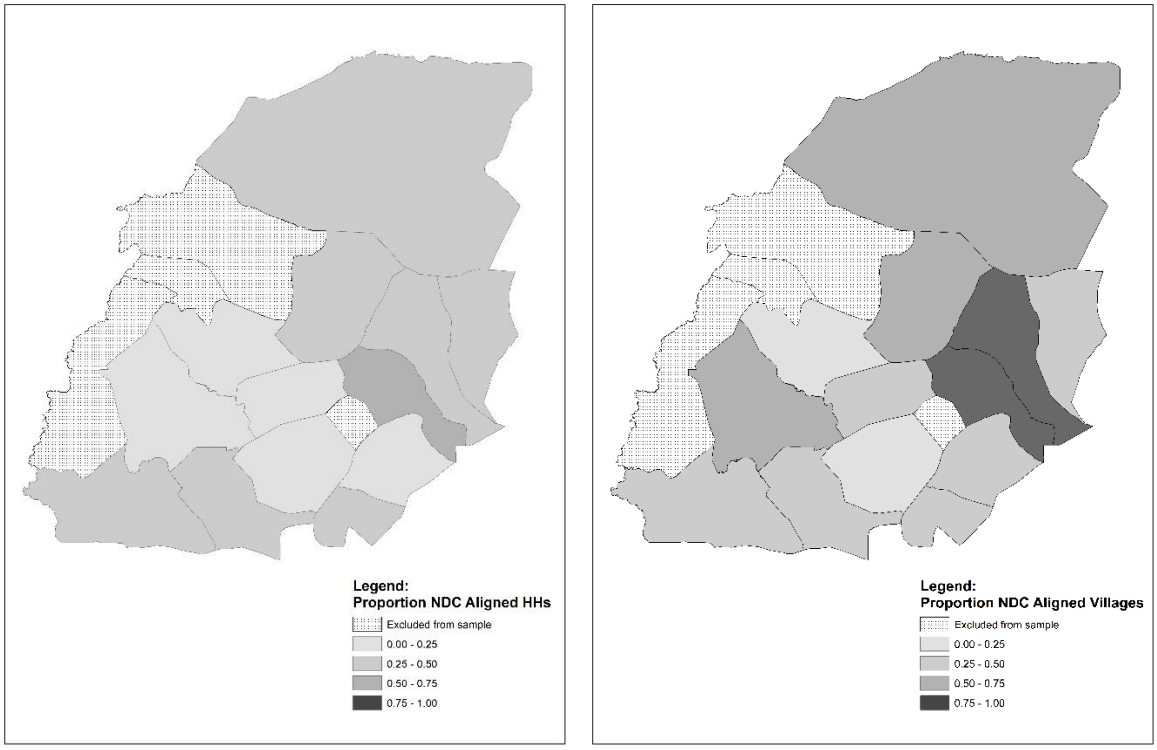

Figure 2. NDC Co-Partisanship Across Study Districts

Thus, prior to the expansion of participatory development institutions in the region, the study villages already had hereditary chiefs who governed them at the village level, and elected leaders who represented them within District Assemblies. Participatory development aid could plausibly have positive mobilization spillovers and/or negative displacement effects on the responsiveness of each of these institutions to citizens. Furthermore, given the strength of partisan affiliations and the history of redistribution along partisan lines in Ghana, these effects could plausibly differ depending on whether citizens are co-partisans of the national government.

Intervention and Experimental Research Design

Our analysis of the distributional consequences of participatory aid is built around a randomized controlled trial of The Hunger Project's (THP's) activities in Eastern Ghana. THP is a major

international NGO whose approach seeks to empower men and women to take control of their futures by mobilizing them to act collectively within their local communities. In particular, THP seeks to cultivate stronger leadership within communities both by organizing workshops that train participants in leadership skills and by creating new inclusive governance structures.

The broad components of THP's approach (described in Appendix B) exemplify the participatory development approach that has become prevalent in the aid industry. Community members are involved in project oversight in part to help align projects with community needs, but also to provide on-the-ground monitoring and reduce dependence on outside resources in the context of project implementation. In the THP model, as in many recent community-driven development programs, a great deal of focus is building the capacity of communities to work together to overcome socioeconomic challenges outside the narrow context of administering program funds. Community members are expected to devote significant resources in cash or in kind to supplement the donor funds provided for programming activities, and the goal is to have the local government provide support for many of the programs subsequently run out of the center.

The THP approach is also explicitly multi-sectoral. The THP provides financial support for a variety of programming activities, which are run out of community centers it helps local communities to construct. These centers contain meeting halls, clinics, rural banks, foodbanks, toilets, a demonstration farm, and either a preschool or library, and THP also supports agricultural training programs, adult literacy classes and microfinance programs.

Our study represents the first randomized control trial to evaluate THP.[8] It tracks 194 villages, falling within 97 village groupings that were randomly assigned to the treatment and control conditions, across 13 districts in Eastern Region.[9] THP provides programing at the supra-village

level, organizing groups of on average 14 villages to support and benefit from programming running out of a single community center. Prior to the treatment lottery, THP worked with local officials to divide rural communities in the targeted districts into distinct village groupings.[10] The village groupings were then randomly assigned to treatment (51) and control (46) through district-level lotteries, as described in Appendix C. Within each village grouping, we randomly selected two villages for inclusion in the study, allowing us to assess the average outcomes of the program across all households in the village groupings.

Not all of the village groupings invited to take part in THP's programming accepted the invitation. Following these workshops, just over half of the villages (in 28 of 51 treatment groupings) actually began the THP process. All but three of these groupings successfully completed construction of a community center, and four groupings built two community centers. The precise location of the constructed community centers within village groupings was determined by a complex process of inter-village bargaining, and we show in Appendix C that village-level attributes are poor predictors of treated villages' proximity to constructed community centers.[11] In Appendix D, we show that randomization yielded statistically similar groups (i.e., we fail to reject the null that treatment assignment is orthogonal to the baseline attributes of our study communities), as well as the differences between the communities within the treatment group that took-up as compared to those that did not. Households in villages that took up the treatment were more food insecure, had lower education provision, and had higher levels of community participation at baseline compared to households in villages that did not accept treatment.

THP approximated the ideals of the participatory development approach in important ways. First, it successfully created new participatory development institutions with more diverse leaders than existing hereditary and elected institutions, as we show in Appendix E. Second, it was successful

in exposing a large proportion of adult community members to its activities, and exposure was not biased along partisan lines, also demonstrated in Appendix E. As a result of these successes in implementation, the program arguably represents a best case for considering whether participatory development can have positive effects on engagement with preexisting political institutions.

We are able to assess the effects of participatory development approaches on participation in, leadership of and investment through various governance institutions by bringing together four types of data, collected at multiple points in time. The timing of the distinct data collection efforts relative to programing activities are displayed in Figure 3 and described below:

Household surveys. In each of the 97 village groupings in the study, two villages were randomly selected for surveying. A baseline survey was conducted in 2008, at which point none of the study villages had built the community center that is the centerpiece of THP's programming. Twenty households were randomly selected for interviewing in each village in the sample, except in the handful of cases where the village contained fewer than 20 households. A follow-up survey was conducted with the same households in 2013. At this point, all of the treatment villages had been introduced to THP's programming at least two years earlier, and some had been introduced to it five years earlier, as illustrated in Figure 3. Insofar as our outcomes in the household survey measure respondents' participation, perceptions and well-being several years out from initial exposure, our survey does not capture short term effects from the programming, and it is possible that there were larger positive (or negative) effects in the immediate aftermath of community center construction. Given the long timeframe of the study, attrition was a significant risk. We were able to resurvey 74 percent of baseline households. We have examined whether the treatment – either by itself or in interaction with baseline outcome variables – affects the likelihood of attrition, and

have found no evidence that suggests concerns of bias due to attrition from the survey sample frame, as demonstrated in Appendix F.

Community leader surveys. We surveyed a key informant from each village (most frequently, the village chief or another local traditional leader) about local services at baseline and as part of our follow-up surveys. In our follow-up surveys, we also surveyed the area's representative in the district government (the district assemblyperson).

Administrative data on local election returns and candidates. We obtained the official local election returns and candidate forms for the local government elections held in the end of 2010 and the beginning of 2011 from the Electoral Commission of Ghana. We consider only the electoral areas containing study villages in our analysis (N=122). Many electoral areas contain two study villages from the same village grouping; only three contain villages from different village groupings assigned to both treatment and control.[12] We code electoral areas as treated if they contain any study villages assigned to treatment. By the time of these elections, the vast majority of the treated communities had been exposed to THP's programming, as Figure 3 illustrates, although many had had a completed community center for less than a year.

Figure 3 also suggests political patterns in the completion of community centers, with community centers in non-NDC-aligned villages denoted by **X** and community centers in NDC-aligned villages denoted by **<u>X</u>**. The figure suggests a trend in which NDC-aligned villages were more likely to complete community centers, especially after the NDC took power at the national level at the end of 2008. This is consistent with our expectation that political alignment often matters for programming outcomes, and we analyze programming effects by political alignment throughout the results section. The statistical analysis of the effects of the NGO's programming is

complemented with evidence from a qualitative follow-up study conducted in 12 communities in 2015, the method and results of which are described in Appendix G.

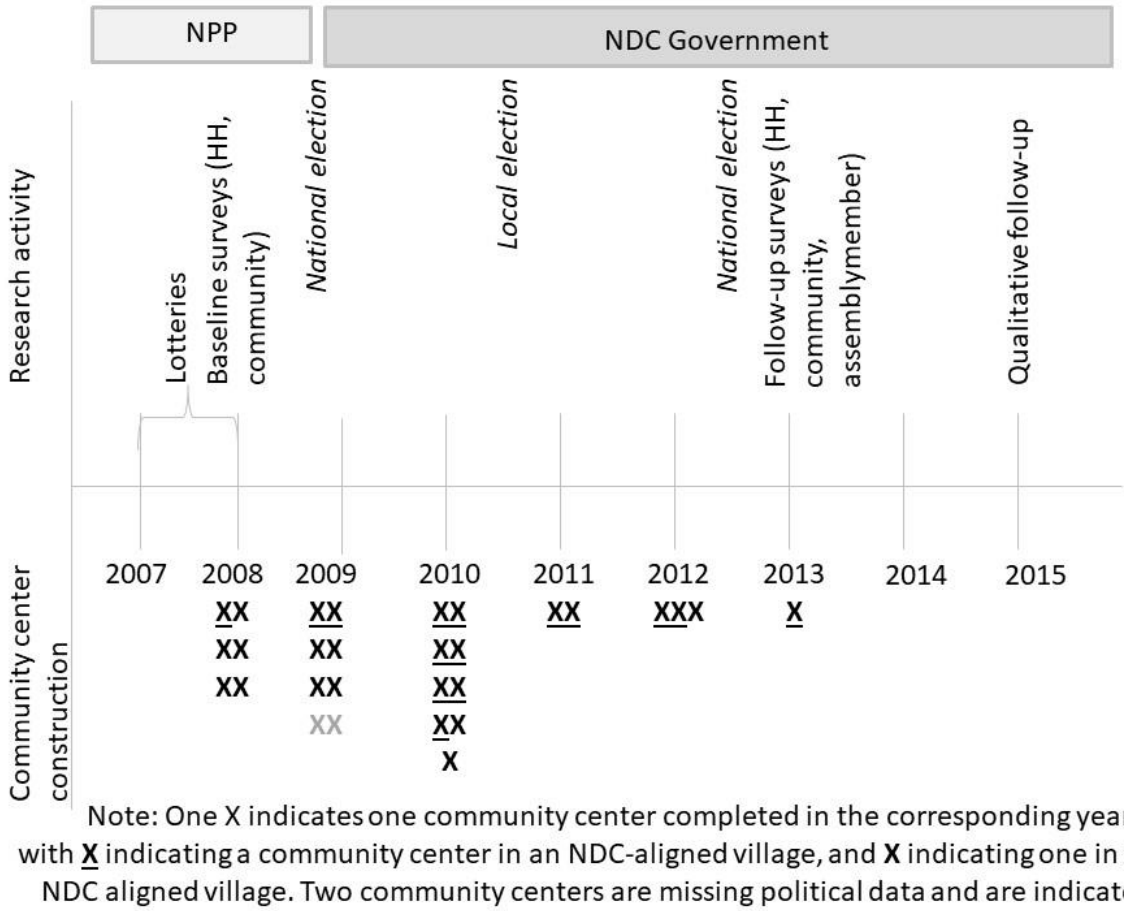

Figure 3. Timeline of data collection and program roll out

Results: Tracing the Distributional Consequences of Participatory Development Aid

We are interested in understanding how participatory development aid interacts with pre-existing government institutions to influence the realization of socioeconomic benefits. To do so, we evaluate whether participatory development aid mobilizes engagement with pre-existing hereditary and elected leadership and/or displaces investment through pre-existing institutions. We study the effects of participatory development aid on participation, accountability and investment

in local public goods by pre-existing institutions (using household, leadership and administrative data), before considering the aggregate effects of participatory development on the distribution of socioeconomic outcomes. For each outcome of interest, we also consider whether there are partisan differences in effects. Due to the imperfect take-up of the programming among treated communities, we estimate both the "intent to treat" (ITT) and "treatment on the treated" (TOT) effects, using assignment to treatment as an instrument for mobilizing to receive programming at the village level in the latter case. Insofar as there are significant baseline differences in the villages that accepted treatment and we cannot know whether the treatment effects would be different had the implementer pushed for a higher compliance rate, both estimates are potentially of interest to policymakers.

We evaluate effects by constructing indices for each area of hypothesized impact.[13] This provides a clearer picture of the overall effect of the participatory approach in each area, and helps address the problem of multiple hypothesis testing.[14] Each index is created from a group of variables measuring outcomes associated with the concept of interest by averaging the standardized sub-components, and then re-standardizing the index.[15] As a result, the effect of the program on the indices should be interpreted in terms of standard deviations of the index within the control group.

We examine the effects of participatory programming at two different levels of analysis, depending on the unit of measurement. Many of our measures come from our household survey, in which case outcomes are measured at the household level. In addition, we have measures of local government investment and measures of political participation in local government measured at the level of the electoral district (called "electoral areas"). Table 1 describes the mapping between conceptual outcomes, the indices or variables used to measure these outcomes, and the data source underlying the measures.

Table 1: Main outcomes, empirical measures and data sources

Outcome	Measures	Data Source	Results Table
Participation in Pre-Existing Institutions	Community Participation Index (Components: Associational membership, attendance at last community meeting, raised issue at last community meeting)	HH survey (2008, 2013)	Table 2
	Voter Turnout in District Elections (proportion)	Local election returns (2010-11)	Table 3
	Number of Candidates in District Elections	Local election returns (2010-11)	Table 3
Accountability of Pre-existing Institutions	Village Chief Accountability Index (Components: Frequency of contact with village chief, extent to which can disagree with village chief, trust in village chief)	HH survey (2008, 2013)	Table 2
	District Assemblymember Accountability Index (Components: Frequency of contact with district assemblymember, satisfaction with district assemblymember, trust in district assemblymember)	HH survey (2008, 2013)	Table 2
	District Assemblymember Activity Index (Components: Assemblymember's attendance at district assembly meetings, frequency raised issue at district assembly meetings, frequency met DCE, frequency met community leaders, frequency met voters, number of infrastructure projects facilitated, number of (non-THP) NGOs whose activities facilitated)	District assemblymember survey (2013)	Table 3
Investment in Local Public Goods	HH Contributions to non-THP Public Goods (monetary value)	HH survey (2013)	Table 4, Panel A

	Local Government Funded Projects (proportion sectors)	Community survey (2013)	Table 4, Panel B
Socioeconomic Well-Being	Overall Well-being Index (Components: Food Security Index, Literacy and Education Index, Health and Nutrition Index, Water, Environment and Sanitation Index, and Livelihoods and Financial Inclusion Index; for sub-components of these indices, see Table H2 and Table H5 in Appendix H).	HH survey and community survey (2008, 2013)	Table 5

The Intent to Treat (ITT) estimate of the effect of THP on household-level outcomes is $\hat{\beta}_1$ from the following OLS regression specification:

$$y_i = \beta_0 + \beta_1 THP_j + \beta_2 X_i + D_k + \epsilon_i$$

where i indexes households, j indexes village groupings, and k indexes districts. THP_j is an indicator variable that takes a value of 1 if the village grouping was assigned to treatment in the lottery, X_i is the baseline measure of the outcome variable (where available), and D_k are district fixed effects. In cases where baseline data was available for some but not all observations, we dealt with missing data using dummy variable adjustment. The error term is clustered at the village grouping level. For electoral area level outcomes, we replace y_i with y_{EA}, and THP_j is a variable that takes a value of 1 if any sampled village in the electoral area was assigned to treatment and 0 if all sampled villages in the electoral area were assigned to control; in these models, standard errors are clustered by village groupings.[16] Given imperfect take-up at the village-level, we also estimate the Treatment on the Treated (TOT) using an instrumental variable estimator implemented using the Generalized Method of Moments (GMM).[17]

In addition to estimating the models on the entire sample, we also estimate separate models by baseline support for the party of the president during the major period of the study, the NDC (see Figure 3).[18] For the household-level analysis, we estimate separate models for households in which the majority of respondents identified as NDC supporters in our baseline survey, which was conducted just prior to the 2008 national elections (28 percent of households), and households in which the majority of respondents did not identify as NDC supporters, either because they supported other parties or had no political allegiance (72 percent of households). In the village-level analysis, we distinguish between villages in which at least 30 percent of households are affiliated with the NDC and those in which less than 30 percent are affiliated with this party.[19]

First, we use household survey data in Table 2 to estimate effects of the programming on citizen's participation in village-level governance, their perceptions of the accountability of the village chief, and their perceptions of the accountability of their district assembly member. Our measure of participation in village governance is an index averaging associational membership, village assembly attendance and village assembly contributions. Our measure of the accountability of the village chief's leadership is an index averaging the village chiefs' accessibility, openness to dissent and trustworthiness. Our measure of assemblymember accountability is an index averaging their accessibility, perceived responsiveness and trustworthiness.

We find that participatory development increased participation in village-level governance for members of the NDC only. Focusing on the effect of the treatment on the treated (TOT) across the entire sample, we observe an increase in participation of 0.10 standard deviations (se=0.08), which is not statistically significant at conventional levels. However, there are heterogeneous effects depending on partisan affiliation. For NDC-affiliated households, the effect is 0.40 standard

deviations (se=0.17), which is statistically significant at the 95 percent confidence level; for all other households, we estimate a small and not statistically significant negative effect (effect = -0.09 standard deviations; se=0.12).

We find more consistently positive effects on perceptions of the quality of the village chiefs' leadership. Using the TOT estimates, we find a positive effect of 0.21 standard deviations across the entire sample (se=0.09), which is statistically significant at the 95 percent confidence level. The estimated effect size is larger and more statistically significant for NDC-affiliated households, but the effects are positive regardless of partisan affiliation. In contrast, we find no evidence that participatory development changed citizens' perceptions of the accountability of the district assembly members, either across the sample as a whole or in either partisan subgroup.

