



Land Governance in an Interconnected World

ANNUAL WORLD BANK CONFERENCE ON LAND AND POVERTY
WASHINGTON DC, MARCH 19-23, 2018



COMMUNITY LAND PROTECTION IN LIBERIA: THE IMPACT ON NEOCUSTOMARY NORMS AND INSTITUTIONS

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**Paper prepared for presentation at the
“2018 WORLD BANK CONFERENCE ON LAND AND POVERTY”
The World Bank - Washington DC, March 19-23, 2018**

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Abstract

Is it possible to change property rights norms, even when changes affect the position of powerful constituencies? In this paper, we explore the effects of external changes to informal property rights institutions using a quasi-experimental evaluation of an intervention designed to protect community land and promote the rights of vulnerable groups, including women, in the West African nation of Liberia. We focus on the effect of the Community Land Protection Program (CLPP), an intervention that seeks to empower communities to successfully protect communal land rights, but that also emphasizes full participation of women and other previously excluded groups. We use two rounds of survey data collected in 2014 and 2017 from 43 communities and find evidence that while some behaviors and norms prove persistent over time, others do shift as a result of an outside intervention.

Key Words:

Land governance, Communal property rights, Women's property rights, Neocustomary norms, Institutions

1 Introduction

Common property institutions structure property rights over vast quantities of land and natural resources, especially in rural areas of developing countries. Although the fashion of promoting individuated formal property rights has placed these common property systems under increasing pressure (e.g. de Soto 1991), these institutions may be more efficient and offer specific benefits to resource users (e.g. Ostrom 1990; Berry 1999). As a result, some policy-makers have turned to modifying and strengthening, and to some degree formalizing institutions that govern communal land, a type of common pool resource characterized by costly exclusion and the potential for self-interested free-riding (Ostrom, 1990). While much has been written about what the effects of strengthening individual property rights (e.g. (Galiani and Schargrotsky, 2010; Field, 2003, 2007)), there is limited research on the effects of strengthening common property institutions on local politics, economic outcomes, and relationships between social groups (Lawry et al., 2014). This paper explores the effect of strengthening these institutions in rural Liberia.

Informal institutions - the shared unwritten rules of appropriate behavior enforced through social sanction and praise (Ellickson, 1991; Knight, 1992; North, 1990) - have a mixed record. On the one hand, strong informal institutions, including family ties and shared moral standing, can enhance public goods provision (Tsai, 2007; Xu and Yao, 2015). Recent work suggests that common property may have attributes that function less efficiently when individuated. The flexibility of many common property systems may serve political, social and economic purposes not captured by typical models of property rights (e.g. Gibson et al. 2005; Agrawal and Chhatre 2006; Hayes 2006; Persha et al. 2011).

On the other hand, strengthening such institutions, including some degree of formalization, could have mixed benefits for certain social groups, especially given that informal institutions often privilege men as well as people that can claim indigenous status (Meinzen-Dick et al. 1997, 2017; Tripp 2004). These powerful constituencies may have especially limited incentives for including more women in common property institutions compared with the incentives that shaped the extension of individual property rights to women (Doepke et al. 2012; Geddes and Lueck 2002).

In this paper we use a quasi-experimental evaluation of a Community Land Protection (CLP) program to understand the effects of strong common property institutions on political and economic outcomes. In addition to formalizing the rules and norms that govern community rights over common property, the CLP program also emphasizes the full participation and protection of women and other vulnerable groups. The CLP program uses an advocacy-based theory of change that is predicated on the idea that information alone shifts

knowledge, norms and behavior.

According to the CLP, creating cooperative community property management structures, using these structures to formalize the unwritten rules and norms that govern community property, and clarifying the boundaries of community property leads to stronger community-level common property institutions. We hypothesize that cooperative common property institutions could increase community members' trust and participation in governance mechanisms, while formalizing unwritten rules and clarifying boundaries should increase property rights security, and thus the security of returns from future investments (Goldstein and Udry, 2008).

Stronger and more formal common property institutions can also imply a political change. If formalization requires a loss of flexibility, and formalization of cooperative decision-making that includes women requires shifting power away from powerful constituencies, there may be winners and losers of institutional change. Attempts to force such changes from the outside could have mixed results for women and other previously disadvantaged social groups given that the powerful may perceive the changes as a threat to the status quo.

