

Honor among Chiefs: An Experiment on Monitoring and Diversion Among Traditional Leaders in Malawi

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ABSTRACT

Traditional, hereditary chiefs are an integral part of the development infrastructure in many African countries, but there are few empirical studies examining how chiefs perform in this role and to whom they are accountable. To capture chiefs' behavior as agents of development and understand the accountability mechanisms they face, we conduct a field experiment on 200 Malawian village chiefs, documenting how they distribute a valuable development good – iron roofing sheets – as we sequentially add monitoring by donors, subjects, and the state. We find evidence that even in the absence of formal accountability institutions, monitoring alters chief behavior; diversion of the materials is highest in the absence of monitoring. However, the chief's principals have competing demands that counteract one another. We determine that while most of a chief's principals prefer allocations based on need as classified by local informants, a subset of the chief's subjects – his relatives – prefer an allocation that benefits them. As the core of his social and economic networks, these principals are often able to override the demands of the chief's other principals. Altogether, diversion is minimized when chiefs are monitored by the donor, and only the donor. When chiefs are monitored by all their principals simultaneously, diversion is not significantly lower (compared to control), but dissatisfaction among subjects is greater. This study contributes to the literatures on chiefs and informal accountability, highlights the importance of considering common agency when designing and analyzing development interventions, and provides guidance for development practitioners who rely on traditional chiefs as partners.

KEYWORDS

chiefs; development; accountability; field experiment; Africa; Malawi

A rapidly growing literature on accountability assesses the effects of providing information about a leader's performance to his principal. Theoretically, this literature assumes that information is a prerequisite for accountability mechanisms to function (Fox, 2007). Without information about agents' actions, principals cannot sanction poor agents, and therefore cannot prevent shirking or avoid moral hazard (Kusek and Rist, 2004; Humphreys and Weinstein, 2012). Empirically, the literature shows that greater information among leaders' principals is often, though not always, correlated with better outcomes (Reinikka and Svensson, 2005; Gibson et al., 2015).

Though the theory is intuitive, the empirics are deceptively hard to interpret. In reality, information is rarely provided to only one of a leader's principals. Any information disseminated through the media is available to anyone with access to media. Information provided to the public via community campaigns is accessible to local political elites, and, by extension, to any national elites with whom local elites are connected. Dissemination of government audits necessarily combines government monitoring with public information. And of course, leaders are also being monitored by the researchers and donor agencies that are sponsoring the intervention.

When leaders are monitored by multiple principals (e.g., when they are common agents), it can sow confusion about which principal is affecting leader decisions, potentially generating misleading inferences about to whom leaders are accountable. In particular, the effects of monitoring by states and donors may be erroneously attributed to monitoring by the public. Treating multiple principals will also complicate inference if and when the demands of those principals diverge. Existing theory on competing principals indicates that when agents attempt to reconcile the competing demands of their principals, the outcome will be sub-optimal for most, if not all, principals (Bernheim and Whinston, 1986); observed outcomes be taken as indicative of what any given principal desired. Where principals' demands conflict, the result can also be paralysis, in which agents avoid alienating principals by declining to take action at all. Therefore, monitoring by multiple principals can sometimes fail to change agents' behavior, even where monitoring by a single principal might have done so.

Though the presence of multiple principals is often acknowledged, limited empirical work tests the separate effects of monitoring by different principals, and fewer still explicitly address the consequences of common agency.¹ In this study, we develop treatments that, while very similar to standard informational interventions, isolate the principal receiving information. We then add principals sequentially, to test the combined effects of monitoring by donors, the public,

and political superiors.

The leaders monitored in our study are traditional, hereditary chiefs in Malawi. As in many contemporary African states, Malawian chiefs are important actors in local development, allocating resources and mobilizing contributions to development projects. Like other chiefs, they also occupy a remarkably ill-defined position in the political system, and their principals are difficult to identify *a priori*. As unelected leaders who are constrained by the executive branch, chiefs are potentially agents of the state against their subjects. On the other hand, as deeply embedded stationary bandits, chiefs are potentially agents of their citizens against the state. More likely, we argue, chiefs are common agents of the state, subjects, and, increasingly, donors, whose competing demands chiefs struggle to reconcile.²

In the experiment, the chiefs were asked to distribute iron roofing sheets to a needy household. Using local informants to validate the neediest households in the community, we find that unmonitored chiefs were least likely to distribute the sheets to a needy household. When monitored by the donor alone, chiefs complied with the donor's request, significantly increasing the share of iron sheets going to needy households. Once we added monitoring by the chief's subjects, however, chiefs stopped allocating according to need as classified by local informants, and instead diverted the sheets to their relatives. Adding the state as a final monitor shifted allocations back toward needy households, but the shift was relatively small and not sufficient to counteract the apparent demands of chiefs' relatives. Altogether, when monitored by all their principals simultaneously, chiefs were not significantly more likely to give the sheets to a needy family than they were under the control. Moreover, full monitoring reduced welfare; subjects were significantly less satisfied with the chief's decisions under full monitoring than with his decisions under the control.

We draw several inferences from these results. First, chiefs have multiple principals and these principals are not necessarily in agreement about what they would like chiefs to do. Second, one group of principals, the chief's relatives, have particularly strong leverage over him. Finally, conflict among principals can explain the apparent null effects of full monitoring, and may even explain outcomes under control; unmonitored chiefs may have failed to distribute the sheets not for their own enrichment, but because hiding the sheets was the best way to avoid conflict and dissatisfaction among their principals.

Our study contributes to the chieftaincy literature by confirming existing arguments that chiefs occupy a place "betwixt and between," struggling to reconcile the competing demands

of the state and their subjects (van Rouveroy van Nieuwaal, 1999; Simelane, 2016; West and Kloeck-Jensen, 1999; Krämer, 2016), as well as the competing demands of their kin against their other principals (e.g., Bates (1974).) On the other hand, our findings challenge arguments that the state allows chiefs to predate (Mamdani, 1996) – monitoring by the state somewhat reduced diversion – as well as arguments that subjects constrain chiefs to improve aggregate welfare (Baldwin, 2013; Acemoglu et al., 2014); in our study, monitoring by chiefs’ subjects worsened outcomes. In general, our results suggest that previous literature may have erred in arguing that chiefs are agents of either the state *or* subjects, and in the assumptions about what each of these principals wants.

Our study also contributes to the informal accountability literature. Chiefs’ relatives appear to be his strongest principals, ensuring allocation to themselves even when all other principals would prefer a different outcome. This finding confirms earlier work on the importance of embeddedness (Diaz-Cayeros et al., 2014; Tsai, 2007), and shows that chiefs are *more* responsive to their social networks than to actors who can impose formal or material sanctions.

Finally, the study advances the development policy literature by demonstrating that null effects from monitoring interventions do not necessarily mean that leaders are unaccountable to their principals. “Improving” monitoring by including more principals may end up producing outcomes at odds with donors’ intentions, and with the preferences of actors donors care about. To ensure that outcomes meet their intentions, donors may wish to *avoid* promoting monitoring unconditionally.

