Evaluating a *Landmine Action* ex-combatant reintegration program in Liberia

Draft Baseline Report

March 2010

Principal Investigators:
Jeannie Annan
Christopher Blattman

IPA Team:
Camelia Dureng
Angeli Kirk
Rebecca Littman
Bryan Plummer
Gwendolyn Taylor
John Zayzay

This report documents the evaluation design and baseline survey results for an ex-combatant reintegration program in Liberia implemented by the international not-for-profit organization Landmine Action and Liberia's Ministry of Agriculture (MoA), with support from the U.N. Peace Building Fund (PBF), DFID, and the Government of Germany. The experimental impact evaluation, implemented by Innovations for Poverty Action-Liberia with support from the World Bank and Yale University, seeks to estimate the impact of the reintegration program on participants as well as their families and communities.

Landmine Action (LMA) has two sites in Liberia for their agricultural reintegration program—the Sinoe Agricultural Training Program (SATP) in Panama, Sinoe County, which accommodates 200 trainees, and the Tumutu Agricultural Training Program (TATP) in Salala, Bong County, which accommodates 400 trainees. A baseline survey was conducted in the Sinoe region in August 2009 before implementation of the program in that location. A follow-up survey is planned for December 2010, approximately one year after the training sessions are complete. Another baseline survey was conducted in Gbarpolu, Nimba, Bong, and Margibi Counties in September and October 2009 for the TATP evaluation. As with the Sinoe baseline survey, the results presented here summarize the average characteristics of the target population and verify balance of means between treatment and control groups. A follow-up survey is planned for March 2011, approximately a year after the

completion of the program. The impact analysis will be conducted at the conclusion of the TATP follow-up survey, combining the results from the two sites.

The results presented here summarize the characteristics of the target population and tests the quality of the experimental design, namely: the balance between treatment and control groups achieved in the randomization process, as well as the minimum impact size the experiment will detect.

Section 1: Study design

The LMA's reintegration program evaluation employs a randomized control trial (RCT) design. With more demand for the training program than can be accommodated in a single round of the program, youth who express interest in participating in the program were registered by the Landmine Action field team and then surveyed by the IPA research team. After going through the registration and survey process, individuals were randomly assigned to either a "treatment" group that then participated in the program or a "control" group that did not go into the program. The control group provides a counterfactual – the representation of what the treatment group would be like in the absence of the program. Impact of the program is then assessed by comparing the treatment group to the control group.

Section 2: Baseline implementation

For each site, acquiring the participant group and control groups involved a multi-step process of 1) sensitization and recruitment, 2) registration of interested individuals, 3) administration of a baseline survey, 4) randomization of individuals into treatment and control, and 5) pick-up. The overview of how many individuals were surveyed, assigned to treatment, and treatment non-compliance for each site is presented in Table 1 in the Appendix. The process is described in detail below. Because recruitment progressed in a different manner for each of the two sites, they are described separately.

A. Sinoe

Registration. The Landmine Action Field Team carried out registration during June 23 – July 15, 2009. 440 youth were registered by LMA.

Baseline survey. After registration, in August 2009, registrants were approached to participate in the baseline survey. Of the original 440, 22 (5 percent) could not be located again. Some of these had left their communities; a few appeared to be hiding. In general, the baseline survey effort was highly successful. During the survey, 16 registrants communicated that they were no longer interested in the training; these individuals were not surveyed, and (at their request) their names were removed from the registration list, randomization, and program eligibility. Full and complete baseline data were successfully collected on all interested individuals.

Randomization and selection. After the completion of the baseline survey, respondents were randomly allocated to either receive an offer to enter the program (the treatment group) or not (the control group). In order to select a treatment group from the pool of all registrants that our team was able to locate and survey, IPA ran a computer-based randomization program that assigned

treatment and control status to each individual. The majority of individuals in the treatment group were selected through a process that randomly ranked each individual within their town of registration, and took the same proportion from each town for treatment.

The "winners" of the lottery—those selected for the treatment group by the computer program—were then notified by members of the LMA and IPA teams that they had been selected to participate in the program. In general, registrants appeared satisfied with the randomization process; those who,lost the lottery were disappointed but there were no complaints to the IPA team about fairness or the process itself.

In Sinoe, there were 200 places available in the training. Randomization was applied only to the pool of male registrants. Two groups of registrants – generals and women – were automatically entered into the program due to the small number of registrants relative to the number of reserved positions (i.e. there was no excess demand in these subgroups).

IPA collected data on all subgroups, but the experimental evaluation will only apply to males who were not generals. Details of each subgroup are as follows:

- *Generals.* Eleven men were identified as generals by Landmine Action and were scheduled by the program staff for automatic inclusion in the program since they were judged to be particularly influential in the community. These generals were registered, surveyed and notified in the same manner as all other individuals in the treatment group though their selection was not randomized as they were automatically included in the treatment group.

- *Women.* Woman in Sinoe also were not randomized. Landmine Action requested that a minimum of 25 woman participate in the program, agreeing to over-register so that the selection of women participants could be randomized as well. After the registration and baseline survey process, LMA found only 32 women to be eligible to participate in the randomization process. Further, treatment non-compliance among the 32 women led Landmine Action to enroll all eligible women in Sinoe, eliminating the randomized component. In the end, 20 of the 32 women agreed to participate in the program.