We collect data from 818 individuals in 43 clans (referred to as communities), including a group that received the CLP, and a matched control group.¹ The CLP increased the number of formal written rules governing community property and the extent to which communities identified the boundaries of their community land. The program also increased confidence in the authorities that manage communal property: respondents in treated communities were 35% (19 percentage points) more likely to report that they were confident in their leaders' capacity, ethical behavior, fairness, and transparency, as measured by an index of these indicators. Individuals in treated communities believe that leaders can protect their communal forests and make better decisions on behalf of the community. The program also led to changes in investment. Individuals in treated communities report planting fewer cash crops on communal land. Men, in particular, reduce the number of trees they plant on community land, while women in treatment communities plant more subsistence crops, including more rice.

Beliefs about gendered property rights may be one factor that shapes how the CLP program changes both political and economic outcomes in treated communities. We use a survey experiment that asks respondents about their support for property rights reforms

¹Initially the study started off as a large-scale field experiment, whereby communities were randomly assigned into treatment and control groups. However, logistical challenges during implementation meant that a non-random sub-set of communities received the CLP. To deal with any bias this may introduce into our evaluation of the program's impact, we match treated communities to untreated ones and use a variety of statistical techniques to test the assumption that we have a rigorous counterfactual assessment of the impact of the program.

that empower women and we identify a negative effect of framing changes in property rights in terms of increasing women’s rights. Together, these results and the our gendered shift the allocation of economic effort in planting suggest that norms around power dynamics in the community may be more persistent compared with changes in attitudes towards local governance.

The success of documenting previously unwritten rules and identifying boundaries, as well as the consistent and positive changes in attitudes local communal land governance mechanisms, suggests that the CLP has a positive effect on local land governance, at least to some degree. However, an individual’s position within the community still shapes their property rights. Efforts to empower previously underprivileged groups may have unexpected consequences. Our research suggests that at least for some proportion of community members, norms of unequal access to property rights remain persistent. This has implications for theories that explain the role of informal institutions and provides a more nuanced understanding of how external support to such institutions should approach attempts to provide equal rights to all social groups within the community.

2 Setting

A West Africa nation of around 4.5 million people (USAID, 2016), Liberia is one of the poorest countries in the world. It ranks below the 7th percentile of all countries on the Human Development Index, including Afghanistan and the Democratic Republic of Congo (Jahan, 2016). Between 1989 and 2003 civil war displaced and killed hundreds of thousands of people. Many factors contributed to the conflict, including over-centralized political power, ethnic and class tensions, and struggles over land and natural resource rights.²A 2003 agreement ushered in peace and two democratic elections ensued. Events in this paper stretch from 2014 to 2017, including the Ebola outbreak, a period in which Liberia faced substantial challenges.³

2.1 Property rights in Liberia

Small-holder agriculture provides the livelihood for the large majority of Liberians in our study area. Farmers depend on rain-fed subsistence crops of rice, cassava and other veg-

²See Richards (2005); Sawyer (2005); Levitt (2005); Ellis (2001) for a wide ranging analysis of the factors behind the Liberian civil war and the ways that property rights and natural resources affected conflict dynamics.

³Prior to the program GDP grew (6.1% in 2010), but declined to 0.3% in 2016 as a result of both the Ebola crisis and the global decline of commodity prices (Jahan 2016).

etables (Corriveau-Bourque 2010). Tree crops (coffee and cocoa) and rubber production supplement income. Land is often a household's most important asset, including farm plots, as well as plots located within communities where families grow vegetables for consumption and sale in local markets (Baldwin, 2015; Boone, 2014).

In the areas where the CLP took place, common property institutions can be categorized as neocustomary. Neocustomary institutions are structures dominated by authorities with real or imagined first-comer status in a specific geographic location.⁴ Neocustomary common property institutions are the dominant type of property rights system in rural Liberia and in our study area, but no reliable figures exist on the amount of land governed through this system, in part due to historical complexities and contradictions in Liberia property rights law. One estimate puts the figure at 60% of Liberia's land mass subject to neocustomary tenure.⁵

Although the formal recognition of neocustomary common property institutions has been part of Liberia's legal system since the Nineteenth Century, the government made numerous, often contradictory, attempts to regulate these institutions from at least 1876. From 1876 to 1956, seven sweeping laws were passed that provided customary tenure with some degree of legal status (Stevens 2012). While nineteenth Century Liberian law and policy expressed ambivalence as to community land ownership, from 1905 onward Liberian law consistently regarded neocustomary tenure as a use and enjoyment right on what was otherwise public land.