1. Chiefs and their principals

Chiefs occupy a theoretically ambiguous place in modern African political systems. Historically, most chiefs ruled by consent; they had neither the resources nor the technology to amass a monopoly on force, and subjects who did not find a chief’s leadership valuable could seek out the rule of a different chief, or simply refuse to comply (Mamdani, 1996; Herbst, 2000). To prevent defections, many chiefdoms developed institutions such as elder counsels or consensus decision-making to check the chief and validate his decisions. Colonization fundamentally shifted the nature of chieftaincy, particularly in British colonies. Chiefs were incorporated in to the colonial government and granted access to the force of the state. Many chiefs were successfully co-opted and used their new-found power to repress their subjects and advance the interest of the colonial

government (e.g., Mamdani (1996)). Others, however, used their remaining moral authority to effectively organize their subjects and extract concessions from the regime (e.g., Michalopoulos and Papaioannou (2014)). Recognizing that empowered chiefs can both strengthen and threaten the government's authority, modern African states tend to be ambivalent toward chiefs – in many countries, the chieftaincy was abolished and then reinstated – and their role is accordingly ambiguous (Ribot, 2002; Simelane, 2016; Hiemstra-van der Horst, 2011; Turley et al., 2018). This is especially true in Malawi (Chiweza, 2007; Eggen, 2011a), where chieftaincies have been described, nebulously, as “hybrid governance modes resulting from an indigenous adaptation of an existing hybrid institution to a modern environment” (Cammack et al., 2009, p. 36). In brief, who chiefs serve, and by doing what, is a matter of some debate in the literature, and is no more clear in Malawi in particular.

Malawian chiefs inherit their positions and generally serve lifetime terms. Nevertheless, it is reasonable to expect that they would be accountable to the state. The scope of chiefs' responsibilities, their access to resources, and their salary are decided by statute. The Chiefs' Act of 1967 allows for direct oversight of chiefs: the president has the right to create, eliminate, or divide chiefdoms and to appoint or remove individual chiefs at the higher levels of the chiefly hierarchy, who can in turn remove individual lower-level chiefs.³ Chiefs must also work with other government officials; the Local Government Act of 1998 devolves almost all local governance in Malawi to District Councils, which include elected and appointed officials alongside chiefs. Of the seven chiefs we interviewed before the study, four reported that if they made a poor decision, they would be summoned to a higher official for sanctions up to and including being unseated. Accordingly, chiefs may feel pressure to accommodate the state in order to maintain their position.

It is also reasonable to expect chiefs to be accountable to their subjects. Most chiefs have lived among their subjects for their entire lives, and thus may be particularly vulnerable to social sanctions (Casey et al., 2012). More pragmatically, chiefs, especially lower-level chiefs, are stationary bandits who are economically dependent on their subjects. Chiefs' salaries and allowances are generally not enough to live on⁴ and in many communities, the chief's survival is as tenuous as anyone else's (Swidler, 2013). Securing their own prosperity means bringing development and maintaining reciprocal relationships with the rest of their community (Swidler, 2013; Cammack et al., 2009; Delaplace, 2009; Basurto et al., 2017). Indeed, existing literature suggests that chiefs are generally perceived as more responsive than other leaders, in Malawi

and elsewhere (Logan, 2008; Ubink, 2007; Pitcher, 2002; Swidler, 2013). In interviews, several chiefs reported that if they made a poor decision, their subjects would “come to the house” or “gang up” on them, and Mzamu (2012) reports that subjects sometimes level accusations of witchcraft against chiefs who fail to allocate resources equitably (Mzamu, 2012). Therefore, chiefs have an incentive to meet the demands of their subjects.

Increasingly, chiefs are also arguably agents of international donors. Chiefs’ local knowledge and ability to mobilize (or demobilize) local labor makes chiefs potentially valuable development partners. Especially in Malawi, major international organizations have promoted chiefs as more legitimate and effective custodians of donor funds and materials (Eggen, 2011b; Swidler and Watkins, 2009; Hunter, 2002; Madziakapita, 2009; InterAide, Child Health Program, Central Region, Malawi, 2014; UNICEF and Government of Malawi, 2017; European Commission of Positive People, 2011; Funder et al., 2018). Donors have no direct authority over chiefs, but can channel programs toward communities that comply with program guidelines, and away from communities that do not (Swidler and Watkins, 2009). In interviews, *every* chief mentioned that a key challenge of their job is insufficient resources. Chiefs may therefore strive to meet donor demands in order to ensure a continued flow of external funding into the community, and potentially, their own pockets.

Critically, if chiefs are agents to any of these actors, they are likely to be agents of all three. To serve their subjects, chiefs must maximize the resources they receive from donors and the government. However, to deliver the local governance the state demands or to serve as effective partners to donor agencies, chiefs must be able to secure the voluntary cooperation of their subjects.⁵ In other words, even if they do not wish to be, chiefs are likely to be common agents.

The literature on common agency does not yield a clear prediction of how chiefs will resolve conflicting demands from their multiple principals. Agents tend to prioritize demands for which it is easiest to evaluate performance and those from principals whose sanctions they can least easily avoid (Holmstrom and Milgrom, 1991; Tsai, 2007). No one of chiefs’ principals meets both criteria. Donors have the advantage of very clear demands, but (possible) withdrawal of (possible) future funding may not seem to be an inescapable sanction. The government can threaten formal sanctions, and subjects can impose immediate informal sanctions, but both of these principals demand an array of outcomes, whose relative importance may be hard to discern and many of which (“development”, “order”) are hard to measure. Without a clearly stronger principal, chiefs simply may refuse to make a choice; leaders who face competing demands avoid

articulating their policy stances (Brauninger and Giger, 2016) or abstain from policymaking altogether (Rosas and Shomer, 2008). Chiefs may similarly find themselves avoiding decisive action that may alienate one or more principals.

Not surprisingly, existing literature is divided on how chiefs reconcile the demands of common agency. One strand argues that chiefs are purely agents of the state, who deliver subjects to the regime in exchange for personal benefit (Mamdani, 1996; de Kadt and Larreguy, 2015; Ntsebeza, 2008). Another literature argues that chiefs are agents of their subjects, and use their power to maximize local resources (Michalopoulos and Papaioannou, 2014; Baldwin, 2013). A third literature, however, argues that chiefs inhabit an ambiguous and tense position, cross-pressured by the demands of state, subjects and sometimes donors (von Trotha, 1996; van Rouveroy van Nieuwaal, 1999). This literature argues that chiefs' responses will be diverse, and dependent on individual chiefs' proclivities, resources and diplomatic skill. We therefore seek to understand patterns of decision-making among Malawian chiefs: who are their principals and what do these principals demand, which principal(s) do chiefs prioritize, and how do they resolve any conflicts amongst principals?

2. Research Design

To identify the principals to whom chiefs are accountable, and how they resolve conflicts among multiple principals, we examined how resources were allocated by 200 Malawian village headmen⁶ under monitoring by between zero and three principals.⁷ Trained research assistants representing a partner international NGO (Tearfund) arrived at the chief's residence with a set of corrugated iron sheets for distribution to a "household in need of materials to support adequate shelter." It is common for donor representatives to visit chiefs and ask them to advise on distribution of a donated development good (Hunter, 2002; Kreibich et al., 2017; Madziakapita, 2009; InterAide, Child Health Program, Central Region, Malawi, 2014; UNICEF and Government of Malawi, 2017; European Commission of Positive People, 2011).⁸

The sheets were standard 8' dimensions, and their only distinguishing feature was a white swirl spray-painted onto the sheets by project staff.⁹ We chose iron sheets because they are valuable, providing an almost-raw material that can be used for roofing or for fashioning into tools, storage containers, or cooking pots. Iron sheets are very commonly requested from NGOs and communities in Malawi will often bear high costs to obtain iron sheets rather than other

development goods (Symon, 2017). As a practical consideration, iron sheets are durable and not easily divided; they are far easier to track than other valuable inputs (i.e., fertilizer, cement, rice) that can be scattered, diluted, counterfeited or immediately consumed.

We selected village headmen¹⁰ because these local level chiefs are often what people imply when they refer to “chiefs.” They are also by far the most numerous type of chief and their superiors, whom we contacted, as part of the study, are also numerous. Therefore, we could sample village headmen in a relatively small geographic area – holding many other characteristics constant – with less worry that treatments would spill over due to information-sharing among chiefs or their superiors.

2.1. Treatments and Treatment Scripts

In every village, we met with the chief in his home to receive the sheets. The initial handover of sheets was unobtrusive; in only ten communities (5%) did respondents later tell us they had witnessed the sheets arriving.