- *Men.* Initially, 45% of the male (non-general) registrants were selected from each community, for a total of 164 men. In cases where a program lottery "winner" declined to participate, the next survey respondent on the randomization list, from the same town, was invited to participate in the program. The respondent who declined is still included in the "treatment group" but is considered "treatment non-compliant." Non-compliance among men was 24 %.

Program pickup and treatment non-compliance. High treatment non-compliance was the most serious difficulty in the evaluation. 59 of the male non-commanders assigned to treatment (24% of the total) were treatment non-compliant. There were two main types of non-compliance. Ten men could not be located, possibly because of a postponed and then rapid pickup process. At least one of these was reported to have migrated to another region. Another 49 men were found but changed their mind and decided against participating in the program. Some of the main reasons given for the change in interest include returning back to school, not being able to leave families, owing debts and not being able to leave until they had repaid, and conflicts with the upcoming harvest time for some

who already had established farms. The 10 who could not be located may also reflect implicit lack of interest. The delay between registration and pickup appears to have contributed to non-compliance by giving registrants time to change their minds. This may not be negative overall, as it means those who participate are more committed and engage.

Additionally, this was LMA's and IPA's first phase in Sinoe, so communities were less familiar with the program and potentially skeptical about both the true existence of the program and its benefits. Adding to this skepticism, the start of the program coincided with the release of a report by the Truth and Reconciliation Commission (TRC), which anecdotally led to rumors that LMA's recruitment of ex-combatants might be a ruse to deliver them to the TRC. By the time LMA returned for pickup, these rumors had circulated through the registrant pool.

As a consequence of treatment non-compliance, the control group was reduced from 195 to 129 in number. In a handful of Sinoe communities, non-compliance was so high that the control list for that community was completely exhausted. Additionally, in an effort to finish the pick-up process and fill spots left open by non-compliant individuals in time to start the program, a small number of incorrect replacements were made by the IPA team, and two control individuals were admitted to the program by LMA staff.

There are three consequences of treatment non-compliance, all of which are important but not grave. First, the SATP evaluation will be less precise, meaning that the minimum detectable impact has risen; it will be more difficult to detect moderate or small impacts, especially on indirect outcomes. Second, the estimates of program impact over all individuals assigned to treatment will be lower overall, slightly understating the impact of the LMA program. Third, the estimates of the effect of the program on those who entered the program will be less generalizable; they will only apply to the type of individuals who were able to comply, and generalizing to the broader population of combatants will be hindered.

B. Tumutu

For the TATP survey, Landmine Action registered approximately 900 individuals in Gbarpolu, 400 of whom were to be offered a spot in the program. The Landmine Action field team began registration in Gbarpolu County around September 10, 2009. The IPA research team arrived in Gbarpolu on September 17, 2009 and followed close behind the LMA field team.

LMA felt it was important to include some people from the local community around the TATP site to maintain positive community relations, so also planned to reserve 50 randomized training spots for residents of Bong County.

During the pickup process, however, it became clear that Gbarpolu would have high non-compliance, After the experience of high rates of non-compliance in Sinoe, IPA wanted to ensure a large enough buffer to maintain a sizeable control group for the TATP evaluation—neither team wanted to draw replacements from the control group, as had been done in Sinoe. To accommodate these needs, the LMA and IPA teams performed registration in five phases:

Phase 1: Gbarpolu. To try to streamline efforts to locate registrants for the baseline survey, LMA and IPA management agreed that the LMA field team and the IPA research team would carry out

their work simultaneously in Gbarpolu. The IPA team planned to travel alongside the LMA team and survey individuals immediately after they were registered. However, the LMA field team began registration during their sensitization trip to Gbarpolu around September 10 2009, and returned to Monrovia with approximately 200 individuals already registered. IPA began surveying one week later and had to readjust its plans of traveling alongside the LMA field team to accommodate the condensed time frame in which all surveys needed to be completed.

The IPA research team arrived in Gbarpolu on September 17 2009 and the IPA and LMA teams on the ground coordinated in order to keep the work moving along smoothly. Each evening, IPA was given LMA's recently completed long forms, and then IPA would survey the new registrants over the following days. IPA was able to survey most of the individuals surveyed by LMA, although a small percentage of registrants who left their communities immediately after meeting with the LMA field team could not be located despite numerous attempts by the IPA team. There were also some registrants who changed their minds and decided they were no longer interested in the program. These individuals were dropped from the list of registrants and were not included in the randomization.

From September 17 to October 11 2009, IPA surveyed 708 individuals in Gbarpolu, including 622 men and 86 women. IPA selected 312 men and 38 women to participate in the program through the randomization process. 13 of these individuals were automatically included in the program because they were generals, and 30 went into a special randomization for former commanders. Half of these commanders were randomly selected to go into the program.

Out of the 350 individuals selected through the randomization, 242 agreed to come on the program, including 17 women and 225 men.