Next, we look for evidence of mobilization effects in community-level data in Table 3, with the outcomes collected from electoral data measuring the participation of voters and candidates in the 2010/2011 district elections and leadership survey data measuring the participation of local assembly members in district government. Focusing on the TOT estimates, voter turnout *decreased* on average by 10 percentage points (se = 4pp) in communities that took up the treatment, an effect that is statistically significant at the 95 percent confidence level. However, these negative effects are concentrated entirely within villages with below average levels of NDC support, where voter turnout decreased on average by 17 percentage points (se=8pp); among NDC-affiliated villages, participatory development had a small and not statistically significant effect on voter turnout (effect = -4 percentage points, se=6pp).

Table 2. Village Participation and Local Accountability (Household Survey Data)

	Entire Sample				NDC Aligned HHs				Non-NDC Aligned HHs			
	(1) ITT Effect (st. error)	(2) TOT Effect (st. error)	(3) Control mean (st. dev.)	(4) N	(5) ITT Effect (st. error)	(6) TOT Effect (st. error)	(7) Control mean (st. dev.)	(8) N	(9) ITT Effect (st. error)	(10) TOT Effect (st. error)	(11) Control mean (st. dev.)	(12) N
Community Participation Index	0.054 (0.045)	0.103 (0.082)	0.000 (1.000)	2746	0.214* (0.096)	0.397* (0.172)	-0.026 (0.960)	680	-0.042 (0.052)	-0.089 (0.115)	0.039 (1.022)	1704
Village Chief Accountability Index	0.111* (0.047)	0.211* (0.091)	0.000 (1.000)	2744	0.175* (0.072)	0.324* (0.131)	0.114 (1.004)	680	0.099+ (0.057)	0.211+ (0.122)	-0.075 (0.988)	1703
District Assemblymember Accountability Index	0.069 (0.072)	0.131 (0.131)	0.000 (1.000)	2743	-0.050 (0.096)	-0.092 (0.179)	0.110 (0.969)	680	0.046 (0.076)	0.098 (0.157)	-0.007 (1.020)	1702

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports IV-GMM treatment-on-the-treated estimates (with standard errors reported in parentheses) with mobilizing to receive an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations. Columns 5-8 report the same entities using the sample of NDC-aligned households. Columns 9-12 report the same entities using the sample of non-NDC aligned households.

Table 3. Local Government Participation and Representation (Electoral Data and Leadership Surveys at Electoral District Level)

	Entire Sample				NDC Aligned Villages (>=30 % NDC HHs)				Non-NDC Aligned Villages (< 30 % NDC HHs)			
	(1) ITT Effect (st. error)	(2) TOT Effect (st. error)	(3) Control mean (st. dev.)	(4) N	(5) ITT Effect (st. error)	(6) TOT Effect (st. error)	(7) Control mean (st. dev.)	(8) N	(9) ITT Effect (st. error)	(10) TOT Effect (st. error)	(11) Control mean (st. dev.)	(12) N
Voter turnout in district elections (proportion)	-0.051*	-0.095*	0.502	111	-0.019	-0.037	0.471	44	-0.086*	-0.174*	0.528	58
	(0.025)	(0.042)	(0.143)		(0.040)	(0.062)	(0.122)		(0.040)	(0.078)	(0.157)	
Number of candidates	0.278+	0.523+	2.526	122	0.975**	1.905**	2.143	49	-0.155	-0.291	2.800	62
	(0.167)	(0.299)	(0.804)		(0.233)	(0.505)	(0.727)		(0.239)	(0.486)	(0.761)	
District Assemblymember Activity Index	0.419+	0.759+	0.000	106	0.765*	1.802*	-0.350	46	0.004	-0.130	0.296	53
	(0.225)	(0.396)	(1.000)		(0.333)	(0.759)	(1.053)		(0.272)	(0.463)	(0.880)	

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports IV-GMM treatment-on-the-treated estimates (with standard errors reported in parentheses) with mobilizing to receive an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations and the unit of observation. Columns 5-8 report the same entities on the sample of villages with higher than average baseline support for the NDC. Columns 9-12 report the same entities using the sample of villages with lower than average baseline support for the NDC.

In contrast, there appear to have been positive mobilization effects at the candidate level. Focusing on the TOT estimates, we find an average increase of 0.52 candidates running for office in the 2010/2011 local government elections (se=0.30), which is statistically significant at the 90 percent confidence level. However, these effects are concentrated entirely within NDC-affiliated villages, where we find an average increase of almost 2 additional candidates running for office (se=0.51), which is statistically significant at the 99 percent confidence level. In contrast, in villages with below average support for the NDC, participatory development is estimated to have a slightly negative but not statistically significant effect on the number of candidates for office.

Finally, we consider how active the assemblymember elected in the 2010/2011 local government elections reported being in office. We use data from our interviews with assembly members to create an index of their activity level, averaging the district assembly members' attendance at district assembly meetings, the number of times they raised issues in district assembly meetings, the number of times they met one-on-one with their DCE, the number of times they met with community leaders, the number of times they met with voters, the number of infrastructure projects they facilitated and the number of NGOs (excluding THP) whose activities they facilitated.

Across the entire sample, we find a positive mobilization effect on district assembly members' activities. Focusing on the TOT estimates, THP increased elected representatives' reported activity levels by 0.76 standard deviations (se=0.41), a substantively large effect that is statistically significant at the 90 percent confidence level. However, the effect is concentrated entirely within villages with high support for the NDC, where the increase was 1.8 standard deviations (se=0.76), which is statistically significant at the 95 percent confidence level. In contrast, the estimated effect on participatory development in villages with low levels of NDC support is very small, though estimated with considerable error (effect =-0.13 standard deviations; se=0.46).

Taken together, the evidence in Tables 2 and 3 suggests that participatory development had positive mobilization effects in this context, but only for those who were politically aligned with the incumbent government. In households and villages affiliated with the NDC, we find positive and significant mobilization effects for 4 of the 6 outcomes considered. In contrast, for households and villages that do not strongly support the NDC, we do not see a consistent pattern in the effects, and we even observe a significant negative effect on voter turnout in the district elections. Importantly, these differences in mobilization effects are not a result of different exposure to THP. Appendix Table D1 shows that we do not observe partisan differences in participation within treatment villages. Instead, it appears that the skills and capacity developed through THP need to be complemented with partisan connections to the centers of government power in order to translate into increased levels of engagement.

Next we consider the effects of participatory development on investment in local public goods through preexisting institutions. On the one hand, the observed improvements in engagement with these institutions could plausibly result in greater investment, resulting in a positive effect. On the other hand, these institutions may be less willing or able to funnel resources into local public goods once these are being provided through participatory development institutions, causing a negative displacement effect. We consider the effects of participatory development on two streams of investment in local public goods – voluntary contributions from households to fund projects and district government investment in local projects. The first type of investment is often mobilized through traditional village institutions, while the second type of investment is the result of district-level representation and investment decisions.

In Table 4 Panel A, we consider the effect of participatory development programming on household contributions to self-help projects other than the epicenter. We calculate the value of

each household's contributions to public goods as the sum of their monetary and labor contributions to local public goods other than the epicenter in the previous twelve months (2012-2013).[20] We note that any crowd-out effects could have been even larger in earlier periods when more community centers were under construction.

We find that participatory development programming decreases voluntary contributions to other local projects. The TOT effect is a 9.7 GHS decrease (se=5.7) in the value of contributions, which is statistically significant at the 90 percent confidence level. However, the decrease in voluntary contributions appears to be concentrated more within NDC-aligned households; here we observe a 26.7 GHS decrease (se=15.9), which is statistically significant at the 90 percent confidence level. Among non-NDC aligned households, we observe a smaller 7.2 GHS decrease (se=6.05), which is estimated with considerable error. If we distinguish between voluntary contributions to projects in sectors in which THP explicitly works (health, water, micro-finance, sanitation and community center construction) and projects in sectors in which THP does not work (roads, power, agricultural processing, primary/secondary education), we observe a larger decrease in contributions to projects in sectors in which THP is working across the sample as a whole and also in the sample of NDC households, but the point estimate on contributions to public goods in other sectors is also negative (though measured with a large amount of error).

In Table 4 Panel B, we consider the effect of THP programming on the scope of projects financed by the local government in the electoral area in the most recent electoral term (2011-2014). As part of our community survey, we collected information on whether the local government financed projects in nine different sectors during this time period -- health, water, sanitation, childcare, micro-finance, education, road, power and agricultural processing. We measure local government

investment as the proportion of these sectors in which they financed a project between 2011 and 2013.[21]

We estimate no change in the proportion of sectors in which the local government financed projects across the sample as a whole. Interestingly, despite the fact that NDC-aligned villages experienced larger increases in political participation as a result of participatory development, there is little evidence that they managed to increase government investment through this engagement; in fact, there is a 9.2 percentage point decrease in local government investment associated with participatory development in NDC-aligned villages, but the estimate is measured with considerable error (se=8.3pp).

The effect on overall government investment hides differences between government investment in sectors on which THP efforts were concentrated and sectors in which THP placed less emphasis. Focusing on the TOT effect, we see a reduction of 6.8 percentage points (se=3.6pp) in the proportion of THP sectors with local-government financed projects, essentially eliminating any government investment in these sectors. In contrast, we find an increase of 7.4 percentage points (se=4.0pp) in the proportion of non-THP sectors with local-government financed projects. Both of these effects are statistically significant at the 90 percent confidence level. When we split the sample between NDC-aligned and non-NDC-aligned villages, the effects on investment in different sectors are each estimated with considerable error, but with suggestive evidence that the increase in non-THP sectors is concentrated in non-NDC-aligned villages.

Table 4. Mobilization of Public Goods by Households (Panel A) and Government (Panel B)

PANEL A: HH MOBILIZATION	**ENTIRE SAMPLE**				**NDC Aligned HHs**				**Non-NDC Aligned HHs**			
	(1) ITT Effect (st. error)	**(2) TOT Effect (st. error)**	**(3) Control mean (st. dev.)**	**(4) N**	**(5) ITT Effect (st. error)**	**(6) TOT Effect (st. error)**	**(7) Control mean (st. dev.)**	**(8) N**	**(9) ITT Effect (st. error)**	**(10) TOT Effect (st. error)**	**(11) Control mean (st. dev.)**	**(12) N**
HH contributions to non-THP public goods (cedis)	-5.10+ (2.90)	-9.73+ (5.71)	15.31 (84.00)	2745	-14.33+ (8.09)	-26.72+ (15.92)	22.45 (139.98)	680	-3.38 (2.79)	-7.22 (6.05)	14.08 (61.50)	1704
HH contributions to public goods in THP sectors (cedis)	-3.73 (2.41)	-7.10 (4.66)	4.24 (67.31)	2745	-10.66 (8.22)	-19.88 (15.70)	11.18 (137.42)	680	-1.26+ (0.72)	-2.69+ (1.56)	2.24 (15.00)	1704
HH contributions to public goods in non-THP sectors (cedis)	-1.38 (1.97)	-2.62 (3.78)	11.08 (50.45)	2745	-3.67 (2.41)	-6.84 (4.66)	11.27 (28.68)	680	-2.12 (2.71)	-4.52 (5.81)	11.84 (59.73)	1704
PANEL B: GOVT MOBILIZATION	**ENTIRE SAMPLE**				**NDC Aligned Villages (>=30 % NDC HHs)**				**Non-NDC Aligned Villages (< 30 % NDC HHs)**			
Proportion of sectors with local gov funded projects	0.005 (0.033)	0.006 (0.053)	0.072 (0.162)	117	-0.056 (0.054)	-0.092 (0.083)	0.092 (0.223)	48	0.035 (0.052)	0.074 (0.082)	0.065 (0.126)	58
Proportion of THP sectors with local gov funded projects	-0.038+ (0.022)	-0.068+ (0.036)	0.054 (0.158)	116	-0.063 (0.054)	-0.112 (0.083)	0.070 (0.223)	48	-0.038 (0.023)	-0.060 (0.041)	0.049 (0.118)	57
Proportion of non-THP sectors with local gov funded projects	0.044+ (0.024)	0.074+ (0.040)	0.025 (0.048)	115	0.006 (0.016)	0.020 (0.027)	0.025 (0.050)	47	0.071 (0.046)	0.128+ (0.074)	0.026 (0.049)	57

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates controlling for district effects (with standard errors, reported in parentheses, clustered at the unit of randomization, the village grouping). Each row reports results for a single OLS regression. Column (2) reports IV-GMM treatment-on-the-treated estimates with mobilizing to receive an epicenter instrumented by treatment assignment (with standard errors, reported in parentheses, clustered at the unit of randomization). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations. For panel A, columns 5-8 (9-12) report the same entities using the sample of NDC-aligned (non-NDC aligned) households. For panel B, columns 5-8 (9-12) report the same entities on the sample of villages with higher than average (lower than average) baseline support for the NDC. THP sectors are health, water, sanitation, childcare, microcredit; non-THP sectors are road, power, agricultural processing, and primary/secondary education.

Table 5. Poverty Alleviation and Service Access

	ENTIRE SAMPLE				NDC Aligned HHs				Non-NDC Aligned HHs			
	(1) ITT Effect (st. error)	(2) TOT Effect (st. error)	(3) Control mean (st. dev.)	(4) N	(5) ITT Effect (st. error)	(6) TOT Effect (st. error)	(7) Control mean (st. dev.)	(8) N	(9) ITT Effect (st. error)	(10) TOT Effect (st. error)	(11) Control mean (st. dev.)	(12) N
Overall Well-Being Index	-0.051	-0.097	0.000	2792	-0.232*	-0.430*	-0.050	690	-0.060	-0.128	0.063	1732
	(0.071)	(0.135)	(1.000)		(0.095)	(0.191)	(1.048)		(0.075)	(0.162)	(0.996)	
Food Security Index	0.046	0.086	0.000	2749	0.017	0.032	0.123	680	0.045	0.096	-0.042	1707
	(0.046)	(0.087)	(1.000)		(0.076)	(0.139)	(1.170)		(0.051)	(0.109)	(0.952)	
Literacy and Education Index	-0.089	-0.171	0.000	2792	-0.090	-0.167	-0.155	690	-0.120	-0.260	0.057	1732
	(0.077)	(0.149)	(1.000)		(0.100)	(0.176)	(1.035)		(0.090)	(0.200)	(1.012)	
Health and Nutrition Index	-0.064	-0.121	0.000	2792	-0.244+	-0.454+	0.026	690	-0.046	-0.099	0.007	1732
	(0.087)	(0.166)	(1.000)		(0.144)	(0.273)	(0.950)		(0.083)	(0.178)	(0.993)	
Water, Envt and Sanitation Index	-0.107	-0.199	0.000	2792	-0.250+	-0.460	-0.080	690	-0.096	-0.204	0.085	1732
	(0.118)	(0.219)	(1.000)		(0.144)	(0.282)	(1.121)		(0.132)	(0.273)	(0.977)	
Livelihoods and Financial Inclusion Index	0.103	0.194	0.000	2792	-0.001	-0.002	-0.037	690	0.078	0.165	0.052	1732
	(0.087)	(0.160)	(1.000)		(0.115)	(0.207)	(1.061)		(0.095)	(0.194)	(1.008)	

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports IV-GMM treatment-on-the-treated estimates (with standard errors reported in parentheses) with mobilizing to receive an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations. Columns 5-8 report the same entities using the sample of NDC-aligned households. Columns 9-12 report the same entities using the sample of non-NDC aligned households. Full details on the construction of each index and the ITT effect and TOT effect on each sub-component are reported in Appendix H.

Thus, Table 4 indicates that any positive effects of participatory development on engagement with pre-existing institutions did not result in greater investment in local public goods through these institutions. For the NDC-aligned households who experienced the largest improvements in political engagement as a result of the program, we observe negative displacement effects in citizens' contributions to other local public goods (statistically significant at the 90 percent confidence level) and suggestive evidence that local governments might have displaced funds from these communities too. Although participatory development may have improved engagement with pre-existing institutions on some dimensions, this was not associated with increased ability to mobilize resources behind community-level projects.

Did the THP programming, either through the direct results of the programming itself or through its indirect effects on leadership at the community and district level, cause any measurable improvement in the lives of citizens? We measure the aggregate socioeconomic well-being effect of THP by averaging its effects across five broad areas – food security, education and literacy, health and nutrition, environment, and economic livelihoods. We focus on these five outcome areas because they are highlighted in THP's programming documents and because they are encompassing goals, well-positioned to capture effects even if resources are fungible across sectors, and related closely to the sectors emphasized in the millennium development goals and associated conceptions of human development. For each area of potential impact, we created an index based on variables measuring numerous related outcomes, often combined into sub-indices, as shown in Appendix H.[22] Collectively, these indices captured specific improvements in well-being in the sectors targeted by THP's programming – for example, better access to health care, the adoption of specific agricultural practices, and access to credit – as well as broader measures

of households' well-being, such as household income, expenditure and the value of total food consumption.

The effect of THP on the main indices is reported in Table 5. The results indicate that the THP had disappointing results across the entire sample. Focusing on the TOT estimate, THP reduced well-being by 0.10 standard deviations (se=0.14), although the effect is imprecisely estimated and thus particularly large and positive as well as large and negative results cannot be ruled out. However, for NDC-aligned households, the negative effect is starker. Here we estimate a decline in well-being of 0.43 standard deviations as a result of receiving participatory development (se=0.19), which is statistically significant at the 95 percent confidence level. In contrast, for non-NDC aligned households, we cannot reject the null of no effect (effect=-0.13; se=0.16). How is it that NDC-aligned households in aid-receiving villages became worse off than their counterparts who did not receive participatory development? The evidence in Tables 2 and 3 indicates that NDC-aligned voters were more politically mobilized as a result of participatory development. However, Table 4 suggests that participatory development also caused greater displacement of resources for these households, especially in the allocation of their own household resources but also possibly in the allocation of state resources by local governments. Our interpretation is that NDC supporters were over-mobilized into participatory development: they diverted effort into a project that did not ultimately meet expectations. Importantly, the THP project fell short of expectations in two ways: its direct effects on socioeconomic outcomes through the delivery of public goods and services were smaller than anticipated, and its indirect effects on socioeconomic outcomes through improved engagement with pre-existing political institutions were also negligible, despite the fact that THP was broadly successful in organizing higher levels of engagement. This provides an

explanation for how incumbent co-partisans became distributive losers as a result of participatory development.

We present fully saturated models that show the statistical significance of the differences in treatment effects between NDC and non-NDC aligned subgroups in Appendix J, including tables equivalent to Tables 2 through Table 5 above. These results demonstrate statistically different effects on the community participation index, number of candidates, district assemblymember participation index and overall well-being index depending on political alignment.