Once chiefs received the sheets, they were given one of four messages representing control and three treatments (with 50 chiefs in each condition). Under the control, chiefs were given the sheets and told to distribute them to a needy family; we did not say anything to these chiefs about whether they would be monitored, or how. In the treatments, we sequentially added threat of monitoring by the donor, chiefs’ subjects, and his political superiors.¹¹ The text of the treatments is shown in Table 1 below.

Donor monitoring was included in every treatment because donors are an implicit principal in every development project. Donor monitoring took the form of a follow-up phone call in which we asked the chief to tell us the name of the person to whom he had given the sheets. This phone call occurred approximately one week after we first visited the village. This form of monitoring is relatively weak, but it signaled that we were organized and committed to following up, which not all agencies do (e.g., (Hunter, 2002)). More importantly, we wanted to isolate the effect of donor monitoring, and more thorough monitoring was not possible without drawing more attention to ourselves and alerting the chiefs’ subjects that something was happening in the village. The follow-up phone call, on the other hand, was executed from the capital city and could be as private as the chief wanted it to be.

In the second treatment, we enabled monitoring by the chief’s subjects by warning the chief

we would return to the site to find and photograph the sheets. In pre-study interviews, chiefs told us that this activity would lead to subjects learning about the sheets and this perception was correct; in addition to the stir caused by a team of outsiders walking through the village with a camera, confirming the location of the sheets necessarily required talking to members of the community.¹² The treatment was discussed in the initial survey as well as reiterated in the phone call, in which we reminded the chiefs in this treatment group that we would be returning to their villages. Accordingly, these phone calls simultaneously conveyed that both our promise to monitor the chief and our promise to provide information to his subjects were credible.

In the final treatment, we added monitoring by the government. As the relevant government actors, we chose the Village Development Committee (VDC) – of which the chief’s immediate superior (the group village headman) is a member – and the District Commissioner (DC), the highest level political appointee in the district.¹³ In this treatment, we asked chiefs to help fill out letters to the VDC and DC at the time of the initial meeting. The letters identified the recipient of the sheets, and were delivered to the VDCs and DCs at the end of the study.¹⁴ See Figure SM1 in the Supplementary Materials for an example letter. This was also reinforced by the phone call, which in this case included a reminder *both* that we would return to the site *and* that the letters would be sent to the chief’s superiors. Upon receiving the call, chiefs in this treatment now had three credible principals: the donors; his subjects; and the state.¹⁵

Table 1 here.

2.2. Dependent variable

Our pre-specified outcome variable was “diversion”, which we defined as any use of the sheets that was *not* allocation to a needy family. There is more than one way a chief could allocate resources while still being reasonable or equitable: holding a lottery, allocating resources to each household in turn, or giving resources to those who can most efficiently translate them into income or growth. We focus on need because allocation of resources to those who are most in need of resources, or least able to acquire them on their own, is often how donors want to see resources used. Allocations of development resources to those who are not poor has been classified as diversion or even program failure in analyses of anti-poverty programs generally (Darmawan and Klasen, 2013) and in studies of chiefs in Malawi specifically (Basurto et al., 2017).

Need-based allocation also aligns with the norms of the communities in the sample. Everyone we interviewed before the study believed all principals, including citizens and political superiors, would want to see allocation based on need. Chiefs listed need as a primary criterion when allocating development projects within the community. As one chief said, “When I get things from government or [an] NGO, I give them based on their needs. Last month there was an organization that was distributing food and blankets. I only gave to those that didn’t have [these items].” A majority of citizens discussing resource allocation explicitly referenced need, poverty or vulnerability.¹⁶ In the control condition, in which chiefs were not monitored any principals, over 90% of chiefs who distributed sheets (as opposed to keeping them) allocated them to one of the neediest households in the community.

We classified sheets as allocated to a needy household (and therefore not diverted) as long as the household was among the five neediest in the community, as classified by local informants. We included five because many communities have multiple households in dire straits, and the exact neediest household would likely be a matter of some disagreement. Not all sheets found in the chief’s possession were classified as diverted. First, in some cases, the chief’s household was actually one of the five neediest in the community. Second, some informants told us that their chief was storing the sheets until they could be installed on the home of an appropriate recipient. In general, where there was any ambiguity about whether the sheets were diverted from their intended purpose, we coded the sheets as not diverted. All coding was completed on only the relevant data, sorted randomly, so that it would be entirely blind to treatment.

2.3. Sample and Survey of Chiefs

We selected the 200 chiefs using random walk sampling, an approach commonly used to sample randomly in the absence of a defined sampling frame (Survey Research Center, 2016; Afrobarometer, 2014), particularly when sampling units that cover large geographic areas (e.g., villages) (UNICEF, 1995). We purposively chose five starting points (typically markets) in each district. From these starting points, research assistants selected a direction by spinning a soda bottle. They then drove in that direction for at least five kilometers,¹⁷ at which point they stopped at the next village. They then proceeded to locate the village headman and initiate the research. A map of sampled chiefs is in the Supplementary Materials in Figure SM2.

Each selected chief took part in a 30-question pre-treatment survey about his personal char-

acteristics and those of his village. Data from the survey indicates that the majority (69%) of chiefs in the sample were poor, earning less than MK40,000 (\$55) per month. Ninety percent were small-scale farmers. Most (80%) had a primary school education or less, and a quarter were unable to sign their names on the consent form (these chiefs gave a thumbprint instead). The sample did contain a small group of elites; 33% of chiefs owned more than one plot of land, 25% owned more than one head of cattle, and 8% owned more than one house.

The final questions on the survey asked chiefs to identify up to four households: two that were in need of development materials in general, and two households that were in need of roofing material in particular. Chiefs were then read their randomly assigned treatment script, asked to decide on the one household to whom they would provide the sheets (this could have been one of the needy households mentioned earlier, or a different household), and left in possession of the sheets. All chiefs except those in the control received a follow-up phone call one week later.

Tables SM1 and SM2 in the Supplementary Materials shows that chiefs' characteristics are very similar across treatment conditions, as are the characteristics of the households chiefs listed as needy before being assigned to treatment. The results in Table SM1 provide a joint orthogonality test in the form of a multinomial logit regressing treatment assignment on chief and household characteristics; the control is the omitted category. Table SM2 in the Supplementary Materials shows the results when other treatments are used as baseline. The balance tables show that randomization was successful and there were only two significant differences across 40 comparisons: chiefs in Treatment 3 were more likely to have traveled outside of Malawi than chiefs in the control, and were also significantly wealthier than chiefs in Treatment 2. We show in the analyses that follow that the results are robust to controlling for these variables.

2.4. Tracking the Sheets and Measuring Diversion

Regardless of assigned treatment, we returned to every site two to three weeks later and conducted a post-treatment focus group with five community informants. The goal of the focus groups was to locate the sheets and obtain independent information about the characteristics of the recipient household. To ensure the focus group members would have the information we needed, research assistants recruited a diverse group of people, all regarded as involved in and well-informed about community affairs.¹⁸ To increase the chances that information would be unbiased, those related to the chief by blood or marriage and those from any of the households the

chief identified as needy were not recruited. Two-thirds of the participants (62%) were women and the average age was 34.

Nothing about Tearfund or the iron sheets was mentioned in recruiting respondents for the focus groups; respondents were told only that the research assistant was gathering information about communities involved in a local development project.¹⁹ Once assembled, the respondents were asked to provide information about the characteristics of several households in the community. Though this was not explained to the respondents, the list of households included all those the chief mentioned as needy on the pre-treatment survey, as well as the household(s) to which he said he would give the sheets during the survey and/or the follow-up phone call. Finally, the research assistant explained that Tearfund had previously been to the community and provided iron roofing sheets. He asked respondents: where the sheets had gone; about the characteristics of the recipient household; whether it was among the five neediest households in the community; and why they thought the chief chose that household. After concluding the focus group, the research assistant went to the household named by the focus group to find and photograph the sheets; if respondents did not know where the sheets were, the research assistant went back to the chief to get more information. All told, we were able to locate sheets in 93% of the villages.