- Surveyed: 90 women and 624 men (714 total)
- Randomization: 81 women and 603 men (684 total)
- 30 went into commanders' randomization (half were selected for the program)
- 13 automatically included generals
- Selected: 38 women and 312 men
- Entered program: 17 women and 225 men (242 total)

Phase 2: Bong round 1. After the start of the baseline survey, Landmine Action decided to take 50 individuals from Salala and the surrounding communities in Bong County, reducing the number of program spots for Gbarpolu residents to 350. The District Commissioner in Salala, James Kerkula, asked LMA if he could select some community members to go into the program. LMA and IPA agreed that the District Commissioner would fill 15 of the 50 spots with any people of his choice, and that the remaining 35 spots would be filled through the process of registration by LMA and surveying and random selection by IPA. LMA agreed to register around 85 people for the 35 spots. IPA surveyed 84 individuals (59 men and 25 women) from October 7 to October 9 2009.

Near the end of the registration process, it came to the attention of some members of the IPA team that the District Commissioner had allegedly taken money from community members in exchange for a spot in the program. After the Commissioner released his list of 15 names, a group of Salala residents approached the IPA team and complained that they had given the District Commissioner

money but their names didn't come out on the list. They were extremely angry and refused to leave the registration area.

- Surveyed: 25 women and 59 men (84 total)
- Randomization: none

Phase 3: Bong round 2. The management of LMA confirmed the allegations and decided to redo the registration exercise in the Salala area. The second time, LMA planned to fill all 50 spots through the registration and survey and random selection process. They agreed to register around 115 individuals to fill the 50 spots in addition to a control group.

LMA re-registered some individuals who had previously registered during the first exercise in Salala (23 individuals, including 10 women and 13 men), and then registered a number of new individuals (97, including 16 women and 81 men). The registration period lasted from October 10 to October 12, 2009. IPA surveyed a total of 26 women and 95 men, and 7 women and 43 men were selected through the randomization process. In the end, 37 men, 7 women, and 3 generals entered the program.

- Surveyed: 26 women and 94 men (120 total, 10 women and 13 men were surveyed during phase 2)
- Randomization: 24 women and 89 men (113 total)
- Selected: 7 women and 43 men (50 total)
- Entered program: 7 women and 37 men (44 total)

Phase 4: Guthrie. Out of the 350 individuals selected to participate in TATP through the first three phases, 108 decided that they were no longer interested in the program. In order to maintain the control group in Gbarpolu so as not to compromise the evaluation, it was decided that non-compliant individuals would not be replaced with others from the control list for Gbarpolu but that the target participant size would be achieved by expanding registration into other regions of the country. LMA and IPA agreed to carry out an additional registration exercise in a new area, and since LMA worked extensively with individuals from Guthrie during the first two phases of TATP, LMA headquarters decided that the teams should conduct this new registration exercise in Guthrie. Between October 16 and October 19, IPA surveyed 89 individuals. None of these individuals ended up entering the program.

- Surveyed: 89 individuals
- Randomization: none

Phase 5: Nimba. After the baseline survey was completed in Guthrie, LMA decided that they did not want to take anyone from Guthrie into the program, so the management of LMA and IPA met and decided to register youth in Nimba County. The LMA field team and IPA research team worked alongside each other to register and survey individuals in Ganta and the surrounding communities. From October 20 to October 23, IPA surveyed 154 men and 38 women. Of these 189 registrants, IPA selected 71 men and 19 women to enter the program. In the end, 18 women and 77 men from Nimba entered the program.

- Surveyed: 38 women and 154 men (192 total)
- Randomization: 37 women and 152 men (189 total)
- Selected: 19 women and 71 men (90 total)
- Entered program: 18 women and 77 men, including 6 correct replacements from the control list (95 total)

Randomization. Having learned from the experience in Sinoe, the decision was made to change the policy of replacing non-compliant treatment individuals with members of the control list. Instead, the entire sample was expanded until the target participant group size was met, leading to the multiple phases mentioned here. For Tumutu, there are three randomized groups: "regular" men, women, and commanders. Women and commanders were each randomized separately from the regular men. Generals were automatically enrolled as in Sinoe. Additionally, individuals from Gbarpolu, Bong, and Nimba were randomized separately by county. After the challenges of registration for the Tumutu site were overcome, randomization went much more smoothly than for Sinoe. This success may be attributed partially to the much more condensed schedule of registration, randomization, and pick-up for Tumutu, at least for the phases after Gbarpolu. It is possible that individuals who may have been prone to non-compliance simply did not have time to change their minds.

Overall, TATP registration, baseline surveying, randomization and pickup were a success.

Section 3: Analysis of SATP and TATP survey results

A. Descriptive statistics

The baseline survey provides a rich picture of the population targeted by Landmine Action's reintegration program. Tables 2 and 3 show average characteristics for each of the different participant groups – men, women, generals, and commanders – separately for Sinoe and Tumutu. These tables cover a selection of characteristics assessed in the baseline survey. A set of tables with the full set of characteristics are given in a companion .