Neocustomary common property institutions have historically been characterized by limiting the rights of outsiders and lower-status individuals such as women. A 1924 law prohibited chiefs from selling legally-recognized community lands to non-community members, clearly restricting any fee simple ownership at the community level (An Act Regulating the Methods by which Members of One Tribe May Farm and Settle Within the Territorial Limits of Another Tribe, Sec. 1 1924). Variations on this arrangement were enacted into law in 1929, 1949, and, finally, 1956 (Stevens 2012; De Wit and Stevens 2014; Sawyer 1992).⁶

⁴Such governance structures are sometimes referred to as 'customary' in other contexts, but following Boone (2014) we prefer the term 'neocustomary' as it takes into account the rupture with historic institutions caused by the human trade (including the massive movement of people that took place during the trans-Atlantic slave trade); colonization; and civil conflict.

⁵<http://www.landmarkmap.org/country-profiles/>. The problem with such estimates is that no reliable figures exist on private lands held under deed. Moreover, many lands are held under tribal certificates (Marquardt and Pay-Bayee 2011). A recent inventory by the MCC Land Policy and Institutional Support Project and USAID's Land Governance Support Activity of tribal certificates in four counties found that these quasi-legal documents cover from 10% to as much as 59% of a county's land area.

⁶Through the 1956 Aborigines Law, and other legislation, the government created a uniform system of nested chiefdoms. At the highest level is the Paramount Chief, followed by Clan chiefs, town chiefs, and quarter chiefs. At least formally, chiefs are considered government officials vested with jurisdiction over certain kinds of land disputes. Neocustomary norms could continue provided they were not in conflict with formal

Other than the above mandated changes, not until passage of the Equal Rights to Customary Marriage Law (1998, 2003), the adoption of the Land Rights Policy (2013), and, more recently, development of the Land Rights bill (2017), did the government attempt to alter common property institutions or the gender norms embedded within them (Alden-Wiley 2007). Despite the imposition of a uniform chiefdom structure, neocustomary norms and practices remained largely untouched by formal law. Although there are reported exceptions (Namubiru-Mwaura et al. 2012; Dodd et al. 2018), in general, neocustomary common property institutions continued to privilege “first settler” families. These families purportedly descend from the first settlers who cleared the forest and established farms and towns and claim “traditional” ownership over common property within the community (Namubiru-Mwaura et al. 2012). Granted land rights are typically to an entire family. They may be seasonal and limited or longterm and extend to one’s descendants. Longterm rights are granted for farming and housing.

These are not the only property rights that exist within a given community. Seasonal or limited property rights are more fluid and typically apply to land held in common or over which no family has longterm rights. Communal property is generally forest or wetlands, but may also cover common farmland, which may include, but is not limited to farmland that is managed at the communal level as opposed to privately and could include specific projects that aim to generate income for the entire community.

2.2 Women’s Property Rights in Liberia

Statutory law has been largely silent as to women’s property rights in Liberia. Under the Equal Rights to Customary Marriage Law (1998, 2003) wives in neocustomary marriages enjoy the same rights as wives in statutory marriages (Equal Rights to Customary Marriage Law 1998; Bruce and Kanneh 2011). The law also provides that widows of neocustomary marriages are entitled to a third of their deceased husband’s property (Equal Rights to Customary Marriage Law 1998; Bruce and Kanneh 2011). In addition, customary husbands are required to respect their wife’s “human rights” (Equal Rights to Customary Marriage Law 1998; Bruce and Kanneh 2011). This is the only law that attempts to regulate neocustomary norms with respect to women’s property rights. In reality, it has had little impact. Moreover, until the Land Rights Policy (2013) no law or policy addressed women’s participation in neocustomary land governance.

law (Aborigines Law 1956; Bruce and Kanneh 2011). The attempt to graft a uniform administrative identity onto neocustomary units has proven problematic. In some communities the creation of these chiefdoms was a radical departure from their traditional governance structures. Some towns have strong lineage and kinship networks with one another, yet they are formally classified as part of different clans (Alden-Wiley 2007). Furthermore, in some areas towns traditionally operate independent of clans or chiefdoms.