As we had hoped, members of the focus groups were very knowledgeable about their communities. In almost all communities, the focus groups were able to provide all of the requested information about every listed household; maximum item non-response was less than 4%. Where focus groups lacked knowledge, this was a clear signal. In every case where respondents said they did not know anything about iron sheets, the sheets were either still with the chief, or we were unable to find them anywhere in the village.

Information from the focus group allowed us to code our dependent variable of “diversion.” We asked respondents whether each household was among the five neediest in the community. We used respondents’ subjective assessments to provide a more nuanced and context-driven measure of need. In some communities, for example, respondents agreed households were needy even when they exhibited outward markers of wealth such as permanent brick walls or livestock; respondents rated these recipients as needy for reasons such as unexpected poor health, family death, or fire. Further, Alatas et al. (2010) demonstrate that communities who self-assess needy members of the community are more satisfied with allocation than when need is determined by an index of observable assets.

Using focus groups’ assessments of need, however, does run the risk that assessments will be *too* subjective; focus groups might be influenced by irrelevant considerations (such as whether recipients are well-liked) or rank need in a way that is unrelated to what donors or other principals understand “need” to be. To ensure that focus groups were generally assessing need in a way that had face validity for other principals, we also asked respondents to tell us about specific, objective indicators of need for each household: whether the recipient household has permanent brick walls, livestock, or a bicycle; is headed by an elderly person;²⁰ or cares for orphans in addition to any biological children. These five binary need indicators were then added to form a scale from 0 to 5, where higher scores indicate more need. The need index is strongly correlated with the likelihood that the focus groups rated the household as one of the five neediest in the community ($p = 0.005$); this provides evidence that citizens have a definition of need that accords with donor understanding.

It is important to note that “need” as we measure it cannot be measured simply as a lack of roofing. Households with iron roofs did not score significantly lower in focus groups’ assessments of need ($\beta = -0.099$, $p = 0.482$). Over 95% of recipient households lacked roofing, needy or otherwise, and of those with roofs, some were nevertheless classified as needy because of a recent crisis or, in one case, because a needy recipient with a damaged house was temporarily sheltering with a family that had a roof. Allocation to those without roofs was insufficient to ensure targeting to the most needy, and we do not use the measure in our analyses.²¹

3. Experimental Results

The results of our pre-specified analyses are shown in Figure 1 and Table 2. They provide evidence that chiefs respond to, and attempt to reconcile, the demands of all three of their principals.

Figure 1 shows the mean rate of diversion, with 95% confidence intervals, under control and each of the three treatments. The same results are presented as a logit in Model 1 of Table 2. The results show that donor monitoring on its own significantly reduced diversion. In the control, 56% of chiefs diverted the sheets. Donor monitoring reduced diversion 20 percentage-points to 36%, an effect that is significantly different from zero²² (see Table 2 for information on p-values.) Adding monitoring by subjects and the state did not further reduce diversion, and instead slightly increased it. Under monitoring by donors and subjects, 44% of chiefs diverted the

sheets. Under monitoring by all three principals, 42% of chiefs diverted. The rates of diversion in the latter two treatments are statistically indistinguishable from control.

Figures 1 here.

Table 2 presents a regression analysis of the treatment effects, on their own, and controlling for covariates. The covariates we control for include those we pre-specified as potential sources of variation in chiefs' distributive choices: the number of years the chief had lived in the community, the number of years he had been chief, and his education, income, and employment status with the government.²³ We also control for chiefs' previous international travel, which was not pre-registered, but was shown to be imbalanced in Table SM1. To control for non-independence of responses among chiefs and focus groups that interacted with the same interviewer, we include interviewer fixed effects. The results confirm that, as suggested by the raw diversion rates, Treatment One significantly reduces diversion relative to control, while Treatments Two and Three do not.

Table 2 here.

3.1. Robustness

The results are robust to a number of other specifications and tests we did not pre-specify. In Table SM3 in the Supplementary Materials, each type of monitoring is dummied out to show the conditional effects of adding monitoring by each new principal. The results show that donor monitoring is negatively correlated with diversion ($p < 0.10$), but the dummies on bottom-up and top-down monitoring are insignificant and positive. A nested f-test similarly indicates that a model including bottom-up and top-down monitoring does not have a significantly different effect on diversion than a model that incorporates only donor monitoring.

Table SM4 in the Supplementary Materials shows that results are also robust to using the index of need instead of focus groups' subjective determination as our measure of need. The table shows that, as in Table 2, donor monitoring alone significantly increases the need of the average recipient household. Recipients are not significantly needier under Treatments Two and Three than under control, nor does adding bottom-up and top-down monitoring to donor monitoring significantly change the neediness of the average recipient.

4. Explaining the Outcome

These data suggest that adding principals does not reduce diversion and may actually increase it. This in turn implies that chiefs may be responsive to competing principals whose demands over distribution counteract each other, weakening the overall treatment effect under multiple principals. If this is the correct explanation, and principals' demands diverge, we can identify this by determining where, precisely, sheets are going under each of the three treatments. If principals have different demands, the composition of recipients should change as each new principal is added.

To detect competing principals, we post-coded open-ended responses from the focus groups about who chiefs were prioritizing and why (this analysis was not pre-specified). Almost all explanations for the chief's choices fell into one of three categories:

- (1) The chief chose the recipient because they were needy;
- (2) The chief chose to recipient because they were his relative; or
- (3) The chief had not chosen any recipient and had kept, hidden, or disposed of the sheets.

We coded an explanation as based on need if respondents reported that the recipient was poor, elderly, sick, or in crisis. We coded the sheets as given to a relation if the focus groups mentioned that the recipient was the chief's mother, brother, niece, wife, etc. In several cases there were multiple explanations – the recipient was both poor and the chief's relative– but there was almost always one that was implied as the deciding factor. For example, a response “She is poor, but she got the sheets because she is a sister to the chief” was coded as going to a relative. “He is the chief's nephew, but the house was just burned in a fire” was coded as need-based. Respondents provided a code-able explanation for 173 of 200 sheets.²⁴ Because coding was subjective, we once again isolated and randomly sorted the relevant data so that coding would be blind to treatment.

The distribution of explanations, by treatment, are shown in Figure 2. The figure shows that under the control, 30% of chiefs gave the sheets to someone needy, 62% of chiefs kept or hid the sheets, and only 9% of chiefs gave the sheet to a relative. Under donor monitoring, the share of chiefs who kept the sheets decreased by 20 points to 42%, and the share of chiefs who selected based on need increased 19 points to 49%. The share of chiefs who gave to their relatives stayed the same (10%). These patterns indicate that under monitoring by donors, chiefs changed

from accommodating their own preference (keeping the sheets) to accommodating the donor's preference (allocating the sheets to a needy household). These results also indicate that chiefs have little inherent preference for their relatives, and do not increase allocation to relatives under monitoring by a principal who also has no such preference.

Figure 2 here.

Once chiefs knew that their subjects would be able to monitor distribution, however, they increased allocation to their relatives. Under monitoring by donor and subjects, the share of sheets going to relatives more than tripled, to 36%, with the difference made up in a sharp, 30-point decrease in distribution to needy households (fewer than 15% of chiefs in this treatment allocated according to need). With the addition of the state as the final monitor, chiefs stopped favoring their relatives quite so dramatically – 26% of chiefs in the full monitoring treatment gave to relatives and 33% to needy recipients, but distribution to relatives is still more than twice as high as when bottom-up monitoring is not included in the treatment at all.

