



EDI WORKING PAPER SERIES

AGE SETS AND ACCOUNTABILITY*

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March 2021



Abstract

This document is the second of two progress reports that provide an overview of the progress made on the DFID RA4 project “Social structures, political accountability, and effective public goods provision.” Our study is interested in better understanding how variation in age sets practices – initiation rituals for young men – affects the accountability of local leaders. Anthropologists hypothesize that age sets increase the accountability of leaders by creating a cohesive group of young men that provide a check of the power of older elites. We test this with an intervention providing village chiefs with grants to purchase health products, which are made available at subsidized rates and transported to the village. As part of the project, village oversight committees are formed to monitor the chief’s management of the project and its resources. We vary the composition of the oversight committees; half comprise a random selection of all volunteers and the other half comprise young men. We then examine how the success of the project differs for the two types of committees in villages with age sets and in those without.

Keywords: Social organization, age sets, accountability, governance.

JEL Classification: O120, Z130, Z190

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*We thank Etienne Le Rossignol for excellent research assistance. We gratefully acknowledge funding from the J-PAL Governance Initiative and DFID EDI RA4. The experiment was pre-registered: AEARCTR-0005370. The project has IRB approval from the Harvard CUHS (IRB16-1065).

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1. Introduction

A key challenge in developing countries is how to improve governance and the provision of public goods. Providing public goods, whether funded by national governments, the World Bank, or aid organizations, is a difficult task. The implementation of public goods programs typically suffers from corruption, theft, and graft. This raises the natural question of how the governance and implementation of such programs can be improved.

The starting point of our research is the recognition that governance, oversight, and the successful implementation of public goods programs may be improved by taking into account the social structures of the local populations. A defining characteristic of many African societies is the presence of age sets, which form the foundation of traditional social and political organization.

While age sets have been well-studied in the anthropology literature, they have yet to be incorporated into economic research. In age set societies, politics is structured horizontally through groups of men of approximately the same age, who have been initiated into an age set. One of the most thoroughly studied age set societies is the Maasai of Kenya, where boys are initiated into the first age set via a circumcision ritual, after which they become warriors and live together. In their mid-twenties, when the next group of young boys is ready for initiation, the warriors transition into being farmers and husbands, officially getting married. After this, they transition into being elders who make political decisions, and finally into the oldest age set where they focused on spiritual and supernatural tasks. See Figure 1 for the distribution of ethnic groups that practice male circumcision and the segregation for some period of time of young men – two defining characteristics of age set societies.

One consequence of this social structure, which is well recognized in the anthropological literature, is that the presence of age sets puts natural checks on the powers of the political elite in society. Because one's age grade determines one's status in society, no one family is able to accumulate power since power cannot be passed on to one's descendants. Moreover, the fact that the system creates a cohesive group of young men that belong to the same age set provides a force that naturally checks the power of the elite, who are generally a group of elders who belong to a more senior age set ([Gulliver, 1963](#), [Bernardi, 1985](#)).

An anecdote from a rural Nigerian village highlights how age sets can serve as a check on power ([Bohannan, 1964](#)). The village was divided about whether a young man named Yaav was

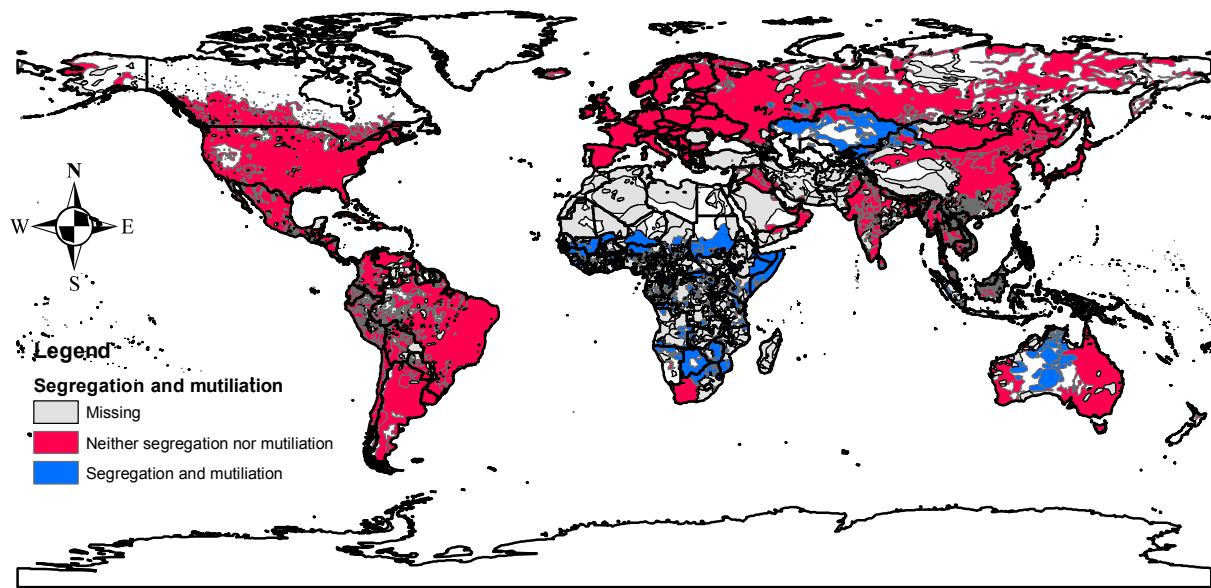


Figure 1: Distribution of societies that practice both circumcision and segregation young men.

involved in witchcraft. The youth instructed the elders of the village to convene a meeting, during which the Chief decided that Yaav should be punished for witchcraft. However, the Chief's son, whose name was Ilhugh, sided with the coalition that was against his father. When the Chief asked his son why he would side against his own father, Ilhugh replied that he and Yaav were age mates and this bond was stronger and more important. Ultimately, Yaav was spared punishment.

This story highlights a number of important consequences of age sets. First, because the age set was a unified cohesive group, they had political power. They were able to force the elders to convene a meeting, and they were able to prevent them from punishing Yaav for witchcraft. Second, it shows the strength of the horizontal ties within the community. In the end, Ilhugh's horizontal allegiance to his age mates was stronger than his vertical allegiance to his own father, despite the fact that his father was the chief. The story illustrates how age sets create a cohesive group of young able-bodied men, who are able to collectively balance the power of the political elders in the village. More generally, they are able to provide checks on any potential wrong doings or abuse of power that may occur by the elders.

Given the nature of age sets, we hypothesize that their presence in society may make the implementation of public programs more effective. This is because age sets, by creating a cohesive group of young men that counterbalance the power of the elders who hold political positions,

provide a check on the ability of leaders to engage in corruption and theft. Thus, the presence of age sets may act as a social structure that facilitates grassroots monitoring of the community leaders that are in charge of implementing public goods projects. This suggests that we may observe more successful implementation of projects and less corruption among societies that have age sets.

This raises the possibility that the provision of public goods can be made more effective by taking into account the specific political and social structure of a society. In the case of age sets, local monitoring may be more successful if oversight committees are comprised of young men from the same age set. Because this group is cohesive, and their interests are not aligned with the political elite, they may provide better monitoring and a better check on the power of the village elite than a more diverse committee.

With these questions in mind, we conduct a set of interventions to address two research questions. First, we examine whether development interventions have different impacts in villages that have age sets compared to those that do not. Second, we test whether governance and efficacy of the interventions can be improved if the interventions themselves are tailored in a way that takes into account the underlying social structure of the village. Specifically, we ask whether the success of programs is improved if the oversight committees, rather than being intentionally diverse, comprise young men from the same age set. In age set communities, it is possible that oversight committees comprised of young men might be more successful at monitoring the chief and preventing theft and corruption. This is because this is the traditional function of this group.

2. Related Literature

The paper makes a number of contributions to our existing knowledge. First, it provides an attempt to integrate local social structures into policy in a simple, yet real, way. Age sets have been noted as being important components of traditional governance, but have not been integrated into policy. A recent World Bank working paper laments this fact, writing that “Of the 78 [World Bank] assessments of legal and justice systems undertaken by the Bank since 1994, many mention the prevalence of traditional justice in the countries looked at, but *none* explore the systems in detail or examine the links between local level systems and state regimes.” ([Chirayath, Sage and Woolcock, 2005](#), p. 3) (emphasis in the original). The document then goes on to identify age sets as being an important dimension of traditional politics, for the groups in their case studies, since

they “partially offset the central authority of the chief and the divisions amongst the lineages” (p. 13).

Second, we contribute to the literature on the efficacy of CDD programs. [Casey \(2018\)](#) provides an overview of the key findings from the literature. Despite much policy enthusiasm for community driven development and the hope that these programs improves local decision making, there is little evidence of enduring impact. As described in [Casey \(2018\)](#), while CDDs are able to effectively deliver local public goods, there is little impact on institutions. Generally, in CDD interventions, the committees that are formed are designed to be diverse. Thus, our project differs slightly from this standard implementation and provides evidence on how targeting groups that traditionally hold the role of holding leaders accountable may improve outcomes. [Humphreys, Sanchez de la Sierra and Van der Windt \(2019\)](#) implement a large scale CDD in Eastern Congo across 1250 villages. They find no evidence that the program improves governance outcomes across a wide variety of indicators, such as whether public funds are captured and the types of governance practices employed by village leaders. Our project will speak to understanding when and how CDD type projects may be most effective. The results will also speak to how CDD programs may be tailored to better leverage existing institutions – rather than aiming to change them.

The paper also complements a literature on understanding the role of social structures for development outcomes. First, there is a growing literature on understanding the importance of social structures for economic development ([Greif, 1994, 2006](#)). For example, [Alesina and Giuliano \(2014\)](#) examine the link between family ties and economic attitudes, and [Bau \(2016\)](#) demonstrates that kinship structure affects response to policies. Research also suggests kinship networks provide insurance ([La Ferrara, 2003](#), [Baland, Bonjean, Guirkinger and Ziparo, 2016](#)), but may also affect incentives for investment ([Baland, Guirkinger and Mali, 2011](#), [Jakiela and Ozier, 2016](#)). [Schulz \(2017\)](#) finds that cousin marriages affect democracy, and [Akbari, Bahrami-Rad and Kimbrough \(2016\)](#) look at the role of cousin marriage for corruption. [Moscana, Nunn and Robinson \(2017\)](#) find that segmentary lineages affect incidence of conflict in Africa. These papers all highlight the importance of social structures for understanding variation in development outcomes.



Figure 2: Part of the age set initiation ceremony, historically (left) and today (right).

3. Evidence of the Importance of Age Sets from Ethnographic Data

The study takes place in the Sud-Ubangi province of the Democratic Republic of Congo (DRC). This location is an excellent setting to examine our questions of interest. It is large, ethnically diverse, and has significant variation in age set practices, where the practice varies from one village to the next. From surveys and focus groups conducted in the area, we have learned that approximately 50% of the villages in the area traditionally have age set practices, and except in large cities, these continue to be practiced today. As a visual illustration of this continuity, Figure 2 provides images of young men from the Ngbaka tribe performing a traditional dance as part of the final stages of the age set initiation ritual. The image on the left is from the colonial period, while the image on the right is from the contemporary period, being taken by our enumerators in 2017.

The initiation rituals require several months (typically six) stay in the forest, where livelihood skills (like house building, woodworking, agriculture, and witchcraft) and the history of the tribe are taught, and often circumcisions are performed. The difficult nature and the duration of the rituals naturally result in strong bonds being formed between the boys that participate in the

initiation.

4. Data and their collection

To lay the groundwork for our intervention, we undertook a preliminary rounds of data collection. We collected data from individuals living in the city of Gomena, which is the largest city in the region and the capital of Sud-Ubangi province. As part of the survey, we collected information about individuals' origin villages. About 50% of those sampled had detailed knowledge of their origin village. In total, 521 individuals with knowledge of their origin village were surveyed.

Our intervention sample comprises 300 randomly-selected villages from the territories of Gomena, Kungu and Lisala, which are located in the Northwest of the DRC. To select the 300 villages we first compiled a census of villages in each territory from the governor's office of each territory (where a village is defined as a collection of households managed by a village chief according to records on village chiefs compiled by territory administrators). We then randomly selected 100 villages from each territory. A map of the villages in the sample is shown in Figure 3.

The first round of surveys was undertaken during the summer of 2016 and summer 2017. We collected basic information on various political, social, and economic characteristics of the village, as well as information about its history. The surveys comprised surveys of: the Village Chief, the Sage, the Secretary, one notable from each clan of the village, the Groupement Chief (if present), and 12 randomly-chosen citizens from the village (4 old men, 4 young men, 2 old women and 2 young women). The Groupement Chief is the chief of a collection of villages; the position is generally hereditary. In choosing the citizens we stratified by gender and age. On average 18 villagers were surveyed per village. The surveys that we implemented were tailored to the status/position of each respondent, and we collected information that allows us to gain a better baseline understanding of the nature of the political, social, and economic life in the villages. In total, we surveyed over 5,400 individuals from these 300 villages.

Table 1 provides summary statistics for village characteristics for the villages in the baseline sample to demonstrate the public goods available in the villages. About half the villages in the region have a health center and fewer than 5% have access to clean water through protected wells. Most villages have primary schools but not secondary schools.