Women are excluded from meaningful participation and leadership roles with respect to property rights because land and property is widely seen as the prerogative of men only (Dodd et al. 2018). Women do not typically serve as chiefs and are traditionally excluded from neocustomary land governance or leadership roles (Dodd et al. 2018). Women may serve as “Chairladies,” which is a traditional leadership role below that of town chief (Dodd et al. 2018). In general, women must be accompanied by a man when meeting with statutory or neocustomary authorities to discuss women’s land rights (Dodd et al. 2018).

Women primarily obtain land through their husbands or, in some cases, their fathers. Whereas men can approach a chief directly to obtain land, this is rarely done by women (Dodd et al. 2018). This can render the woman vulnerable to loss of land rights upon divorce or death of the husband. Women do not typically inherit land from their parents because they relocate from their natal community upon marriage, although there is some evidence that this is changing (Alden-Wiley 2007).⁷

3 The intervention

The CLP program is a 12- to 18-month project that is funded by the United Kingdom’s Department for International Development, (DfID) and implemented in partnership with the Sustainable Development Institute (SDI) in Liberia. Since Liberia’s land reform process began in 2009, Namati, the International Development Law Organization, and SDI have been assisting rural communities through the CLP program to demarcate and protect their land and resources according to the process set out in the draft Land Rights Act (Knight et al., 2013). The communities participating in this evaluation are in Lofa, Maryland, and River Gee counties, shown in Figure 1.

The CLP aims to formalize and protect community-level common property in order to protect rural communities’ land claims, livelihoods, and way of life; reduce conflict and instability in the long term; and foster endogenously driven community development (Knight 2010). To achieve this goal, the program promotes an integrated common property protection model that supports communities to protect their lands and natural resources, as well as to leverage the community land documentation processes to strengthen intra-community governance and accountability. The program consists of five components three of which were included in this study: 1. Community empowerment, including provision of legal education regarding rights and responsibilities in the context of decentralized land management; 2. Boundary harmonization and land conflict resolution, including boundary negotiation with neighbors (to define the limits of community land), boundary demarcation (GPS/surveying,

⁷<http://www.focusonland.com/fola/en/countries/brief-womens-land-rights-in-liberia/>

planting boundary trees, signing memoranda of understanding), and comprehensive mapping of community land; 3. Strengthening good governance, with emphasis on strengthening the rights of women and marginalized groups by addressing intra-community power dynamics, including cataloguing, discussing, amending, and adopting bylaws for community land and natural resource management and electing a diverse, permanent, accountable governing body to manage community lands and natural resources.⁸

While the foundational goal of the CLP program is to empower communities to protect their resources, as designed the program considers meaningful participation by all community members (including women and members of minority groups) during all program stages essential to reach this goal: “The entire community must take part in the community land protection process for it to be successful. All community members, including women, men, youth, elders, traditional leaders, seasonal users and members of minority groups should be invited to all meetings and encouraged to participate and speak their minds.” (Namati CLP Program Facilitator’s Guide) As the Land Rights Act remains under review and a formal process for legal certification does not currently exist, the CLP program’s documentation procedures for neocustomary land have remained informal in Liberia and focused on the first three components: community empowerment, boundary demarcation and good governance.

Implementation occurred from April 2016 to April 2017. The first program component (empowerment) consists of a series of community meetings during which community entry occurs and the entire community discusses the community definition and history, visioning for the future, terms of engagement, Community Land Mobilizer⁹ and Interim Coordinating Committee¹⁰ selection, and land valuation. During the land valuation exercise, community members undertake a basic calculation of the replacement costs of their common resources. These community meetings are open to the entire community, and everyone in the community is encouraged to attend. Another training meeting during this stage is held only with the Community Land Mobilizers and Interim Coordinating Committee (ICC).