Table SM5 in the Supplementary Materials shows that the effect of bottom-up monitoring on the allocation of sheets to relatives is significant, controlling for pre-treatment covariates. Figure SM4 in the Supplementary Materials, which plots the share of beneficiaries in each treatment who were confirmed as blood relations to the chief, demonstrates that these results are not based in respondents' systematic misperceptions of chiefs' motivations; chiefs are more likely to give the sheets to a confirmed relative when they are monitored by subjects, even when using this alternative, more objective measure of kinship.

4.1. Subject satisfaction

Chief's behavior under bottom-up monitoring goes against the preferences of donors, higher officials and, importantly, most the chiefs' subjects. We post-coded focus group responses to identify complaints: the coding took a one if the respondents described the decision in overtly negative terms like "greedy," "selfish," or "biased," or if they noted the existence of others in the village who were as or more deserving of assistance. Responses were coded as zero if the respondents gave a neutral or approving explanation (e.g., "he is really in need of sheets" or "there is no one else helping her".); non-response was coded as missing. The sample includes only those groups who had knowledge of the sheets, so that the number of complaints was not deflated by including those who did not complain simply because they did not know where

sheets had gone. Figure 3 shows that the rate of complaints was by far the highest when chiefs gave the sheets to their relatives; chiefs who gave the sheets to relatives received *eight times* as many complaints as those who allocated based on need, and almost twice as many complaints as those who simply kept the sheets for themselves. Accordingly, complaints are more common when there is bottom-up monitoring, because this is when chiefs are more likely to distribute the sheets to their relatives.

Figure 3 here.

We conclude not only that chiefs have competing principals, but that one of these principals is itself divided; chiefs' subjects are divided into those who want him to distribute the sheets to his kin and those who oppose such distribution. The former group has strong pull over the chief; full monitoring by donors, the state, *and* the chiefs' other subjects was not enough to induce most chiefs to distribute the sheets to needy households rather than to their relatives. This is consistent with a model in which chiefs are most constrained by informal, social sanctions. The chief's family, who form the core of his social and economic network, and whom he can least easily avoid, would be the subjects most able to leverage those sanctions. This implies that allowing leaders to be monitored by the social networks in which they are embedded can facilitate capture by those with the greatest connection to the leader. More importantly, and counter-intuitively, allowing subjects to monitor distribution actually *increased* subjects' dissatisfaction, relative to monitoring by the donor alone, or to leaving chiefs entirely unmonitored. This result potentially changes our interpretation of chiefs' behavior under control. We can't assume that chiefs in the control kept the sheets because they hoped to enrich themselves at the expense of their subjects. They may instead have simply judged, correctly, that allocating the sheets would increase dissatisfaction by creating an unresolvable conflict among principals.

5. Alternative explanations

Our interpretation of our results is that particular patterns of distribution reflect chiefs' attempts to meet the competing demands of their principals. There are of course, many other reasons why chiefs might distribute sheets to their relatives or fail to distribute them at all. Chiefs vary in their level of their conscientiousness. Indifferent chiefs may hold on to sheets simply because they do not want to deal with them, or hand them off to a relative because a relative is the first person they run into. Other chiefs may have long-term plans for consolidating larger pools

of resources, leading them to store sheets or sell them to contribute to larger projects that will benefit needy residents or the community as a whole. Alternatively, some chiefs, knowing their family members well, may believe their family members are less likely to waste or misuse whatever resources they are given.

Any of these may explain variation in allocation among chiefs, but they do not explain patterns of variation across treatments. If allocation is driven only by chief's type, then shirking leaders would have to be disproportionately assigned to the control condition and not to the donor-monitoring condition. If chiefs are holding onto sheets because they are procrastinating, and monitoring simply forces a choice, this does not explain why the *type* of recipient changes as new principals are added. Finally, if chiefs give resources to their relatives because they like or trust their relatives more than their other subjects, it is not obvious why they would not favor their relatives under all treatments, rather than only when their relatives will be aware that sheets were provided.

Many of these alternative explanations are also not consistent with other qualitative information in the data. Complaints are relatively low under control, which we would not expect if non-allocation reflects consistent pattern of sloth or indifference. No group complained that their chiefs were lazy, indecisive or slow. There is also little evidence that chiefs were holding sheets for longer-term community development projects or allocating them to productive resources like a shop or warehouse; every focus group that knew where the sheets had gone reported that they were being used to roof a private home or sold to fund private consumption.

Therefore we believe that chiefs' response to monitoring by different principals, and their competing demands over who should receive resources, is the most likely explanation for the reduction in diversion that occurs with donor monitoring, the weaker effect of monitoring by multiple principals, and, in particular, the significant shift in the type of recipient under monitoring by different principals.

6. Discussion and Conclusion

In a field experiment in Malawi, we provided iron sheets to village-level chiefs and exposed them to monitoring by donors, subjects, and superiors. We find that while monitoring by the donor significantly reduced diversion of the sheets to non-needy households, adding monitoring by chiefs' subjects and superiors did not further reduce diversion. Instead, under monitoring

by subjects – who include chiefs’ immediate families – chiefs were more likely to give sheets to their relatives instead of allocating based on need.

This finding aligns with Basurto et al. (2017), who also finds that Malawian chiefs allocate resources to needy relatives. However, unlike Basurto et al. (2017), we find limited evidence that this outcome is the chiefs’ preference, but is instead a result of increasing transparency to these relatives.

The findings indicate that chiefs, despite inheriting lifetime offices, can be effectively constrained through informal channels. Straightforward and inexpensive monitoring by donors significantly increased the likelihood that chiefs would comply with the donors’ wishes and give the sheets to a needy household. Increasing a subject’s ability to monitor similarly increased the likelihood that the chief would meet the demands of subjects, or at least, those subjects with the strongest access to informal sanctions (chiefs’ families).

However, the results also indicate that leaders’ sensitivity to social sanctions comes at a cost, in this case, by enabling those with the strongest social influence over the chief to capture resources, creating dissatisfaction among the excluded members of the population. These results add to a growing literature that finds that documenting community-level average outcomes can mask profound power imbalances, and thus determine what members of a population are ultimately able to secure the resources that donors intend to target to disadvantaged groups.

More generally, the study highlights the need to more carefully identify the full range of actors treated by a development interventions and their potentially divergent preferences over the outcome. Our results show that the multiple principals who are alerted in a typical monitoring intervention may not have the same goals. In keeping with existing theory on common agency, combining monitoring by multiple principals can actually reduce overall welfare, in this case by producing an outcome that is less satisfactory to donors, superiors, *and* most subjects. The accidental inclusion of other, more influential principals may explain why “bottom-up” monitoring appears to work in countries with relatively weak electoral accountability, while the irreconcilable demands of multiple principals may explain why some large-scale informational interventions have failed. Our study suggests that simple monitoring mechanisms managed and executed by donors may be sufficient to limit diversion and achieve desired development outcomes.

Notes

¹Notable exceptions are Olken (2007), Serra (2012) and Ottone et al. (2014), the latter two of which are lab experiments.

²As with all studies attempting to determine causal relationships, this article develops a theory of Malawian chiefs that, we argue, may be generally applicable. However, it should be noted there was variation within our sample, and that our arguments and findings should not be treated as definitive evidence regarding the behavior of *all* chiefs, either within or outside Malawi.

³Chiefs in Malawi are part of a seven-level hierarchy that culminates in a handful of paramount chiefs. At the lowest level, village headmen oversee about 100 households. Village headmen are immediately overseen by group village headmen (GVH). Above the GVH are several levels of Traditional Authorities (TAs), and then the Paramount Chiefs (PCs). At the time of data collection, there are 23,104 village headmen, 3,994 group village headmen, 264 traditional authorities, and 6 paramount chiefs in Malawi.

⁴The chiefs in our study are currently paid a monthly stipend of 2500 Malawi Kwacha, or \$3.50.