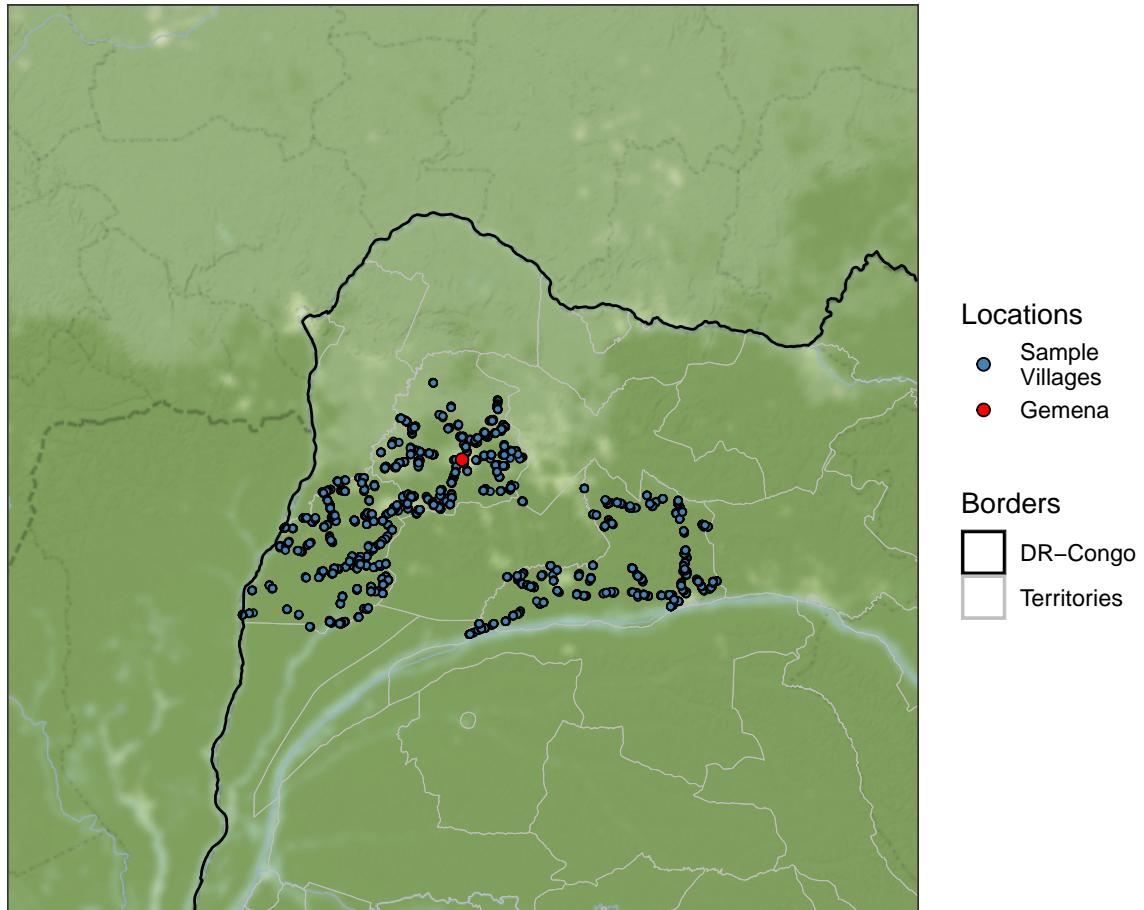


Figure 3: Location of villages in our sample

Table 1: Summary Statistics for Villages Surveyed

| | Village Characteristics | |
|-----------------------------|-------------------------|-------|
| | Mean | SD |
| Village On A Main Road | 0.900 | 0.300 |
| Village Accessible by Car | 0.760 | 0.430 |
| Has Health Center | 0.530 | 0.500 |
| Number of Health Centers | 1.340 | 1.000 |
| Has Primary School | 0.760 | 0.430 |
| Number of Primary Schools | 1.410 | 0.730 |
| Has Secondary School | 0.540 | 0.500 |
| Number of Secondary Schools | 1.250 | 0.950 |
| Has a Protected Wells | 0.040 | 0.180 |
| Number of Protected Wells | 0.220 | 0.620 |
| Obs. | 298 | 298 |

Notes: Data from baseline surveys conducted in northern DRC for 298 villages. Village on a Main Road is an indicator variable equal to 1 if the village is on a main road (i.e. can be reached by motorbike). Village Accessible by Car is an indicator variable equal to 1 if the village can be reached by car. Has Health Center is an indicator variable equal to 1 if the village has at least one health center, Has Primary School is an indicator variable equal to 1 if the village has at least one primary school, Has Secondary School is an indicator variable equal to 1 if the village has at least one secondary school, and Has Protected Well is an indicator variable equal to 1 if the village has at least one protected well.

Table 2: Summary Statistics for Village Chiefs and Villagers Surveyed

| | Village Chiefs | | Villagers | |
|------------------------|----------------|--------|-----------|--------|
| | Mean | SD | Mean | SD |
| Age | 48.440 | 10.120 | 38.770 | 14.210 |
| Male | 1.000 | 0.000 | 0.670 | 0.470 |
| Yearly Income (\$) | 530 | 592 | 394 | 489 |
| Primary Earner in HH | 0.900 | 0.300 | 0.670 | 0.470 |
| Married | 1.000 | 0.000 | 0.830 | 0.380 |
| Number of Children | 7.680 | 3.950 | 5.000 | 3.210 |
| Educational Attainment | 2.620 | 0.600 | 2.370 | 0.920 |
| Born in Village | 0.740 | 0.440 | 0.610 | 0.490 |
| Obs. | 297 | 297 | 3,614 | 3,614 |

Notes: Data from baseline surveys conducted in northern DRC for 298 villages. Male is an indicator variable equal to 1 if the respondent is a male. Primary Earner is an indicator variable equal to 1 if the respondent is currently the primary earner for his/her household. Married is an indicator variable equal to 1 if the respondent is currently married. Educational Attainment is a 0 to 4 categorical variable where 0 is no education and 4 is higher education.

Summary statistics for the 297 surveyed village chiefs and the 3,614 randomly-sampled villagers from each village are provided in Table 2. By construction, men are over-represented in the sample. Respondents report having a mean annual income of approximately \$394 while village chiefs report having a mean annual income of \$530. Respondents have on average 2.3 years of education. Village chiefs in the surveyed villages are all male and married, and often the primary earner of their household. Village chiefs are also more likely to have been born in the current village of residence compared to respondents, and tend to be much older than the average respondent.

We also present tables presenting summary statistics and differences in characteristics comparing villages with age set practices to villages without age set practices. Table 3 presents the results for a number of key village characteristics. Villages with age set rituals are very similar to villages without age set villages on important village characteristics such as altitude, schooling access, and clean water access. Villages with age set practices are more likely to have a health center and a primary school compared to villages in our sample without age set practices. Table 4 compares characteristics for chiefs in villages with and without age set practices. Interestingly, village chiefs in villages with age set practices have similar characteristics to chiefs in villages without age set practices in terms of age, household income, and educational attainment.

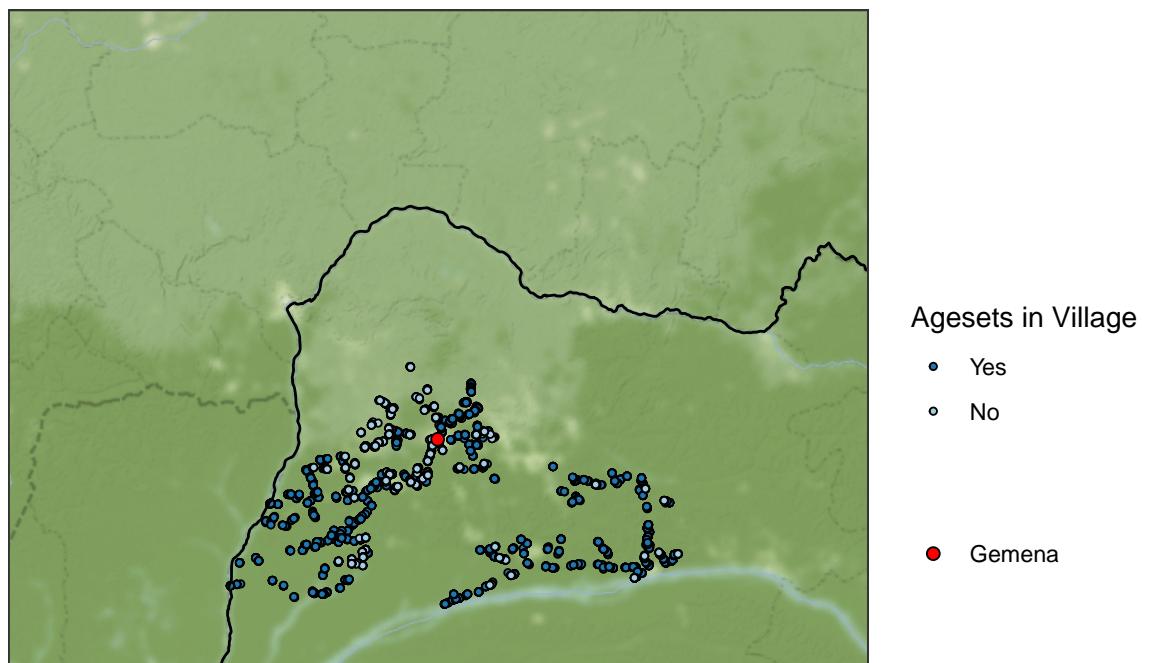


Figure 4: Sample villages with and without age set rituals

Table 3: Differences Between Villages With and Without Age Set Rituals: Village Characteristics

| | Village has an Age Set Ritual | | Village has no Age Set Ritual | | Difference (1)-(2) |
|---------------------------------|-------------------------------|------------------|-------------------------------|------------------|-----------------------|
| | Obs. | (1) Mean/SE | Obs. | (2) Mean/SE | |
| Village: Altitude | 118 | 8.141 (2.860) | 184 | 4.765 (2.125) | 3.376 (3.557) |
| Village: Has Health Center | 118 | 0.542 (0.046) | 184 | 0.462 (0.037) | 0.081 (0.059) |
| Village: Num. of Health Centers | 118 | 1.641 (0.251) | 184 | 1.229 (0.055) | 0.412 (0.257) |
| Village: Has Primary School | 118 | 0.856 (0.032) | 184 | 0.681 (0.035) | 0.175*** (0.047) |
| Village: Num. Primary School | 118 | 1.822 (0.251) | 184 | 1.382 (0.065) | 0.440 (0.259) |
| Village: Has Secondary School | 118 | 0.576 (0.046) | 184 | 0.484 (0.037) | 0.093 (0.059) |
| Village: Num. Secondary School | 118 | 1.358 (0.185) | 184 | 1.432 (0.175) | -0.074 (0.255) |
| Village: Has Protected Well | 118 | 0.042 (0.019) | 184 | 0.038 (0.014) | 0.004 (0.023) |
| Village: Num. Protected Wells | 118 | 0.182 (0.081) | 184 | 0.267 (0.095) | -0.085 (0.125) |

Notes: The final column reports the difference and standard error of the means for villages with and without age sets rituals. Data are from baseline surveys conducted in northern DRC. Standard errors are clustered at the village level. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Finally, Table 5 compares characteristics of villages with and without age set practices. Individuals from villages with age set practices have similar average age profiles but have lower household income and educational attainment than those in villages without age set practices. To help visualize the distribution of villages in our sample with age set practices and without age set practices, Figure 4 presents a map of the villages in our sample coded by whether the village has age set practices or whether the village does not have age set practices.

Table 4: Differences Between Villages With and Without Age Set Rituals: Chief Characteristics

| | Village has an Age Set Ritual | | Village has no Age Set Ritual | | Difference (1)-(2) |
|-------------------------------|-------------------------------|-------------------|-------------------------------|-------------------|-----------------------|
| | Obs. | (1) Mean/SE | Obs. | (2) Mean/SE | |
| Chief: Age | 118 | 49.701 (0.880) | 180 | 47.622 (0.780) | 2.079* (1.176) |
| Chief: HH Income | 115 | 472.7 (43.61) | 171 | 581.6 (50.73) | -108.9 (66.89) |
| Chief: Primary Earner | 118 | 0.863 (0.032) | 180 | 0.922 (0.020) | -0.059 (0.037) |
| Chief: Educational Attainment | 118 | 2.641 (0.049) | 180 | 2.611 (0.048) | 0.030 (0.068) |

Notes: The final column reports the difference and standard error of the means for villages with and without age sets rituals. Data are from baseline surveys conducted in northern DRC for 298 villages. Primary Earner is an indicator variable equal to 1 if the respondent is currently the primary earner for his/her household. Educational Attainment is a 0 to 4 categorical variable where 0 is no education and 4 is higher education. Standard errors are clustered at the village level. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

Table 5: Differences Between Villages With and Without Age Set Rituals: Villager Characteristics

| | Village has an Age Set Ritual | | Village has no Age Set Ritual | | Difference (1)-(2) |
|------------------------------------|-------------------------------|---------------------|-------------------------------|---------------------|------------------------|
| | (1) Obs./Clusters | Mean/SE | (2) Obs./Clusters | Mean/SE | |
| Respondent: Age | 1417 [118] | 39.046 (0.247) | 2197 [184] | 38.591 (0.182) | 0.455 (0.306) |
| Respondent: HH Income | 1269 [118] | 372.253 (17.814) | 1999 [184] | 464.036 (19.206) | -91.783*** (26.153) |
| Respondent: Primary Earner | 1415 [118] | 0.659 (0.011) | 2193 [184] | 0.682 (0.009) | -0.024 (0.014) |
| Respondent: Educational Attainment | 1417 [118] | 2.330 (0.031) | 2197 [184] | 2.398 (0.024) | -0.068* (0.039) |

Notes: The final column reports the difference and standard error of the means for villages with and without age sets rituals. Data are from baseline surveys conducted in northern DRC. Primary Earner is an indicator variable equal to 1 if the respondent is currently the primary earner for his/her household. Educational Attainment is a 0 to 4 categorical variable where 0 is no education and 4 is higher education. Standard errors are clustered at the village level. ***, **, and * indicate significance at the 1, 5, and 10 percent levels.

5. Cross-sectional estimates

Given the nature of age sets, we hypothesize that their presence may make development interventions, like foreign aid delivery, more effective. It is possible that age sets, by creating a cohesive group of young men that counterbalance the power of the elders who hold political positions, provide a check on the ability of leaders to engage in corruption and theft. Thus, the presence of age sets may act as a social structure that facilitates grass-roots monitoring of the community leaders that are in charge of implementing aid programs. This suggests that we may observe more successful implementation of aid programs and less corruption among societies that have age sets.

A second important policy-related question is whether programs and interventions can be made more effective by taking into account the specific political and social structure of a society. For example, in the case of age sets, local monitoring – as in the case of community-driven development programs – may be more successful if special power is given to groups of young men from the same age grades whose interests are not aligned with the political elite of the community. More generally, by better understanding the consequences of differences in social and political structures across the societies of Africa, one may be able to use this understanding to improve the implementation of development projects and the effectiveness of foreign aid. We conduct a set of interventions to address whether development interventions have different impacts in villages that have age sets compared to those that do not and whether the efficacy of the interventions can be improved if the interventions themselves are tailored in a way that takes into account the underlying social structure of the village.

A. The Gemenia survey

First, we present data from the respondents surveyed in the city of Gemenia, from whom we collected data on customs and politics in their villages of origin. Some very interesting patterns emerge. Table 6 reports correlations between the practice of age sets and outcomes related to accountability of village leaders. First, chiefs in villages with age sets provide more public goods to the village (column 1). Additionally, in villages with age sets, chiefs are more likely to be chosen through a process that is democratic in nature (e.g. elections rather than hereditary appointment) (column 2). However, despite the greater accountability and greater public goods provision,

Table 6: Age sets and village governance outcomes: Evidence from Individuals in Gemena

| | <i>Chief Public Good Index</i> (AES Coefficients) | <i>Chief Elected</i> | <i>Views on Chief Index</i> (AES Coefficients) | <i>Chief IAT</i> | <i>Important to Respect Elders</i> |
|---------------|--|----------------------|---|-------------------|------------------------------------|
| | (1) | (2) | (3) | (4) | (5) |
| Ageset | 0.323*** (0.074) | 0.158** (0.078) | -0.227** (0.103) | -0.085 (0.065) | -0.218** (0.100) |
| Observations | 276 | 269 | 325 | 299 | 311 |
| Clusters | 201 | 201 | 235 | 219 | 229 |

Note: Standard errors clustered at the origin village level. Regressions control for age, age squared and sex. *Chief Public Good Index* presents Average Effect Size estimates for the following questions: Is the chief in your village of origin responsible for providing (1) road maintenance, (2) new roads, (3) school maintenance, (4) land allocation, (5) protection of property rights, (6) tax collection, (7) jobs, (8) conflict arbitration, and (9) road brushing; all questions answered as a 0 to 2 categorical variable where 0 is Yes, 1 is Partially, and 2 is No. *Chief Elected* is an indicator variable equal to 1 if the village chief of a respondent's origin village is selected by elections. *Views on Chief Index* presents Average Effect Size estimates for the following questions (with number of components for each question indicated in brackets): (1) How satisfied are you with your village of origin chief? [4], (2) Would you vote for your village of origin chief if there were an election held tomorrow? [2], (3) How much confidence do you have in local chiefs? [4]. *Chief IAT* is the D-Score for the Implicit Association Test that asked respondents to sort sounds of words related to local chief authority, where more positive values indicate a more positive implicit association with local chiefs. *Important to Respect Elders* asks respondents if it is important to respect elders, where the response options range from 0-4 and are: Strongly Disagree, Disagree, Agree, Strongly Agree. *Ageset* is an indicator variable equal to 1 if the respondent originates from a village that has agesets. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

villagers from age set villages report being less satisfied with the chief and his governance and have lower implicit views of the chief (column 3 and 4). These correlations are consistent with age sets resulting in greater checks placed upon chiefs, more monitoring, and higher expectations of leaders, all of which result in greater public goods provision. Consistent with this interpretation, we also find that in age set villages, individuals believe it less important to respect the elders of the community (column 5). Thus, our preliminary data collection yields evidence consistent with age sets being important for governance and public goods provision in this region of DRC.