Sinoe. Table 1 describes the 359 men, 32 women, and 11 generals surveyed for the Sinoe pool. Though the average age is around 30, with the women a few years younger than the men, but this masks a wide range of "youth" from ages 18 to 54. In Sinoe, the sample is primarily Kru and Sapo tribes, more than two-thirds were born in Sinoe County. Almost everyone reports being Christian. Six years of education is the average, but the women have only attained half. Fewer than 10% have received agricultural training, suggesting that the training may address an unmet need. More than twice as many have received non-agricultural training of some sort, but the numbers are still low.

Despite little official training in agriculture, the vast majority have farming experience and say they are "very interested" in pursuing farming in the future. Sixty-two percent worked on a farm in the previous week, and 39 % are currently involving in rubber tapping. Average "typical" monthly income is 4370 LD, about one-quarter less than the average amount of savings held. One-third have debts to someone in the community that they intend to pay in the next month. Three-quarters say they have farmland, though it is difficult to determine how clearly the respondents separate their own land from family land.

During the survey, respondents were asked if they would be willing to answer questions about their experiences during the war and their participation in armies or factions. Seven percent refused. Of the men willing to speak, 96% were members of the army or factions, but few report having much difficulty being accepted by their families now. Reported participation among women is only have that of men. Half of women also reported being displaced both inside and outside during the war, much more common than among men.

On a scale of 0-never to 3-always, Sinoe respondents generally perceive that their families will help them when they are "in a jam," and there are low levels of "confusion" (discord, stress). Of course, these averages mask a range of responses, and higher levels of discord seem to be associated with higher program compliance. A typical respondent reports that about half of his friends are ex-combatants, and about 10 % still receive support or jobs from former commanders.

Tumutu. Table 2 adds an extra column for the commander group that was randomized in Tumutu. There are 777 men, 140 women, 29 commanders, and 16 generals, for a total sample of 962. Unlike Sinoe, the youth for the TATP program are primarily Kpelle and Mano. Most are married or have partners, but the percentage is lower than in Sinoe, and they have fewer children. Education is also similar, though higher for women compared to Sinoe.

Training has been more common, especially among general and women. One-quarter of the generals have already participated in some kind of agricultural training, and nearly one-third in non-agricultural training. Higher numbers might indicate that many of the interested individuals have been reached. On the other hand, it could raise familiarity with programs such as LMA in the community.

Like Sinoe, about 60% of respondents worked on a farm in the last week. Rather than rubber tapping, however, mining fairly common income activity, especially among the commanders and general. Tumutu. incomes are more than 1000 LD lower than in Sinoe, and savings are only half the Sinoe amounts. Accordingly, Tumutu respondents report going hungry more frequently and have lower land and asset accumulation.

This group seems to have participated less in the war – 87% of men – and were more likely to be displaced from their homes, both inside and outside of Liberia. Slightly fewer of their friends are ex-combatants. They were also a little more likely to report health or emotional difficulties.

Generals. It is evident from the tables that the automatically-enrolled generals are different from the rest of the population. They tend to be older and more educated, have more children. One gets the sense that they are more "established" but not necessarily quiet members of their communities. They are relatively less likely to be from the places they live and more likely to have had fights in the last year. Generals, and commanders, seem to make more money than the average. This may be expected, given their heavier involvement in rubber tapping for Sinoe and mining for Tumatu. They are less likely to report depending on former commanders for employment. They, presumably, are some of the commanders giving employment instead. Perhaps surprisingly, reported participation in armies or factions is less than 100%. Possible explanations are that these generals were mistargeted, that they had lied during registration believing (correctly) that it would improve their chance of participation, or that they did in fact participate but felt uncomfortable discussing their activities because of their higher levels of responsibility and a fear of potential punishment. This would be

supported by the anecdotal evidence that there were rumors circulating about the teams' intentions and relationship to the Truth and Reconciliation Commission.

B. Tests of Balance

Randomization as an evaluation strategy depends on the successful allocation of individuals into treatment and control groups in a way that distributes characteristics evenly between the two. Successful randomization is very likely for very large samples, but for smaller samples, or in cases where there has been difficulty implementing the randomization, one can verify the success by comparing the characteristics of the treatment and control group.

The distribution of characteristics is assessed using two methods. First, the simple comparison of means is tested by regressing treatment on each of a range of variables collected in the baseline survey. Then, these regressions are repeated with a set of control variables. The control variables used are demographics: age, marriage, education, parents' education; and citizen-migrant indicators: binary variables for being from the county and the town of interview, years of farming experience, monthly income. To distinguish between the Sinoe and Tumutu recruitment processes, a binary indicator for being part of the Sinoe sample is included. Additionally, being registered in a rubber plantation town in Sinoe was strongly associated with non-compliance, and thus replacement, so a plantation indicator is included as well. The regressions with controls also cluster the standard errors for the community of randomization and group (men, women, commanders). Note that the tests of balance exclude all generals and the group of women in Sinoe, as these were automatically assigned to treatment.

The results are presented together in Table 4. The selected characteristics are meant to represent aspects of the respondents' background, preferences, and activities that may be outcomes of interest or that may affect outcomes of interest.