Conclusion

In a randomized controlled trial of participatory development aid in Ghana, we find high levels of participation from community members, but no change in aggregate socioeconomic outcomes. We also find important heterogeneous treatment effects, specifically that households and villages with pro-government alignment had greater displacement of resources from other efforts towards the new participatory development project-led activities. Yet the project did not end up generating changes in socioeconomic outcomes, thus leading to a negative impact for pro-government households.

Our theoretical framework, outlined in Figure 1, implies that the effects of participatory development aid are complex and likely to vary by context. To think more crisply about the external validity of our findings with respect to participatory development, we highlight two issues related to the specific NGO we study: implementation fidelity and program design. THP's program implementation appears to have delivered on two key objectives regarding process: we observe high levels of participation and inclusiveness. As a result, we think it unlikely that issues with

program implementation explain our disappointing findings with regards to investment and socioeconomic outcomes. On program design, THP requires particularly high levels of community involvement and community contributions compared to other participatory approaches. Although it could be argued this makes it a paradigmatic case of community-based development, it means that displacement effects between involvement in THP and contributions to other local public goods are likely to be particularly pronounced. THP's program is also multi-faceted and multi-sectoral, in contrast to participatory programs that focus on single sectors or provide block grants. By pushing simultaneously in many areas, it may have been more difficult for THP programming to improve upon the outcomes that local contributions and government resources were already accomplishing in these diverse areas. This broad scope of activities could also have created greater implementation challenges.

We also consider two dimensions of the political context we study with potential implications for external validity: levels of partisan attachment and geographic political heterogeneity. We studied a context in which partisan attachments are strong. In areas without strong partisan attachments, partisanship is probably less likely to moderate the effects of programming. However, even in cases without strong partisan attachments, it may sometimes be possible to apply the framework in Figure 1 to understand the extent to which programming outcomes are likely to vary across politically relevant cleavages (Posner, 2004). We also studied districts that are internally politically heterogenous, generating differential programming effects by political alignment within the district. In politically homogenous districts, we expect partisanship may still be a factor in affecting programming outcomes as a result of the mechanisms we describe, but it would not generate the same within-district inequalities.

In the context of our study, we find unintended consequences from participatory development aid, which have implications for both the literature on participatory development and the literature on the distributional consequences of international aid. We contribute to the first literature by showing the limitations of participatory development even when it meets its goal of encouraging greater engagement with government. In contrast to many previous studies, we found that participatory development actually increased engagement with pre-existing political institutions in this setting – albeit only for co-partisans of the government.[23]

However, despite this promising initial effect in the causal chain depicted in Figure 1, the greater mobilization induced by the participatory development institutions did not result in improvements in public goods provision or socioeconomic outcomes. In fact, greater mobilization was actually associated with worse distributional outcomes due to displacement effects. Our findings are striking in that they suggest that even if aid institutions successfully increase mobilization in pre-existing institutions – no small feat – this might not make a positive difference. In most developing countries, there is limited fiscal decentralization in the sense that most fiscal power still rests in the national-level executive office, and improved engagement with local representatives may not result in greater local investment (Grossman and Lewis, 2014). In fact, in spending more time engaging with relatively powerless local authorities, citizens may be displacing effort from activities that would be more productive in advancing their well-being.

We also contribute to the literature on the distributional consequences of international aid, adding nuance to our understanding of who benefits from aid. To date, the debates in this literature have focused on insulating aid from partisan allocation decisions, with participatory development as one solution to political bias in traditional aid allocation (Briggs, 2012, Briggs, 2014, Jablonski, 2014). We provide a framework for understanding why – even if participatory aid is neutrally

allocated – the realization of benefits from it may be skewed along partisan lines. Except in cases of consistent null partisan effects at each stage in Figure 1's causal chain or differently signed partisan effects that ultimately cancel each other out, the benefits from participatory development will not be realized in a politically neutral manner.

The framework provided in this paper helps to understand the likelihood of political bias in the realization of benefits from participatory development in diverse contexts. In the specific case we study, government copartisans became distributional losers as a result of three aspects of the context: the distribution of aid inputs was neutral (both across communities, where it was randomly allocated, and within communities), its effects disappointed relative to initial expectations, and co-partisans of the government were subject to greater displacement effects. To the extent that scholars and policymakers have expectations about the likelihood of partisan differences at each stage of the causal chain outlined in Figure 1, the framework can be used to help understand and possibly even anticipate partisan differences in effects. The existing literature suggests that, in different settings, either government partisans or opposition partisans could be more likely to be mobilized into participatory projects, and that either group could be more likely to translate this experience into other forms of political engagement; as a result, context-specific knowledge will be important in anticipating these effects. The literature makes clearer predictions about the likely direction of bias in government investment in public goods; government co-partisans are frequently found to receive a larger share (Golden and Min, 2013). The likelihood of the project generating high quality public goods will also vary by context and project. As a result, participatory development aid's distributional consequences are likely both complex and heterogenous in a way that is not anticipated by the existing literature.

Many types of aid programs ultimately have heterogenous effects, raising the question of the extent to which donors and NGOs have responsibility to ensure equal outcomes versus equal opportunities to access their programs. Our empirical study cannot answer these important ethical questions. However, existing research suggests that aid projects that result in unequal outcomes across politically salient cleavages may be particularly destabilizing (De Juan, Pierskalla, and Schwarz, 2020), and so policymakers may be particularly cautious about supporting projects with these distributional consequences.

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[1] For a review, see Casey (2018).

[2] For important exceptions, see Labonne and Chase (2011) and Deserranno, Nansamba, and Qian (2019).

[3] A long-standing analytical debate examines whether politicians *should* target core supporters or swing voters with resources in order to maximize their chance of retaining office (Dixit and Londregan, 1996, Lindbeck and Weibull, 1987). Although there is significant evidence that politicians target resources at competitive constituencies, studies that employ individual-level data show that co-partisans are generally targeted within these constituencies to encourage turnout (Golden and Min, 2013, Mares and Young, 2018, Calvo and Murillo, 2013, Nichter, 2018).

[4] Only four of the 17 districts in existence in 2006 were excluded – one because it was urban; two because the program had previously been rolled out in these districts; and one because we were not able to successfully collect baseline data in this district.

[5] Higher-level traditional leaders (e.g., chiefs) have official roles and receive some government resources.

[6] In a regression model predicting NDC affiliation at the household level in our sample, only ethnic variables and the percentage of women in the household are statistically significant at conventional confidence levels. See Appendix A.

[7] A 30 percent cut-off was chosen because it represents an above-average level of support for the NDC in rural Eastern region, where just over 28 percent of our respondents felt an affiliation toward the NDC in the baseline survey. At the time of the baseline survey, the NPP was in power at the national level.

[8] THP has sponsored evaluations that have focused on particularly well-performing community centers (Rijneveld et al., 2015). Qualitative research by Yeboah-Assiamah et al. (2015) reports that respondents drawn from THP participants at five selected community centers in Ghana attribute broad progress in poverty reduction due to THP activities.

[9] The study contained 13 districts at baseline. Some of these districts subsequently split into two districts.

[10] Each district was to contain up to 8 village groupings, constructed based on already existing political and/or administrative communities. In some districts, village groupings were demarcated by area councils, a sub-district geographic unit that is supposed to be consulted in district-level planning. In other districts, village groupings were determined by the boundaries of electoral constituencies used for district elections (electoral areas).

[11] On the complex factors that determine the situation of projects that require community and government contributions, see Harris and Posner (2019) on Constituency Development Fund projects in Kenya.

[12] In many districts, (aggregations of) electoral areas were used to demarcate the village groupings in the intervention.

[13] We did not pre-registered our analysis as this was not an established practice at the time of project conception in 2007.

[14] Insofar as the purpose of THP is to improve aggregate well-being, the program's effect on the overall well-being index is the effect relevant to policymakers; other estimated effects are relevant insofar as they help assess the mechanism by which this effect is produced. On the motivation for using indices that aggregate outcomes in the case of single interventions, see also Viviano, Wuthrich, and Niehaus (2022).

[15] In some cases, the sub-components are also themselves indices of variables, as explained in Appendix H.

[16] In rare cases where villages in the same electoral area fall in different village groupings, we have joined the two village groupings for the purpose of calculating standard errors.

[17] The first stage results are included in Appendix I.

[18] We present fully saturated models with interactions in Appendix J. We present equivalent models calculating p-values using randomization inference in Appendix K. We also show that the differential effects observed by partisan subgroups are not driven by differences in timing of programming initiation in Appendix L.

[19] In Appendix M, we show the results are robust to different cut-offs. It is theoretically possible that the effects of household-level partisanship vary by village-level partisan alignment, but we do

not have statistical power to detect these differences in our analysis. We show that our results are robust to dropping the most pro-NDC district in Appendix N.

[20] We impute the value of labor contributions by multiplying the number of (eight hour) days worked by the typical daily wage for an unskilled agricultural task (weeding) in the village; data on the typical daily wage for men and women was collected as part of our community survey.

[21] Unfortunately, we were unable to collect reliable data on the amount invested in each project.

[22] The construction of the indices was not put forward in a preanalysis plan, as the practice was not common at the time this study began in 2008. However, the survey instrument is available online and provides the basis, without omission, for the construction of the indices. We based the data collection and thus construction of the indices on indicators emphasized in THP's own theory of change and programming.

[23] Studies that have explicitly examined the effects of participatory development on participation in local government have mainly found null effects (White, Menon, and Waddington, 2018), with the one exception being Casey et al. (2012).

On-line Appendices

How Political Insiders Lose Out When International Aid Underperforms:

Evidence from a Participatory Development Experiment in Ghana

Appendix A. Explaining Political Affiliation in Eastern Ghana

Table A1. Correlates of Political Affiliation

	(1) NDC Aligned HH	(2) NDC Aligned HH
Proportion Female	-0.084*	-0.087*
	(0.042)	(0.042)
Average Age	0.000	0.000
	(0.001)	(0.001)
Average Education	-0.003	-0.003
	(0.003)	(0.003)
Proportion Born in Community	0.028	0.024
	(0.028)	(0.028)
Proportion Akwapim	-0.136**	-0.077*
	(0.029)	(0.032)
Proportion Akyem	-0.147**	-0.111**
	(0.031)	(0.035)
Proportion Krobo	0.123**	0.075**
	(0.033)	(0.039)
Proportion Ewe	0.268**	0.295**
	(0.036)	(0.038)
Durable Asset Index	0.006	0.002
	(0.006)	(0.005)
Organizational Membership	-0.003	0.005
	(0.022)	(0.023)
District Fixed Effects	No	Yes
N	1,796	1,796
R-squared	0.112	0.136

Notes: + significant at 10 %; * significant at 5 %; ** significant at 1 %. Table reports coefficients from OLS regression model with robust standard errors in parentheses below.

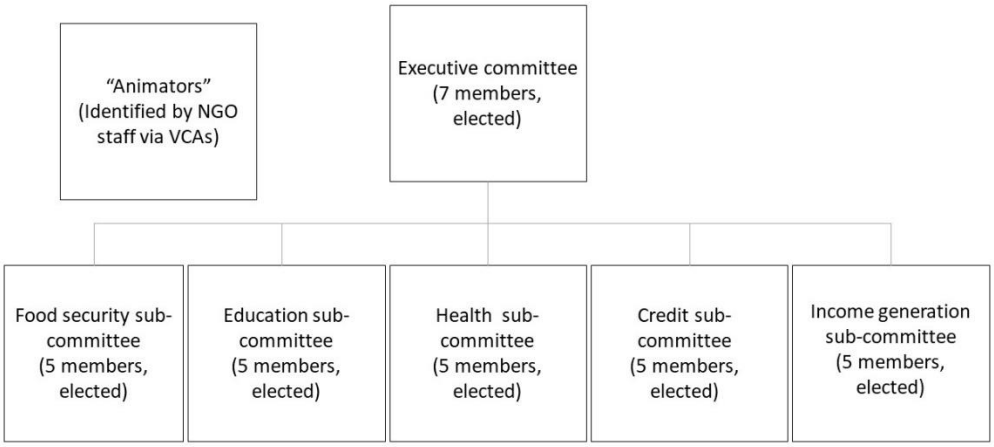
This appendix shows the correlates of households supporting the NDC at the beginning of our study; the outcome variable is whether a majority of adults in the household said they identified with the NDC. This is largely a function of ethnic identity, with households with more Krobo and Ewe members being more likely to identify with the NDC and households with more Akwapim and Akyem members being less likely to do so. In addition, households with more adult women were less likely to identify with the NDC, which likely reflects women's lower levels of partisan mobilization in Ghana.[1]

[1] The heterogeneous effects observed by partisanship in the manuscript are not observed when the sample is instead divided by the gender composition of households. (Results available upon request).

Appendix B. The Hunger Project's Participatory Development Approach

This appendix provides further details on The Hunger Project's (THP's) participatory development approach. THP begins its work with communities by organizing "vision, commitment and action" (VCA) workshops in which participants receive training in civic engagement and are encouraged to develop plans to improve their communities. These VCA workshops are repeated regularly throughout the course of the NGO's engagement with a community. Following the initial workshop, two types of leaders are selected to lead programming within their communities: "animators", volunteers identified as having strong leadership skills by the NGO staff who are then asked to help mobilize other community members, and THP committee members, who are elected by the community to oversee programming. Figure B1 illustrates the local leadership structure created as part of the THP process. There is often considerable overlap between animators and committee members, and both sets of leaders subsequently receive further leadership training by the NGO.

Figure B1. THP's participatory development institutions



Once community members demonstrate a commitment to devoting time and resources to collective goods following the initial VCA workshop, THP begins providing financial support for programming activities. At this point, it helps to facilitate the creation of "epicenters," which are community centers containing meeting halls, clinics, rural banks, foodbanks, toilets, a demonstration farm, and either a preschool or library. Once completed, these centers also run agricultural training programs, literacy classes and microfinance programs. THP provides funds to secure the title for the land for the community centers, it hires a contractor to oversee the construction of the center, and it provides some financial support for its education and microfinance programs. However, community members are also expected to devote significant resources in cash or in kind to support the construction of the center, and the goal is to have the local government provide support for many of the programs subsequently run out of the center. Thus, THP's model of change centers mainly around the effects of organizing workshops that develop leadership skills and civic mindedness, not on the effects of a capital infusion

into communities. THP's main emphasis is on engaging new leaders and forming new community organizations that will help organize future collective activities to benefit the community. In fact, the THP model allows communities only marginal influence over how much resources to devote to different components of the multi-sectoral programming to which THP is committed; this contrasts with community-driven development programs that provide communities with cash grants but is fairly typical of many participatory development programs (Mansuri and Rao 2013; Mosse 2005). [2]

[2] For example, in one of our study communities, the committee decided not to build a community center as part of the programming.

Appendix C. Randomization Procedure and Project Initiation

THP's model is intended to cater to groups of rural villages with combined populations of about 10,000 people. As a result, in each of the study districts, the research team first determined the communities that were eligible for inclusion in the study – to be eligible, villages had to have populations of less than 2000 people and be situated away from major roads – and then grouped them into village groupings ("clusters") in as naturalistic a way as possible. In some districts, village groupings were demarcated by area councils, a sub-district geographic unit employed by district-level planners. In other districts, village groupings were determined by the boundaries of the electoral constituencies used for district-level elections (electoral areas). On average, each village grouping contained 14 villages.

A public lottery was subsequently held in each district to determine which clusters would be invited to receive THP's programming. The lotteries were conducted by pulling names out of a hat in public, and so no stratification beyond the district level was possible. The lotteries were conducted between September 2006 and September 2008 in two waves. Due to short-run capacity constraints, THP did not immediately begin engagement with all communities selected for treatment. Within treatment communities, programming was rolled out over a four-year period between 2008-2011.

After the district lotteries, representatives from the communities selected for treatment were invited to participate in a district-level VCA workshop to familiarize themselves with the THP process. The village chief and four other community representatives (2 male, 2 female) from all villages in selected groupings were invited to participate in the workshop. If the representatives of the village groupings expressed interest in the project, THP organized subsequent VCA workshops at the village grouping level.

After the initial VCA meetings at the village grouping level, communities were asked to identify and donate land for the community center. THP requires that the NGO be given title to this land, and chiefs within the intervention communities are asked to donate land for this purpose. The land must be of sufficient size for a community center and farm. In some cases, chiefs from multiple communities offer land, while in other cases, the initial offer of land comes from a chief whose community is considered too remote from the remainder of the communities in the village grouping. In these cases, THP asks all of the chiefs in the communities to deliberate together to decide on the best location. All communities within a village grouping are expected to donate labor and resources toward the building of the community center.

Thus, the precise location of the constructed community centers within village grouping is the result of complex inter-village bargaining. In Table C1, we consider a number of baseline village level attributes -- population, political alignment and economic marginalization (proxied by connection to the electric grid) – and we show that none of these variables predicts the proximity of study villages to the constructed community centers. We note that there is less variation in village-level partisanship within (versus across) village groupings; two thirds of variation in this variable is explained by village grouping indicators.

Table C1. Predictors of Village Distance from Constructed Community Center (Epicenter)

	(1) Distance to epicenter (km)	(2) Distance to epicenter (log)
Population (Number)	0.002	0.000
	(0.001)	(0.000)
NDC Support (Proportion)	-5.082	-0.520
	(5.926)	(0.672)
Electricity Available (0/1)	-3.093	-0.293
	(2.666)	(0.299)
Fixed Effects	Village Grouping	Village Grouping
Observations	91	91

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. Table presents OLS estimates with standard errors, clustered at the village grouping level, in parentheses. Study villages assigned to treatment are the unit of observation. Each column reports results for a single OLS regression of the dependent variables listed in the columns.

Appendix D. Balance Statistics and Take-up Analysis

Table D1 shows that we fail to reject that treatment assignment is orthogonal to observable characteristics of households and our main outcomes of interest. The first eight variables in Table D1 are indices. On average, treatment and control households demonstrated similar levels of civic participation and had similar perceptions of their village and district-level leaders at baseline. They also showed similar levels of food security, similar health and nutritional access and behaviors, similar access to services related to water, environment and sanitation, and similar economic livelihoods. The only index that was statistically different at baseline was literacy and education, with control communities demonstrating higher levels at baseline.