B. Village surveys

We now turn to the survey data from the 302 villages in our sample. Figure 5 shows the distribution of the share of surveyed men in each village who reported having participated in an age set ritual in the baseline survey. As shown, there is significant variation in how common the practice is across villages.

In general, we find the same patterns in the data for our village sample as we do for the initial survey in the city of Gemena, which provides added confidence in the findings. As reported in columns 1 and 2 of Table 7, we find a positive relationship between the probability that the village chief is elected and either the presence of the age set practice in the village (column 1) or the share of surveyed adult men in the village who had participated in an age set ritual (column 2). The presence of age sets is defined as an indicator variable that equals one if the village

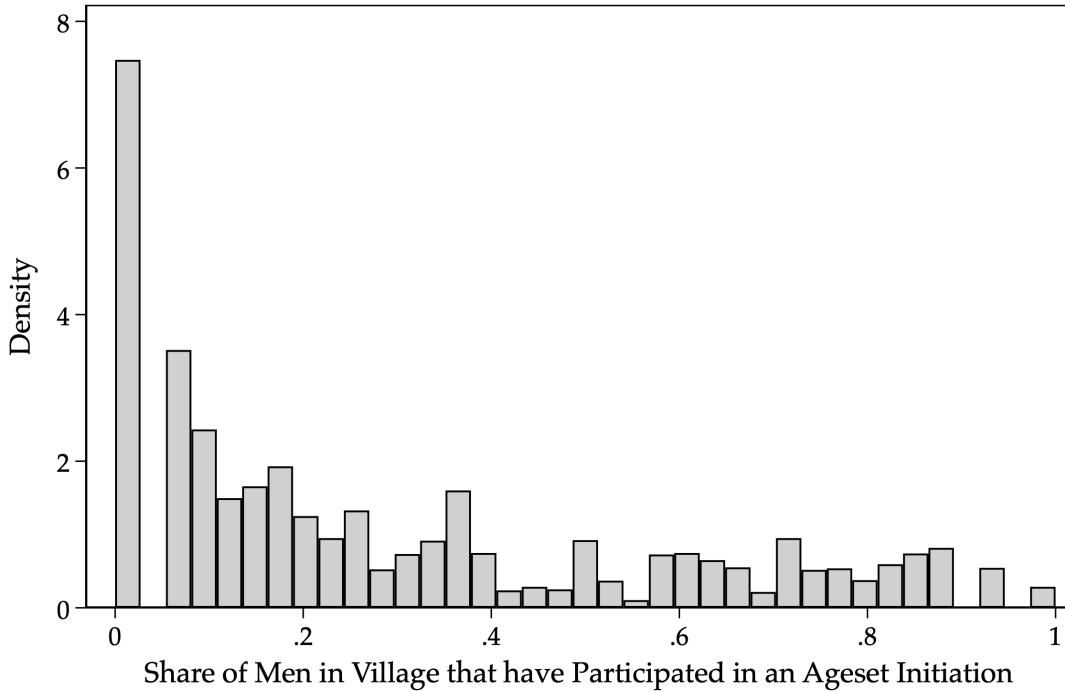


Figure 5: Share of surveyed-men in a village who have participated in an age set ritual

notable or the village sage reports that the village has age sets when asked during their surveys. The share of surveyed adult men in the village who had participated in an age set ritual includes random villagers, notables, village sage, village chief, and village secretary.¹ In panel A, we report estimates that only include our baseline covariates (the respondent's age, age squared, and sex). In panel B, we also include controls for characteristics of the village chief (their age, age squared, sex, whether they were born in the village, household income, and educational attainment).

Columns 3 and 4 of Table 7 report estimates of the relationship between the age set practice and the provision of public goods by the village Chief. We measure the provision of public goods provision using survey questions that ask villagers whether the chief is responsible in their village for nineteen different public goods, such as arbitrating conflict, organizing road cleaning,

¹We can also construct measures using only the randomly-sampled villagers, or only the village leadership. These measures are all strongly correlated with the measure using all adult men (randomly-sampled villagers and village leadership): the correlation between all surveyed adult men and only randomly-sampled adult men is 0.96, while the correlation between all surveyed adult men and only village leadership adult men is 0.78.

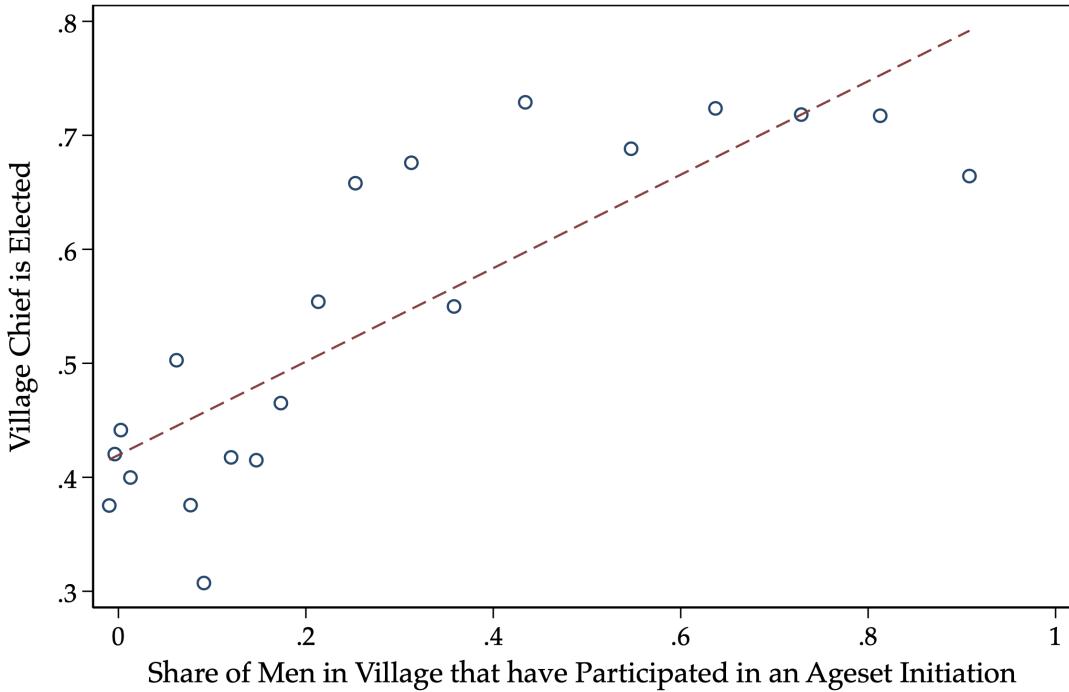


Figure 6: Age sets and democratically elected chief positions

or lobbying for funds.² The reported estimates are average effect sizes across all public goods. With or without chief covariates, we find a strong positive relationship between the presence of age sets and the scope of the provision of public goods by the chief.

To help understand the strength of the underlying relationships, Figures 6 and 7 reports the raw relationship (i.e., bivariate binscatter plots) between the proportion of surveyed men participating in age set rituals and either the chief being non-hereditary (Figure 6) or public goods provision (Figure 7). Even in the raw data, we find clear relationships between the age sets practice and whether chiefs are hereditary and public goods provision.

As we did with the Gemenia sample, we also explore whether age set practices are associated with less support for the chief. The estimates, which are reported in Table 8, show that even though age set practices are associated greater accountability and greater public goods provision, villagers from age set villages do not report being more supportive of the chief and his governance. The estimated coefficients are very small in magnitude and close to zero. Additionally,

²The list of public goods included in the index are: arbitrating land conflicts; road maintenance; new roads; school maintenance; land allocation; protection of property rights; tax collection; jobs; adultery conflict arbitration; witchcraft conflict arbitration; theft conflict arbitration; murder conflict arbitration; other village conflict arbitration; organizing road cleaning; social events; maintaining health centers; lobbying for funds; planting trees, and maintaining market places. Participants can answer ‘yes’, ‘partially’, or ‘no’. The answers are given the values of 2, 1, and 0, respectively.

Table 7: Age sets and village governance outcomes

| | <i>Village Chief Elected</i> | <i>Chief Public Good Index (AES Coefficients)</i> | | |
|-------------------------------------|----------------------------------|---|---------------------|---------------------|
| | (1) | (2) | (3) | (4) |
| <i>Panel A: Baseline Controls</i> | | | | |
| Ageset | 0.148*** (0.059) | – | 0.150*** (0.038) | – |
| Ageset Share | – | 0.422*** (0.105) | – | 0.254*** (0.076) |
| Mean Dep. Var. | 0.53 | 0.53 | – | – |
| Observations | 297 | 297 | 4,912 | 3,562 |
| Villages | 297 | 297 | 302 | 302 |
| <i>Panel B: With Chief Controls</i> | | | | |
| Ageset | 0.118** (0.059) | – | 0.179*** (0.038) | – |
| Ageset Share | – | 0.441*** (0.104) | – | 0.306*** (0.076) |
| Mean Dep. Var. | 0.54 | 0.54 | – | – |
| Observations | 293 | 293 | 3,319 | 3,319 |
| Villages | 293 | 293 | 302 | 302 |

Notes: Standard errors clustered at the village level. Panel A regressions control for respondents age, age squared, and sex. Panel B regressions control for age, age squared, sex, whether they were born in the village, household income, and educational attainment of the respondent villager and control for the village chief's age, age squared, sex, whether they were born in the village, household income, and educational attainment. *Chief Public Good Index* presents Average Effect Size estimates for the following questions: Is the chief in your village responsible for providing (1) arbitrating land conflicts, (2) road maintenance, (3) new roads, (4) school maintenance, (5) land allocation, (6) protection of property rights, (7) tax collection, (8) jobs, (9) adultery conflict arbitration, (10) witchcraft conflict arbitration, (11) theft conflict arbitration, (12) murder conflict arbitration, (13) other village conflict arbitration, (14) organizing road cleaning, (15) social events, (16) maintaining health centers, (17) lobbying for funds, (18) planting trees, and (19) maintaining market places; all questions answered as a 0 to 2 categorical variable where 2 is Yes, 1 is Partially, and 0 is No. *Chief Elected* is an indicator variable equal to 1 if the village chief of surveyed village was selected by elections according to the village secretary. *Ageset* is an indicator variable equal to 1 if the respondent originates from a village that has agesets according to village notables and the village sage. The mean value of *Ageset* is 0.37 with standard deviation 0.48. *Ageset Share* is the share of men in a village that we surveyed that say that they participated in an ageset initiation ritual. The mean value of *Ageset Share* is 0.29 with standard deviation 0.28. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

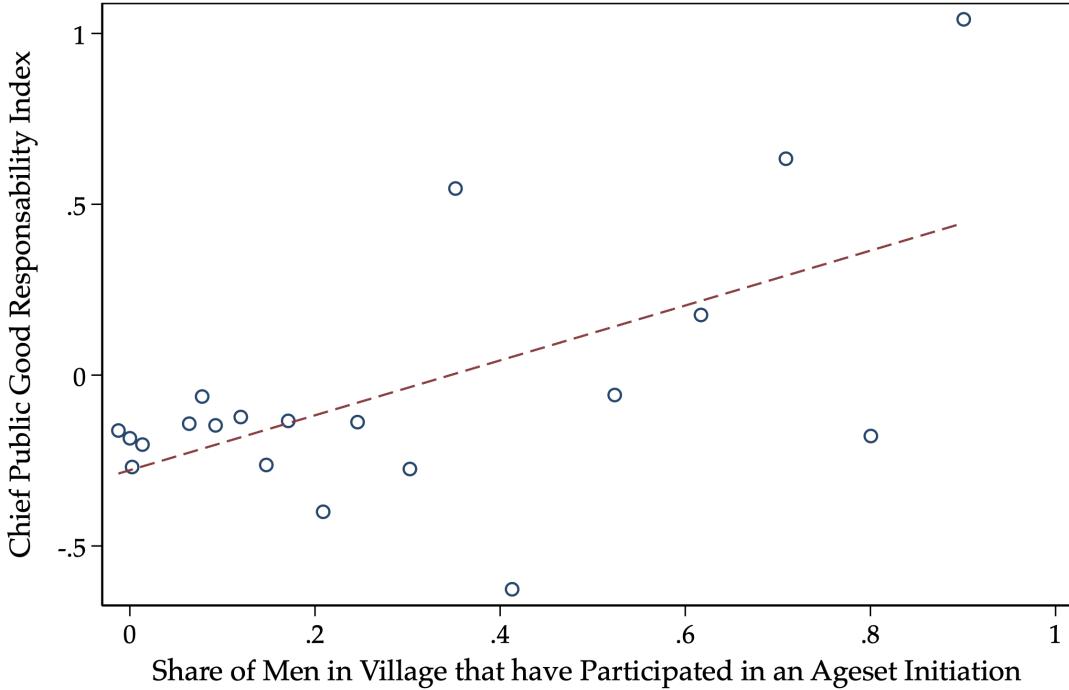


Figure 7: Age sets and public goods provision of chiefs

for this sample, the estimates show that villagers from age set villages report more trust and satisfaction with their chief. We also test these relationships by whether or not the village chief is elected. The estimates, presented in Panel B for villages with chief elections and Panel C for villages without chief elections, show that the trust and satisfaction results are only present in ageset villages that also chose their chief via election. This suggests that age sets may also lead to better chiefs that they trust more in villages where they are able to elect the village chief.

We also test whether age set practices are associated with greater economic and social well-being for villagers, which we measure using income, height, and their reported closeness to other villagers. Income is measured in two ways. One is a self-reported wealth measure on a 1–5 integer scale. We also directly measure household income using the respondent's self-reported annual income in 2017 dollars. Height is measured by the enumerator and reported in centimeters. How close the respondent feels to other villagers is self-reported and measured on a 1–6 integer scale. According to the estimates, which are reported in Table 9, villagers who live in villages with age sets tend to have a higher perception of their income even though their actual reported income is lower. We find no differences in their height nor in how close they feel to fellow villagers.