Fortunately, the majority of the variables show no significant difference. A few noteworthy characteristics are not evenly distributed between the two groups, however. The Sinoe and plantation indicators are significant (the latter at 10%), but this is necessarily true because of the high non-compliance in plantation towns and because of the policy of replacing from the control list in Sinoe. It is also possible that some other imbalances may be mechanically generated from the Sinoe replacement process. If certain characteristics correspond to non-compliance, which then led to replacement within the same group of people who may be likely to share the same characteristics, these characteristics maybe be disproportionately higher among the treatment group.

Being native to the town and/or the county is weakly associated with treatment, but these differences disappear with controls. Reporting that one's family helps out in times of trouble ("a jam") is significant higher in the simple regression but only at 10% with controls.

The most significant differences are in education and in participation in a faction. The treatment group has an average of half a year more education, and the difference increases with controls. The same is true for non-agricultural training. Those selected for treatment also spent an average of five additional month in the army or in factions, and this is no less significant when controlling for the Sinoe replacements.

Though the distribution of characteristics is not generally significantly different, a few key differences will make important to control for these characteristics in the final analysis. The fact that some differences may arise because of non-compliance and replacement warrants further investigation.

C. Minimum detectable effects

Table 5 presents calculations on anticipated minimum detectable effect size for the impact analysis. The "minimum detectable effect" refers to the smallest impact that could be identified from the study design. It depends on number of parameters: sample size, percentage of treatment individuals, and the distribution of a characteristic at baseline. The presence of other control variables that help explain variation in a sample (captured as R^2) improves the minimum detectable effect. Finally, the minimum detectable effect is also a function of the study's tolerance for uncertainty. The "power" of a test is the probability that the test will reject the null hypothesis (no impact) when there is in fact an impact. The level of significance refers to the probability that the test will indicate impact when there is none. 80 and 90% are common standards used for power; 5 and 10% for significance. 90% power and 5% significance provides a stricter test than 80% and 10%.

The table provides a matrix that demonstrates the range of effect size depending on desire power and significance, and allowing for minimum (0.00) and higher amounts of explanatory power from control variables (R^2). The first row provides the minimum detectable effect in terms of standard deviations. This applies for all variables and indicates the number of standard deviations of impact the program must effect to be detectable by the evaluation. The rest of the table puts these standard deviations into units. The first column gives the mean for the variable, and each of the other columns indicates the number of units of change must be observed in the treatment group for impact to be detected as significant.

In general, the stricter tests are to the left and easier tests are to the right. For example, for the amount of savings, the average at baseline was 3,190 LD. Using 90% power and 5% significance, and assuming no other explanatory variables, program participation must lead to higher savings of 1455 LD among the treatment group to be detected as impact. Using 80% power and 10% significance, and assuming (perhaps high) 0.40 R^2, the analysis will recognize impact if the treatment group increases savings by 864 LD.

The "easiest" variables to show impact for are those with smaller variation from person to person or, in the case of binary indicator, those that are present in about half of the population, such as the indicator for currently farming or raising animals. Weekly income can be detected, even with the strictest set of assumptions, if the program can raise profits by less than 20%. Other outcomes, such as reduced problems being accepted by family will be more difficult. With only 4.6% of the population reporting major problems ("some" problems is even fewer), even by the more lax test, the number will have to decrease by 50% – 2.3 percentage points – to be detected.

Appendix: Tables

Table 1: Randomization, Treatment, and Non-compliance

	Surveyed and randomized	Selected to enter program	Entered program	Non-compliance
Sinoe				
Men	359	230	174	24%
Women	*32	31	20	35%
Generals	*11	11	11	0%
Total Random Sample	359	272	205	25%
Tumutu				
Men	777	418	310	26%
Women	140	71	42	41%
Generals	16	16	15	6%
Commanders	29	15	9	40%
Total Random Sample	962	520	376	28%
Grand total	1305	792	581	27%