We expect the second stage (Strengthening Community Governance) to consist of a four-

⁸Additional components were not implemented: 4. Completing government land registration procedures for communal lands; and 5. Preparing communities to prosper by teaching basic negotiation tactics, creating Community Action Plans, integrating livelihood supports, and supporting communities to regenerate local ecosystems.

⁹The Community Land Mobilizers work closely with the implementing organization to lead their communities through the community land protection process.

¹⁰The ICC is composed of representatives from key stakeholder groups in the community who: 1) Spread news and updates about the community land protection work throughout their networks; 2) Seek out the ideas, comments and reflections of people in their network who cannot attend meetings, then share their contributions at meetings (to ensure that all voices are heard); and 3) Report what happened at each meeting back to their networks. The ICC is a temporary body: it will be replaced by an elected Land Management Committee (Land Governance Council) after the community drafts and adopts its bylaws.

part process:

- First, a community meeting is organized at which a community-wide “shouting out”/brainstorming of all existing land rules, norms and practices occurs.
- Second, SDI supports the community to create the first draft of its bylaws through analysis of all existing the rules, norms and practices, taking into consideration those that are in-line with or contradict national laws. This effort also considers evolving community needs, for example, any customary norms that might discriminate against women and other vulnerable groups.
- Third, second and third drafts of the bylaws governing community land are written following debate and discussion concerning any amendments, additions or deletions of rules.
- The final step in the process is formal adoption of the bylaws governing community land, either by full community consensus or super-majority vote.

This stage should consist of at least five community-wide meetings and two trainings for the Land Management Committee, once elected.

Finally, the thirist stage (Harmonizing boundaries) involves several steps:

- Map-making (hand drawn sketch maps);
- Agreeing upon boundaries and boundary demarcation through tree planting; and,
- MOU-signing ceremonies between neighboring communities/clans.

The map-making activity and MOU-signing ceremonies are open to the whole community. For the other activities, the community selects a boundary team support to meet with representatives of neighboring communities to discuss boundaries. The boundary team selected by the community should be representative of all community members and include traditional leaders, youth, women, elders, and Community Land Mobilizers.

All of the three planned program stages were still underway at the time of midline data collection (10 months into program implementation). The first stage (empowerment) was mostly complete, and 91% of treatment communities had completed this stage. Additionally, 91% percent of treatment communities had started drafting bylaws, but none had adopted the bylaws nor elected Land Management Committees nor completed land use plans. Boundary harmonization was also midway completion at midline. All treatment communities had created community ‘sketch’ maps, and 59% of treatment communities had begun boundary negotiations with neighboring clans, but none have completed this stage (which entails signing formal MOUs with neighboring clans).

4 Theory

CLP intervention is based on a theory common property resource governance, which draws on insights from both neoclassical economics that emphasize the reduction in transaction costs from enforceable property rights and Ostrom’s theory of common pool resource governance. In simplest terms, the theory predicts that permitting communities to design their own systems for self-governance of common property should provide the best political and economic outcomes. However, self-governance should be formalized, or made enforceable, in order to increase property rights security and future gains from investment. In addition, the CLP intervention also draws on the insights from economics that women’s empowerment, and in particular their economic autonomy, increases returns to human capital in a virtuous cycle (e.g. Doepke et al. 2012) by requiring that women participate in formal common pool resource governance mechanisms.

4.1 Formalizing common pool resource governance

Neoclassical economic theory emphasizes that secure property rights increase certainty about returns to future investments (De Soto 2001; Goldstein and Udry 2008; Besley 1995). Documented property rights reduce uncertainty around claims and the reduce the costs of enforcement, leading to increased property rights security and investment. International experts extended this logic to argue for increased formalization of property rights, as well as for increased individuation of rights (which previously accrued not only at the individual level, but also to households, families, lineages, and communities). Throughout the 1990s, individual land titling programs proliferated. Experimental evaluations of these programs generally show positive results (e.g. Galiani and Scharfrodsky 2010; Field 2003, 2007; Goldstein 2017). However, low take-up as well as the challenge of the one-size fits all approach have led to criticism of this approach.