Table D1. Baseline Summary Statistics: Balance Checks and Composition of Take-up Analysis

	(1) Treatment (std dev)	(2) Control (std dev)	(3) Difference (se)	(4) N	(5) Village Took-Up Treatment (std dev)	(6) Village Did Not Take-Up Treatment (std dev)	(7) Difference (se)	(8) N
Community Participation Index	-0.277	-0.278	-0.018	3230	-0.111	-0.436	0.216**	1687
	(1.208)	(1.219)	(0.049)		(1.236)	(1.160)	(0.072)	
Accountability of Village Chief Index	0.408	0.406	0.016	3745	0.393	0.422	0.043	1939
	(1.015)	(1.018)	(0.043)		(1.036)	(0.992)	(0.057)	
Accountability of District	0.452	0.437	-0.001	3647	0.431	0.475	0.030	1897
Assemblymember Index	(1.384)	(1.431)	(0.083)		(1.398)	(1.370)	(0.088)	
Food Security Index	-0.955	-0.964	0.002	3645	-0.990	-0.920	-0.143**	1903
	(0.701)	(0.715)	(0.045)		(0.715)	(0.684)	(0.051)	
Literacy and Education Index	-0.201	-0.020	-0.186*	3786	-0.321	-0.074	-0.194+	1962
	(0.990)	(1.086)	(0.078)		(0.996)	(0.031)	(0.104)	
Health and Nutrition Index	0.550	0.487	-0.001	3786	0.658	0.434	0.473	1962
	(3.406)	(1.706)	(0.256)		(4.597)	(1.212)	(0.597)	
Water, Environment and Sanitation	-1.257	-0.952	-0.285	3582	-1.251	-1.263	0.350	1901
Index	(1.751)	(1.436)	(0.180)		(1.864)	(1.632)	(0.241)	
Livelihoods and Financial Inclusion	-0.122	-0.226	0.118	3786	-0.251	0.015	-0.172	1962
Index	(1.611)	(1.677)	(0.176)		(1.620)	(1.590)	(0.242)	
NDC Aligned Household	0.298	0.267	0.024	3267	0.324	0.274	0.020	1707
	(0.458)	(0.442)	(0.025)		(0.468)	(0.446)	(0.045)	
Household in NDC Aligned Village	0.520	0.461	0.036	3348	0.608	0.438	0.148	1751
	(0.500)	(0.499)	(0.067)		(0.438)	(0.016)	(0.105)	

Notes: + significant at 10 %; * significant at 5 %; ** significant at 1 %. This Table reports baseline summary statistics from the main outcome measures at the household level. Columns (1) and (2) present means (with standard deviations in parentheses) of the treatment and control groups, respectively. Column (3) presents the difference and the standard error of the difference, calculated from an OLS regression model with district fixed effects and standard errors clustered at the unit of randomization (cluster). Column (4) indicates the N. Columns (5) and (6) present means (with standard deviations in parentheses) in the treatment communities that took up the treatment and that did not. Column (7) presents the difference between these communities (calculated as in column (3)), and column (8) indicates the N for this comparison.

Appendix E. Participation in and Governance Structures of THP

Table E1 compares THP leaders to the set of leaders who had ever held traditional leadership positions or held elected office in the village. Specifically, columns (1) through (5) of the table present data on the average (baseline) characteristics of respondents surveyed in our two-wave household survey. Column (1) displays the average characteristics of all adult respondents, column (2) presents the characteristics for respondents who had held a traditional office at some point (mainly village chiefs, subchiefs, linguists, queen mothers and other advisors), column (3) does this for respondents who had held a political office (mainly unit committee members, local party officials, and district assembly members), column (4) shows the characteristics of respondents who had participated in a THP workshop, and column (5) lists the characteristics of respondents who had held leadership positions within THP (animators and committee members). The last two columns of the table show the t-statistic from an unequal t-test comparing (6) the characteristics of all adults to the characteristics of VCA workshop participants; and (7) the characteristics of traditional and political leaders to THP leaders.

The individuals who took part in THP workshops tended to be different from the study communities more broadly. Workshop participants were significantly less likely to be women, significantly older, and significantly more educated than their communities more broadly. On these dimensions, program participants skewed towards those who are already advantaged in existing power structures. Yet, on other dimensions, the program may have been effective in bringing in disadvantaged community members. In particular, workshop participants tended to be, on average, less affluent (as measured by baseline asset ownership) and more dissatisfied with the (NPP) president (as measured by trust in the president at baseline) than other community members (though it is noteworthy that they were not more dissatisfied with traditional leaders).

In addition, THP managed to create leadership structures that were more inclusive of disadvantaged groups than either traditional institutions or elected institutions within the study communities. On average, THP leaders tended to be more likely to be female than either traditional or political leaders, and they were younger than traditional leaders. Furthermore, like THP workshop participants more generally, they were less wealthy and potentially less aligned with the (NPP) president at baseline. In this sense, THP's participatory approach appears to have been effective in placing individuals disadvantaged in other governance structures in leadership positions.

Table E1. THP Participants and Leaders Compared to their Communities and Preexisting Leaders

	(1) Mean adults (st. dev)	(2) Mean traditional leaders (st. dev)	(3) Mean political leaders (st. dev)	(4) Mean THP workshop participants (st. dev)	(5) Mean THP leaders (st. dev)	(6) Difference THP workshop vs. adults (st. error)	(7) Difference THP leaders vs. trad/pol. leaders (st. error)
Female	0.529	0.205	0.110	0.399	0.286	-0.130**	0.096
	(0.499)	(0.405)	(0.314)	(0.491)	(0.455)	(0.040)	(0.062)
	N=2942	N=195	N=100	N=163	N=63		
Age (years)	44.5	55.1	52.6	48.7	50.2	4.2**	-3.98**
	(17.5)	(13.1)	(12.1)	(12.6)	(10.3)	(1.04)	(1.52)
	N=2942	N=195	N=100	N=163	N=63		
Education	6.18	7.18	9.31	7.03	8.83	0.85**	1.20*
(highest grade)	(4.27)	(4.40)	(2.94)	(4.11)	(3.69)	(0.33)	(0.53)
	N=2922	N=194	N=98	N=163	N=63		
Born in village	0.436	0.407	0.505	0.432	0.524	-0.004	0.090
	(0.496)	(0.493)	(0.503)	(0.497)	(0.503)	(0.040)	(0.070)
	N=2920	N=194	N=99	N=162	N=63		
HH wealth	0.298	0.502	0.552	0.118	-0.039	-0.180	-0.534+
index (baseline)	(2.100)	(2.653)	(2.254)	(0.183)	(1.820)	(0.166)	(0.302)
	N=2326	N=157	N=81	N=131	N=54		
Organization	0.417	0.432	0.523	0.464	0.564	0.047	0.114+
member	(0.450)	(0.445)	(0.450)	(0.473)	(0.467)	(0.040)	(0.068)
(baseline)	N=2544	N=167	N=85	N=145	N=58		
NDC supporter	0.295	0.305	0.321	0.317	0.321	0.022	0.021
(baseline)	(0.456)	(0.462)	(0.470)	(0.470)	(0.471)	(0.040)	(0.070)
	N=2533	N=167	N=84	N=142	N=56		
NPP supporter	0.398	0.455	0.429	0.387	0.321	-0.011	-0.114
(baseline)	(0.490)	(0.499)	(0.498)	(0.489)	(0.471)	(0.042)	(0.071)
	N=2533	N=167	N=84	N=142	N=56		
Trust chief	3.06	3.16	3.11	3.05	3.06	-0.004	-0.091
(baseline)	(1.06)	(0.98)	(1.04)	(1.08)	(1.08)	(0.092)	(0.157)
	N=2507	N=168	N=85	N=145	N=58		
Trust president	2.94	2.96	3.06	2.78	2.71	-0.153	-0.303
(baseline)	(1.15)	(1.16)	(1.16)	(1.24)	(1.30)	(0.105)	(0.187)
	N=2549	N=168	N=86	N=145	N=58		

Notes: + significant at 10 %; * significant at 5 %; ** significant at 1 %. The first five columns report means, standard deviations (in parentheses) and N for: (1) all adults in treatment villages; (2) all who have held a traditional leadership position in treatment villages; (3) all who have held a political office in treatment villages; (4) all who have participated in a Vision, Commitment and Action workshop run by THP; and (5) all who have served as a leader in the context of THP programming, whether by acting as an animator or a committee member. Column (6) reports the difference in means between the adult population and the participants in the VCA workshops, with the standard error in parentheses. Column (7) reports the difference in means between traditional/political leaders and THP leaders, with the standard errors in parentheses.

Table E2. Exposure to THP Programming

	(1) Treatment Village Take-Up=1 (st. dev.)	(2) Treatment Village Take-Up=0 (st. dev.)	(3) Control mean (st. dev.)	(4) Difference Treatment vs. Control (st. error)	(5) Treatment Village, NDC HH (st. dev.)	(6) Treatment Village, Not NDC HH (st. dev.)	(7) Difference NDC HH vs. Not NDC HH (st. error)
Attended any Vision, Commitment and Action (VCA) session (binary)	0.100 (0.258) N=742	0.013 (0.101) N=665	0.000 (0.000) N=1337	0.058** (0.011)	0.065 (0.220) N=370	0.056 (0.194) N=854	-0.003 (0.016)
Number of VCA sessions attended in last 12 months	0.387 (1.651) N=742	0.030 (0.335) N=665	0.000 (0.000) N=1337	0.213** (0.050)	0.200 (1.143) N=370	0.231 (1.324) N=854	-0.045 (0.081)
Contributed to animator-led project (binary)	0.048 (0.181) N=742	0.011 (0.094) N=665	0.003 (0.044) N=1337	0.026** (0.005)	0.028 (0.146) N=370	0.030 (0.146) N=854	0.001 (0.010)
Attended THP fundraiser (binary)	0.093 (0.251) N=742	0.006 (0.074) N=665	0.001 (0.015) N=1337	0.050** (0.010)	0.039 (0.172) N=370	0.055 (0.195) N=854	-0.016 (0.014)
THP animator (binary)	0.024 (0.112) N=742	0.005 (0.052) N=665	0.000 (0.014) N=1337	0.014** (0.003)	0.010 (0.070) N=370	0.016 (0.095) N=854	-0.007 (0.005)
THP committee member (binary)	0.025 (0.119) N=742	0.007 (0.073) N=665	0.000 (0.000) N=1337	0.016** (0.003)	0.017 (0.104) N=370	0.017 (0.101) N=854	0.000 (0.007)
Any contact with THP programming (binary)	0.381 (0.440) N=742	0.041 (0.178) N=665	0.010 (0.089) N=1337	0.208** (0.034)	0.225 (0.384) N=370	0.214 (0.379) N=854	-0.005 (0.035)
Value of contributions to epicenter and associated programming (cedis)	57.9 (141.4) N=742	7.1 (47.4) N=665	0.8 (13.5) N=1337	30.7** (7.0)	39.5 (120.8) N=370	28.3 (87.3) N=854	8.1 (9.1)

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. The first three columns report means, standard deviations (in parentheses) and N for households in treatment villages that took-up the treatment, households in treatment villages that did not take-up the treatment and households in control villages respectively. Column (4) reports the difference in means between households in villages assigned to treatment and control calculated via OLS regression with district fixed effects and standard errors (reported in parentheses) clustered at the unit of randomization (village grouping). The fifth and sixth columns report means, standard deviations (in parentheses) and N for NDC-aligned households and non-NDC aligned households in villages assigned to treatment. Column (7) reports the difference in means between NDC-aligned and non-NDC aligned households in treatment villages calculated via OLS regression with district fixed effects and standard errors (reported in parentheses) clustered at the unit of randomization (village grouping).

The breadth of inclusion in THP's programming is also apparent when we examine the proportion of the community included in various aspects of its programming and leadership activities in Table E2. This table begins by comparing the proportion of adults who participated in various THP programs across villages that took up the treatment (column 1) to those that failed to take up the treatment (column 2) and to those in the control group (column 3). The fourth column shows the difference in participation rates across all communities assigned to treatment and all communities assigned to control. Next, column 5 and 6 compare the rate of participation among NDC affiliated households and other households in treatment villages (regardless of take-up), with the seventh column indicating whether there were differences in participation rates based on partisan affiliation.

The first thing to note is that almost no one in the control communities participated in THP's programming. For each of the programs we consider, the control means approximate zero, and just 1 percent of the adults in the control communities had exposure to any of the programs or activities run by THP. In addition, the very low rates of programming in the communities that failed to take up the treatment suggest that these communities were not significantly exposed to programming after their decline of the invitation to take part. However, large proportions of the adult population participated in THP's programming in the village groupings that accepted treatment. In these villages, more than 11 percent of adults participated in VCA sessions, almost 10 percent contributed to a THP fundraiser, and 40 percent participated in some kind of THP programming. THP's mobilization effort within communities is particularly impressive when one considers participation rates in other community-based development programs; for example, only 0.7 percent of the population is estimated to have participated in village development committee (VDC) member trainings as part of the Tuungane CDD program in the Eastern DRC (Humphreys, Sierra, and Windt 2014).

Appendix F. Attrition Analysis

This appendix examines whether treatment – either by itself or in interaction with baseline outcome variables – affects the likelihood of attrition. We find no evidence of this, as indicated by the F-tests presented at the bottom of the table.

Table F1. Household Attrition

	(1) Completed endline survey	(2) Completed endline survey	(3) Completed endline survey
Treatment	-0.007	-0.004	-0.015
	(0.018)	(0.018)	(0.034)
Treatment*Civic participation index			0.022
			(0.015)
Treatment*Quality of village leadership index			0.011
			(0.014)
Treatment*Perceptions of district leadership index			-0.007
			(0.012)
Treatment*Food security index			-0.015
			(0.023)
Treatment*Literacy and education index			0.013
			(0.018)
Treatment*Health and nutrition index			0.003
			(0.005)
Treatment*Environment index			-0.006
			(0.012)
Treatment*Livelihoods index			0.010
			(0.009)
Treatment*NDC-Aligned HH			-0.019
			(0.039)
Control mean	0.742	0.742	0.742
Straight effects for 9 measures	No	Yes	Yes
Treatment interacted with index effects	No	No	Yes
Observations	3786	3786	3786
p-value from F-test that treatment equals zero	0.721	0.817	
p-value from F-test that treatment interacted with indices jointly equals zero			0.684

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping). Each column reports results for a single OLS regression of the dependent variables listed in the columns. The dependent variable (non-attrition) is binary, taking 1 if the household was reached for both baseline and endline survey, and 0 if the household was only reached for the baseline and not the endline. All baseline control variables correspond to the outcome variables in Tables 2 & 5, as measured at baseline, with indices standardized to the endline control mean with mean 0 and standard deviation 1. For baseline observations that are missing, the variable is recoded to zero when missing, and a binary indicator of being missing is included into the regression.

Appendix G. Qualitative Data Collection and Results

The statistical analysis of the effects of the NGO's programming is complemented with qualitative evidence collected at two distinct time periods. In 2009, at the beginning of the project roll-out, a research team visited 4 treatment and 4 control villages, conducting multiple in-depth interviews and focus groups at each location. The treatment villages were purposefully selected to include two villages performing well and two villages performing poorly according to The Hunger Project's local staff. The control villages were selected so that they were each from the same district as the treatment villages and of approximately the same size and economic development level.

In 2015, researchers returned to 12 communities (7 treatment, 5 control), again conducting focus groups with citizens and in-depth interviews with community leaders, including individuals who took leadership positions in THP's activities, the elected district assemblyperson and district officials. Seven treatment villages were randomly selected from the districts with earliest exposure to THP in order to trace the effects of THP over the longest duration possible. The selected villages fell in five districts, and we randomly selected one control village in each of these districts for a total of five control villages.

The qualitative interviews found that the socioeconomic results of THP were ultimately disappointing for many participants, who expected larger infusions of capital into their communities. Qualitative interviews conducted in study communities in July 2009 during implementation of the program indicated extremely high expectations for the project, well represented in the following community member's comment: "Looking at how the THP has helped us … since they arrived, I believe when we work with them, most of our problems will cease."[3] However, these initially high expectations had faded by the time the endline interviews were done six years later, with one THP animator noting, "Because they said they were going to alleviate poverty, the community members thought that they were going to give us [more] money." Similarly, a local assemblymember pointed out that "our [community] involvement was very good. With the epicenter for instance we all used our strength to help. When there is something that we have to do, all the community come together to do it…," but the project was not financially sustainable without a greater influx of capital than was received: "We need money to run the activities at the epicenter. This money was not coming from anywhere…"[4]

In addition to the fact that the treated communities received less capital than expected, respondents noted other inefficiencies in THP's service delivery model compared to the local government's model. In particular, they noted the fact that the epicenter buildings were (by design) placed in locations off the main road network or with poor transport connections, making their services more difficult to access than government clinics, even if they were geographically closer as the bird flies.[5]

The promised benefits of greater levels of engagement with pre-existing governing institutions also failed to materialize. Citizens aligned with the NDC did become engaged in politics at all levels as a result

[3] Interview with male community member, treatment village, July 2009.
[4] Interview with THP animator, treatment village, August 2015; interview with assemblymember, treatment village, August 2015.
[5] Interview with THP animator, treatment village, August 2015.

of THP, which fits with interviewees' emphasis on the importance of partisan connections in mobilizing citizens for a wide range of activities in Ghana's Eastern Region. As one interviewee put it, "If you are a leader and people know your political affiliation and they see that you do not belong to their party, they won't attend communal labor when you call for one. I don't even know what to use to describe partisan politics…If someone knows that you do not belong to his party, he won't even respond to your greetings. It has really affected our relationships negatively." However, even in communities aligned with the incumbent NDC party, the increased levels of engagement with community and district-level government did not translate into more state investment in local public goods and services. In discussing the failure of state support to materialize, interviewees repeatedly noted both that district governments were not very forthcoming in support for the THP projects themselves, aside from sending a nurse to work at the clinic, and the limited influence of elected district assembly members over the local government budget.[6] In view of the limited political decentralization in Ghana, with the unelected DCE still maintaining a high degree of influence over the district budget, the expectation that better representation could result in better socioeconomic outcomes appears to have been unrealistic.

In view of the ultimately disappointing results of participatory development in this context, some citizens and governments overdisplaced resources from other projects in treated villages. For example, interviewees with budget officers indicated that the government took THP activities into account in developing its own plans in order to avoid duplicating efforts.[7] But insofar as the THP was not as efficient as the government in providing some services, these communities were harmed by the lack of state investment in these sectors. Importantly, THP projects probably looked particularly successful in NDC-aligned communities, where they generated higher levels of participation in other institutions too. As a result, the local government may have displaced more resources from these projects even without any additional pro-incumbent party bias in local government spending.

[6] Interview with assemblyman, community 1, August 2015; interview with assemblyman, community 2, August 2015; interview with assemblyman, community 3, August 2015; interview with assemblyman, community 4, August 2015.
[7] Interview with District Planning Officer, August 2015.