Table 8: Age sets and villagers' satisfaction with the current chief

| | <i>Trust in Chief</i> (AES Coefficients) | | <i>Satisfaction with Chief</i> (AES Coefficients) | | <i>Support for Chief</i> (AES Coefficients) | |
|---|---|--------------------|--|-------------------|--|------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| <i>Panel A: Full Sample</i> | | | | | | |
| Ageset | 0.135** (0.055) | – | 0.113** (0.054) | – | -0.015 (0.057) | – |
| Ageset Share | – | -0.039 (0.090) | – | 0.044 (0.095) | – | 0.140 (0.091) |
| Observations | 3,304 | 3,304 | 3,306 | 3,306 | 3,296 | 3,296 |
| Villages | 302 | 302 | 302 | 302 | 302 | 302 |
| <i>Panel B: Villages with Chief Elected</i> | | | | | | |
| Ageset | 0.229*** (0.076) | – | 0.194*** (0.072) | – | 0.026 (0.075) | .– |
| Ageset Share | – | 0.092 (0.131) | – | 0.137 (0.142) | – | 0.199 (0.126) |
| Observations | 1,768 | 1,768 | 1,769 | 1,769 | 1,766 | 1,766 |
| Villages | 160 | 160 | 160 | 160 | 160 | 160 |
| <i>Panel C: Villages with Chief Not Elected</i> | | | | | | |
| Ageset | 0.039 (0.083) | – | 0.011 (0.083) | – | -0.076 (0.085) | – |
| Ageset Share | – | -0.212* (0.127) | – | -0.113 (0.140) | – | 0.085 (0.144) |
| Observations | 1,536 | 1,536 | 1,537 | 1,537 | 1,530 | 1,530 |
| Villages | 142 | 142 | 142 | 142 | 142 | 142 |

Notes: Standard errors clustered at the village level. All regressions control for age, age squared, sex, whether they were born in the village, household income, and educational attainment of the respondent villager and control for the village chief's age, age squared, sex, whether they were born in the village, household income, and educational attainment of the respondent. *Trust in Chief Index* presents Average Effect Size estimates for the following questions: How much do you trust the chief? [1-4] How much do villagers trust the chief? *Satisfaction with Chief Index* presents Average Effect Size estimates for the following questions: How satisfied are you with your chief? [1-5] How satisfied are you in the performance of your village chief? How competent do you think your village chief is? *Support of Chief Index* presents Average Effect Size estimates for the following questions: How much do villagers support the chief? [1-5] How much do the young support the chief? How much do the old support the chief? How much do notables support the chief? *Ageset* is an indicator variable equal to 1 if the respondent originates from a village that has agesets according to village notables and the village sage. The mean value of *Ageset* is 0.37 with standard deviation 0.48. *Ageset Share* is the share of men in a village that we surveyed that say that they participated in an ageset initiation ritual. The mean value of *Ageset Share* is 0.29 with standard deviation 0.28. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

Table 9: Age sets and the well-being of villagers

| | Dependent Variables: | | | | | | | |
|---------------------|----------------------|---------|-------------------------|-----------|--------------------|---------|-------------------------------------|---------|
| | <i>Income Rating</i> | | <i>Household Income</i> | | <i>Height (cm)</i> | | <i>Closeness to Other Villagers</i> | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Ageset | 0.108* | | -49.8* | | 0.230 | | 0.050 | |
| | (0.062) | | (26.2) | | (0.333) | | (0.036) | |
| Ageset Share | | 0.205** | | -112.8*** | | -0.150 | | 0.077 |
| | | (0.090) | | (40.78) | | (0.499) | | (0.059) |
| Observations | 3,611 | 3,611 | 3,268 | 3,268 | 3,528 | 3,528 | 3,562 | 3,562 |
| Mean | 1.717 | 1.717 | 428.4 | 428.4 | 166.7 | 166.7 | 3.706 | 3.706 |

Notes: Standard errors clustered at the village level. Regressions control for age, age squared, sex, whether they were born in the village, and educational attainment of the respondent villager. *Income Rating* is the enumerators' rating, on a scale of 1-5, of how wealthy a respondent is. *Household Income* is the annual reported household income in 2017 dollars. *Closeness to Other Villagers* is how close a respondent feels to other villagers on a scale of 1-6. *Ageset* is an indicator variable equal to 1 if the respondent originates from a village that has agesets according to village notables and the village sage. The mean value of *Ageset* is 0.37 with standard deviation 0.48. *Ageset Share* is the share of men in a village that we surveyed that say that they participated in an ageset initiation ritual. The mean value of *Ageset Share* is 0.29 with standard deviation 0.28. * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$

6. The Experiment

The next part of the analysis turns to the local implementation of policy and public goods provision, which in this setting typically occurs through foreign NGOs who provide public goods to the communities. In such projects, an important issue is how to optimally structure the project to make sure its objectives are obtained and goods are provided to the community in the best way possible. It is common for the local NGOs to work both with the chief of the village and to form a committee to oversee and help with the implementation of the project. We are interested in whether the presence of traditional social structures, namely, age sets, affects the success of these development projects and whether the development projects can be tweaked in a way that leverages the existing role and benefits that age sets play in the village.

A. Overview

We partnered with a local NGO, Congo Helping Hands (CHH), to evaluate a program that was implemented by the NGO in the study villages at the request of the research team. Congo Helping Hands (CHH) is an organization that has worked in the DRC since 2004. Its founders have been working in the DRC since 1998. CHH is a non-profit organization that works to improve the quality of life of Congolese people through human development in health, education, agriculture, and microeconomics. It has conducted many projects related to water, sanitation and hygiene (commonly referred to as WASH) throughout the DRC.

The project provides the chief with a cash grant for the purchase of water, sanitation, and health products aimed at improving health and drinking water in rural villagers. The products are deworming pills, chlorine tablets, and oral rehydration salts (ORS). These products are sold by project vendors at a highly subsidized rate. As is standard in such projects, a small committee was formed by CHH – referred to as village development committees (VDCs) – to help administer the project. The committee members responsibilities are to ensure that the products are distributed in a fair and equitable manner, help to distribute products themselves, help villagers to use them, and answer any questions that may arise. Because the positions are typically volunteer positions, the committee members are not paid.

Our interest is in how the success of the project with CHH differs depending on whether a village has age sets or not. According to the anthropological literature, villages with age sets

may have better functioning local-level institutions and so the chief and committee may be better at implementing the project. For example, with the presence of age sets and more accountable governance in the village, the chief may administer the program more effectively or more fairly.

The second question is whether varying the composition of the committee to over-represent young men has differential effects in age set villages. If villages with age sets customarily have young men liaison between the villagers and the chief, then projects with committees that mimic this structure might do better in age set villages. Specifically, in age set villages, projects with committees that comprise young men, who are accustomed to communicating with the chief about political or policy issues, might be more effective at helping to successfully implement the project.

For this project, CHH formed the committees in a manner that is more structured than is typical for them so that we can analyze the effects of different types of committees and how this varies depending on whether a village has age sets. For a random selection of 50% of the villages, CHH created committees that are only men between the ages of 18 and 35. In the other 50% of villages, committees were diverse, reflecting the composition of those who are interested in volunteering for the committee. In both sets of villages, the committee members are chosen randomly (or randomly conditional on the criteria) among those who volunteered to be a part of the committee.

This adjustment to the NGO's standard practice provides us with the variation in committee composition that allows us to observe whether the success of the project depends on the age and gender of committee members and whether this differs depending on whether the village traditionally has age sets or not.

B. *Structure and timeline*

The steps in the experiment are as follows.

1. **Baseline survey.** During this first village visit, baseline data are collected. A relationship with the chief is established. This occurred during June 2016 to September 2016 for Gemena territory, October 2016 to March 2017 for Lisala territory, and April 2017 to August 2017 for Kungu territory.

2. **Initial visit of the intervention.** During the initial visit, CHH holds a meeting with villagers to explain the project and the health products. The products are deworming medication, Aquatabs for water sanitation, and oral rehydration salts for the prevention and treatment of dehydration. These are over-the-counter products – i.e. they do not require a prescription from a medical professional – that individuals in rural villages are familiar with and want to use (from focus groups we have conducted) but to which they lack access to due to the remoteness of the villages and prohibitive prices.

As is standard in these types of village-level public goods projects, a village oversight committee is created ([Casey, 2018](#)). To create this committee, CHH then arranges a meeting for individuals who are interested in volunteering to be on a village oversight committee. In randomly selected villages, CHH forms committees that comprise only young men (between 18 and 35 years old), who are randomly selected from those who volunteer to participate on the committee. In the other 50% of villages, CHH forms committees from randomly selected individuals among those who are interested in being volunteers. We survey all individuals who attend the committee information meeting, regardless of the treatment status of the village.

During the visit, CHH meets with the committee alone, with the chief alone, and then with the committee and chief together. During these meetings CHH explains the setup of the program. Specifically, CHH explains that the chief will receive a cash grant, that the cash grant is to be used for the purchase of health products, and that vendors from the project will visit the village in several weeks time to sell the health products at a subsidized price. The chief is responsible for using the funds to purchase the product and for distributing the products. The committee is responsible for overseeing the chief and the chief is supposed to report to the committee during meetings and the committee and chief are responsible for having meetings where they communicate with the villagers. At the end of the visit, CHH provides the chief with a \$100 grant (in Congolese Francs) for the purchase of health products.

3. **Vendor visits.** CHH hired and trained vendors that would visit the villages. After approximately 3 weeks, the first vendor visits the village. Vendor visits are staggered so that only one vendor visits each week. One vendor sells deworming pills, one vendor sells Aquatabs,

and another vendor sells oral rehydration salts. A vendor for each product visits every village at least once. The vendors provide access to the three health products and sell the products at highly discounted prices (50% discount) to the village chief, who can use the grant provided by CHH to purchase these products for the members of the village. One round of grants plus product transport occur.

4. **Endline survey.** Approximately 6 months after the last vendor visit, the enumerators visit the village again. They conduct endline surveys with the committee members, the chief, and, budget permitting, randomly-selected households. The survey with the committee members and chief asks about the meetings that were held and whether there were any disagreements or problems in the implementation of the program. The surveys with the households asks about the members health experiences since the implementation of the project, access to the health products, and views on the performance of the chief and village committee. Finally, after the completion of the endline surveys, the enumerators ask the chief to return any unused project funds.

Our goal is to implement the project using our full sample of 302 villages. With the funds we were granted, we have been able to complete one territory, Gemenia. Our intention is to secure additional funding to implement the project in the two remaining territories, Lisala and Kungu.

C. Estimating equation

Our baseline estimating equation takes the following form:

$$y_i = \alpha I_i^{\text{AgeSet}} + \delta I_i^{\text{YoungMale}} + \beta I_i^{\text{AgeSet}} \times I_i^{\text{YoungMale}} + \phi_{j(i)} + \varepsilon_i, \quad (1)$$

where i indexes villages and the sample comprises our randomly chosen villages from Gemenia, Lisala, and Kungu territories in the DRC.³ The variable I_i^{AgeSet} is an indicator that equals one if the village traditionally had age sets. We also present results using an alternative and continuous measure, which is the fraction of randomly surveyed men who participated in an age set initiation. The variable $I_i^{\text{YoungMale}}$ is an indicator that equals one if village i was randomly chose to have a village committee that comprises only young men (aged 18–35). $\phi_{j(i)}$ represents territory fixed effects. Standard errors are clustered at the village level.

³As explained above, at this point, we have only secured funding to implement the project in Gemenia territory. We are applying for funding to extend the study to Lisala and Kungu territories.

The variable y_i denotes our outcomes of interest. We examine two primary outcome variables, each intended to measure the success of the project. These are:

1. The fraction of project funds that were used to purchase health products (i.e. funds that are not missing).
2. The fraction of randomly surveyed households that received a product.

We are interested in all coefficients in equation (1). The sign of α tells us whether villages with age sets have more or less successful projects, based on our measures, when the committee is diverse. The sign of δ tells us whether villages with committees that comprise young men have more or less successful projects, based on our measures, when the village does not have age set practices. It is possible that $\alpha > 0$ (age set villages do better with standard committees) and that $\delta < 0$ (young male committees do worse if age sets are not present in the village). However, we do not have strong priors on each of these coefficients and we are interested in allowing the data to speak. We do have a prior on the sign of β , which is based on the existing anthropological accounts. We expect $\beta > 0$; namely, that committees of young men better hold the village chief accountable in villages that have age sets. This means there should be more project money accounted for (less project funds missing) and more households should receive a health product.

D. Findings I

As mentioned in the previous section, Congo Helping Hands successfully completed implementation and vendor visits in all 102 villages in Gemenia territory. We were in the process of completing the endline surveys when covid started. The first set of findings that we report are for the implementation and the vendor visits for this first territory.

We find that in all 102 villages, the CHH project was well-received by the villagers and the village meetings were very well attended. Figure 8 shows photos from two meetings and Table 10 reports statistics about average participation in the villages. Average total attendance during the implementation meetings was just under 100 individuals. The mean was slightly higher in non-age set villages (110 versus 87). The average attendance during the committee selection meeting was 50 individuals, and this was also slightly higher in age set villages (54 versus 48). Overall, we find that the number of individuals from each gender by age category group is pretty similar across the categories.



Figure 8: Photos from two village meetings. Both photos are from the initial visit and were taken by CHH staff. The photo on the left is from the initial information meeting. The photo on the right is from the meeting for individuals interested in volunteering to be on a village oversight committee.

The creation of the committees according to the village treatment status appears to have been successful. Figure 9 reports information on the age distribution of the selected committee members by treatment status and whether or not their village was an age set village. Figure 10 provides information on the gender break down. In all but one or two cases, where the number of necessary volunteers was low, the young male committees are comprised of young men.

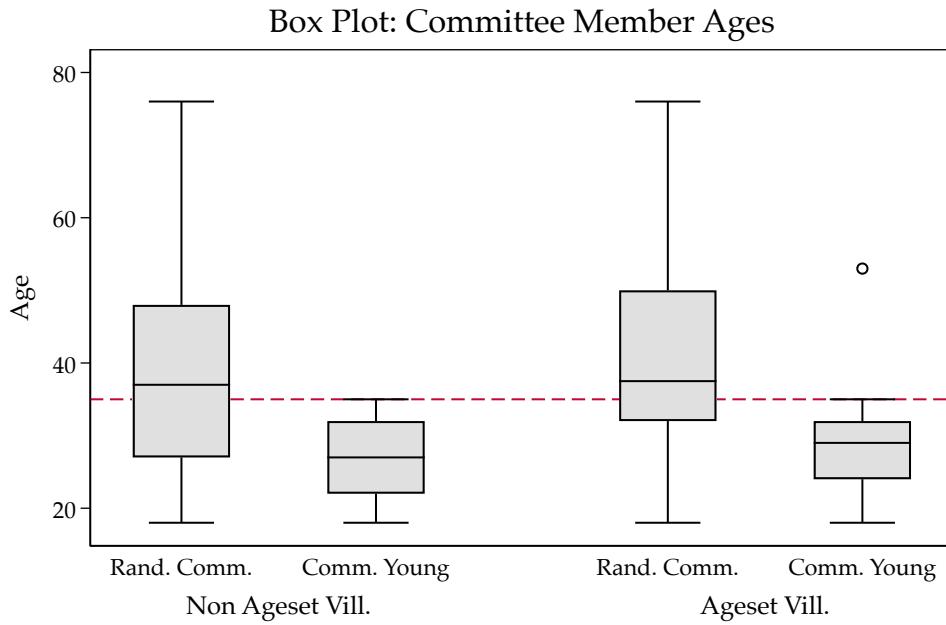


Figure 9: Age of the selected committee members by treatment status and age set practices. The figure displays the age composition of the committee by treatment status and ageset practices. The left part of the plot presents the age composition for villages where ageset is not practiced (*Non Ageset Vill.*). The right hand side of the plot presents the result for villages where agesets is practiced (*Ageset Vill.*). Within each category of villages *Rand. Comm.* stands for committees selected randomly among all participants in the village meeting, *Comm. Young* are committees made only of young men. In one village a man of 53 years old got selected in a committee of young because of a lack of young men attending the committee selection meeting in that particular village.