⁵Chiefs have no means of coercion and recent literature suggests chiefs even have less control over land than has generally been assumed (Bennett et al., 2013).

⁶We were constrained to this sample size by our grant budget. Based on pre-treatment power analyses, we expected this sample to generate slightly less than 80% power.

⁷Ethical review and approval for this research project was provided by [AUTHOR INSTITUTION] and the National Commission for Science and Technology in Malawi. A copy of the application can be provided upon request. We also pre-registered our indicators, most analyses and our (incorrect) hypotheses as [PAP NUMBER REDACTED].

⁸Tearfund is an international NGO based in the United Kingdom. Representatives from Tearfund Malawi were involved at all stages of the project. None of the respondents in our study had heard of Tearfund, though the appearance of a new NGO in the community is not out of the ordinary.

⁹We painted the sheets so we could more easily trace them, and because we were asked to distinguish our project from government-sponsored distribution of iron sheets occurring at the same time. White was one of only a few colors not associated with a political party.

¹⁰Only *male* village headmen were enrolled. In interviews, we were repeatedly told that female chiefs “do not steal.” We know of no systematic evidence on this claim. Nevertheless, multiple sources were confident that including female chiefs would substantially dampen our treatment effect, so, to maximize statistical power, we avoided sampling in matriarchal areas.

¹¹For each treatment, the chiefs were “treated” both via the message, which acted as a notification regarding the type(s) of monitoring they would experience, and by experiencing these type(s) of monitoring in reality. These two elements of the treatment are bundled, and we are unable to disentangle them.

¹²Discussions with villagers would not have been necessary if, at the time of the site visit, the sheets were already installed, white spirals facing out, exactly where the chief said they would be. However, this did not happen in reality, so discussion with villagers was, in fact, part of this treatment in all cases.

¹³The research manager later received several follow-up phone calls from the officials who received the letters, suggesting the letters were read and taken seriously, and completing the letters posed a reasonable threat of monitoring.

¹⁴Delayed delivery of the letters helped to make the treatments conterminous, but also helped to prevent spillovers from chiefs under the same superiors.

¹⁵The treatments clearly do not include all combinations of principals: there is no condition in which chiefs are monitored

by donors and the state. We were limited in our number of treatments and we selected the combinations that were most policy relevant. Interventions around bottom-up accountability are very common and we wanted to be sure to test for bottom-up accountability alone and in combination with other monitoring.

¹⁶These data are taken from post-treatment focus groups, discussed below.

¹⁷The five kilometer difference is short enough that the research assistants did not need to spend the majority of their time in the car, but far enough that subjects in treated villages to prevent spillover from casual interactions across sites

¹⁸To identify knowledgeable people, we relied on snowball sampling. Research assistants first requested to speak with the community member most aware of community activities. Once located, he or she helped generate a list of other informed people.

¹⁹The research assistant who conducted the follow-up visit was different from the assistant who initially visited the community, and was driving a different vehicle.

²⁰We also asked respondents whether the household was headed by a child. Five focus groups reported child-headed households, but in four of these cases, the rest of the responses made it clear that respondents meant the household was headed by the chief's adult child. There was one household in the sample that was actually headed by a minor child. It was the only household in the sample to score 5 out of 5 on the need index.

²¹For transparency, no treatment had any significant effect on the share of recipients with roofs, either relative to control or relative to other treatment.

²²Overlapping confidence intervals do not necessarily indicate that a difference-of-means is statistically insignificant (Wolfe and Hanley, 2002)

²³One pre-specified control – an index of consumer goods – is not included because there was extensive item non-response. Missingness is not correlated with treatment.

²⁴In most cases where there was no explanation, respondents had not known that sheets had been provided and were unable or unwilling to speculate about where they went or why. We drop these chiefs from this part of the analysis.

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7. Tables and Figures

Table 1.: Treatments

Monitor(s)	Treatment	Sample Size
Control	No follow-up mentioned	50
Donor only	“We will contact you on the phone in a few weeks’ time to learn which household received the materials.”	50
Donor, subjects	“We will contact you on the phone in a few weeks’ time to learn which household received the materials. We will also conduct a site visit after the phone call to take photos of the recipient household for our report.”	50
Donor, subjects, superiors	“We will contact you on the phone in a few weeks’ time to learn which household received the materials. We will also conduct a site visit after the phone call to take photos of the recipient household for our report. Today, we will together prepare and send letters to your VDC and DC informing them which household in your community you designated to receive the materials.”	50

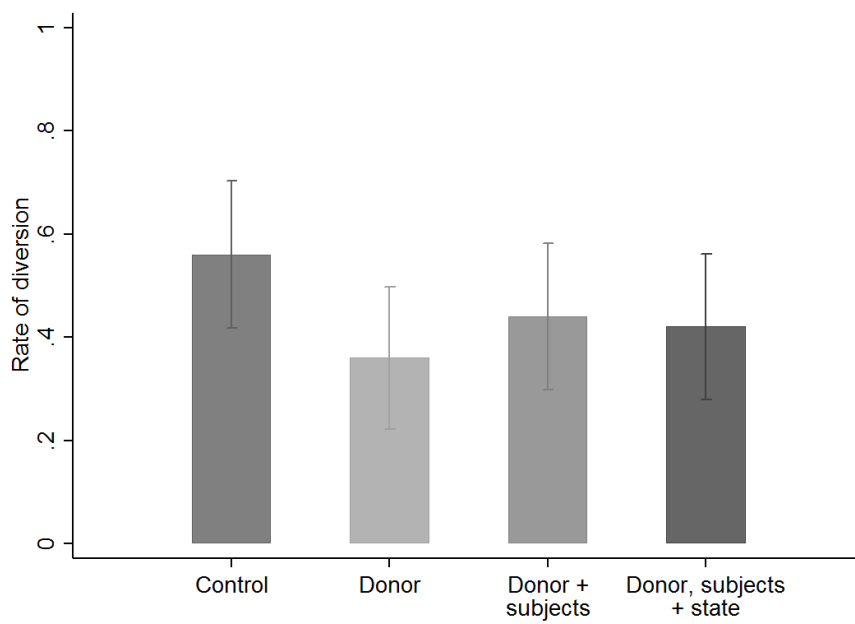


Figure 1.: Raw Diversion Rates, by Assigned Monitor(s)

Note: Figure plots raw rate of diversion, with 95% confidence intervals, when chiefs are monitored by donors, subjects and/or the state. Diversion is defined as any distribution not to one of community's five neediest families.

Table 2.: Diversion by treatment, with and without covariates

	(1)	(2)
Treatment One (Donor only)	-0.817* (0.410)	-1.120* (0.505)
Treatment Two (Donor, citizens)	-0.482 (0.403)	-0.655 (0.484)
Treatment Three (Donor, citizens, superiors)	-0.564 (0.404)	-0.869 (0.489)
Years as chief		0.005 (0.015)
Lifelong community resident		0.024 (0.506)
Years of education		0.179 (0.463)
Income bracket		0.305 (0.345)
Work for government?		-0.185 (1.530)
Support incumbent party?		0.346 (0.389)
Ever travel outside Malawi?		-0.051 (0.388)
Constant	0.241 (0.285)	-1.174 (1.047)
<i>N</i>	200	188