Appendix H. Index Construction and Components

TABLE H1. COMPONENTS OF MAIN POLITICAL INDICES

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Control mean (standard dev.)	(4) N	(5) Baseline data included in model
Community Participation Index	0.054	0.103	0.000	2746	Yes
	(0.045)	(0.082)	(1.000)		
Associational membership	0.009	0.016	0.585	2745	No
	(0.016)	(0.030)	(0.430)		
Attended Last Community Meeting	0.021	0.040	0.472	2746	Yes
	(0.019)	(0.036)	(0.407)		
Raised Issue at Last Community Meeting	0.018	0.035	0.362	2745	Yes
	(0.017)	(0.032)	(0.397)		
Village Accountability Index	0.111*	0.211*	0.000	2744	Yes
	(0.047)	(0.091)	(1.000)		
Frequency of contact with village chief	0.283*	0.539*	4.767	2742	No
	(0.142)	(0.272)	(2.292)		
Extent to which can disagree with village chief	0.046	0.087	2.530	2741	Yes
	(0.049)	(0.093)	(1.249)		
Trust in village chief	0.087*	0.167*	3.667	2707	Yes
	(0.042)	(0.082)	(1.097)		
District Assemblymember Accountability Index	0.069	0.131	0.000	2743	Yes
	(0.072)	(0.131)	(1.000)		
Frequency of contact with District Assemblymember	0.062	0.118	3.460	2743	No
	(0.147)	(0.274)	(2.138)		
Satisfaction with District Assemblymember	0.070	0.132	2.089	2742	No
	(0.052)	(0.095)	(0.916)		
Trust in District Assemblymember	0.059	0.112	2.812	2708	Yes
	(0.078)	(0.144)	(1.293)		

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports 2SLS treatment-on-the-treated estimates (with standard errors reported in parentheses) with receiving an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations and the unit of observation. Column (5) reports whether baseline data is used in the model.

TABLE H2. COMPONENTS OF MAIN SOCIOECONOMIC INDICES

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Control mean (standard dev.)	(4) N	(5) Baseline data included in model
Food Security Index	0.046	0.086	0.000	2749	Yes
	(0.046)	(0.087)	(1.000)		
Market price and access	0.032	0.058	0.000	2206	No
improvement	(0.050)	(0.092)	(1.000)		
(subindex of 2 indicators)					
Value of food consumption	-4.937*	-9.395*	73.1	2738	Yes
(weekly, GHC)	(2.061)	(4.118)	(56.4)		
Agriculture improvements	0.157**	0.298**	0.000	2739	Yes
(subindex of 5 indicators)	(0.057)	(0.110)	(1.000)		
Literacy and Education Index	-0.089	-0.171	0.000	2792	Yes
	(0.077)	(0.149)	(1.000)		
Education	0.005	0.010	0.000	2528	Yes
(subindex of 2 indicators)	(0.094)	(0.178)	(1.000)		
School quality	-0.116	-0.224	0.000	2116	Yes
(subindex of 3 indicators)	(0.135)	(0.256)	(1.000)		
Adult literacy/numeracy	-0.060+	-0.113+	0.000	2745	Yes
(subindex of 2 indicators)	(0.033)	(0.064	(1.000)		
Female adult literacy/numeracy	-0.069+	-0.130+	0.000	2326	Yes
(subindex of 2 indicators)	(0.039)	(0.075)	(1.000)		
No child labor	-0.046	-0.086	0.724	2792	Yes
	(0.063)	(0.118)	(0.447)		
Health and Nutrition Index	-0.064	-0.121	0.000	2792	Yes
	(0.087)	(0.166)	(1.000)		
Infant survival	-0.002	-0.003	0.993	250	No
	(0.010)	(0.016)	(0.086)		
Child anthropometry	-0.000	-0.000	0.000	1535	Yes
(subindex of 6 indicators)	(0.060)	(0.109)	(1.000)		
Health access	-0.088	-0.172	0.000	2792	Yes
(subindex of 7 indicators)	(0.157)	(0.311)	(1.000)		
Government health services	-0.141	-0.213	0.000	2792	No
(subindex of 9 indicators)	(0.152)	(0.223)	(1.000)		
Contraception usage	-0.012	-0.022	0.808	1005	No
	(0.027)	(0.050)	(0.385)		
Prenatal care	-0.034	-0.060	0.000	346	Yes
(subindex of 4 indicators)	(0.096)	(0.167)	(1.000)		
Postnatal care	-0.362**	-0.581**	0.000	213	Yes
(subindex of 9 indicators)	(0.135)	(0.211)	(1.000)		
Number of times immunized	0.308+	0.561+	9.195	1022	Yes
	(0.163)	(0.305)	(3.039)		
Survival	0.007*	0.012*	0.972	2792	No
	(0.003)	(0.006)	(0.085)		
HIV Knowledge	-0.091*	-0.173*	0.000	2758	Yes
(subindex of 4 indicators)	(0.041)	(0.080)	(1.000)		

TABLE H2. COMPONENTS OF MAIN SOCIOECONOMIC INDICES (CONTINUED)

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Control mean (standard dev.)	(4) N	(5) Baseline data included in model
Water, Environment and	-0.107	-0.199	0.000	2792	Yes
Sanitation Index	(0.118)	(0.219)	(1.000)		
Public sanitation improvements	-0.211+	-0.398+	0.000	2792	Yes
(subindex of 2 indicators)	(0.120)	(0.226)	(1.000)		
Number of public water facility	-0.074	-0.137	0.859	2686	No
improvements	(0.104)	(0.190)	(0.884)		
Electricity availability (subindex of	-0.162	-0.302	0.000	2763	Yes
4 indicators)	(0.136)	(0.257)	(1.000)		
Agriculture conservation	0.183**	0.342**	0.000	2418	No
(subindex of 3 indicators)	(0.058)	(0.122)	(1.000)		
Livelihoods and Financial	0.103	0.194	0.000	2792	Yes
Inclusion Index	(0.087)	(0.160)	(1.000)		
Enterprise growth	0.022	0.042	0.000	2747	Yes
(subindex of 4 indicators)	(0.031)	(0.057)	(1.000)		
Durable assets	-0.027	-0.052	0.000	2750	Yes
(subindex of 7 indicators)	(0.050	(0.094)	(1.000)		
Farm investment	26.412	49.304	557.4	2396	Yes
(annual, GHC)	(71.389)	(132.695)	(1287.1)		
Household income	-59415.6	-113612.9	70222.8	2750	Yes
(annual, GHC)	(39428.5)	(75177.1)	(1710983.8)		
Financial inclusion - savings	0.062	0.116	0.000	2792	Yes
(subindex of 5 indicators)	(0.125)	(0.228)	(1.000)		
Financial inclusion - credit	0.294*	0.556*	0.000	2792	Yes
(subindex of 4 indicators)	(0.131)	(0.237)	(1.000)		
Non-food household	6.740	12.793	531.1	2741	Yes
expenditures (monthly, GHC)	(16.902)	(31.685)	(438.3)		

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports 2SLS treatment-on-the-treated estimates (with standard errors reported in parentheses) with receiving an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations and the unit of observation. Column (5) reports whether baseline data is used in the model.

TABLE H3. COMPONENTS OF MAIN SOCIOECONOMIC INDICES, NDC ALIGNED HHs

	ITT Effect (standard error)	TOT Effect (standard error)	Control mean (standard dev.)	N	Baseline data included in model
Food Security Index	0.017	0.032	0.123	680	Yes
	(0.076)	(0.140)	(1.170)		
Market price and access	0.078	0.140	0.126	550	No
improvement	(0.093)	(0.157)	(1.322)		
(subindex of 2 indicators)					
Value of food consumption	-9.979*	-18.545*	77.6	679	Yes
(weekly, GHC)	(4.196)	(7.994)	(69.5)		
Agriculture improvements	0.146	0.272	0.060	680	Yes
(subindex of 5 indicators)	(0.106)	(0.205)	(1.086)		
Literacy and Education Index	-0.090	-0.167	-0.155	690	Yes
	(0.099)	(0.176)	(1.035)		
Education	0.123	0.235	-0.156	618	Yes
(subindex of 2 indicators)	(0.134)	(0.257)	(0.991)		
School quality	-0.285**	-0.632**	0.111	441	Yes
(subindex of 3 indicators)	(0.106)	(0.215)	(0.687)		
Adult literacy/numeracy	-0.090	-0.167	-0.128	681	Yes
(subindex of 2 indicators)	(0.072)	(0.132)	(0.969)		
Female adult literacy/numeracy	-0.134+	-0.244*	-0.116	576	Yes
(subindex of 2 indicators)	(0.068)	(0.123)	(0.974)		
No child labor	0.010	0.018	0.685	690	Yes
	(0.064)	(0.116)	(0.465)		
Health and Nutrition Index	-0.244+	-0.454+	0.026	690	Yes
	(0.144)	(0.273)	(0.950)		
Infant survival	-0.032	-0.057	1.000	76	No
	(0.035)	(0.059)	(0.000)		
Child anthropometry	0.009	0.017	0.006	396	Yes
(subindex of 6 indicators)	(0.102)	(0.179)	(0.976)		
Health access	-0.063	-0.122	-0.083	690	Yes
(subindex of 7 indicators)	(0.182)	(0.348)	(0.977)		
Government health services	-0.298	-0.435	0.197	380	No
(subindex of 9 indicators)	(0.259)	(0.358)	(1.229)		
Contraception usage	-0.002	0.012	0.798	238	No
	(0.037)	(0.067)	(0.388)		
Prenatal care	-0.437+	-0.655+	0.069	95	Yes
(subindex of 4 indicators)	(0.250)	(0.381)	(0.894)		
Postnatal care	-0.213	-0.322	0.068	66	Yes
(subindex of 9 indicators)	(0.284)	(0.318)	(1.011)		
Number of times immunized	0.586+	0.981+	8.915	278	Yes
	(0.347)	(0.582)	(3.237)		
Survival	-0.005	-0.009	0.975	690	Yes
	(0.006)	(0.012)	(0.071)		
HIV Knowledge	-0.196*	-0.363*	-0.065	681	Yes
(subindex of 4 indicators)	(0.090)	(0.168)	(0.993)		

TABLE H3. COMPONENTS OF MAIN SOCIOECONOMIC INDICES, NDC ALIGNED HHs (CONTINUED)

	ITT Effect (standard error)	TOT Effect (standard error)	Control mean (standard dev.)	N	Baseline data included in model
Water, Environment and Sanitation Index	-0.250+ (0.144)	-0.460 (0.282)	-0.080 (1.121)	690	Yes
Public sanitation improvements (subindex of 2 indicators)	-0.350** (0.125)	-0.650* (0.272)	-0.091 (1.122)	690	Yes
Number of public water facility improvements	-0.181 (0.144)	-0.320 (0.268)	0.855 (0.951)	661	No
Electricity availability (subindex of 4 indicators)	-0.281+ (0.167)	-0.511 (0.316)	-0.067 (1.026)	679	Yes
Agriculture conservation (subindex of 3 indicators)	0.136 (0.086)	0.248 (0.161)	0.056 (0.973)	609	No
Livelihoods and Financial Inclusion Index	-0.001 (0.115)	-0.002 (0.207)	-0.037 (1.061)	690	Yes
Enterprise growth (subindex of 4 indicators)	0.096 (0.066)	0.179 (0.122)	-0.107 (1.018)	680	Yes
Durable assets (subindex of 7 indicators)	0.016 (0.044)	0.029 (0.081)	-0.157 (0.547)	681	Yes
Farm investment (annual, GHC)	67.7 (80.0)	122.75 (146.42)	487.2 (900.6)	608	Yes
Household income (annual, GHC)	-201702.8 (183863.4)	-376114.3 (341373.3)	188579.5 (3105460.7)	681	Yes
Financial inclusion - savings (subindex of 5 indicators)	0.000 (0.137)	0.000 (0.248)	-0.004 (0.952)	690	Yes
Financial inclusion - credit (subindex of 4 indicators)	0.069 (0.157)	0.126 (0.278)	0.048 (0.972)	690	Yes
Non-food household expenditures (monthly, GHC)	-53.1+ (29.0)	-98.8+ (53.7)	561.4 (406.7)	690	Yes

Notes: *significant at 10%; ** significant at 5%; *** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports 2SLS treatment-on-the-treated estimates (with standard errors reported in parentheses) with receiving an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations and the unit of observation. Column (5) reports whether baseline data is used in the model.

TABLE H4. COMPONENTS OF MAIN SOCIOECONOMIC INDICES, NON-NDC ALIGNED HHs

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Control mean (standard dev.)	(4) N	(5) Baseline data included in model
Food Security Index	0.045	0.096	-0.042	1707	Yes
	(0.051)	(0.109)	(0.952)		
Market price and access	0.032	0.066	-0.072	1361	No
improvement	(0.056)	(0.118)	(0.870)		
(subindex of 2 indicators)					
Value of food consumption	-2.890	-6.165	71.6	1699	Yes
(weekly, GHC)	(2.194)	(4.893)	(52.8)		
Agriculture improvements	0.126*	0.268*	0.003	1700	Yes
(subindex of 5 indicators)	(0.063)	(0.132)	(0.995)		
Literacy and Education Index	-0.120	-0.260	0.057	1732	Yes
	(0.090)	(0.199)	(1.012)		
Education	-0.040	-0.084	0.000	1579	Yes
(subindex of 2 indicators)	(0.114)	(0.237)	(1.013)		
School quality	-0.217+	-0.464+	0.098	1368	Yes
(subindex of 3 indicators)	(0.127)	(0.276)	(0.973)		
Adult literacy/numeracy	-0.070+	-0.150+	0.069	1703	Yes
(subindex of 2 indicators)	(0.036)	(0.080)	(1.010)		
Female adult literacy/numeracy	-0.078+	-0.164+	0.062	1437	Yes
(subindex of 2 indicators)	(0.043)	(0.090)	(1.014)		
No child labor	-0.029	-0.062	0.697	1732	Yes
	(0.072)	(0.153)	(0.460)		
Health and Nutrition Index	-0.046	-0.099	0.007	1732	Yes
	(0.083)	(0.178)	(0.994)		
Infant survival	0.011	0.020	0.985	142	No
	(0.012)	(0.020)	(0.121)		
Child anthropometry	0.024	0.050	-0.020	944	Yes
(subindex of 6 indicators)	(0.076)	(0.157)	(0.997)		
Health access	-0.128	-0.286	0.031	1732	Yes
(subindex of 7 indicators)	(0.180)	(0.414)	(1.028)		
Government health services	-0.116	-0.192	-0.053	1166	Yes
(subindex of 9 indicators)	(0.150)	(0.240)	(0.916)		
Contraception usage	-0.039	-0.077	0.818	645	No
	(0.033)	(0.067)	(0.377)		
Prenatal care	0.109	0.219	-0.045	200	Yes
(subindex of 4 indicators)	(0.118)	(0.220)	(1.036)		
Postnatal care	-0.406*	-0.713*	-0.077	120	Yes
(subindex of 9 indicators)	(0.177)	(0.293)	(0.952)		
Number of times immunized	0.165	0.339	9.421	609	Yes
	(0.184)	(0.376)	(2.856)		
Survival	0.006	0.013	0.974	1732	No
	(0.004)	(0.008)	(0.083)		
HIV Knowledge	-0.061	-0.131	0.011	1714	Yes
(subindex of 4 indicators)	(0.053)	(0.116)	(1.028)		

TABLE H4. COMPONENTS OF MAIN SOCIOECONOMIC INDICES, NON-NDC ALIGNED HHs (CONTINUED)

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Control mean (standard dev.)	(4) N	(5) Baseline data included in model
Water, Environment and Sanitation Index	-0.096 (0.132)	-0.204 (0.273)	0.085 (0.977)	1732	Yes
Public sanitation improvements (subindex of 2 indicators)	-0.175 (0.135)	-0.374 (0.283)	0.046 (0.996)	1732	Yes
Number of public water facility improvements	-0.035 (0.119)	-0.073 (0.245)	0.922 (0.903)	1660	No
Electricity availability (subindex of 4 indicators)	-0.200 (0.147)	-0.421 (0.311)	0.073 (1.006)	1716	Yes
Agriculture conservation (subindex of 3 indicators)	0.173* (0.071)	0.365* (0.161)	0.008 (1.041)	1487	No
Livelihoods and Financial Inclusion Index	0.078 (0.095)	0.165 (0.194)	0.052 (1.008)	1732	Yes
Enterprise growth (subindex of 4 indicators)	-0.024 (0.046)	-0.052 (0.099)	0.057 (0.955)	1705	Yes
Durable assets (subindex of 7 indicators)	-0.058 (0.065)	-0.125 (0.136)	0.070 (1.156)	1707	Yes
Farm investment (annual, GHC)	-1.915 (85.8)	-4.026 (178.5)	593.1 (1480.7)	1474	Yes
Household income (annual, GHC)	-33372.7 (31162.5)	-71322.2 (65934.2)	41033.6 (1045519.2)	1707	Yes
Financial inclusion - savings (subindex of 5 indicators)	0.014 (0.151)	0.028 (0.312)	0.044 (1.077)	1732	Yes
Financial inclusion - credit (subindex of 4 indicators)	0.332* (0.140)	0.702* (0.273)	0.004 (1.048)	1732	Yes
Non-food household expenditures (monthly, GHC)	21.5 (20.9)	45.6 (43.6)	523.9 (448.4)	1701	Yes

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports 2SLS treatment-on-the-treated estimates (with standard errors reported in parentheses) with receiving an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations. Column (5) reports whether baseline data was included in the model.