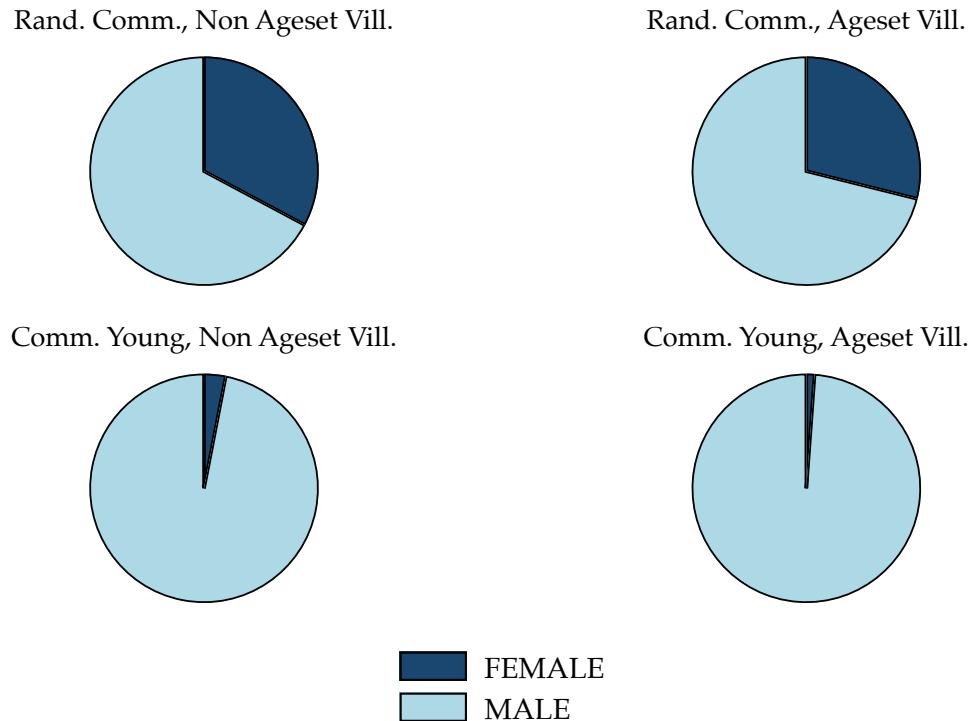


Figure 10: Gender composition of the committees by treatment status and Ageset practices. The left part of the plot presents the gender composition for villages where ageset is not practiced (*Non Ageset Vill.*). The right hand side of the plot presents the result for villages where agesets is practiced (*Ageset Vill.*). Top panel stands for committees selected randomly among all participants in the village meeting (*Rand. Comm.*), and the bottom panel stands for committees of young men (*Comm. Young.*). Two women got selected in a committee of young men as only four men below the age of 35 were present at the committee selection meeting in one village.

Table 10: Audiences in the implementation meetings

| | All Villages | | | | | Non Ageset Villages | | | | | Ageset Villages | | | | |
|----------------------------|--------------|------|------|-----|-----|---------------------|------|------|-----|-----|-----------------|------|------|-----|-----|
| | N | mean | sd | min | max | N | mean | sd | min | max | N | mean | sd | min | max |
| <i>Village Meeting</i> | | | | | | | | | | | | | | | |
| Total Audience | 102 | 96.7 | 45.2 | 36 | 343 | 43 | 110 | 56.4 | 36 | 343 | 59 | 86.8 | 31.9 | 36 | 160 |
| <i>Committee Selection</i> | | | | | | | | | | | | | | | |
| Total Audience | 102 | 50.3 | 17.8 | 17 | 110 | 43 | 53.7 | 19.6 | 17 | 99 | 59 | 47.7 | 16.0 | 26 | 110 |
| Young Men < 36 yo | 102 | 13.3 | 5.58 | 3 | 30 | 43 | 14.5 | 6.26 | 4 | 30 | 59 | 12.4 | 4.88 | 3 | 29 |
| Young Women < 36 yo | 102 | 8.61 | 4.69 | 1 | 27 | 43 | 8.63 | 4.30 | 1 | 19 | 59 | 8.59 | 4.99 | 1 | 27 |
| Old Men > 35 yo | 102 | 18.7 | 7.83 | 4 | 49 | 43 | 19.7 | 9.38 | 4 | 49 | 59 | 17.9 | 6.46 | 6 | 36 |
| Old Women > 35 yo | 102 | 9.70 | 5.97 | 1 | 31 | 43 | 10.9 | 6.07 | 2 | 28 | 59 | 8.85 | 5.80 | 1 | 31 |

Notes: The table displays the number of participants in the two main meetings held by CHH in each village in the Gemena territory. Statistics are provided for the full sample (*All Villages*), villages where ageset rituals are not practiced (*Non Ageset Villages*), and where ageset rituals are practiced (*Ageset Villages*). *Village Meeting* is the meeting held on the second day of implementation. In this meeting villagers are given general information about the project, the formation of the committee explained, the health products and the correct usage of them presented. *Committee Selection* is the meeting where the roles and responsibilities of the chief and committee are explained, and the selection of the committee is made.

We also examine the reaction of the chief to the selected committee members. When notifying the chief of the list of selected committee members the enumerator is instructed to “Pay attention to how the chief reacts to the list of selected volunteers”. The enumerator is then asked “Did the chief seem completely satisfied, somewhat satisfied, not very satisfied, or not satisfied at all with the list of chosen volunteers?”. The distribution of responses are reported in Figure 11. We find that when the committee was comprised of young men, the chief was less satisfied with the composition of the committee. It is only in these cases that we see cases where the chief was “not satisfied at all” with the committee.

Village chiefs appear to have used most of the initial grant allocated to purchase health products from our vendors, but not all. Most of the money (40%) was spent on aquatabs. Then 26.5% was spent on oral rehydration salts, and 23.6% on deworming medicine. On average 10% of the grant was not spent on health products. For reference, Figure 12 provides an image of the aquatabs (left) and the receipts that are given to the chief and the vendors, and signed by both, which report the number of products purchased by the chief from the vendor.

Estimates of equation (1) are reported in Tables 11 and 12.⁴ Table 11 reports coefficient estimates when I_i^{AgeSet} is measured as an indicator variable and Table 12 reports estimates when we use an alternative and continuous measure which is the fraction of randomly surveyed men who participated in an age set initiation. The correlation between the two age set measures is 0.52. We find that, at this point, our estimates are very underpowered and all coefficients are statistically insignificant.

⁴Figure 14 shows the means by each treatment group along with 95% confidence intervals for the share of funds used by the chiefs. Figure 15 presents the distribution of this outcome variable for villages that traditionally have ageset practices and villages that did not have ageset practices.

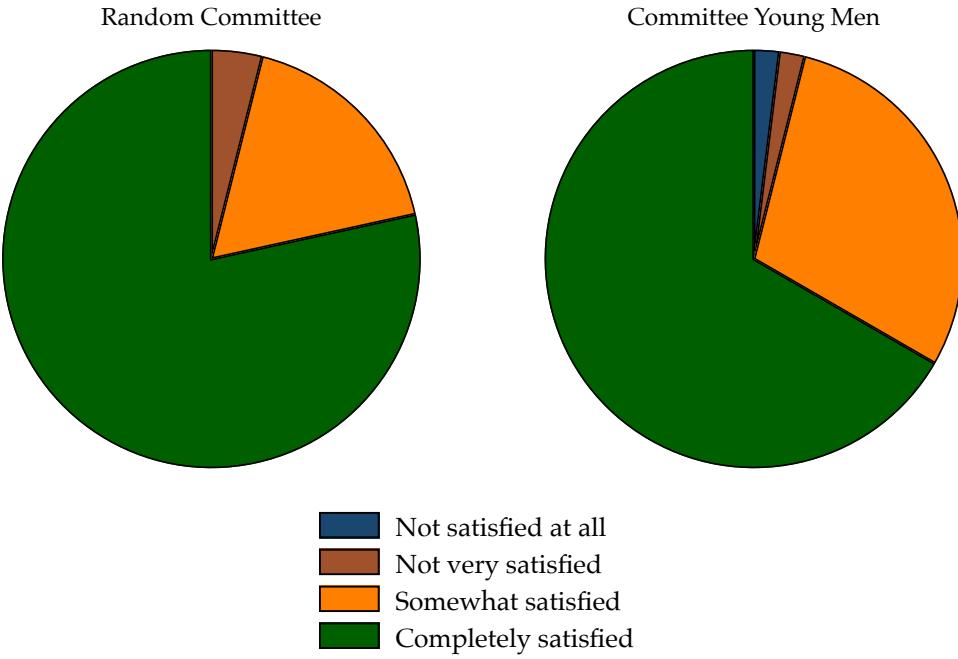


Figure 11: The chief's reaction to the selected committee members.



Figure 12: Vendor visit - Aquatabs. The photos were taken by the CHH's vendor of Aquatabs during one sale. At the end of each sale the vendor is asked to take a picture of the amount of products sold and of the two receipts. One receipt goes to the chief and one receipt is kept for the CHH's records.

Health Product Mix Purchased by Chiefs

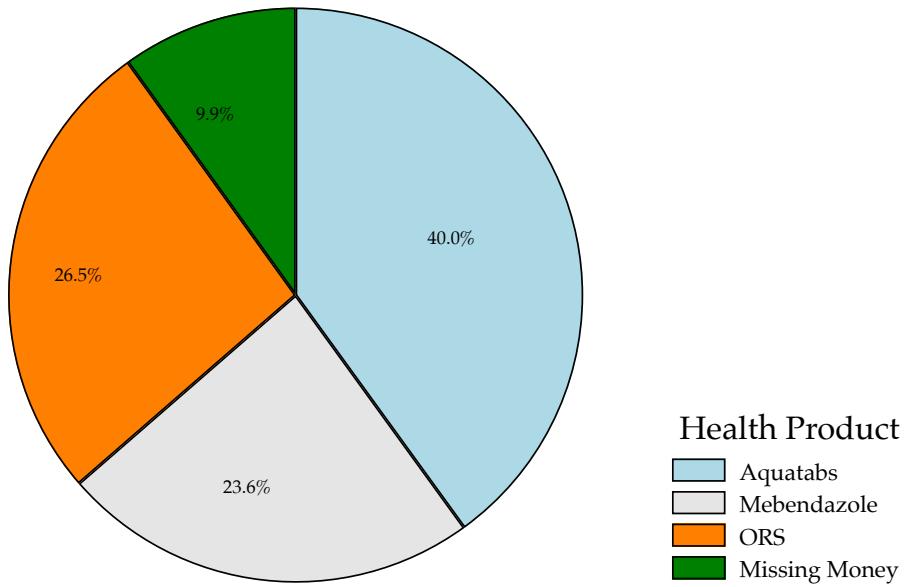


Figure 13: Health products purchased by Chiefs and missing money. Village chiefs favored the purchase of Aquatabs - chlorine purification tablets. On average 10% of the initial grant was not used to purchase any of the health products sold by our vendors.

According to the signs of the point estimates, when the age set indicator is used, villages with age sets have more successful projects when the committee is diverse ($\alpha > 0$). In villages without age sets, young male committees do worse ($\lambda < 0$). Our prior on the sign of β is verified: committees of young men better hold the village chief accountable in villages that have age sets. When the continuous measure is used, we observe this same pattern when all covariates are included in the specification (column 5 of Table 12). However, this is sensitive to which covariates are included in the regression (see columns 1–4 of Table 12).

E. Findings II

This section delves into the results. We first investigate whether the health products mix differs between treatment and control villages. The three health products that CHH gave a free access to sampled villages differ in terms of market value and in terms of benefits for the community. Mebendazole is the best product for the villagers because the allocated grant is sufficient to deworm almost everyone in the village for one year. Table 13 presents the coefficient estimates from baseline equation on the share that Mebendazole represents in the health tools mix purchased by the chief. Although it is clear that across villages chiefs favored other health products than

Table 11: Fraction of project funds that were used to purchase health products - AgeSet as categorical

| | <i>Fraction of Funds Used for Health Products</i> | | | | |
|-----------------------------------|---|-------------------|-------------------|-------------------|-------------------|
| | (1) | (2) | (3) | (4) | (5) |
| <i>AgeSet</i> , α | 0.008 (0.035) | 0.004 (0.035) | 0.011 (0.038) | 0.013 (0.037) | 0.032 (0.038) |
| <i>YoungMale</i> , δ | -0.044 (0.048) | -0.038 (0.047) | -0.033 (0.048) | -0.037 (0.045) | -0.038 (0.043) |
| <i>AgeSet*YoungMale</i> , β | 0.010 (0.059) | 0.006 (0.059) | 0.003 (0.059) | 0.001 (0.057) | 0.009 (0.056) |
| ln (num household) | | 0.016 (0.014) | 0.015 (0.014) | 0.009 (0.014) | 0.021 (0.016) |
| ln (dist. Gemenia) | | | -0.023 (0.021) | -0.016 (0.018) | 0.016 (0.020) |
| Observations | 101 | 101 | 101 | 101 | 101 |
| R-squared | 0.021 | 0.035 | 0.042 | 0.068 | 0.144 |
| Controls | NO | YES | YES | YES | YES |
| Ethnicity FE | NO | NO | NO | YES | YES |
| Sector FE | NO | NO | NO | NO | YES |
| Mean Dep. Var. | 0.904 | 0.904 | 0.904 | 0.904 | 0.904 |

Notes: The table displays the coefficient estimates from baseline equation on the fraction of project funds used by the village chief to purchase health products. The outcome variable is the share of project funds used by the chief to purchase health products. *AgeSet* is an indicator that equals one if the village traditionally had age sets. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). ln(num household) is the log transformed number of households in the village. ln(dist. Gemenia) is the log transformed Euclidean distance to Gemenia city.