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

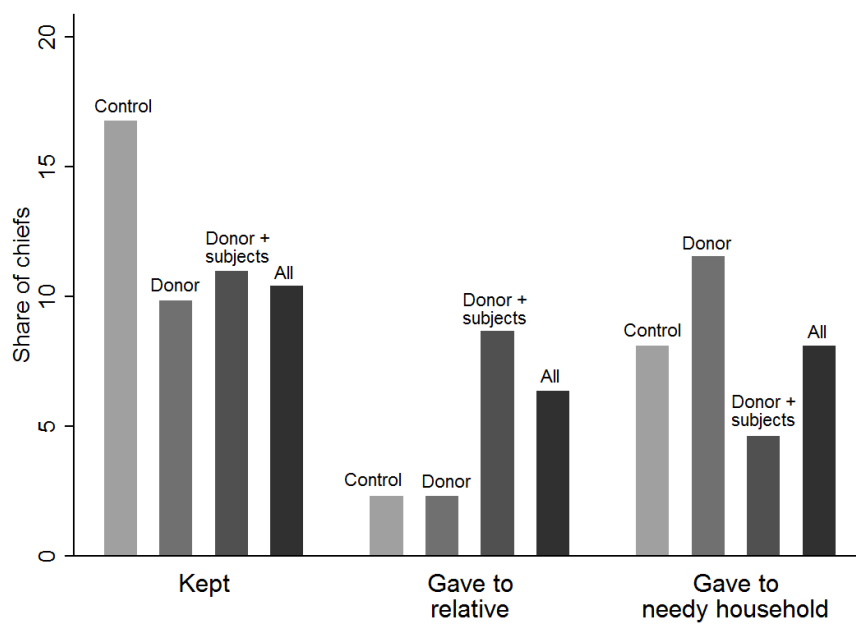


Figure 2.: Reported Reason the Chief Selected the Recipient, by Assigned Monitor(s)
 Note: The figure indicates how chiefs allocated sheets under each monitoring treatment. The choices are coded from responses given by community focus groups.

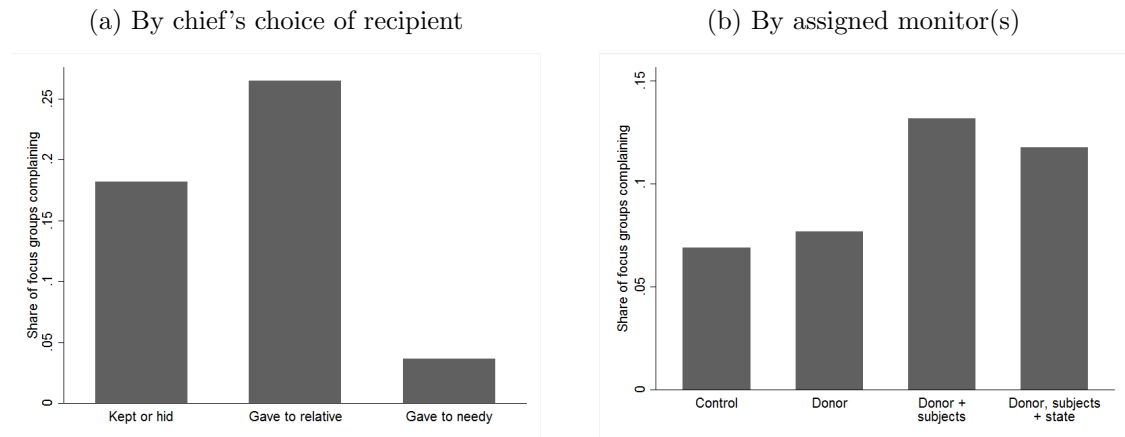


Figure 3.: Share of Subjects Complaining, By Chief's Choice and Monitor(s)
 Note: The figures plots the share of focus groups complaining about how the chief distributed the sheets, over a) how the chief chose to allocate the sheets and b) the actors monitoring the chief. Complaints include overtly negative terms or provide names of other, more deserving recipients.

Supplementary Materials

SM1. Treatment and Assignment

DATE: _____
FROM: Development Partners and Chief _____
TO: Village Development Committee
RE: Development Project in _____ Village

Dear Chair Village Development Committee Overseeing _____ Village:

We write to inform you that Chief _____ has designated the _____ household to receive a set of 10 iron sheets. The materials are funded by and distributed in cooperation with a group of international donors, represented by the officer whose signature appears below.

Sincerely,

Donors Representative

Figure SM1.: Example Letter

Note: Figure shows the letter used in the third treatment, which provided chiefs' political superiors with the ability to monitor the distribution of iron sheets.

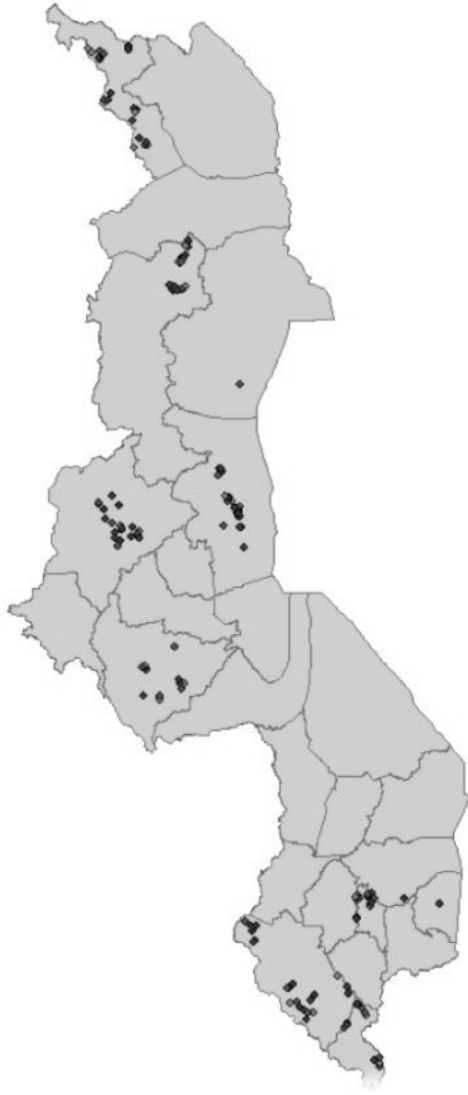


Figure SM2.: Sampled Chiefs

Note: Map shows locations of sampled villages/village chiefs.

Table SM1.: Covariate Balance Across Treatments

	Treatment Assignment		
	1	2	3
Chief's characteristics			
Years as chief	0.006 (0.018)	0.010 (0.018)	0.002 (0.018)
Lifelong community resident?	-0.919 (0.641)	-0.175 (0.676)	-0.763 (0.636)
Work for government?	-14.360 (850.845)	-1.325 (1.333)	-14.737 (874.648)
Years education	0.287 (0.617)	0.808 (0.583)	0.390 (0.597)
Income bracket	0.098 (0.420)	-0.512 (0.454)	0.369 (0.409)
Support incumbent party?	-0.656 (0.505)	-0.218 (0.489)	-0.078 (0.481)
Ever traveled outside Malawi?	-0.802 (0.477)	-1.183* (0.486)	-0.433 (0.471)
Prospective recipients' characteristics			
Already have iron roofing?	0.523 (0.964)	0.343 (1.005)	-1.910 (1.422)
Community ranks as needy?	-1.813 (1.363)	-0.855 (1.452)	-0.977 (1.533)
Index of need	0.159 (0.201)	0.107 (0.203)	0.051 (0.203)
Constant	2.080 (1.853)	0.768 (1.926)	0.747 (1.971)
<i>N</i>	183	183	183

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table SM2.: Balance between treatments

	1 vs. 2	1 vs. 3	2 vs 3
Years as chief	0.004 (0.018)	-0.004 (0.018)	-0.008 (0.019)
Lifelong community resident?	0.731 (0.629)	0.160 (0.594)	-0.571 (0.643)
Work for government?	13.039 (859.312)	-0.368 (1213.207)	-13.406 (856.420)
Years education	0.516 (0.563)	0.096 (0.583)	-0.420 (0.557)
Income bracket	-0.622 (0.437)	0.263 (0.395)	0.885* (0.438)
Support incumbent party?	0.434 (0.506)	0.581 (0.504)	0.148 (0.494)
Ever traveled outside Malawi?	-0.372 (0.500)	0.378 (0.493)	0.749 (0.506)
Prospective recipients' characteristics			
Already have iron roofing	-0.184 (0.938)	-2.383 (1.359)	-2.199 (1.406)
Community ranks as needy?	0.940 (1.208)	0.828 (1.323)	-0.112 (1.430)
Index of need	-0.040 (0.192)	-0.109 (0.195)	-0.069 (0.199)
_cons	-1.280 (1.727)	-1.304 (1.817)	-0.024 (1.904)
<i>N</i>	183	183	183