*Surveyed only

Table 2: Selected Statistics, Sinoe

	Total N=402		Men N=359		Women N=33		Generals N=11	
	mean	sd	mean	sd	mean	sd	mean	sd
Demographics								
Age	30.45	7.24	30.55	7.02	27.34	8.69	36.18	6.31
Interviewed in county of birth	0.71	0.45	0.72	0.45	0.69	0.47	0.45	0.52
Registered in a plantation town	0.20	0.40	0.19	0.40	0.13	0.34	0.45	0.52
Religion: Christian	0.91	0.28	0.91	0.29	0.97	0.18	0.91	0.30
Married, or has partner	0.89	0.32	0.90	0.30	0.72	0.46	1.00	0.00
Number of children	2.74	2.21	2.80	2.24	1.72	1.63	3.64	1.96
Years of education or training	5.71	3.82	5.82	3.75	3.09	2.44	9.64	4.97
Has received agricultural training	0.08	0.27	0.08	0.26	0.09	0.30	0.09	0.30
Has received non-agricultural training	0.21	0.41	0.20	0.40	0.09	0.30	0.64	0.50
Employment and finances								
Has farmed	0.82	0.38	0.83	0.37	0.72	0.46	0.82	0.40
Very interested in farming in the future	0.86	0.35	0.87	0.34	0.75	0.44	0.91	0.30
Sum of all days employed all activities last week (can exceed 7)	11.33	7.81	11.74	7.91	7.81	6.43	8.18	4.60
Worked on a farm or koo last week	0.62	0.49	0.64	0.48	0.59	0.50	0.09	0.30
Is currently a rubber tapper or bossman	0.39	0.49	0.41	0.49	0.03	0.18	0.64	0.50
Typical monthly income (LD)	4,370	6,157	4,388	5,922	3,414	8,636	6,571	5,025
Amount of savings (LD)	5,401	11,516	5,581	11,565	2,470	4,321	8,073	20,855
Amount of debt owed to people in the community	629	1,916	630	1,986	253	471	1,690	1,917
Has a debt and intends to pay back next month	0.34	0.48	0.32	0.47	0.38	0.49	0.91	0.30
Assets								
Has or family has town lots	0.78	0.42	0.78	0.41	0.75	0.44	0.64	0.50
Has farm land	0.77	0.42	0.79	0.41	0.69	0.47	0.64	0.50
Assets: number of shoes	1.55	2.66	1.52	2.70	1.59	2.38	2.64	1.69
# months in last 12 that went without food	0.77	1.46	0.76	1.49	0.94	1.11	0.82	1.47
War experiences								
Respondent was willing to discuss war participation	0.93	0.25	0.94	0.25	0.88	0.34	0.91	0.30
Respondent was part of an army or faction	0.92	0.27	0.96	0.19	0.43	0.50	0.90	0.32
Has plenty problems being accepted by family	0.11	0.31	0.12	0.32	0.03	0.18	0.09	0.30
Willing to discuss war experience	0.92	0.28	0.92	0.27	0.88	0.34	0.82	0.40
Was a refugee outside Liberia	0.19	0.39	0.16	0.37	0.46	0.51	0.33	0.50
Was displaced inside Liberia	0.42	0.49	0.41	0.49	0.61	0.50	0.11	0.33
Family and community ties								
Family helps when in a jam	1.87	1.11	1.84	1.11	2.03	1.20	2.27	1.10
Has a lot of confusion in family	0.35	0.76	0.31	0.72	0.68	1.01	0.55	0.82
Is a citizen of the town	0.75	0.43	0.75	0.43	0.78	0.42	0.64	0.50
Had palava with leaders or neighbors, past year	0.16	0.37	0.16	0.37	0.16	0.37	0.27	0.47
# of groups is a member in	3.59	1.60	3.61	1.56	3.28	2.04	3.91	1.51
Portion of ex-coms among friends	2.03	1.01	2.08	0.98	1.34	1.18	2.45	0.82
Former commander(s) gives support or jobs	0.08	0.27	0.09	0.28	0.03	0.18	0.09	0.30
Health and wellbeing								
Sat and thought of bad things that happened	0.49	0.50	0.50	0.50	0.38	0.49	0.45	0.52
Mentioned as least one health problem	0.40	0.49	0.40	0.49	0.38	0.49	0.36	0.50