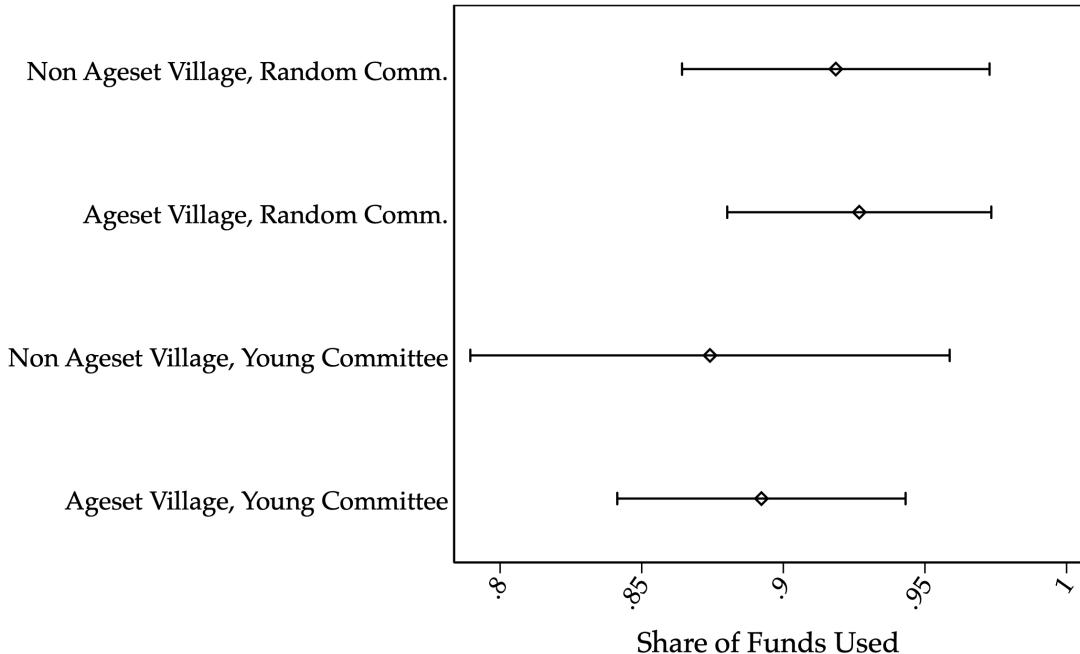


Figure presents the mean and 95% confidence interval for each group.

Figure 14: The figure displays point estimates and 95% confidence intervals for the fraction of project funds used by the village chief to purchase health products for each treatment group.

Mebendazole the coefficient estimate β is positive. This implies that in AgeSet villages, with a committee of young males, chiefs valued Mebendazole more.

The second line of inquiry investigates the distribution of these health products. Table 14 presents the regression estimates for peasant respondents.⁵ Interestingly, although committees made of young males favor universal distribution in non-AgeSet villages, the distribution is less broad among AgeSet villages with a committee of young males. This pattern is reinforced when considering Table 15 which displays the coefficient estimates for committee members respondents: the household of young committee members is less likely to receive the health products in non-AgeSet villages whereas more likely in AgeSet villages. This depicts a scenario where committee of young male bargain for broader distribution at their expense in non-AgeSet villages while they are able to capture the distribution in AgeSet villages.

We also examine a series of other outcomes, including frequency of meetings, the types of tasks performed by committee members and the chief, how satisfied community members feel

⁵The number of clusters (villages) is only of 94 since we were not able to collect data from peasants in 8 villages due to Covid-19.

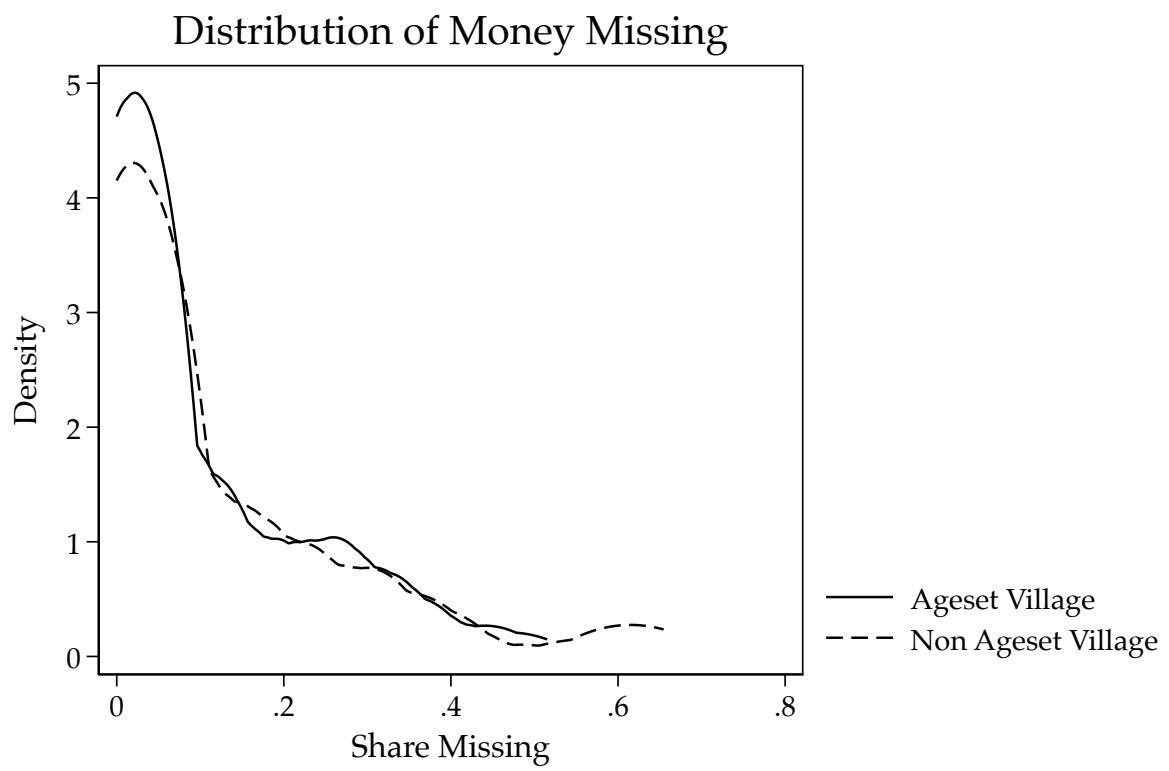


Figure 15: The figure plots the kernel density of the amount of money missing across villages that traditionally had age sets (*Ageset Village*) and villages that traditionally did not have age sets (*Non Ageset Village*).

Table 12: Fraction of project funds that were used to purchase health products - AgeSet as continuous

| | <i>Fraction Funds Used</i> | | | | |
|--|----------------------------|-------------------|-------------------|-------------------|-------------------|
| | (1) | (2) | (3) | (4) | (5) |
| <i>AgeSet</i> , α | -0.014 (0.058) | -0.040 (0.057) | -0.032 (0.059) | -0.058 (0.056) | 0.020 (0.055) |
| <i>YoungMale</i> , δ | -0.011 (0.047) | -0.006 (0.046) | -0.003 (0.047) | -0.015 (0.044) | -0.023 (0.046) |
| <i>AgeSet</i> * <i>YoungMale</i> , β | -0.062 (0.089) | -0.061 (0.089) | -0.063 (0.090) | -0.048 (0.088) | -0.022 (0.088) |
| ln(num household) | | 0.022 (0.014) | 0.021 (0.014) | 0.016 (0.013) | 0.023 (0.016) |
| ln(dist. Gemena) | | | -0.016 (0.020) | -0.005 (0.017) | 0.018 (0.021) |
| Observations | 101 | 101 | 101 | 101 | 101 |
| R-squared | 0.029 | 0.054 | 0.057 | 0.089 | 0.132 |
| Controls | NO | YES | YES | YES | YES |
| Tribe FE | NO | NO | NO | YES | YES |
| Sector FE | NO | NO | NO | NO | YES |
| Mean Dep. Var. | 0.904 | 0.904 | 0.904 | 0.904 | 0.904 |

Notes: this table displays the coefficient estimates from baseline equation on the fraction of project funds used by the village chief to purchase health products. The outcome variable is the share of project funds used by the chief to purchase health products. *AgeSet* is a continuous measure which is the fraction of randomly surveyed men who participates in an age set initiation. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). ln(num household) is the log transformed number of households in the village, ln(dist. Gemena) is the log transformed Euclidean distance to Gemena city.

with the performance of the chief and the committee, satisfaction with the quality and quantity of products received by villagers and by committee members, and illnesses experienced that could have been mitigated by the health products. Panel A presents baseline results and Panel B includes additional covariates, including village size, distance to the city of Gemena, sector fixed effects, and dummy variables for main ethnic group.

Table 16 presents results on how age sets and committee structure affect how frequently meetings took place. We examine several types of meetings, including meetings between the chief and committee, the committee only, and between the committee and villagers. We find that villages with age sets tend to have more meetings between the chief and committee members. This is reported by both the chief and by the committee members. We find no differential effect by age set communities with a committee of all young men. All male committees meet together

Table 13: Share of Mebendazole in total purchase - AgeSet as dummy variable

| | Share of Mebendazole | | | | |
|-----------------------------|----------------------|-------------------|-------------------|-------------------|-------------------|
| | (1) | (2) | (3) | (4) | (5) |
| $AgeSet, \alpha$ | -0.022 (0.039) | -0.023 (0.039) | -0.026 (0.038) | -0.025 (0.039) | -0.008 (0.040) |
| $YoungMale, \delta$ | -0.039 (0.039) | -0.039 (0.040) | -0.042 (0.041) | -0.043 (0.042) | -0.045 (0.041) |
| $AgeSet * YoungMale, \beta$ | 0.008 (0.052) | 0.008 (0.053) | 0.010 (0.053) | 0.009 (0.054) | 0.012 (0.053) |
| $\ln(\text{num household})$ | 0.001 (0.013) | 0.001 (0.014) | -0.001 (0.014) | 0.001 (0.015) | |
| $\ln(\text{dist. Gemenia})$ | | 0.010 (0.023) | 0.013 (0.023) | 0.022 (0.027) | |
| Observations | 101 | 101 | 101 | 101 | 101 |
| R-squared | 0.023 | 0.023 | 0.025 | 0.031 | 0.061 |
| Controls | NO | YES | YES | YES | YES |
| Tribe FE | NO | NO | NO | YES | YES |
| Sector FE | NO | NO | NO | NO | YES |
| Mean Dep. Var. | 0.0840 | 0.0840 | 0.0840 | 0.0840 | 0.0840 |

Notes: The table displays the coefficient estimates from baseline equation. The outcome variable is the share that mebendazole represents in the total purchase of health products. $AgeSet$ is an indicator that equals one if the village traditionally have age sets. $YoungMale$ is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). $\ln(\text{num household})$ is the log transformed number of households in the village, $\ln(\text{dist. Gemenia})$ is the log transformed Euclidean distance to Gemenia city.

more frequently. Interestingly, all male committees in age set villages are more likely to meet with community members.

In Table 17 we examine how age sets and committee structure affect the types of tasks committee members perform, as reported by committee members. We find some evidence that male committees in age set communities are more likely to be involved in the distribution of the health products while male committees in non-age set village are less likely to be involved. We find no significant effects on other types of tasks, including organizing meetings, organizing distribution, meeting peasants, meeting the chief, or keeping records.

In Table 18 we present results on how satisfied committee members, villagers, and the chief are with the performance of the chief and the committee. Committee members report less satisfaction with chief performance in ageset villages. While the point estimates are imprecisely estimated, the estimates suggest that villagers are more satisfied with the chief's performance in the project in villages, especially when the committee was made up of young members. Figure 16 presents the average villager satisfaction with the chief's handling of the project across treatment groups: villager satisfaction with the chief is highest for ageset villages with the committee comprised of young men.

Table 14: Reception Health Products - AgeSet as dummy variable - Peasants

| | Deworming (1) | Chlorine (2) | ORS (3) | Any Product (4) |
|---|-------------------|-------------------|-------------------|-----------------------|
| <i>Panel A: No covariates</i> | | | | |
| <i>AgeSet, α</i> | -0.020 (0.060) | -0.003 (0.050) | 0.032 (0.054) | 0.035 (0.042) |
| <i>YoungMale, δ</i> | 0.013 (0.073) | 0.070 (0.049) | 0.040 (0.070) | 0.070* (0.040) |
| <i>AgeSet*YoungMale, β</i> | -0.009 (0.092) | -0.077 (0.060) | -0.123 (0.088) | -0.098** (0.048) |
| Observations | 1,496 | 1,496 | 1,496 | 1,496 |
| R-squared | 0.001 | 0.008 | 0.011 | 0.015 |
| Controls | No | No | No | No |
| <i>Panel B: With covariates</i> | | | | |
| <i>AgeSet, α</i> | -0.011 (0.051) | -0.005 (0.033) | 0.077* (0.043) | 0.023 (0.027) |
| <i>YoungMale, δ</i> | -0.024 (0.067) | 0.029 (0.040) | 0.019 (0.051) | 0.044 (0.029) |
| <i>AgeSet*YoungMale, β</i> | 0.019 (0.092) | -0.040 (0.051) | -0.097 (0.074) | -0.079** (0.039) |
| Observations | 1,496 | 1,496 | 1,496 | 1,496 |
| R-squared | 0.035 | 0.052 | 0.103 | 0.057 |
| Controls | Yes | Yes | Yes | Yes |
| Chief | No | No | No | No |
| Committee Members | No | No | No | No |
| Peasants | Yes | Yes | Yes | Yes |
| Mean Dep. Var. | 0.836 | 0.871 | 0.840 | 0.953 |
| Clusters | 94 | 94 | 94 | 94 |

Notes: The table displays the coefficient estimates from baseline equation. The outcome variables are: a dummy variable that equals one if a peasant household received deworming tablets (col1), chlorine tablets (col2), ors (col3), or any of these three health product (col4). *AgeSet* is an indicator that equals one if the village traditionally have age sets. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). Control variables in *Panel B* include ln(num household) the log transformed number of households in the village, ln(dist. Gemena) the log transformed Euclidean distance to Gemena city, main tribe dummies and four sector dummies.

Table 15: Reception Health Products - AgeSet as dummy variable - Committee Members

| | Deworming (1) | Chlorine (2) | ORS (3) | Any Product (4) |
|---|-------------------|-------------------|-------------------|-----------------------|
| <i>Panel A: No covariates</i> | | | | |
| <i>AgeSet, α</i> | -0.004 (0.037) | 0.008 (0.017) | -0.009 (0.019) | -0.012 (0.008) |
| <i>YoungMale, δ</i> | -0.038 (0.054) | 0.018 (0.016) | -0.039 (0.050) | -0.008 (0.008) |
| <i>AgeSet*YoungMale, β</i> | 0.047 (0.070) | -0.019 (0.027) | 0.030 (0.065) | 0.020* (0.011) |
| Observations | 563 | 563 | 563 | 563 |
| R-squared | 0.005 | 0.002 | 0.004 | 0.005 |
| Controls | No | No | No | No |
| <i>Panel B: With covariates</i> | | | | |
| <i>AgeSet, α</i> | -0.005 (0.036) | -0.002 (0.022) | 0.013 (0.028) | -0.009 (0.009) |
| <i>YoungMale, δ</i> | -0.046 (0.054) | 0.014 (0.017) | -0.029 (0.044) | -0.007 (0.007) |
| <i>AgeSet*YoungMale, β</i> | 0.053 (0.075) | -0.017 (0.027) | 0.036 (0.062) | 0.021* (0.011) |
| Observations | 563 | 563 | 563 | 563 |
| R-squared | 0.012 | 0.009 | 0.076 | 0.015 |
| Controls | Yes | Yes | Yes | Yes |
| Chief | No | No | No | No |
| Committee Members | Yes | Yes | Yes | Yes |
| Peasants | No | No | No | No |
| Mean Dep. Var. | 0.948 | 0.982 | 0.957 | 0.995 |
| Clusters | 102 | 102 | 102 | 102 |

Notes: The table displays the coefficient estimates from baseline equation. The outcome variables are: a dummy variable that equals one if a peasant household received deworming tablets (col1), chlorine tablets (col2), ors (col3), or any of these three health product (col4). *AgeSet* is an indicator that equals one if the village traditionally have age sets. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). Control variables in *Panel B* include ln(num household) the log transformed number of households in the village, ln(dist_Gemena) the log transformed Euclidean distance to Gemena city, main tribe dummies and four sector dummies.