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

SM2. Robustness Checks

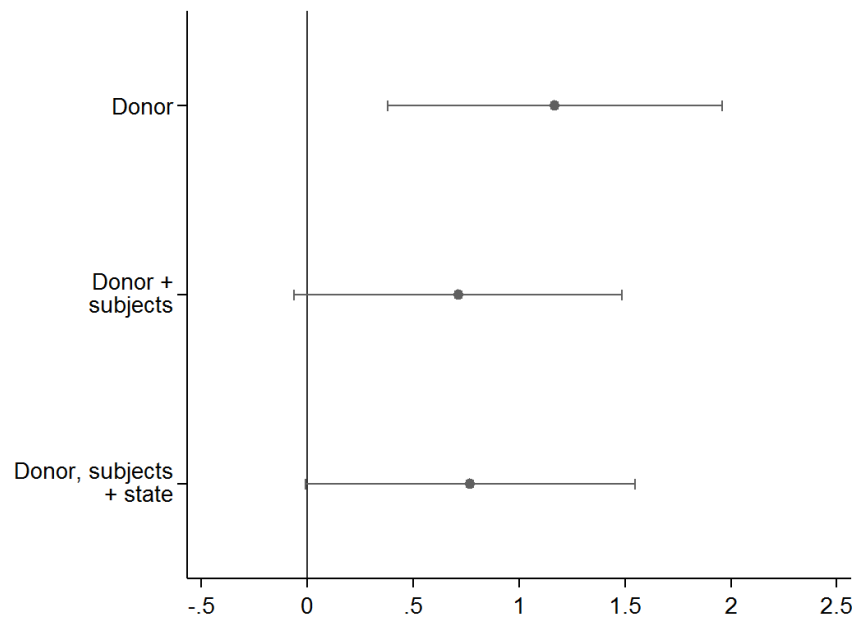


Figure SM3.: Treatment Effect on Average Need of Recipient, by Monitoring Principal(s)
Note: Figure shows average need of recipient, by treatment, with 95% confidence intervals. Need is a six-point scale that includes whether the recipient household: owns iron roofing, permanent brick walls, livestock, or a bicycle; is headed by an elderly person or a child; and cares for orphans. Higher scores indicate more need. Scores are reported by community informants not from the recipient households.

Table SM3.: Effects of monitoring by each principal

	(1)	(2)
Treat incl. donor monitoring	-0.814 [†] (0.454)	-0.938 [†] (0.490)
Treat incl. citizen monitoring	0.172 (0.455)	0.343 (0.484)
Treat incl. monitoring by superiors	-0.124 (0.458)	-0.236 (0.488)
Years as chief		0.00407 (0.0145)
Lifelong community resident?		0.0518 (0.504)
Years education		0.258 (0.463)
Income bracket		0.308 (0.345)
Work for government?		-0.160 (1.537)
Support incumbent party?		0.350 (0.388)
Ever traveled outside Malawi?		-0.0499 (0.388)
Constant	-0.504 (0.420)	-1.320 (1.038)
<i>N</i>	199	188

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table SM4.: Results using need index rather than subjective assessment of need

	(1)	(2)
[1em] Treatment One	0.956** (0.321)	
Treatment Two	0.482 (0.315)	
Treatment Three	0.537 (0.316)	
Treatment incl. donor monitoring		0.842** (0.317)
Treatment incl. citizen monitoring		-0.397 (0.321)
Treatment incl. top-down monitoring		0.0735 (0.322)
Years as chief	0.000962 (0.0101)	0.00170 (0.0102)
Lifelong	0.103 (0.334)	0.0877 (0.335)
Income bracket	-0.0138 (0.226)	-0.0203 (0.227)
Years education	0.0251 (0.294)	-0.0309 (0.295)
Supports incumbent party?	-0.141 (0.263)	-0.143 (0.265)
Works for government?	0.466 (0.924)	0.459 (0.929)
Constant	1.372* (0.670)	1.473* (0.668)
<i>N</i>	192	192

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

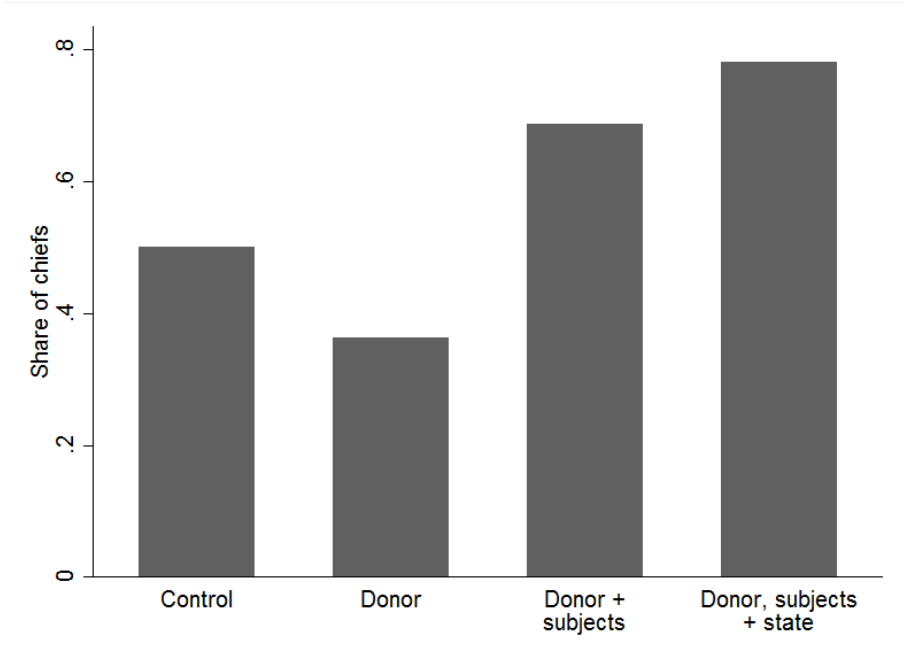
Table SM5.: Chief's choice to allocate sheets to relative

	(1)	(2)	(3)
Treatment One (Donor only)	0.000 (0.737)	-0.119 (0.798)	
Treatment Two (Donor, citizens)	1.595** (0.606)	1.660* (0.689)	
Treatment Three (Donor, citizens, superiors)	1.177 (0.623)	1.262 (0.704)	
Treatment incl. donor monitoring			-0.139 (0.797)
Treatment incl. citizen monitoring			1.788** (0.691)
Treatment incl. top-down monitoring			-0.399 (0.572)
Years as chief		-0.003 (0.022)	-0.003 (0.022)
Lifelong resident of community?		1.236 (1.150)	1.236 (1.149)
Years education		-0.572 (0.830)	-0.568 (0.831)
Income bracket		0.360 (0.431)	0.362 (0.432)
Work for government?		0.000 (.)	0.000 (.)
Support incumbent party?		-1.046 (0.707)	-1.047 (0.707)
Ever traveled outside Malawi?		-0.770 (0.592)	-0.771 (0.592)
Constant	-2.442*** (0.521)	-3.173 (1.782)	-3.168 (1.775)
<i>N</i>	200	185	185

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure SM4.: Allocation to Recipient Related to Chief, by Monitoring Principal(s)



Note: Figure shows share of recipients who are related to the chief, by treatment. Relationships were reported by local informants not themselves related to the chief.