As a result, scholars and activists have recently argued that especially for the rural poor dependent on common property, formalization should depend not on the the individuation of rights, but rather on the protection of group-based rights (Alden-Wiley 2011; Persha et al. 2011; Hayes 2006). By making rights more transparent, and by eventually enshrining in law, the livelihoods of rural people could be protected (Knight 2010). Based on Ostrom’s (1990) work on common pool resource governance, one of the key tenets of theory of common property institutions is that communities should be the ones to decide their rules and systems of natural resource management. Self-enforcing rules permit communities to efficiently manages resources in a way that is not possible if property rights systems are imposed from the outside. Formalization is used only to capture what communities themselves de-

termine to be their system for managing their common property. One key exception to the self-determination in common property rules is the inclusion of women.

4.2 Women’s communal property rights

The theory of common property institutions underlying the CLP intervention also predicts that expanding women’s role in common property institutions will also have political and economic benefits. This draws on an emerging field that ascribes numerous economic and social benefits to women’s participation in various institutions previously closed to them, with emphasis on the positive impacts of women’s empowerment on children and thus on men (e.g. Doepke et al. 2012). However, this theory has not been tested on the inclusion of women in common property institutions.

Research has explored extending individuated property rights to women. From Field’s 2003 study of increasing women’s individual security of tenure in urban Peru, to recent work on extending written documentation of property rights to women in rural Benin (Goldstien et al. 2017), the evidence suggests that providing women with economic power has positive benefits. Whether these benefits will remain constant for common property institutions has yet to be tested.

4.3 “Push-centered” behavior change

Underlying the CLP’s notion of the positive benefits of formalizing and strengthening common property institutions is both Ostrom’s notion that communities should derive “bottom-up” solutions to managing their common resources and neoclassic economic models that posit returns to formalization and the benefits of empowering women. Over time, rural communities do change and evolve their common property institutions. Infrequently does this change voluntarily cede control to previously marginalized groups, such as women. As a result, the types of changes envisioned through the CLP and the time frame for change mean that it can only be realized with outside assistance.

Like many outside interventions that aim to fix formal common pool resource management, the CLP relies on external information that aims to change norms, skills and attitudes and subsequent behaviors. There is some evidence that “push” centered norm change works more generally (Blattman et al. 2014; Cloward 2014; 2016). However, given that it does address the changes incentives embedded in the intervention, it is also possible that such efforts could have negative externalities. These include reinforcing the existing power structures underpin existing norms, although this aspect of push-centered behavior change remains understudied.

5 Empirical strategy and data

This research utilizes four primary data collection instruments for baseline and midline data collection : (1) household survey, (2) leader survey, (3) focus group protocol for women, youth, hunters , members of minority groups, and elders, and (4) leader key informant interview (KII) tool. The household and leader surveys are structured quantitative instruments approximately 45 minutes in length. The surveys were conducted as a panel, where the same respondents were interviewed at baseline and midline wherever possible. The household survey consists of a random sample of heads of households in each study town. The leader survey targets individuals in key leadership positions within the town such as the town chief, a women’s leader, and the youth leader. The midline leader survey also includes an open-ended qualitative KII module. Three focus group discussions were conducted in each of 54 midline towns (part of the 43 communities included in the study). Key sub-groups of interest for the discussions included women, youth, members of minority groups, hunters and elders. Women’s and youth groups were conducted in every town. The third subgroup was assigned based on the presence of a sufficient number of members of minority groups or hunters at baseline.

We collected baseline data from February–July 2014 and midline data from February–March 2017. The plan for analysis of midline data was pre-specified in a Pre-Analysis Plan that was drafted and registered with Evidence in Governance and Politics (EGAP) prior to the commencement of midline data collection. We use fixed effects linear models to test whether treatment status predicts pre-specified household-level outcomes of interest, controlling for time invariant household and community characteristics.¹¹ We cluster standard errors at the level of intervention (the clan).¹² Analysis of the quantitative and qualitative data at midline does not indicate that widespread spillover has occurred (we find little evidence of program steps occurring in control communities)..

We also also present the analysis if a survey experiment included in the midline survey. The experiments assess citizens’ perspectives on whether support for new land policies is

¹¹Community level controls: 1) key geospatial measures of community connectivity and access (distance to road in kilometers, distance to forestry or mining concession in kilometers), 2) presence of investor as reported by leaders, 3) presence of cell service as reported by enumerators, and 4) a treatment progress indicator (community has started boundary harmonization).