Table 16: Frequency of Meetings - AgeSet as dummy variable

| | Chief-Committee (1) | Chief-Committee (2) | Committee Only (3) | Committee-Peasants (4) |
|--|------------------------|------------------------|-----------------------|---------------------------|
| <i>Panel A: No covariates</i> | | | | |
| <i>AgeSet</i> , α | 0.943*** (0.298) | 0.613** (0.268) | 0.131 (0.311) | -0.016 (0.057) |
| <i>YoungMale</i> , δ | -0.015 (0.412) | 0.133 (0.296) | 0.821** (0.320) | 0.011 (0.069) |
| <i>AgeSet</i> * <i>YoungMale</i> , β | -0.743 (0.541) | -0.302 (0.391) | -0.328 (0.428) | 0.175* (0.102) |
| Observations | 101 | 563 | 563 | 563 |
| R-squared | 0.085 | 0.027 | 0.035 | 0.022 |
| Controls | No | No | No | No |
| <i>Panel B: With covariates</i> | | | | |
| <i>AgeSet</i> , α | 1.223*** (0.301) | 0.592* (0.313) | -0.122 (0.354) | -0.052 (0.069) |
| <i>YoungMale</i> , δ | -0.018 (0.416) | 0.169 (0.311) | 0.855*** (0.311) | -0.015 (0.075) |
| <i>AgeSet</i> * <i>YoungMale</i> , β | -0.797 (0.534) | -0.353 (0.404) | -0.431 (0.402) | 0.190* (0.107) |
| Observations | 101 | 563 | 563 | 563 |
| R-squared | 0.158 | 0.044 | 0.091 | 0.037 |
| Controls | Yes | Yes | Yes | Yes |
| Chief | Yes | No | No | No |
| Committee Members | No | Yes | Yes | Yes |
| Peasants | No | No | No | No |
| Mean Dep. Var. | 2.653 | 1.918 | 2.018 | 0.131 |
| Clusters | 101 | 102 | 102 | 102 |

Notes: The table displays the coefficient estimates from baseline equation. The outcome variables are meeting frequencies as measured by the number of meeting reported between different pairs of actors: chief and committee members (col1-col2), committee members between themselves only (col3), committee members and peasants (col4). *AgeSet* is an indicator that equals one if the village traditionally have age sets. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). Control variables in *Panel B* include ln(num household) the log transformed number of households in the village, ln(dist. Gemenia) the log transformed Euclidean distance to Gemenia city, main tribe dummies and four sector dummies.

Table 17: Tasks Performed by: Committee Members - AgeSet as dummy variable.

| | Org. Meetings (1) | Org. Distrib. (2) | Distribution (3) | Meeting Peasants (4) | Meeting Chief (5) | Keeping Records (6) |
|---|----------------------|----------------------|---------------------|-------------------------|----------------------|------------------------|
| <i>Panel A: No covariates</i> | | | | | | |
| <i>AgeSet, α</i> | 0.007 (0.037) | 0.005 (0.092) | 0.030 (0.099) | -0.031 (0.064) | 0.062 (0.066) | -0.050 (0.110) |
| <i>YoungMale, δ</i> | -0.021 (0.038) | -0.084 (0.107) | -0.193* (0.113) | 0.008 (0.062) | 0.061 (0.067) | 0.046 (0.121) |
| <i>AgeSet*YoungMale, β</i> | 0.066 (0.060) | 0.155 (0.131) | 0.249* (0.135) | 0.102 (0.093) | -0.015 (0.091) | 0.031 (0.155) |
| Observations | 563 | 563 | 563 | 563 | 563 | 563 |
| R-squared | 0.010 | 0.013 | 0.051 | 0.007 | 0.006 | 0.007 |
| Controls | No | No | No | No | No | No |
| <i>Panel B: With covariates</i> | | | | | | |
| <i>AgeSet, α</i> | -0.011 (0.040) | 0.001 (0.098) | 0.060 (0.101) | -0.069 (0.064) | 0.073 (0.071) | -0.086 (0.113) |
| <i>YoungMale, δ</i> | -0.034 (0.041) | -0.050 (0.109) | -0.144 (0.112) | 0.031 (0.059) | 0.076 (0.069) | 0.036 (0.119) |
| <i>AgeSet*YoungMale, β</i> | 0.069 (0.061) | 0.151 (0.129) | 0.235* (0.132) | 0.100 (0.089) | -0.033 (0.091) | 0.065 (0.148) |
| Observations | 563 | 563 | 563 | 563 | 563 | 563 |
| R-squared | 0.024 | 0.044 | 0.103 | 0.034 | 0.015 | 0.100 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Chief | No | No | No | No | No | No |
| Committee Members | Yes | Yes | Yes | Yes | Yes | Yes |
| Peasants | No | No | No | No | No | No |
| Mean Dep. Var. | 0.0817 | 0.544 | 0.712 | 0.519 | 0.627 | 0.290 |
| Clusters | 102 | 102 | 102 | 102 | 102 | 102 |

Notes: The table displays the coefficient estimates from baseline equation. The outcome variables are the tasks that committee members performed during the project: organizing Meetings (col1), organizing the distribution of the various health products (col2), distributing the health products (col3), meeting peasants (col4), meeting with the chief (col5), keeping records of the project (col6). *AgeSet* is an indicator that equals one if the village traditionally have age sets. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). Control variables in *Panel B* include ln(num household) the log transformed number of households in the village, ln(dist. Gemena) the log transformed Euclidean distance to Gemena city, main tribe dummies and four sector dummies.

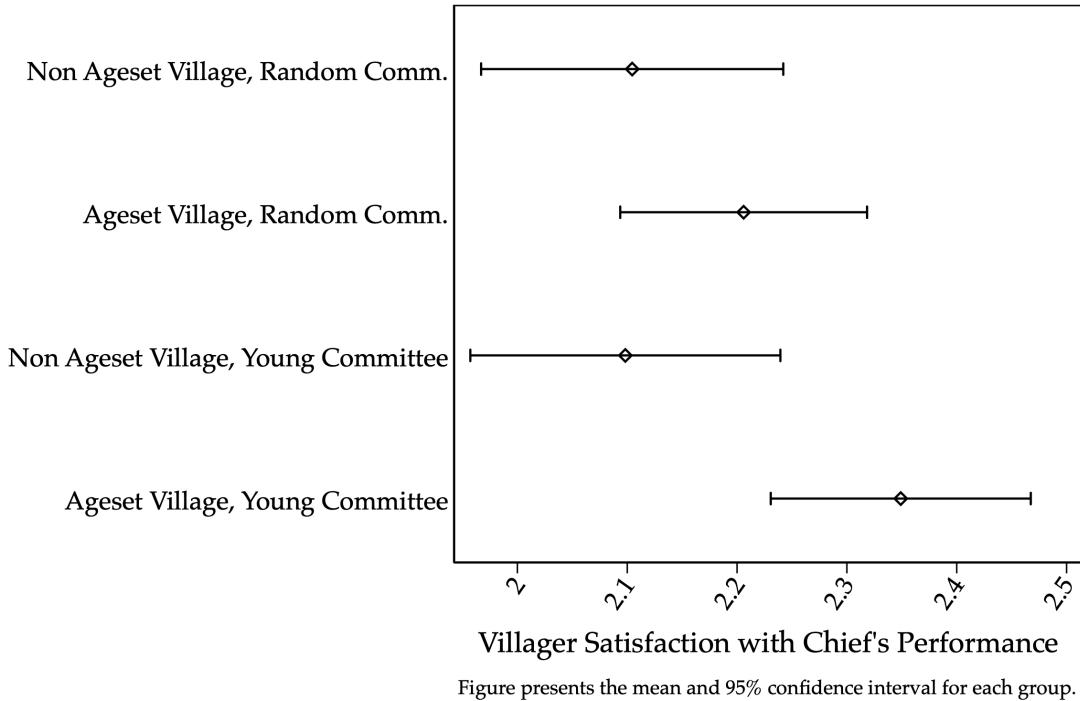


Figure 16: Villager Satisfaction with the Chief's Project Performance

The figure plots the mean villager satisfaction with the chief and 95% confidence interval for each treatment group. Satisfaction is measured on a 1-5 scale, where 1 represents highly unsatisfied, and 5 represents highly satisfied.

Additionally, the results in Table 18 suggest that the satisfaction of the project for chiefs depends on the composition of the committees and on social structures. In particular, the estimates in column (5) suggest that chiefs are much less satisfied with the committee's performance in villages with agesets, and in villages with agesets and a committee comprised of young men. However, the point estimates – while large in magnitudes – are imprecisely estimated.

In Table 19, we present results for how satisfied villagers are with the quality and quantity of health products received and in Table 20 how satisfied committee members are. We find some suggestive evidence that villagers are more satisfied with the quantity of products they received in project villages when there is an ageset present and the committee is comprised of young men.

We also examine the types of tasks performed by the village chief for the project. Interestingly, chiefs in age set villages with all male committees are more likely to report keeping records. These records are of how funds are used and how products are distributed. This is presented in Table 21. We don't find any significant effects across other tasks, such as organizing meetings or distribution of products.

Table 18: Satisfaction Performance - AgeSet as dummy variable

| | Chief Performance (1) | Committee Performance (2) | Committee Performance (3) | Committee Performance (4) | Committee Performance (5) |
|-----------------------------------|--------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| <i>Panel A: No covariates</i> | | | | | |
| <i>AgeSet</i> , α | -0.435** (0.195) | 0.101 (0.181) | 0.066 (0.170) | -0.042 (0.109) | -0.297 (0.283) |
| <i>YoungMale</i> , δ | 0.055 (0.315) | -0.006 (0.237) | 0.023 (0.208) | -0.004 (0.127) | 0.411 (0.365) |
| <i>AgeSet*YoungMale</i> , β | 0.027 (0.355) | 0.149 (0.288) | 0.108 (0.254) | -0.019 (0.165) | -0.411 (0.446) |
| Observations | 561 | 1,438 | 1,426 | 560 | 101 |
| R-squared | 0.031 | 0.007 | 0.004 | 0.001 | 0.067 |
| Controls | No | No | No | No | No |
| <i>Panel B: With covariates</i> | | | | | |
| <i>AgeSet</i> , α | -0.492** (0.212) | 0.031 (0.170) | 0.062 (0.152) | 0.053 (0.101) | -0.204 (0.260) |
| <i>YoungMale</i> , δ | 0.047 (0.306) | 0.026 (0.230) | 0.048 (0.207) | -0.047 (0.131) | 0.289 (0.364) |
| <i>AgeSet*YoungMale</i> , β | -0.009 (0.349) | 0.101 (0.279) | 0.089 (0.249) | 0.006 (0.162) | -0.360 (0.438) |
| Observations | 561 | 1,438 | 1,426 | 560 | 101 |
| R-squared | 0.064 | 0.036 | 0.015 | 0.038 | 0.169 |
| Controls | Yes | Yes | Yes | Yes | Yes |
| Chief | No | No | No | No | Yes |
| Committee Members | Yes | No | No | Yes | No |
| Peasants | No | Yes | Yes | No | No |
| Mean Dep. Var. | 1.932 | 2.206 | 2.383 | 1.604 | 1.871 |
| Clusters | 102 | 94 | 94 | 102 | 101 |

Notes: The table displays the coefficient estimates from baseline equation. The outcome variables are: satisfaction with chief's performance as assessed by the committee members (col1) and by the peasants (col2), satisfaction with the committee's performance as assessed by the peasants (col3) as assessed by the committee members themselves (col4), and as assessed by the village chief (col5). Satisfaction in the performance is a 1 (completely satisfied) to 5 (completely dissatisfied) categorical variable. *AgeSet* is an indicator that equals one if the village traditionally have age sets. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). Control variables in *Panel B* include ln(num household) the log transformed number of households in the village, ln(dist. Gemena) the log transformed Euclidean distance to Gemena city, main tribe dummies and four sector dummies.

Table 19: Satisfaction with Health Products' Quality and Quantity - AgeSet as dummy variable - Peasants

| | Deworming Quality (1) | Deworming Quantity (2) | Chlorine Quality (3) | Chlorine Quantity (4) | ORS Quality (5) | ORS Quantity (6) |
|--|-----------------------------|------------------------------|----------------------------|-----------------------------|-----------------------|------------------------|
| <i>Panel A: No covariates</i> | | | | | | |
| <i>AgeSet</i> , α | 0.039 (0.058) | -0.019 (0.184) | 0.157** (0.077) | 0.137 (0.224) | 0.088 (0.059) | 0.044 (0.232) |
| <i>YoungMale</i> , δ | 0.039 (0.052) | -0.079 (0.229) | 0.024 (0.074) | -0.419 (0.260) | 0.027 (0.055) | -0.464* (0.271) |
| <i>AgeSet</i> * <i>YoungMale</i> , β | -0.019 (0.081) | 0.066 (0.299) | -0.081 (0.103) | 0.264 (0.316) | -0.061 (0.083) | 0.568* (0.335) |
| Observations | 1,240 | 1,407 | 1,291 | 1,420 | 1,253 | 1,408 |
| R-squared | 0.002 | 0.000 | 0.009 | 0.021 | 0.004 | 0.026 |
| Controls | No | No | No | No | No | No |
| <i>Panel B: With covariates</i> | | | | | | |
| <i>AgeSet</i> , α | -0.017 (0.053) | -0.092 (0.173) | 0.141* (0.078) | 0.049 (0.202) | 0.039 (0.063) | -0.108 (0.195) |
| <i>YoungMale</i> , δ | 0.018 (0.048) | -0.006 (0.220) | 0.017 (0.075) | -0.278 (0.232) | 0.031 (0.057) | -0.297 (0.232) |
| <i>AgeSet</i> * <i>YoungMale</i> , β | -0.021 (0.074) | 0.033 (0.297) | -0.097 (0.097) | 0.119 (0.269) | -0.075 (0.080) | 0.434 (0.291) |
| Observations | 1,240 | 1,407 | 1,291 | 1,420 | 1,253 | 1,408 |
| R-squared | 0.025 | 0.024 | 0.028 | 0.096 | 0.022 | 0.114 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Chief Committee Members | No | No | No | No | No | No |
| Peasants | No | No | No | No | No | No |
| Mean Dep. Var. | 1.224 | 2.324 | 1.311 | 3.215 | 1.202 | 3.236 |
| Clusters | 92 | 94 | 94 | 94 | 92 | 94 |

Notes: The table displays the coefficient estimates from baseline equation. The outcome variables are satisfaction with the quality and quantity received of: deworming tablets (col1-col2), chlorine tablets (col3-col4), ors (col5-6). *AgeSet* is an indicator that equals one if the village traditionally have age sets. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). Control variables in *Panel B* include ln(num household) the log transformed number of households in the village, ln(dist. Gemenia) the log transformed Euclidean distance to Gemenia city, main tribe dummies and four sector dummies.