TABLE H5. COMPONENTS OF SUBINDICES

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Control mean (standard dev.)	(4) No. HHs	(5) No. Villages	(5) Baseline data included in model	(6) Level of data collection
Market price and access improvement subindex	0.032	0.058	0.000	2206	194	No	
	(0.050)	(0.092)	(1.000)				
Maize market price (GHC)	-55.4	-105.179	136.3	1048	187	No	Household
	(41.2)	(78.316)	(1103.8)				
Sold maize (binary)	0.030	0.056	0.476	2206	194	No	Household
	(0.029)	(0.054)	(0.540)				
Agriculture improvements subindex	0.157**	0.298**	0.000	2739	194	Yes	
	(0.057)	(0.110)	(1.000)				
Number of farm improvements	0.286**	0.535**	1.165	2418	194	No	Household
	(0.082)	(0.168)	(1.421)				
Farm output market value (annual, GHC)	121.9	221.861	2294.3	2126	192	Yes	Household
	(241.4)	(433.276)	(5491.3)				
Number of cultivated acres	0.242	0.452	5.029	2412	194	No	Household
	(0.396)	(0.733)	(12.2)				
Current livestock value (GHC)	272.1	510.514	791.8	2251	194	No	Household
	(179.3)	(346.837)	(1941.5)				
Number of types of livestock owned	0.088	0.169	1.480	2738	194	No	Household
	(0.054)	(0.103)	(1.085)				
Education subindex	0.005	0.010	0.000	2528	194	Yes	
	(0.094)	(0.178)	(1.000)				
Highest number of years of education	-0.039	-0.071	3.322	2004	194	Yes	Household
	(0.129	(0.234)	(2.794)				
Average school attendance percentage in community	0.015	0.029	0.822	1938	132	Yes	Village
	(0.013)	(0.026)	(0.089)				
School quality subindex	-0.116	-0.224	0.000	2116	144	Yes	
	(0.135)	(0.256)	(1.000)				
Hours in school day	-0.149+	-0.345	6.460	1695	115	Yes	Village
	(0.088)	(0.197)	(0.862)				
Years of education of instructors	0.326	0.704	14.552	1882	129	Yes	Village
	(0.244)	(0.548)	(1.562)				
Teacher-student ratio	-0.048	-0.073	0.101	1890	129	Yes	Village
	(0.032)	(0.061)	(0.245)				
Adult literacy/numeracy subindex	-0.060+	-0.113+	0.000	2745	194	Yes	
	(0.033)	(0.064	(1.000)				
Literate (binary)	-0.021+	-0.040	0.439	2745	194	Yes	Individual
	(0.012)	(0.024)	(0.385)				
Numerate (binary)	-0.019	-0.036	0.623	2745	194	Yes	Individual
	(0.014)	(0.027)	(0.381)				
Female adult literacy/numeracy subindex	-0.069+	-0.130+	0.000	2326	194	Yes	
	(0.039)	(0.075)	(1.000)				
Literate (binary)	-0.036*	-0.068*	0.319	2326	194	Yes	Individual
	(0.016)	(0.031)	(0.408)				
Numerate (binary)	-0.016	-0.031	0.520	2326	194	Yes	Individual
	(0.018)	(0.034)	(0.448)				

TABLE H5. COMPONENTS OF SUBINDICES (CONTINUED, PAGE 2)

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Congtrol mean (standard dev.)	(4) No. HHs	(5) No. Villages	(5) Baseline data included in model	(6) Level of data collection
Child anthropometry subindex	-0.000	-0.000	0.000	1535	194	Yes	
	(0.060)	(0.109)	(1.000)				
Height (cm), age 2 through 5	-0.995	-1.801	96.9	821	186	No	Individual
	(0.990)	(1.796)	(12.4)				
Weight (kg), age 2 through 5	-0.090	-0.163	12.6	821	186	Yes	Individual
	(0.239	(0.426)	(3.247)				
Arm circumference (cm), age 2 through 5	-0.064	0.118	15.8	819	186	Yes	Individual
	(0.109)	(0.199)	(1.833				
Height (cm), age 6 through 12	0.972	1.807	124.6	1315	193	Yes	Individual
	(1.083)	(2.011)	(17.8)				
Weight (kg), age 6 through 12	0.284	0.524	23.2	1315	193	Yes	Individual
	(0.381)	(0.704)	(6.926)				
Arm circumference (cm), age 6 through 12	0.049	0.091	18.2	1315	193	Yes	Individual
	(0.139)	(0.257)	(2.289)				
Health access subindex	-0.088	-0.172	0.000	2792	194	Yes	
	(0.157)	(0.311)	(1.000)				
Health center built since 2008	0.043	0.081	0.159	2792	194	No	Village
	(0.066)	(0.123)	(0.366)				
Number of types of immunizations available in nearest health center	-0.788+	-1.297+	6.072	1721	116	Yes	Village
	(0.434)	(0.730)	(1.633)				
Number of average patients (daily) treated in nearest health center	-5.538	-8.042	23.9	1690	114	Yes	Village
	(4.355)	(6.451)	(23.3)				
Prenatal care availability in nearest health center (binary)	-0.040	-0.076	0.853	1745	118	Yes	Village
	(0.069)	(0.110)	(0.354)				
Delivery availability in nearest health center (binary)	0.013	0.017	0.573	1745	118	Yes	Village
	(0.097)	(0.151)	(0.495)				
Number of beds in nearest health center	0.188	0.317	3.047	1676	113	Yes	Village
	(0.658)	(0.969)	(3.554)				
Number of days per week head of nearest health center works	0.358+	0.568+	6.200	1734	117	No	Village
	(0.204)	(0.324)	(1.115)				

TABLE H5. COMPONENTS OF SUBINDICES (CONTINUED, PAGE 3)

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Control mean (standard dev.)	(4) No. HHs	(5) No. Villages	(5) Baseline data included in model	(6) Level of data collection
Government health services subindex	-0.141 (0.152)	-0.213 (0.223)	0.000 (1.000)	1717	116	No	
Frequency of visits to chlorinate wells (0 = never, 7 = once a week)	-0.143 (0.226)	-0.214 (0.329)	0.566 (1.460)	1702	115	No	Village
Frequency of visits to provide malaria eradication services (0 = never, 7 = once a week)	0.181 (0.394)	0.286 (0.595)	2.006 (2.207)	1717	116	No	Village
Frequency of visits to provide pre- and post-natal care (0 = never, 7 = once a week)	-0.199 (0.411)	-0.301 (0.611)	1.402 (2.138)	1717	116	No	Village
Frequency of visits to provide nutritional supplements (0 = never, 7 = once a week)	0.010 (0.360)	0.014 (0.539)	0.813 (1.785)	1717	116	No	Village
Frequency of visits to provide general health education (0 = never, 7 = once a week)	-0.313 (0.360)	-0.471 (0.535)	1.926 (2.259)	1717	116	No	Village
Frequency of visits to provide family planning education (0 = never, 7 = once a week)	-0.408 (0.411)	-0.617 (0.592)	2.044 (2.331)	1717	116	No	Village
Frequency of visits to distribute condoms (0 = never, 7 = once a week)	-0.373 (0.331)	-0.565 (0.484)	1.020 (1.973)	1717	116	No	Village
Frequency of visits to provide HIV/AIDS education (0 = never, 7 = once a week)	-0.836* (0.396)	-1.266* (0.626)	1.859 (2.272)	1717	116	No	Village
Frequency of visits to provide guinea worm education & eradication (0 = never, 7 = once a week)	-0.087 (0.372)	-0.133 (0.559)	2.049 (2.433)	1706	115	No	Village
Prenatal care subindex	-0.034 (0.096)	-0.060 (0.167)	0.000 (1.000)	346	162	Yes	
Received some prenatal care (binary)	-0.002 (0.035)	-0.003 (0.061)	0.839 (0.366)	346	162	Yes	Individual
Earliness of prenatal care ((40-week of pregnancy in which prenatal care began)/40)	-0.014 (0.027)	-0.024 (0.048)	0.627 (0.308)	344	162	Yes	Individual
Went to a "good" prenatal practitioner (binary)	-0.003 (0.036)	-0.006 (0.062)	0.839 (0.366)	346	162	Yes	Individual
Number of times went to prenatal care	-0.259 (0.348)	-0.456 (0.614)	4.716 (3.434)	346	162	Yes	Individual

TABLE H5. COMPONENTS OF SUBINDICES (CONTINUED, PAGE 4)

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Control mean (standard dev.)	(4) No. HHs	(5) No. Villages	(5) Baseline data included in model	(6) Level of data collection
Postnatal care subindex	-0.362**	-0.581**	0.000	213	213	Yes	
	(0.135)	(0.211)	(1.000)				
Received some postnatal care (binary)	-0.040	-0.065	0.900	131	213	Yes	Individual
	(0.039)	(0.060)	(0.298)				
Number of times went to postnatal care	-0.382	-0.605	4.752	131	213	Yes	Individual
	(0.595)	(0.903)	(4.250)				
Child breastfed (binary)	-0.009	-0.014	1.000	131	213	No	Individual
	(0.006)	(0.010)	(0.000)				
Child not given water before 6 months (binary)	-0.065	-0.104	0.643	130	212	No	Individual
	(0.067)	(0.101)	(0.481)				
Child not given liquid before 6 months (binary)	-0.098+	-0.155*	0.757	130	212	No	Individual
	(0.052)	(0.078)	(0.431)				
Child not given solid food before 6 months (binary)	-0.031	-0.052	0.956	129	211	No	Individual
	(0.032)	(0.048)	(0.206)				
Height (cm), age < 2	-3.011+	-4.522+	64.3	128	196	No	Individual
	(1.765)	(2.575)	(15.3)				
Weight (kg), age < 2	-0.565+	-0.857+	7.461	128	197	Yes	Individual
	(0.335)	(0.487)	(2.485)				
Arm circumference (cm), age < 2	-0.040	-0.139	14.0	128	197	Yes	Individual
	(0.261)	(0.373)	(1.701)				
HIV Knowledge subindex	-0.091*	-0.173*	0.000	2758	194	Yes	
	(0.041)	(0.080)	(1.000)				
Heard of HIV (binary)	-0.017*	-0.033*	0.931	2758	194	Yes	Individual
	(0.007)	(0.014)	(0.171)				
Number of accurate ways known to prevent HIV (max 3)	-0.059*	-0.113*	1.466	2758	194	Yes	Individual
	(0.026)	(0.051)	(0.658)				
Knew that a person with HIV could still look healthy (binary)	-0.009	-0.017	0.743	2758	194	Yes	Individual
	(0.014)	(0.026)	(0.337)				
Knew that HIV can be transmitted from mother to child (binary)	-0.015	-0.029	0.719	2758	194	Yes	Individual
	(0.012)	(0.023)	(0.332)				
Public sanitation improvements subindex	-0.211+	-0.398+	0.000	2792	194	Yes	
	(0.120)	(0.226)	(1.000)				
Number of improvements made to any public sanitation facilities in community	-0.206	-0.359	0.689	2493	174	No	Village
	(0.135)	(0.239)	(1.033)				
Number of good sanitation practices visible in community	-0.178*	-0.325*	5.806	2754	192	No	Village
	(0.080)	(0.152)	(0.540)				

TABLE H5. COMPONENTS OF SUBINDICES (CONTINUED, PAGE 5)

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Control mean (standard dev.)	(4) No. HHs	(5) No. Villages	(5) Baseline data included in model	(6) Level of data collection
Electricity availability subindex	-0.162	-0.302	0.000	2763	192	Yes	
	(0.136)	(0.257)	(1.000)				
Electricity from main grid available in community (binary)	-0.049	-0.092	0.463	2763	192	Yes	Village
	(0.054)	(0.101)	(0.499)				
Electricity established in past 5 years (binary)	-0.021	-0.035	0.355	1152	74	Yes	Village
	(0.089)	(0.148)	(0.479)				
Percentage of households connected to electricity	0.034	0.063	31.9	2763	192	Yes	Village
	(4.112)	(7.510)	(37.6)				
Number of days per month with no loss of electricity from more than 3 hrs	-0.378	-1.064	24.4	1153	74	Yes	Village
	(0.896)	(1.513)	(5.371)				
Agriculture conservation subindex	0.183**	0.342**	0.000	2418	194	No	
	(0.058)	(0.122)	(1.000)				
Number of agricultural improvements to farm made in past year	0.133*	0.249*	0.770	2418	194	No	Household
	(0.056)	(0.109)	(1.266)				
Number of trees planted	5.405	10.105	9.273	2416	194	No	Household
	(4.671)	(8.939)	(56.9)				
Soil-enriching legume planted	0.033*	0.061*	0.067	2417	194	No	Household
	(0.013)	(0.025)	(0.282)				
Enterprise growth subindex	0.022	0.042	0.000	2747	194	Yes	
	(0.031)	(0.057)	(1.000)				
Business profit (monthly, GHC)	-44.2	-80.3	207.7	1297	192	Yes	Household
	(42.7)	(79.0)	(932.6)				
Number of days per week business runs	0.048	0.088	4.533	1324	192	No	Household
	(0.138)	(0.247)	(2.100)				
Number of workers at business	-0.039	-0.070	1.501	1326	192	No	Household
	(0.103)	(0.186)	(2.854)				
Belief that a new business can be worth the investment (binary)	0.011	0.021	0.893	2745	194	Yes	Individual
	(0.009)	(0.016)	(0.275)				

TABLE H5. COMPONENTS OF SUBINDICES (CONTINUED, PAGE 6)

	(1) ITT Effect (standard error)	(2) TOT Effect (standard error)	(3) Control mean (standard dev.)	(4) No. HHs	(5) No. Villages	(5) Baseline data included in model	(6) Level of data collection
Durable assets index	-0.027	-0.052	0.000	2750	194	Yes	
	(0.050	(0.094)	(1.000)				
Number of TVs owned	-0.010	-0.018	0.304	2750	194	Yes	Household
	(0.036)	(0.068)	(0.552)				
Number of satellites owned	-0.015	-0.029	0.073	2750	194	Yes	Household
	(0.017)	(0.032)	(0.434)				
Number of refrigerators owned	-0.001	-0.003	0.131	2750	194	Yes	Household
	(0.022)	(0.041)	(0.434)				
Number of electric fans owned	-0.034	-0.065	0.192	2750	194	Yes	Household
	(0.030)	(0.057)	(0.570)				
Number of sewing machines owned	-0.006	-0.012	0.171	2750	194	Yes	Household
	(0.017)	(0.033)	(0.478)				
Number of motorcycles owned	0.013	0.025	0.045	2750	194	Yes	Household
	(0.014)	(0.026)	(0.345)				
Number of bicycles owned	-0.013	-0.026	0.223	2750	194	Yes	Household
	(0.025)	(0.047)	(0.588)				
Financial inclusion – savings subindex	0.062	0.116	0.000	2792	194	Yes	
	(0.125)	(0.228)	(1.000)				
Has savings (binary)	0.006	0.012	0.361	2792	194	Yes	Household
	(0.021)	(0.039)	(0.480)				
Savings flow (yearly, GHC)	189.0	349.6	956.0	1024	189	Yes	Household
	(237.1)	(435.1)	(2757.4)				
Savings balance (GHC)	-37.3	-67.7	589.6	984	189	Yes	Household
	(136.4)	(245.0)	(1954.0)				
Existence of local financial institution	0.018	0.033	0.045	2792	194	Yes	Village
	(0.037)	(0.068)	(0.208)				
Financial inclusion – credit subindex	0.294*	0.556*	0.000	2792	194	Yes	
	(0.131)	(0.237)	(1.000)				
Formal borrowing, past year (binary)	0.028+	0.053+	0.072	2746	194	Yes	Household
	(0.015)	(0.027)	(0.259)				
Amount of formal loan, past year	14.6	27.8	57.4	2746	194	No	Household
	(18.7)	(35.8)	(362.2)				
Local institution provides loans	0.041	0.077	0.014	2792	194	Yes	Village
	(0.032)	(0.058)	(0.118)				
100 - interest rate at local financial institution	2.917*	6.567*	69.9	760	52	No	Village
	(1.362)	(2.445)	(11.5)				

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports 2SLS treatment-on-the-treated estimates (with standard errors reported in parentheses) with receiving an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations. Column (5) reports the number of villages. Column (6) reports whether baseline data is used in the model. Column (7) reports the level of measurement.

Appendix I. First-Stage of Instrumental Variable Results

This appendix shows a strong first stage effect of assignment to treatment on the probability of a village mobilizing to receive participatory programming.

Table I1. TOT first stage regression

	(1) Mobilized
Treatment	0.527** (0.069)
N	2792

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. Treatment is defined as having received an invitation to mobilize the community to build an epicenter. Standard errors, clustered at the unit of randomization (village grouping), are reported in parentheses. The first stage is calculated using OLS with district fixed effects. The unit of observation is the household.

Appendix J. Fully Saturated Models with Interactions

Table J1. Village Participation and Local Accountability, Fully Saturated Models with Interactions

	(1) Community Participation Index	**(2) Village Chief Accountability Index**	**(3) District Assemblymember Accountability Index**
Treatment	-0.041	0.103^{+}	0.046
	(0.054)	(0.060)	(0.078)
Treatment*NDC Aligned HH	0.263*	0.054	-0.077
	(0.108)	(0.095)	(0.102)
NDC Aligned HH	-0.145^{+}	0.044	0.080
	(0.079)	(0.068)	(0.071)
Control mean	0.039	-0.075	-0.007
Observations	2384	2383	2382

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping), and controlled for baseline levels and district fixed effects. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC aligned untreated households.

Table J2. Local Government Participation and Representation, Fully Saturated Models with Interactions

	(1) Voter turnout in district elections (proportion)	(2) Number of candidates	(3) District Assemblymember Activity Index
Treatment	-0.076+	-0.154	-0.109
	(0.038)	(0.224)	(0.276)
Treatment*NDC Aligned Village	0.049	1.033**	1.044*
	(0.058)	(0.313)	(0.402)
NDC Aligned Village	-0.045	-0.537**	-0.371
	(0.038)	(0.193)	(0.266)
Control mean	0.53	2.8	0.30
Observations	102	111	99

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping), and controlled for district fixed effects. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC aligned untreated units.

Table J3A. Mobilization of Public Goods by Households, Fully Saturated Models with Interactions

	(1) HH contributions to non-THP public goods (cedis)	(2) HH contributions to public goods in THP sectors (cedis)	(3) HH contributions to public goods in non-THP sectors (cedis)
Treatment	-4.356	-2.134*	-2.222
	(2.777)	(0.955)	(2.736)
Treatment*NDC Aligned HH	-9.771	-8.253	-1.518
	(8.969)	(8.476)	(3.622)
NDC Aligned HH	9.370	8.464	0.907
	(8.992)	(8.788)	(2.786)
Control mean	14.08	2.24	11.84
Observations	2384	2384	2384

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping), and controlled for district fixed effects. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC aligned untreated households.

Table J3B. Mobilization of Public Goods by Governments, Fully Saturated Models with Interactions

	(1) Proportion sectors with local gov funded projects	(2) Proportion of THP sectors with local gov funded projects	(3) Proportion of non-THP sectors with local gov funded projects
Treatment	0.024	-0.038	0.060
	(0.047)	(0.025)	(0.040)
Treatment*NDC Aligned Village	-0.090	-0.021	-0.068
	(0.076)	(0.060)	(0.049)
NDC Aligned Village	0.059	0.026	0.029
	(0.066)	(0.062)	(0.025)
Control mean	0.065	0.049	0.026
Observations	106	105	104

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping), and controlled for district fixed effects. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC aligned untreated units.

Table J4. Poverty Alleviation and Service Access, Fully Saturated Models with Interactions

	(1) Overall Wellbeing Index	(2) Food Security Index	(3) Literacy and Education Index	(4) Health and Nutrition Index	(5) Water, Environment and Sanitation Index	(6) Livelihoods and Financial Inclusion Index
Treatment	-0.057	0.043	-0.114	-0.031	-0.100	0.088
	(0.078)	(0.053)	(0.091)	(0.085)	(0.134)	(0.098)
Treatment*NDC	-0.181^{+}	-0.048	0.007	-0.212^{+}	-0.139	-0.094
Aligned HH	(0.106)	(0.094)	(0.106)	(0.124)	(0.124)	(0.099)
NDC Aligned HH	-0.056	0.084	-0.106	0.022	-0.062	-0.078
	(0.076)	(0.076)	(0.082)	(0.090)	(0.101)	(0.078)
Control mean	0.063	-0.042	0.057	0.007	0.085	0.052
Observations	2422	2387	2422	2422	2422	2422

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping), and controlled for baseline levels and district fixed effects. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC aligned untreated households.