Household controls: Respondent age; Household is in poorest quartile of households (binary); Respondent gender; Respondent any formal education (binary); Respondent minority status (binary); Baseline governance perception (scale index), Baseline tenure security perception (sum index), Baseline community work (# of days).

¹²For a sub-sample of our data, we also estimate causal effects using panel data. There are 683 panel household survey observations and 36 panel community observations. Given clustering, we prefer our model to the simplified difference in means estimator (Aronow & Middleton, 2013).

increased or decreased by an explicit focus on women’s rights. The experiment follows a priming/endorsement experiment logic whereby survey respondents are randomly divided into two groups during the survey. Each group receives one version of the experimental question set and differences between average group answers provide information about validity of the prime or the endorsement (as applicable) embedded in the experiment.

Given the number of outcomes that we test in the evaluation, our panel and cross-sectional statistical results report both uncorrected p-values and corrected p-values using the Benjamini & Hochberg (1995) False Discovery Rate (FDR) Correction.¹³

The outcome indicators were generally balanced at baseline, as only 12% of indicators were significantly different on average between treatment and control households, as shown in Table 1. To double-check on top of the baseline balance that any potential differences are not driving results, the analyses were redone with propensity score weighing with Mahalanobis distance calculation to ensure similarity on the individual and community demographic variables. Table 2 displays the balance on the outcome indicators for the matched households, and the model results using this data are similar, providing evidence that differences in baseline variables are not driving the results.

Pre-specified qualitative data themes were coded from the KII and FGD transcripts. After the transcription of the qualitative audio files, the research team coded the qualitative transcripts according to the specified codes. The information is stored in a qualitative data collection matrix. The matrix has two parts: treatment communities and control communities. To provide additional tests of the hypothesized links between the CLP intervention and the outcomes of interest, the research team conducted a comparative analysis of the qualitative data. For each hypothesis, a specific mechanism linking the treatment to the outcome is specified, as well as the observable implications in the qualitative data. We wrote a short comparative case study of the situation in the treatment communities versus the situation in the control communities and make a case about whether there is sufficient evidence to confirm the pre-specified hypothesis. Where evidence of other mechanisms or additional variables of interest emerged during this comparative analysis, this is included in the large analysis of the project, but it is labeled as “exploratory.” This analysis was pre-specified in the Pre-Analysis Plan and its included Qualitative Pre-Analysis Amendment.

¹³FDR corrections adjust p-values reporting significance to reduce the likelihood of type I errors, or false positives, in studies that employ multiple statistical models. Our main findings and summary sections rely on the uncorrected values, because we are analyzing several closely related interdependent outcomes and, therefore, the standard corrections for the false discovery rate are likely too conservative (Gelman, Hill, and Yajima, 2012).

6 Results

6.1 Effects on Land Protection Activities

We first report results on whether communities assigned to the treatment engaged in the program activities that change common property institutions (Table 3). These include demarcating community boundaries, creating participatory governance mechanisms, such as a governing council, and writing down the rules previously unwritten rules governing common property. At midline, the treatment towns were 17 percentage points more likely to have drawn up a map of their community than the control towns, an increase of 111% over the control mean. Control communities were also seven percentage points more likely to report that they had a land governing council established to make participatory decisions about common property within the community, an huge 234% increase over the control mean of 3%. Respondents in treatment communities were also 16 percentage points (44%) more likely to report that their community had established written bylaws governing common property.

6.2 Effects on Governance

Governance Satisfaction

Boundary demarcation, new governance institutions and written bylaws did lead to changes in how community members in treatment communities perceived common property governance. As shown in Table 4, treatment respondents perceive leaders more positively than in control communities. Treatment community members are 25 percentage points more likely to likely to report that community leaders protect the forest, a 28% increase compared to the control mean, and 9 percentage points more likely to report that they are satisfied with leaders, a 32% increase compared to the control group. Treatment respondents are 22 percentage points more likely to report that their community leaders don't take bribes (30% increase compared with the control group) and 16 percentage points more likely to report that leaders consult the community when making decisions, an increase of 24% over the control group. Treatment respondents are 23 percentage points more likely to agree that leaders punish rule breakers (a 23% increase over the control mean) and 20 percentage points more likely to state that leaders do not act in secret (a 27% increase from the control mean). Overall the results present a coherent picture of the positive effects of the CLP program of community members' perceptions of enhanced common property institutions created by the program.