Table 3: Selected Statistics, Tumutu

	Total N=962		Men N=777		Women N=140		Commanders N=29		Generals N=16	
	mean	sd	mean	sd	mean	sd	mean	sd	mean	sd
Demographics										
Age	29.81	7.97	30.17	8.07	26.41	6.12	33.69	7.35	35.38	9.15
Interviewed in county of birth	0.51	0.50	0.51	0.50	0.62	0.49	0.28	0.45	0.38	0.50
Tribe: Kpelle	0.41	0.49	0.42	0.49	0.33	0.47	0.48	0.51	0.25	0.45
Tribe: Mano	0.15	0.36	0.15	0.36	0.19	0.40	0.00	0.00	0.00	0.00
Religion: Christian	0.80	0.40	0.79	0.41	0.87	0.34	0.72	0.45	0.88	0.34
Married, or has partner	0.79	0.41	0.80	0.40	0.74	0.44	0.83	0.38	0.63	0.50
Number of children	2.14	2.04	2.18	2.09	1.72	1.53	2.79	1.92	3.13	2.68
Years of education or training	5.95	3.99	6.23	3.93	3.98	3.63	6.59	4.50	8.85	3.55
Has received agricultural training	0.08	0.28	0.09	0.28	0.05	0.22	0.10	0.31	0.25	0.45
Has received non-agricultural training	0.23	0.42	0.22	0.41	0.27	0.45	0.17	0.38	0.31	0.48
Employment and finances										
Has farmed	0.78	0.41	0.82	0.39	0.59	0.49	0.76	0.44	0.75	0.45
Very interested in farming in the future	0.86	0.35	0.87	0.34	0.80	0.40	0.90	0.31	0.81	0.40
Sum of all days employed all activities last week (can exceed 7)	9.48	6.62	10.02	6.71	5.75	4.59	12.00	6.64	11.63	6.04
Worked on a farm or koo last week	0.60	0.49	0.62	0.49	0.48	0.50	0.59	0.50	0.50	0.52
Is currently a miner or mining boy	0.15	0.36	0.16	0.37	0.01	0.12	0.41	0.50	0.38	0.50
Typical monthly income (LD)	3,190	8,697	3,368	9,516	2,237	3,469	2,821	2,695	3,581	5,153
Amount of savings (LD)	2,356	6,427	2,443	6,388	1,321	2,458	2,676	5,605	6,644	19,751
Has a debt and intends to pay back next month	0.29	0.45	0.29	0.45	0.29	0.46	0.38	0.49	0.25	0.45
Amount of debt owed to people in the communtiy	506	1,889	521	1,777	214	519	710	1,438	1,963	7,479
Assets										
Has or family has town lots	0.64	0.48	0.65	0.48	0.59	0.49	0.69	0.47	0.69	0.48
Has farm land	0.69	0.46	0.69	0.46	0.65	0.48	0.69	0.47	0.63	0.50
Assets: number of shoes	1.53	2.05	1.60	2.11	1.02	1.62	1.72	1.71	2.38	2.68
# months in last 12 that went without food	1.32	2.25	1.19	2.02	1.99	3.21	1.45	1.62	1.44	2.39
War experiences										
Respondent was willing to discuss war participation	0.93	0.25	0.95	0.22	0.82	0.38	0.93	0.26	0.94	0.25
Respondent was part of an army or faction	0.84	0.37	0.87	0.33	0.57	0.50	0.96	0.19	0.93	0.26
Willing to discuss war experience	0.96	0.18	0.98	0.15	0.91	0.29	0.93	0.26	0.94	0.25
Was a refugee outside Liberia	0.26	0.44	0.24	0.43	0.38	0.49	0.22	0.42	0.33	0.49
Was displaced inside Liberia	0.54	0.50	0.53	0.50	0.60	0.49	0.41	0.50	0.40	0.51
Family and community ties										
Family helps when in a jam	1.62	1.10	1.67	1.09	1.36	1.12	1.76	1.02	1.53	1.19
Has a lot of confusion in family	0.64	0.99	0.61	0.97	0.83	1.13	0.48	0.91	0.60	0.99
Is a citizen of the town	0.60	0.49	0.59	0.49	0.71	0.45	0.48	0.51	0.56	0.51
Had palava with leaders or neighbors, past year	0.19	0.40	0.18	0.38	0.29	0.46	0.17	0.38	0.07	0.26
# of groups is a member in	3.41	1.80	3.50	1.80	2.75	1.65	3.97	1.80	3.81	2.04
Portion of ex-coms among friends	1.74	1.10	1.83	1.07	1.09	1.02	1.93	1.03	2.19	1.28
Former commander(s) gives support or jobs	0.03	0.17	0.03	0.17	0.02	0.15	0.07	0.26	0.00	0.00
Thinks there'll be more war in the country again	0.01	0.10	0.01	0.11	0.01	0.08	0.00	0.00	0.00	0.00
Health and wellbeing										
Sat and thought of bad things that happened	0.56	0.50	0.55	0.50	0.59	0.49	0.62	0.49	0.40	0.51
Mentioned as least one health problem	0.46	0.50	0.45	0.50	0.50	0.50	0.55	0.51	0.50	0.52

Table 4: Test of Balance - Distribution of Characteristics between Treatment and Control Groups
Treatment as Dependent Variable