Table 20: Satisfaction with Health Products Quality and Quantity - AgeSet as dummy variable - Committee Members

| | Deworming Quality (1) | Deworming Quantity (2) | Chlorine Quality (3) | Chlorine Quantity (4) | ORS Quality (5) | ORS Quantity (6) |
|--|-----------------------------|------------------------------|----------------------------|-----------------------------|-----------------------|------------------------|
| <i>Panel A: No covariates</i> | | | | | | |
| <i>AgeSet</i> , α | 0.041 (0.057) | -0.102 (0.208) | 0.072 (0.072) | -0.064 (0.216) | -0.081 (0.050) | -0.002 (0.243) |
| <i>YoungMale</i> , δ | -0.005 (0.047) | -0.049 (0.233) | 0.083 (0.085) | -0.421 (0.257) | -0.074 (0.052) | -0.203 (0.270) |
| <i>AgeSet</i> * <i>YoungMale</i> , β | 0.022 (0.075) | 0.014 (0.310) | -0.146 (0.108) | 0.280 (0.333) | 0.155** (0.066) | 0.177 (0.368) |
| Observations | 532 | 557 | 553 | 560 | 539 | 558 |
| R-squared | 0.003 | 0.002 | 0.005 | 0.013 | 0.014 | 0.003 |
| Controls | No | No | No | No | No | No |
| <i>Panel B: With covariates</i> | | | | | | |
| <i>AgeSet</i> , α | 0.005 (0.051) | -0.175 (0.200) | 0.089 (0.070) | -0.295 (0.189) | -0.110* (0.057) | -0.198 (0.202) |
| <i>YoungMale</i> , δ | -0.027 (0.048) | 0.070 (0.232) | 0.069 (0.078) | -0.259 (0.222) | -0.085 (0.055) | -0.014 (0.222) |
| <i>AgeSet</i> * <i>YoungMale</i> , β | 0.026 (0.073) | -0.104 (0.304) | -0.132 (0.101) | 0.166 (0.267) | 0.152** (0.065) | 0.007 (0.312) |
| Observations | 532 | 557 | 553 | 560 | 539 | 558 |
| R-squared | 0.017 | 0.060 | 0.039 | 0.140 | 0.038 | 0.123 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Chief Committee Members | No Yes | No Yes | No Yes | No Yes | No Yes | No Yes |
| Peasants | Yes | Yes | Yes | Yes | Yes | Yes |
| Mean Dep. Var. | 1.130 | 2.077 | 1.230 | 2.805 | 1.121 | 2.704 |
| Clusters | 101 | 102 | 102 | 102 | 100 | 102 |

Notes: The table displays the coefficient estimates from baseline equation. The outcome variables are satisfaction with the quality and quantity received of: deworming tablets (col1-col2), chlorine tablets (col3-col4), ors (col5-6). Satisfaction in the performance is a 1 (completely satisfied) to 5 (completely dissatisfied) categorical variable. *AgeSet* is an indicator that equals one if the village traditionally have age sets. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). Control variables in *Panel B* include ln(num household) the log transformed number of households in the village, ln(dist. Géména) the log transformed Euclidean distance to Gemena city, main tribe dummies and four sector dummies.

Table 21: Tasks Performed by: the Chief - AgeSet as dummy variable

| | Org. Meetings (1) | Distribution (2) | Meeting Peasants (3) | Meeting Chief (4) | Keeping Records (5) |
|---------------------------------|----------------------|---------------------|-------------------------|----------------------|------------------------|
| <i>Panel A: No covariates</i> | | | | | |
| <i>AgeSet,α</i> | -0.044 (0.129) | 0.053 (0.109) | -0.007 (0.146) | 0.126 (0.130) | -0.034 (0.035) |
| <i>YoungMale, δ</i> | -0.104 (0.131) | 0.100 (0.108) | -0.069 (0.155) | 0.061 (0.143) | -0.091 (0.063) |
| <i>AgeSet*YoungMale, β</i> | 0.173 (0.177) | -0.203 (0.150) | 0.104 (0.205) | -0.061 (0.179) | 0.125* (0.071) |
| Observations | 101 | 101 | 101 | 101 | 101 |
| R-squared | 0.012 | 0.023 | 0.005 | 0.014 | 0.044 |
| Controls | No | No | No | No | No |
| <i>Panel B: With covariates</i> | | | | | |
| <i>AgeSet,α</i> | -0.039 (0.137) | 0.080 (0.105) | 0.018 (0.158) | 0.106 (0.135) | -0.055 (0.042) |
| <i>YoungMale, δ</i> | -0.167 (0.135) | 0.065 (0.112) | -0.066 (0.162) | 0.052 (0.145) | -0.092 (0.065) |
| <i>AgeSet*YoungMale, β</i> | 0.219 (0.176) | -0.203 (0.150) | 0.093 (0.210) | -0.061 (0.179) | 0.128* (0.074) |
| Observations | 101 | 101 | 101 | 101 | 101 |
| R-squared | 0.099 | 0.144 | 0.026 | 0.061 | 0.078 |
| Controls | Yes | Yes | Yes | Yes | Yes |
| Chief | Yes | Yes | Yes | Yes | Yes |
| Committee Members | No | No | No | No | No |
| Peasants | No | No | No | No | No |
| Mean Dep. Var. | 0.257 | 0.832 | 0.515 | 0.752 | 0.970 |
| Clusters | 101 | 101 | 101 | 101 | 101 |

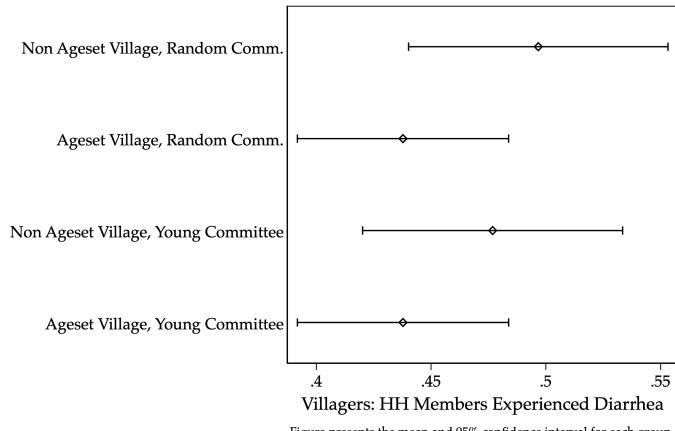
Notes: The table displays the coefficient estimates from baseline equation. The outcome variables are the tasks that committee members performed during the project: organizing Meetings (col1), distributing the health products (col2), meeting peasants (col3), meeting with the chief (col4), keeping records of the project (col5). *AgeSet* is an indicator that equals one if the village traditionally have age sets. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). Control variables in *Panel B* include ln(num household) the log transformed number of households in the village, ln(dist. Gemena) the log transformed Euclidean distance to Gemena city, main tribe dummies and four sector dummies.

One potential measure of project success is reduction in symptoms related to the types of diseases that the health products address. For example, use of chlorine tablets could potentially reduce incidence of diarrhea. Deworming pills could affect stomach pain or vomiting. We find some evidence of reduction in diarrhea and stomach pains in age set villages. Figure 17 presents outcomes across the various diseases for each of our treatment groups limiting the sample to villagers. We also collected data on malaria incidence, which we do not expect to be affected by our treatment because none of the health products are related to malaria prevention or treatment.

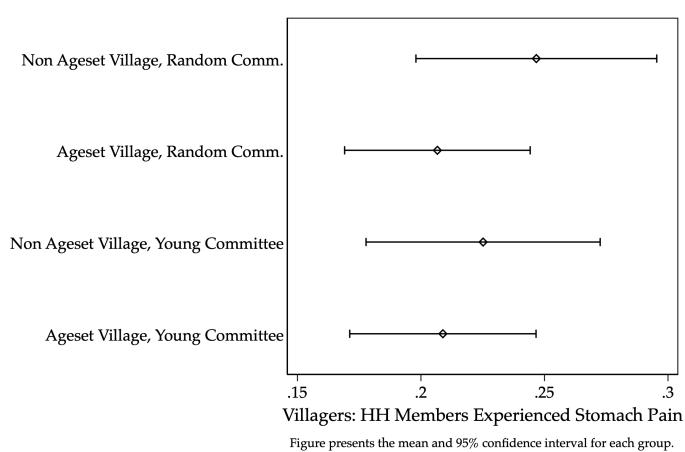
Table 22: Number of Household Members that experienced illnesses symptoms - All - AgeSet as a dummy variable

| | Number of Hh. Members that Experienced: | | | |
|---|---|---------------------|---------------------|-------------------|
| | Diarrhea (1) | Stomach Pain (2) | Malaria (3) | Vomiting (4) |
| <i>Panel A: No covariates</i> | | | | |
| <i>AgeSet, α</i> | -0.173* (0.096) | -0.077 (0.050) | 0.021 (0.109) | -0.054 (0.075) |
| <i>YoungMale, δ</i> | -0.034 (0.110) | -0.075 (0.054) | -0.249** (0.112) | -0.036 (0.073) |
| <i>AgeSet*YoungMale, β</i> | 0.065 (0.140) | 0.091 (0.066) | 0.190 (0.162) | 0.056 (0.089) |
| Observations | 2,167 | 2,164 | 2,167 | 2,167 |
| R-squared | 0.004 | 0.003 | 0.005 | 0.001 |
| Controls | No | No | No | No |
| <i>Panel B: With covariates</i> | | | | |
| <i>AgeSet, α</i> | -0.063 (0.088) | -0.094* (0.053) | -0.119 (0.109) | -0.061 (0.074) |
| <i>YoungMale, δ</i> | -0.041 (0.095) | -0.076 (0.053) | -0.240** (0.109) | -0.041 (0.071) |
| <i>AgeSet*YoungMale, β</i> | 0.101 (0.121) | 0.088 (0.064) | 0.184 (0.151) | 0.059 (0.089) |
| Observations | 2,167 | 2,164 | 2,167 | 2,167 |
| R-squared | 0.025 | 0.008 | 0.017 | 0.004 |
| Controls | Yes | Yes | Yes | Yes |
| Chief | Yes | Yes | Yes | Yes |
| Committee Members | Yes | Yes | Yes | Yes |
| Peasants | Yes | Yes | Yes | Yes |
| Mean Dep. Var. | 0.786 | 0.268 | 1.334 | 0.470 |
| Clusters | 102 | 102 | 102 | 102 |

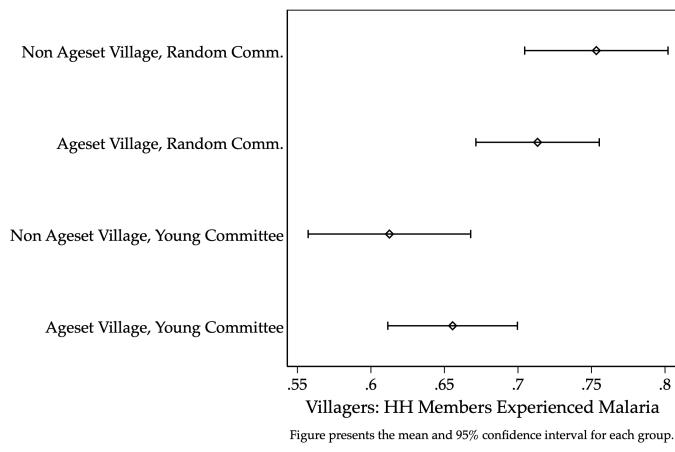
Notes: The table displays the coefficient estimates from baseline equation. The outcome variables are: number of household members that suffered diarrhea in the past four weeks (col1), stomach pain (col2), malaria (col3), and vomiting (col4). *AgeSet* is an indicator that equals one if the village traditionally have age sets. *YoungMale* is an indicator that equals one if a village was randomly chose to have a village committee that comprises only young men (aged 18-35). Control variables in *Panel B* include ln(num household) the log transformed number of households in the village, ln(dist. Gemena) the log transformed Euclidean distance to Gemena city, main tribe dummies and four sector dummies.



(a) Diarrhea



(b) Stomach Pain



(c) Malaria

Figure 17: Villager Health Outcomes by Treatment Status

The figure plots the mean incidence of various ailments for villagers in our sample along with 95% confidence interval across each treatment group.

7. Conclusions

The interest of this study has been in better understanding the importance of social and political structures for economic development. We considered a potentially important, yet unstudied, characteristic of many Africa societies: age sets. An age set refers to a group of men who move through life together collectively. Men who belong to the same age set overtime pass through different age grades, or phases of life. Groups of young men at approximately the same age are initiated into the age grade together and from then on form an age set. The initiation rituals are typically elaborate, lasting 6 months or longer, and occur outside of the village in remote secret locations.

A potential consequence of age sets, which has been documented only descriptively, is that the presence of age sets creates a group of young men who are cohesive and strongly allied with one another. In the cases studied, these young men serve as a check on the power of the elders in the community, who are generally the political elite. Thus, age sets may serve as a check on the political authority of the elite of a society, increasing de facto political accountability.

We have shown that evidence appears to confirm this anecdotal accounts. We have found that, relative to villages without age sets, those with age sets have chiefs who are more accountable to their citizens and who are responsible for providing a wider set of public goods. Despite this, people are less trusting of their chief, view the chief less positively, and have less respect for authority. The correlations are consistent with age sets resulting in greater political checks and balances.

The second part of the paper implemented an intervention, which was in cooperation with a local NGO called Congo Helping Hands (CHH). Grants were given to village chiefs to be put towards the purchase of various health products which were transported to the village made available at a heavily discounted price. Based on the local needs in the area, the products chosen for the project were water purification tablets, oral rehydration salts, and deworming medication. These are products that are unavailable in most villages, they are known to have significant benefits, and they can be transported (via motorcycle) despite the very poor infrastructure in the region.

In each village, a village development committee (VDC) was formed to oversee the use of the grants. The specific requirements around the formation of the VDC varied with the treatment

arms and were either diverse or comprised young men only. At the end of the project, enumerators returned to the village to verify the use of funds, to see who received the health products, to quantify the extent of missing funds, and to measure how satisfied the chief, the members of the VDC, other local leaders, and the villagers are with the use of the funds and with other aspects of the allocation process.

While the signs of the point estimates tend to confirm our hypothesis, the estimates are underpowered and all coefficients are statistically insignificant. Thus, we do not find confirmation for the hypothesis of interest; namely that VDCs comprised of young men were more successful in villages with age sets. At this point, it is unclear if the insignificance of the estimates is due to the relatively small sample size or because age sets do not function as hypothesized. We leave the resolution of this open question for future research.

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