Appendix K. Results Using Randomization Inference

Table K1. Village Participation and Local Accountability, Fully Saturated Models with Interactions, Randomization Inference

	(1) Community Participation Index	(2) Village Chief Accountability Index	(3) District Assemblymember Accountability Index
Treatment	-0.041	0.103	0.046
	[0.493]	[0.126]	[0.589]
Treatment*NDC Aligned HH	0.263*	0.054	-0.077
	[0.015]	[0.577]	[0.409]
NDC Aligned HH	-0.145*	0.044	0.080
	[0.013]	[0.732]	[0.195]
Control mean	0.039	-0.075	-0.007
Observations	2384	2383	2382

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates, clustered at the unit of randomization (village grouping), and controlled for baseline levels and district fixed effects (which were also strata for randomization). Table displays p-values from randomization inference in square brackets below the coefficients. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC aligned untreated households.

Table K2. Local Government Participation and Representation, Fully Saturated Models with Interactions, Randomization Inference

	(1) Voter turnout in district elections (proportion)	(2) Number of candidates	(3) District Assemblymember Activity Index
Treatment	-0.076^{+}	-0.154	-0.109
	[0.078]	[0.546]	[0.714]
Treatment*NDC Aligned Village	0.049	1.033**	1.044*
	[0.433]	[0.007]	[0.027]
NDC Aligned Village	-0.045	-0.537**	-0.371
	[0.220]	[0.009]	[0.202]
Control mean	0.53	2.8	0.30
Observations	102	111	99

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates, clustered at the unit of randomization (village grouping), and controlled for baseline levels and district fixed effects (which were also strata for randomization). Table displays p-values from randomization inference in square brackets below the coefficients. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC aligned untreated units.

Table K3A. Mobilization of Public Goods by Households, Fully Saturated Models with Interactions, Randomization Inference

	(1) HH contributions to non-THP public goods (cedis)	(2) HH contributions to public goods in THP sectors (cedis)	(3) HH contributions to public goods in non-THP sectors (cedis)
Treatment	-4.356	-2.134*	-2.222
	[0.194]	[0.013]	[0.522]
Treatment*NDC Aligned HH	-9.771	-8.253	-1.518
	[0.376]	[0.599]	[0.730]
NDC Aligned HH	9.370	8.464	0.907
	[0.136]	[0.254]	[0.694]
Control mean	14.08	2.24	11.84
Observations	2384	2384	2384

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates, clustered at the unit of randomization (village grouping), and controlled for baseline levels and district fixed effects (which were also strata for randomization). Table displays p-values from randomization inference in square brackets below the coefficients. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC aligned untreated households.

Table K3B. Mobilization of Public Goods by Governments, Fully Saturated Models with Interactions, Randomization Inference

	(1) Proportion sectors with local gov funded projects	(2) Proportion of THP sectors with local gov funded projects	(3) Proportion of non-THP sectors with local gov funded projects
Treatment	0.024	-0.038	0.060
	[0.641]	[0.136]	[0.114]
Treatment*NDC Aligned Village	-0.090	-0.021	-0.068
	[0.201]	[0.791]	[0.113]
NDC Aligned Village	0.059	0.026	0.029
	[0.115]	[0.456]	[0.232]
Control mean	0.065	0.049	0.026
Observations	106	105	104

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates, clustered at the unit of randomization (village grouping), and controlled for baseline levels and district fixed effects (which were also strata for randomization). Table displays p-values from randomization inference in square brackets below the coefficients. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC aligned untreated units.

Table K4. Poverty Alleviation and Service Access, Fully Saturated Models with Interactions, Randomization Inference

	(1) Overall Wellbeing Index	(2) Food Security Index	(3) Literacy and Education Index	(4) Health and Nutrition Index	(5) Water, Environment and Sanitation Index	(6) Livelihoods and Financial Inclusion Index
Treatment	-0.057	0.043	-0.114	-0.031	-0.100	0.088
	[0.514]	[0.473]	[0.266]	[0.763]	[0.505]	[0.425]
Treatment*NDC	-0.181	-0.048	0.007	-0.212+	-0.139	-0.094
Aligned HH	[0.119]	[0.577]	[0.952]	[0.079]	[0.345]	[0.421]
NDC Aligned HH	-0.056	0.084	-0.106	0.022	-0.062	-0.078
	[0.952]	[0.300]	[0.401]	[0.881]	[0.905]	[0.745]
Control mean	0.063	-0.042	0.057	0.007	0.085	0.052
Observations	2422	2387	2422	2422	2422	2422

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates, clustered at the unit of randomization (village grouping), and controlled for baseline levels and district fixed effects (which were also strata for randomization). Table displays p-values from randomization inference in square brackets below the coefficients. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC aligned untreated households.

Appendix L. Models Accounting for Timing Effects

In this appendix, we consider whether the differential effects of the treatment across NDC and non-NDC aligned households and communities could be driven by the slightly later completion of the program by communities aligned with the NDC. As highlighted in Figure 3 in the paper, the epicenters that were completed in NDC-aligned villages were completed on average one year later than the epicenters that were completed in non-NDC aligned villages. The timing of epicenter completion is deeply endogenous to the mobilization processes within communities, and the later completion of the epicenters in NDC-aligned villages is consistent with our explanation insofar as a surge in epicenter construction in NDC-aligned communities happened after the NDC came to power. However, we also consider the possibility that NDC-aligned villages just happened to engage with the projects later and timing effects are driving the differential results across NDC vs. non-NDC aligned villages. If it takes time for communities to recover from any negative effects of THP's participatory programming, the concern is that timing effects alone may explain the more negative effects in NDC-aligned villages.

One way to assess the importance of timing effects is to consider whether similar differential effects are observed between treatment communities that were mobilized later because of the timing of the lottery that THP ran in their district. THP did two waves of lotteries. Lotteries occurred first in the districts that were part of Wave 1 (10 districts), with programming in these communities beginning in 2007-2008. The lotteries in the districts that were part of Wave 2 (3 districts) were held more than one year later, with programming in these communities beginning in 2008-2009. Similarly, Wave 2 communities that completed epi-centers did so on average more than one year later than Wave 1

communities did, similar to the difference in year of completion observed between non-NDC and NDC-aligned villages in Figure 3. Wave 2 districts were not randomly selected; one of the districts was placed in wave 2 because of lower levels of expressed interest in the program when first approached in 2007. Wave 2 districts also contain a higher proportion of NDC-aligned households than Wave 1 districts (39% vs. 24%), and so wave 2 effects could be partly driven by partisanship. In fact, when considering the relationship between waves and partisanship on the timing of epicenter completion in a multivariate regression, partisanship is far more important than starting programming a year later (as part of wave 2) in explaining the date of epicenter completion, suggesting any variation in the timing of completion is deeply endogenous to the process. Still, insofar as programming began later in Wave 2 villages, we would be reassured to know that different treatment effects between Wave 1 and Wave 2 villages are not driving the differential treatment effects between NDC and non-NDC aligned households and villages. In order to assess this, we run models that simultaneously include interactions between the treatment and political alignment and the treatment and the district's lottery wave.

These results are presented in Tables L1-L4 below. The results show that our main findings regarding the interaction between treatment and partisanship are robust to controlling for the possibility of differential effects across wave 1 and wave 2 districts. Furthermore, although we estimate significantly different treatment effects by wave on some outcomes, the patterns are not consistent with greater mobilization of citizens into participatory development and less mobilization into other activities due to more recent treatment in wave 2 districts. Together, this provides reassurance that our main findings are not driven by differences in time since treatment initiation.

Table L1. Village Participation and Local Accountability, Accounting for Possibility of Differential Effects by Waves

	(1) Community Participation Index	**(2) Village Chief Accountability Index**	**(3) District Assemblymember Accountability Index**
Treatment	-0.039	0.130^{+}	0.126
	(0.061)	(0.067)	(0.087)
Treatment*NDC Aligned HH	0.264*	0.073	-0.023
	(0.108)	(0.098)	(0.102)
Treatment*Wave 2	-0.011	-0.124	-0.362*
	(0.112)	(0.097)	(0.151)
NDC Aligned HH	-0.146^{+}	0.036	0.055
	(0.078)	(0.069)	(0.071)
Wave 2	0.543**	0.415**	-0.056
	(0.174)	(0.132)	(0.146)
Control mean	-0.028	-0.195	-0.032
Observations	2384	2383	2382

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping), and controlled for baseline levels and district fixed effects. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for wave 1, non-NDC aligned, untreated households.

Table L2. Local Government Participation and Representation, Accounting for Possibility of Differential Effects by Waves

	(1) Voter turnout in district elections (proportion)	(2) Number of candidates	(3) District Assemblymember Activity Index
Treatment	-0.059	-0.282	-0.109
	(0.039)	(0.197)	(0.273)
Treatment*NDC Aligned HH	0.066	0.944**	1.044*
	(0.056)	(0.313)	(0.438)
Treatment*Wave 2	-0.159**	0.975*	-0.001
	(0.041)	(0.455)	(0.565)
NDC Aligned HH	-0.053	-0.518**	-0.371
	(0.036)	(0.181)	(0.271)
Wave 2	0.208**	-0.741	-0.817
	(0.042)	(0.480)	(0.543)
Control Mean	0.514	2.923	0.234
Observations	102	111	99

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping), and controlled for district fixed effects. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for wave 1, non-NDC aligned, untreated units.

Table L3A. Mobilization of Public Goods by Households, Accounting for Possibility of Differential Effects by Waves

	(1) HH contributions to non-THP public goods (cedis)	(2) HH contributions to public goods in THP sectors (cedis)	(3) HH contributions to public goods in non-THP sectors (cedis)
Treatment	-6.697+	-3.604*	-3.093
	(3.379)	(1.754)	(3.179)
Treatment*NDC Aligned HH	-11.388	-9.269	-2.120
	(9.401)	(9.145)	(3.367)
Treatment*Wave 2	10.697+	6.720	3.977
	(5.719)	(4.973)	(3.671)
NDC Aligned HH	10.116	8.932	1.184
	(9.185)	(9.082)	(2.655)
Wave 2	-20.274+	-4.891	-15.383
	(10.718)	(3.915)	(11.036)
Control Mean	15.675	2.488	13.186
Observations	2384	2384	2384

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping), and controlled for district fixed effects. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC Aligned untreated households.

Table L3B. Mobilization of Public Goods by Governments, Accounting for Possibility of Differential Effects by Waves

	(1) Proportion sectors with local gov funded projects	(2) Proportion of THP sectors with local gov funded projects	(3) Proportion of non-THP sectors with local gov funded projects
Treatment	0.026	-0.041	0.065
	(0.049)	(0.026)	(0.042)
Treatment*NDC Aligned Village	-0.089	-0.022	-0.064
	(0.077)	(0.061)	(0.049)
Treatment*Wave 2	-0.018	0.022	-0.043
	(0.048)	(0.033)	(0.029)
NDC Aligned Village	0.060	0.026	0.029
	(0.066)	(0.062)	(0.025)
Wave 2	-0.077	-0.090	0.004
	(0.068)	(0.060)	(0.026)
Control Mean	0.067	0.052	0.026
Observations	106	105	104

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping), and controlled for district fixed effects. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC Aligned untreated units.

Table L4. Poverty Alleviation and Service Access, Accounting for Possibility of Differential Effects by Waves

	(1) Overall Wellbeing Index	(2) Food Security Index	(3) Literacy and Education Index	(4) Health and Nutrition Index	(5) Water, Environment and Sanitation Index	(6) Livelihoods and Financial Inclusion Index
Treatment	-0.096	0.032	-0.109	-0.011	-0.182	0.049
	(0.084)	(0.057)	(0.105)	(0.094)	(0.136)	(0.105)
Treatment*NDC	-0.207^{+}	-0.056	0.010	-0.198^{+}	-0.187	-0.121
Aligned HH	(0.105)	(0.096)	(0.102)	(0.113)	(0.137)	(0.099)
Treatment*Wave 2	0.174	0.050	-0.023	-0.091	0.348	0.177
	(0.166)	(0.107)	(0.175)	(0.238)	(0.325)	(0.221)
NDC Aligned HH	-0.044	0.088	-0.107	0.016	-0.040	-0.066
	(0.074)	(0.078)	(0.080)	(0.084)	(0.104)	(0.077)
Wave 2	-0.304	0.360*	-0.655**	0.848*	-0.758**	-0.471**
	(0.184)	(0.152)	(0.232)	(0.399)	(0.264)	(0.171)
Control Mean	0.145	-0.057	0.096	-0.0006	0.249	0.083
Observations	2422	2387	2422	2422	2422	2422

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. OLS intent-to-treat estimates (with standard errors in parentheses), clustered at the unit of randomization (village grouping), and controlled for baseline levels and district fixed effects. Each column reports results for a single OLS regression of the dependent variables listed in the columns. Control mean reports the mean for non-NDC Aligned untreated households.

Appendix M. Village-level results by different partisan cut-offs

This appendix shows that electoral area-level results presented in Table 3 and 4 of the manuscript are not dependent on the specific cut-off used to defined NDC-aligned electoral areas (30 %). At the 30% cut-off, there are 50 NDC-aligned electoral areas (44 %) and 64 non-aligned electoral areas (55%) in our sample. If we instead define NDC-aligned electoral areas as those where at least 25 % of HHs are NDC-aligned at baseline, then we have 63 NDC-aligned electoral areas (55%) and 51 non-NDC aligned electoral areas (45%). If we define NDC-aligned electoral areas as those where at least 20% of HHs are NDC-aligned at baseline, then we have 78 NDC-aligned electoral areas (68%) and 36 non-NDC aligned areas (32%). If we define NDC-aligned electoral areas as those where at least 35 % of HHs are NDC-aligned at baseline, then we have 40 NDC-aligned electoral areas (35%) and 74 non-NDC aligned electoral areas (65%). If we define NDC-aligned electoral areas as those where at least 40% of HHs are NDC-aligned at baseline, then we have 30 NDC-aligned electoral areas (26%) and 84 non-NDC aligned electoral areas (74%). The power to detect differential effects is lower as we move to thresholds where the subgroups are more imbalanced in size.

Figures M1, M2, M3, M4, M5 and M6 plot the ITT estimates for non-NDC electoral areas and NDC-electoral areas respectively for each of the electoral-area outcomes considered in Table 3 and 4 by the three different definitions of NDC-aligned electoral areas. Overall, the results are very consistent regardless of the cut-off used to define NDC-alignment. In only one instance does the interpretation of

the results depend on the cut-off used to define NDC-alignment; we no longer observe greater activity levels by local representatives in NDC-aligned villages when using the 35% and 40% thresholds for defining NDC-aligned villages.

Figure M1. Turnout across non-NDC and NDC Aligned Villages by different cutoffs

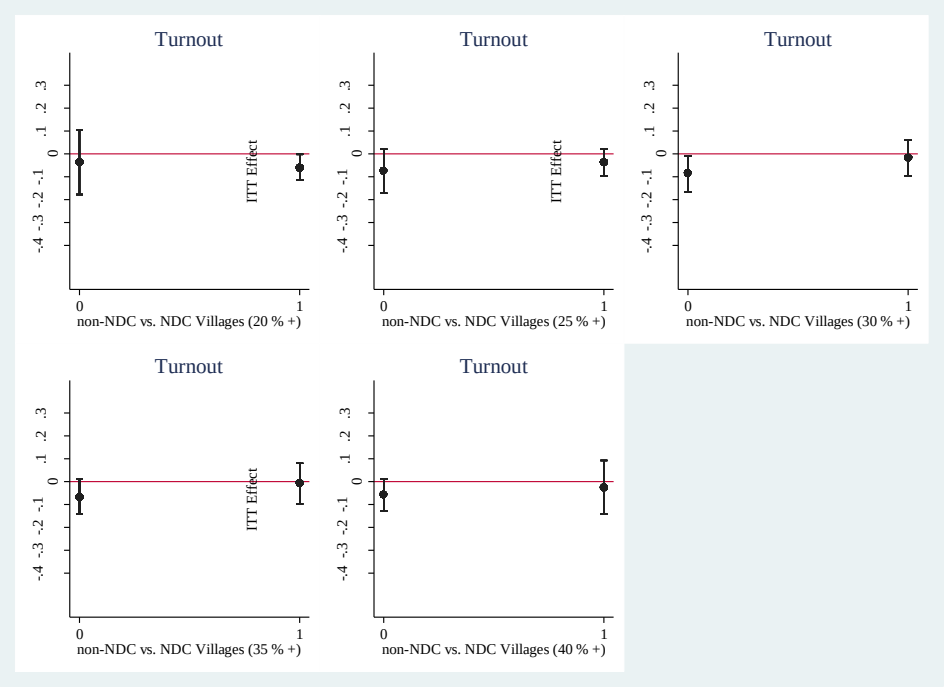


Figure M2. Candidates across non-NDC and NDC Aligned Villages by different cutoffs

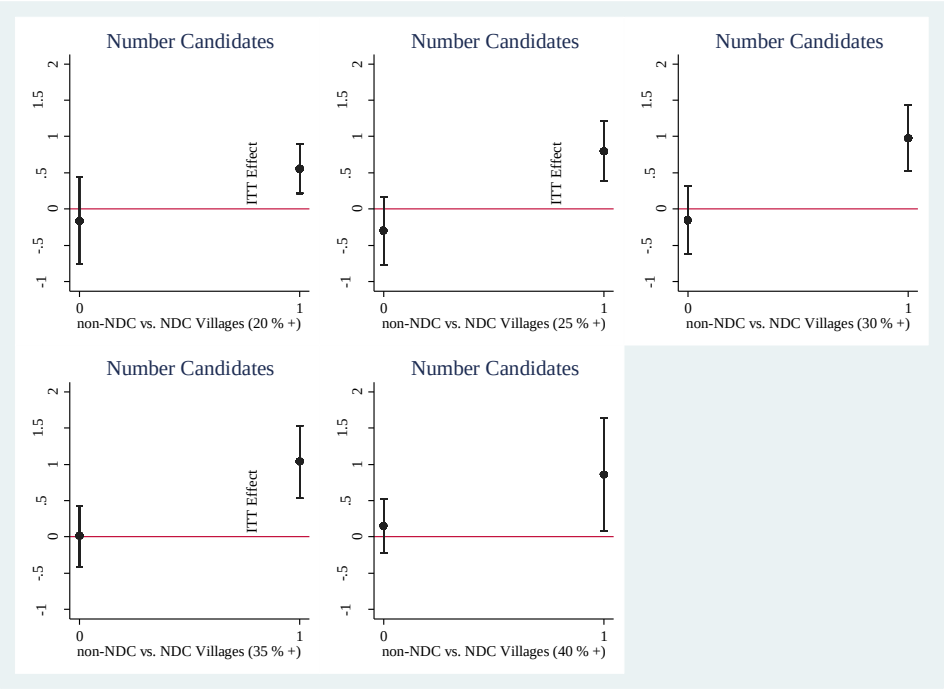


Figure M3. Activity across non-NDC and NDC Aligned Villages by different cutoffs

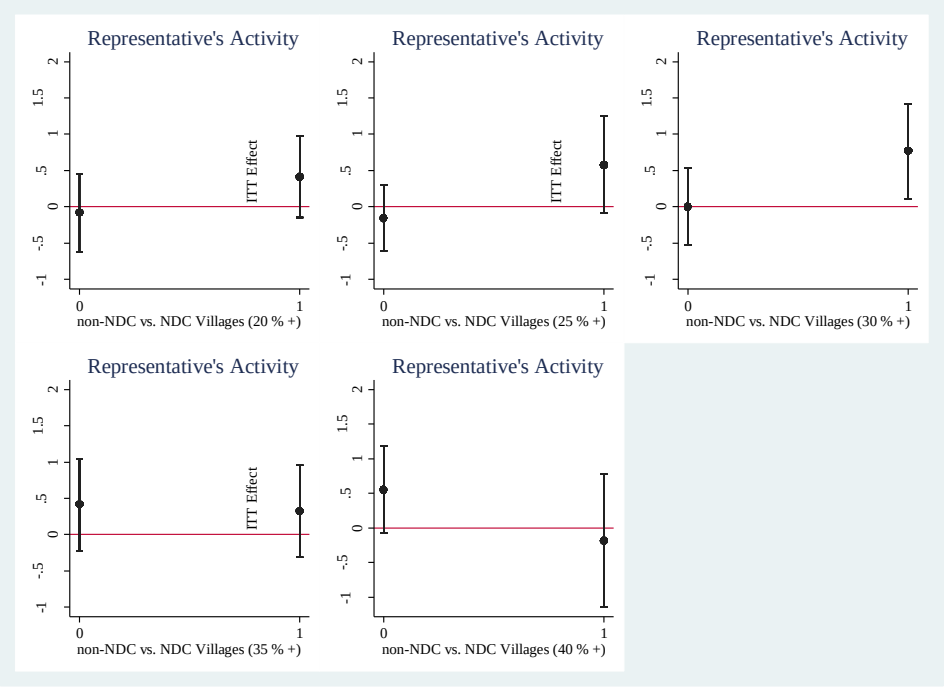


Figure M4. Local Government Projects across non-NDC and NDC Aligned Villages by different cutoffs