	Treatment only	With controls		Treatment only	With controls
Sinoe sample	0.0874**	0.0499*	Land owned by self, in tins of rice	-0.505	-0.598
	[0.0346]	[0.0286]	(1 tin=4 acres)	[0.525]	[0.517]
Registered in a plantation town	0.0424*	0.0302*	Housing quality index (PCA)	0.0268	0.0797
	[0.0244]	[0.0155]		[0.178]	[0.133]
Age	-0.679	-0.627*	Asset ownership index (PCA)	0.0967	-0.0185
	[0.458]	[0.350]		[0.111]	[0.0965]
Married, or has partner	0.0192	0.0120	Land ownership and access index (PCA)	0.144	0.121
	[0.0205]	[0.0199]		[0.110]	[0.104]
Years of education or training	0.539**	0.664***	Additive health: 12=all problem	-0.125	-0.0840
	[0.260]	[0.232]	categories, to worst degree	[0.0925]	[0.0894]
Education of mother, 0-5	-0.0126	-0.0201	# dependents (for food and money) of	-0.0424	-0.0234
	[0.0549]	[0.0536]	people who share meals	[0.174]	[0.138]
Education of father, 0-5	-0.0437	-0.0992	Closely related to someone who has	-0.0380	-0.0409
	[0.0791]	[0.0744]	been a chief	[0.0271]	[0.0272]
Was born in the county	0.0507*	0.0171	Family helps when in a jam	0.117**	0.100*
	[0.0266]	[0.0228]		[0.0594]	[0.0583]
Is a citizen of the town	0.0451*	0.0122	Has a lot of confusion in family	-0.0268	-0.000322
	[0.0232]	[0.0187]		[0.0606]	[0.0563]
# Years has farmed	-0.353	-0.194	# of groups is a member in	-0.0752	-0.104
	[0.344]	[0.273]		[0.107]	[0.104]
Typical monthly income (LD)	-486.1	-779.3	Is a community leader now	-0.00705	-0.00856
	[465.4]	[506.6]		[0.0202]	[0.0183]
Has received non-agricultural training	0.0458*	0.0464**	Feels can do something personally to	-0.00696	-0.00907
	[0.0240]	[0.0220]	improve things when chief does bad job	[0.0195]	[0.0199]
Has received agricultural training	0.0203	0.0235	Former commander(s) gives support or	-0.0114	-0.0191
	[0.0155]	[0.0149]	jobs	[0.0119]	[0.0131]
Sum of all days employed all activities	-0.460	-0.441	Had palava with leaders or neighbors,	-0.0147	-0.00783
last week	[0.354]	[0.357]	past year	[0.0216]	[0.0210]
Worked on a farm or koo last week	-0.0458*	-0.0434*	Plans to move from community in next	-0.0375	-0.0448
	[0.0254]	[0.0235]	few months	[0.0297]	[0.0298]
Amount of savings (LD)	481.3	164.0	Has plenty problems being accepted by	0.0101	0.00341
	[459.6]	[396.7]	family today	[0.0120]	[0.0104]
Saves: weekly or daily	0.0168	0.0163	Willing to discuss war experience	0.0103	0.0158
	[0.0306]	[0.0289]		[0.0119]	[0.0125]
Owes debt to someone in the community	-0.0326	-0.0307	Additive value of types of negative war	-0.0458	-0.0406
	[0.0235]	[0.0250]	experiences undergone	[0.228]	[0.215]
Amount of debt owed to people in the	-114.3	-137.2	Respondent was willing to discuss war	0.0157	0.0187
communtiy	[86.86]	[116.4]	experience	[0.0130]	[0.0129]
Prefers 20USD for sure over lucky	-0.0168	-0.0210	Respondent was part of an army or	0.0130	0.00441
ticket 100USD	[0.0224]	[0.0220]	faction	[0.0206]	[0.0195]
# Years has raised animals	0.128	0.239	Total time in factions, months	5.176***	5.194***
	[0.236]	[0.205]		[1.566]	[1.629]

Notes: Controls are age, marriage, education, parents' education, binary variables for being from the county and the town of interview, years of farming experience, monthly income, and binary variables for being part of the Sinoe sample and for being registered in a rubber plantation town.
Significance levels: * 10%, ** 5%, *** 1%

Table 5: Power calculations for 5% and 10% significance, 80% and 90% power, and R^2 of 0.00, 0.20, and 0.40
Selected Outcome Variables

variable name	mean	R^2 =0.00				R^2= 0.20				R^2= 0.40			
		.05,90%	*.10,90%*	*.05,80%*	*.10,80%*	*.05,90%*	*.10,90%*	*.05,80%*	*.10,80%*	*.05,90%*	*.10,90%*	*.05,80%*	*.10,80%*
Standardized	0.000	0.181	0.163	0.156	0.139	0.146	0.146	0.140	0.124	0.127	0.127	0.121	0.108
Days worked (all activities) last week, max=7	5.825	0.375	0.338	0.324	0.287	0.335	0.302	0.290	0.257	0.290	0.262	0.251	0.222
Sum of all days employed all activities last week (can exceed 7)	10.08	1.281	1.156	1.107	0.982	1.145	1.034	0.990	0.878	0.992	0.895	0.857	0.761
Currently farms or raises animals, %	0.535	0.090	0.082	0.078	0.069	0.081	0.073	0.070	0.062	0.070	0.063	0.060	0.054
Profit from work activities last week (LD)	6.895	1.730	1.562	1.495	1.327	1.547	1.397	1.337	1.187	1.340	1.210	1.158	1.028
Typical monthly income (LD)	1,039	367	331	317	281	328	296	283	252	284	256	245	218
Owes debt to someone in the community, %	0.325	0.085	0.077	0.073	0.065	0.076	0.068	0.066	0.058	0.066	0.059	0.057	0.050
Amount of debt owed to people in the community (LD)	522	316	285	273	242	283	255	244	217	245	221	212	188
Amount of savings (LD)	3,190	1,455	1,313	1,257	1,116	1,301	1,174	1,124	998	1,127	1,017	974	864
Saves weekly or daily, %	0.339	0.086	0.077	0.074	0.066	0.077	0.069	0.066	0.059	0.066	0.060	0.057	0.051
Prefers sure 20USD over lucky ticket 100USD, %	0.833	0.068	0.061	0.058	0.052	0.060	0.055	0.052	0.046	0.052	0.047	0.045	0.040
Had palava with leaders or neighbors, past year	0.186	0.071	0.064	0.061	0.054	0.063	0.057	0.055	0.048	0.055	0.049	0.047	0.042
Is a community leader now, %	0.175	0.069	0.062	0.059	0.053	0.062	0.056	0.053	0.047	0.053	0.048	0.046	0.041
Feels can do something personally to improve things when chief does bad job, %	0.880	0.059	0.053	0.051	0.045	0.053	0.047	0.045	0.040	0.046	0.041	0.039	0.035
Has plenty problems being accepted by family today, %	0.046	0.038	0.034	0.033	0.029	0.034	0.031	0.029	0.026	0.029	0.027	0.025	0.023