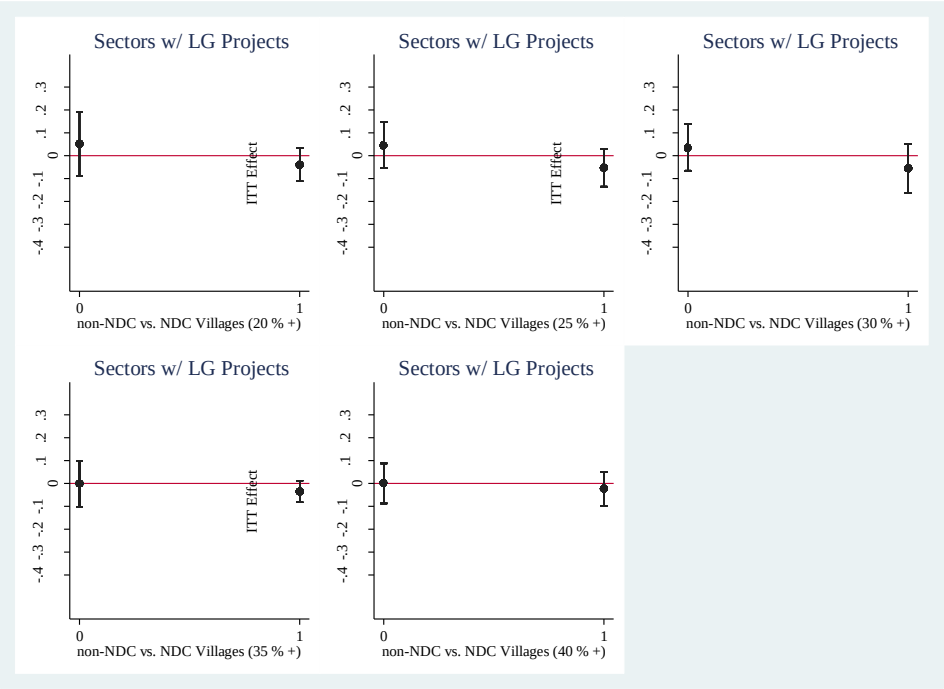


Figure M5. Local Government Projects in THP Sector across non-NDC and NDC Aligned Villages by different cutoffs

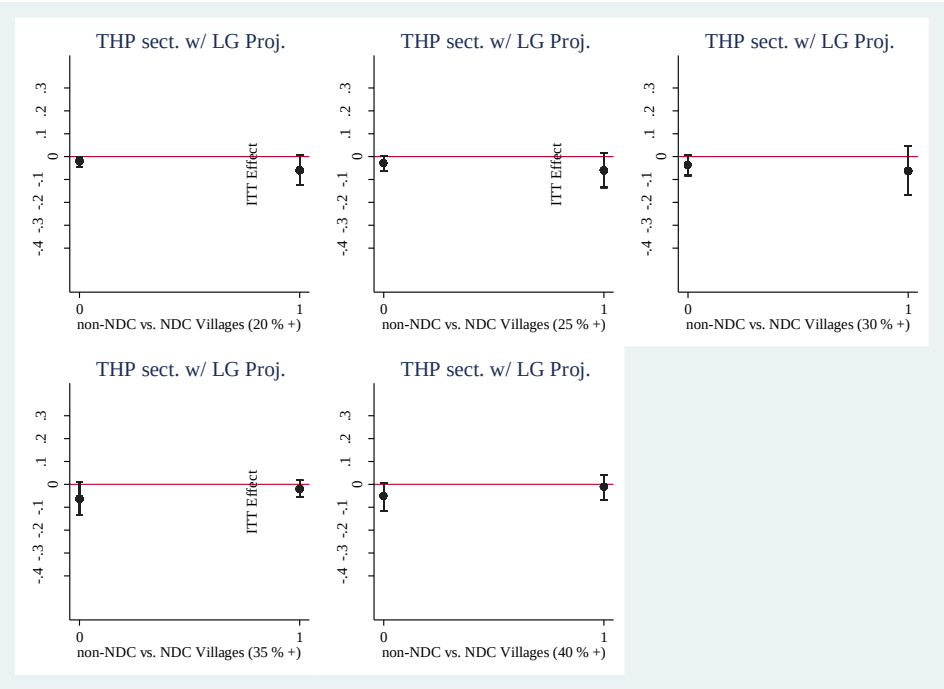
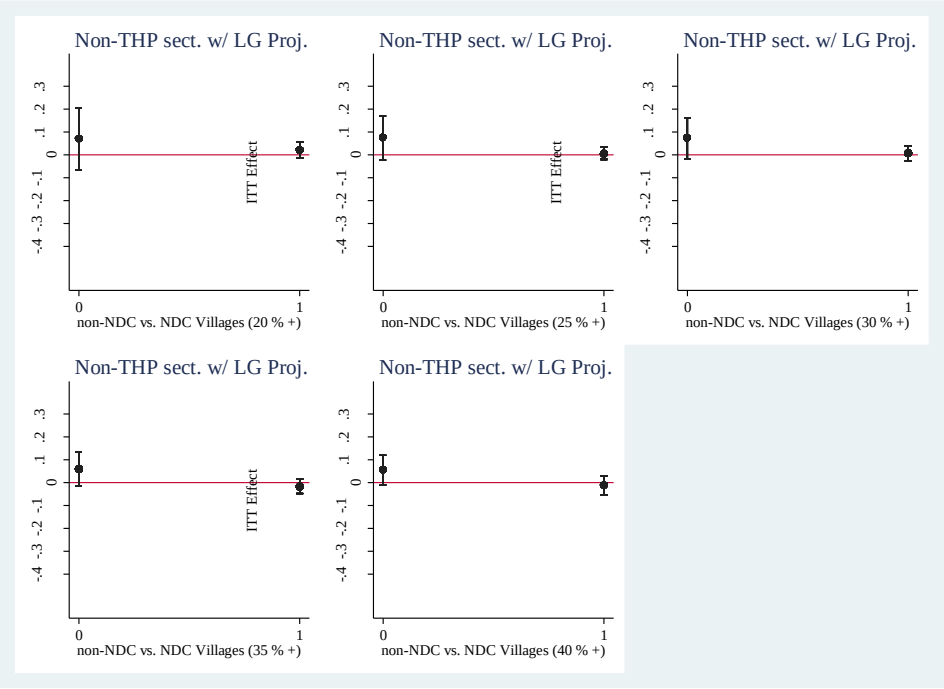


Figure M6. Local Government Projects in non-THP Sector across non-NDC and NDC Aligned Villages by different cutoffs



Appendix N. Main Results Dropping Yilo Krobo

NDC supporters are unevenly spread across the districts in our sample. In this appendix, we show our main results are very similar if we drop the district with the highest concentration of NDC supporters and so are not an artifact of particular conditions in this district. (Note that we were only able to survey two assemblymembers in Yilo Krobo as part of our follow-up surveys, and so we lose few observations in Table N2 and Table N4 Panel B when we run this robustness check).

Table N1. Village Participation and Local Accountability (Household Survey Data) – Excluding Yilo Krobo District

	Entire Sample				NDC Aligned HHs				Non-NDC Aligned HHs			
	(1) ITT Effect (st. error)	(2) TOT Effect (st. error)	(3) Control mean (st. dev.)	(4) N	(5) ITT Effect (st. error)	(6) TOT Effect (st. error)	(7) Control mean (st. dev.)	(8) N	(9) ITT Effect (st. error)	(10) TOT Effect (st. error)	(11) Control mean (st. dev.)	(12) N
Community Participation Index	0.044 (0.049)	0.065 (0.091)	-0.019 (1.001)	2531	0.178* (0.106)	0.334* (0.191)	-0.029 (0.973)	573	-0.034 (0.055)	-0.074 (0.121)	0.011 (1.019)	1598
Village Chief Accountability Index	0.103* (0.051)	0.165 (0.101)	-0.050 (0.996)	2529	0.181* (0.084)	0.340* (0.154)	0.040 (1.015)	573	0.091 (0.060)	0.195 (0.129)	-0.125 (0.978)	1597
District Assemblymember Accountability Index	0.092 (0.077)	0.173 (0.139)	-0.021 (0.997)	2528	0.001 (0.104)	0.002 (0.191)	0.063 (0.964)	573	0.065 (0.079)	0.139 (0.165)	-0.019 (1.019)	1596

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports IV-GMM treatment-on-the-treated estimates (with standard errors reported in parentheses) with mobilizing to receive an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations. Columns 5-8 report the same entities using the sample of NDC-aligned households. Columns 9-12 report the same entities using the sample of non-NDC aligned households.

Table N2. Local Government Participation and Representation (Electoral Data and Leadership Surveys at Electoral District Level) – Excluding Yilo Krobo District

	Entire Sample				NDC Aligned Villages (>=30 % NDC HHs)				Non-NDC Aligned Villages (< 30 % NDC HHs)			
	(1) ITT Effect (st. error)	(2) TOT Effect (st. error)	(3) Control mean (st. dev.)	(4) N	(5) ITT Effect (st. error)	(6) TOT Effect (st. error)	(7) Control mean (st. dev.)	(8) N	(9) ITT Effect (st. error)	(10) TOT Effect (st. error)	(11) Control mean (st. dev.)	(12) N
Voter turnout in district elections (proportion)	-0.051*	-0.094*	0.501	109	-0.019	-0.037	0.471	44	-0.086*	-0.174*	0.528	58
	(0.024)	(0.043)	(0.145)		(0.039)	(0.062)	(0.122)		(0.040)	(0.078)	(0.157)	
Number of candidates	0.278+	0.523+	2.527	120	0.975**	1.905**	2.143	49	-0.155	-0.291	2.800	62
	(0.166)	(0.306)	(0.813)		(0.233)	(0.505)	(0.727)		(0.239)	(0.486)	(0.761)	
District Assemblymember Activity Index	0.419+	0.764+	0.025	104	0.765*	1.802*	-0.350	46	0.004	-0.130	0.296	53
	(0.224)	(0.408)	(1.010)		(0.333)	(0.759)	(1.053)		(0.272)	(0.463)	(0.880)	

Notes: + significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports IV-GMM treatment-on-the-treated estimates (with standard errors reported in parentheses) with mobilizing to receive an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations and the unit of observation. Columns 5-8 report the same entities on the sample of villages with higher than average baseline support for the NDC. Columns 9-12 report the same entities using the sample of villages with lower than average baseline support for the NDC.

Table N3. Mobilization of Public Goods by Households (Panel A) and Government (Panel B) – Excluding Yilo Krobo District

PANEL A: HH MOBILIZATION	**ENTIRE SAMPLE**				**NDC Aligned HHs**				**Non-NDC Aligned HHs**			
	(1) ITT Effect (st. error)	**(2) TOT Effect (st. error)**	**(3) Control mean (st. dev.)**	**(4) N**	**(5) ITT Effect (st. error)**	**(6) TOT Effect (st. error)**	**(7) Control mean (st. dev.)**	**(8) N**	**(9) ITT Effect (st. error)**	**(10) TOT Effect (st. error)**	**(11) Control mean (st. dev.)**	**(12) N**
HH contributions to non-THP public goods (cedis)	-6.00+ (3.10)	-10.48+ (6.11)	15.60 (86.57)	2530	-16.73+ (9.23)	-31.43+ (18.30)	23.46 (149.05)	573	-3.78 (2.97)	-8.13 (6.50)	14.45 (63.16)	1598
HH contributions to public goods in THP sectors (cedis)	-4.13 (2.65)	-7.72 (5.08)	4.53 (69.61)	2530	-12.63 (9.63)	-23.73 (18.60)	12.79 (146.94)	573	-1.36+ (0.77)	-2.92+ (1.67)	2.37 (15.43)	1598
HH contributions to public goods in non-THP sectors (cedis)	-1.88 (2.08)	-2.75 (3.95)	11.07 (51.68)	2530	-4.10* (1.97)	-7.70* (3.82)	10.67 (27.20)	573	-2.42 (2.89)	-5.21 (6.24)	12.07 (61.35)	1598
PANEL B: GOVT MOBILIZATION	**ENTIRE SAMPLE**				**NDC Aligned Villages (>=30 % NDC HHs)**				**Non-NDC Aligned Villages (< 30 % NDC HHs)**			
Proportion of sectors with local gov funded projects	0.005 (0.033)	0.009 (0.054)	0.072 (0.164)	115	-0.056 (0.054)	-0.092 (0.083)	0.092 (0.223)	48	0.035 (0.052)	0.074 (0.082)	0.065 (0.126)	58
Proportion of THP sectors with local gov funded projects	-0.038+ (0.022)	-0.066+ (0.037)	0.053 (0.160)	114	-0.063 (0.054)	-0.112 (0.083)	0.070 (0.223)	48	-0.038 (0.023)	-0.060 (0.041)	0.049 (0.118)	57
Proportion of non-THP sectors with local gov funded projects	0.044+ (0.024)	0.076+ (0.041)	0.026 (0.048)	113	0.006 (0.016)	0.020 (0.027)	0.025 (0.050)	47	0.071 (0.046)	0.128+ (0.074)	0.026 (0.049)	57

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates controlling for district effects (with standard errors, reported in parentheses, clustered at the unit of randomization, the village grouping). Each row reports results for a single OLS regression. Column (2) reports IV-GMM treatment-on-the-treated estimates with mobilizing to receive an epicenter instrumented by treatment assignment (with standard errors, reported in parentheses, clustered at the unit of randomization). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations. For panel A, columns 5-8 (9-12) report the same entities using the sample of NDC-aligned (non-NDC aligned) households. For panel B, columns 5-8 (9-12) report the same entities on the sample of villages with higher than average (lower than average) baseline support for the NDC. THP sectors are health, water, sanitation, childcare, microcredit; non-THP sectors are road, power, agricultural processing, and primary/secondary education.

Table N4. Poverty Alleviation and Service Access – Excluding Yilo Krobo District

	ENTIRE SAMPLE				NDC Aligned HHs				Non-NDC Aligned HHs			
	(1) ITT Effect (st. error)	(2) TOT Effect (st. error)	(3) Control mean (st. dev.)	(4) N	(5) ITT Effect (st. error)	(6) TOT Effect (st. error)	(7) Control mean (st. dev.)	(8) N	(9) ITT Effect (st. error)	(10) TOT Effect (st. error)	(11) Control mean (st. dev.)	(12) N
Overall Well-Being Index	-0.065	-0.108	0.022	2577	-0.234*	-0.436*	-0.007	583	-0.097	-0.207	0.082	1626
	(0.071)	(0.135)	(0.999)		(0.097)	(0.188)	(1.062)		(0.075)	(0.167)	(0.993)	
Food Security Index	0.069	0.106	-0.013	2535	0.016	0.030	0.147	574	0.054	0.117	-0.068	1601
	(0.047)	(0.090)	(1.010)		(0.087)	(0.160)	(1.213)		(0.054)	(0.115)	(0.955)	
Literacy and Education Index	-0.095	-0.166	0.037	2577	-0.119	-0.225	-0.084	583	-0.138	-0.300	0.084	1626
	(0.079)	(0.152)	(0.991)		(0.100)	(0.177)	(1.021)		(0.093)	(0.211)	(1.008)	
Health and Nutrition Index	-0.046	-0.086	0.008	2577	-0.169	-0.317	0.032	583	-0.052	-0.112	0.020	1626
	(0.094)	(0.175)	(1.006)		(0.165)	(0.306)	(0.985)		(0.087)	(0.188)	(0.989)	
Water, Envt and Sanitation Index	-0.143	-0.231	0.026	2577	-0.260	-0.478	-0.048	583	-0.140	-0.302	0.116	1626
	(0.128)	(0.235)	(1.019)		(0.168)	(0.329)	(1.180)		(0.139)	(0.292)	(0.988)	
Livelihoods and Financial Inclusion Index	0.068	0.145	-0.003	2577	-0.008	-0.016	-0.060	583	0.032	0.068	0.056	1626
	(0.077)	(0.142)	(1.006)		(0.104)	(0.187)	(1.066)		(0.088)	(0.183)	(1.018)	

Notes: +significant at 10%; * significant at 5%; ** significant at 1%. Column (1) presents OLS estimates (with standard errors reported in parentheses), clustered at the unit of randomization (village grouping), and controlled for district effects. Each row reports results for a single OLS regression. Column (2) reports IV-GMM treatment-on-the-treated estimates (with standard errors reported in parentheses) with mobilizing to receive an epicenter being the first stage clustered at the unit of randomization (village grouping). Column (3) reports endline control means (with standard deviations reported in parentheses). Column (4) reports the number of observations. Columns 5-8 report the same entities using the sample of NDC-aligned households. Columns 9-12 report the same entities using the sample of non-NDC aligned households. Full details on the construction of each index and the ITT effect and TOT effect on each sub-component are reported in Appendix H.

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