Governance Participation

Table 5 presents findings on self-reported participation in common property institutions. While they move in the right direction, most indicators of increased participation in common property institutions did not change significantly. However, respondents in treatment communities were 15 percentage points more likely to report that they helped create rules governing common property, an increase of 34% compared to the control group mean.

6.3 Effects on Contributions to Communal Land

Overall Contributions to Communal Land

Table 6 displays the impact of the CLP on contributions to different types of land within the community. Treatment respondents reported that they worked an average of 1.86 days on communal farmland in the last 12 months, a significant decrease from the 7.29 days worked in control communities. Respondents in treatment communities are also 6 percentage points less likely to report that they plant trees on communal farmland, a reduction of 79% compared with the control mean, although the result is only weakly significant.

Heterogeneous Effects on Contributions to Communal Land

To understand the reductions in reported work in treatment communities, we disaggregate these results by specific demographic characteristics following our pre-analysis plan. First, we find that reductions in the number of days worked on communal farmland is driven by men - women are not likely to reduce the amount of time spent working. Instead, compared to older, majority ethnic group residents, youths and minorities report that they reduce the number of days worked on communal farmland in treatment communities and similarly, poorer residents plant fewer trees compared with wealthier residents. Female Subgroups

Table 7 contains subgroup analysis on changes to contributions on communal land for women. Female household heads report no statistically significant reduction in number of days worked on communal farmland after treatment. Instead women appear to invest more in common property as a result of treatment. Female household heads instead plant significantly more rice than men in treatment communities an increase of 21 percentage points. Female household heads also report that they plant significantly more rubber trees than men in treatment communities (an increase of 9 percentage points)

Poor Subgroups

Table 8 presents subgroup analysis on changes to contributions on communal land for poor households, which are more mixed. For poor household heads, like women, there is no statistically significant reduction in number of days worked on communal farmland after treatment. Poor household heads also report that they planted significantly less rice than wealthier households in treatment communities as compared to control communities at midline—a decrease of 33 percentage points. On the other hand, at midline poor household heads planted significantly more palm trees than wealthier households in treatment communities (an increase of 8 percentage points).

Minority Subgroups

Table 9 includes subgroup analysis on changes to contributions on communal land for members of minority groups. Minority headed-households report a statistically significant reduction in the number of days worked on communal farmland, although it is smaller in magnitude than the average decrease (2.19 days worked in the past year on communal farmland). Minority household heads report that they planted significantly fewer palm trees (a reduction of 7 percentage points, $p < 0.1$), but significantly more rice (an increase of 17 percentage points, $p < 0.1$) and significantly more trees overall (an increase of 37 percentage points, $p < 0.1$), and also spend significantly more time fencing.

Youth Subgroups

Table 10 reports subgroup analysis on changes to contributions on communal land for youth. Youth headed households in treatment communities also report contributing less to communal land compared with similar households in control communities. Youth household heads did report spending significantly more time on town work in the past year (an increase of 15 percentage points).

Overall Contributions to Household Land

Overall, at midline household heads in the treatment group plant statistically significantly more ground nuts (an increase of 11 percentage points, or 11% more than the mean of the control group, $p < 0.01$) along with statistically significantly more pineapples (an increase of 9 percentage points, or 54% more than the mean of the control group, $p < 0.05$) and more coffee trees (an increase of 12 percentage points, or 19% more than the mean of the control group, $p < 0.01$). There is no statistically significant overall increase in tree crops.

Heterogeneous Effects on Contributions to Household Land

Overall, at midline female household heads as compared to male household heads, in the treatment group versus the control group, plant statistically significantly more corn (an increase of 0.14 percentage points, or 11% more than the mean of the control group, $p < 0.1$) There is also a statistically significant increase—of 10 percentage points ($p < .05$) of tree crops planted by female household heads as compared to male household heads in treatment versus control communities. Men in treatment as compared to control communities at midline are statistically significantly more likely to plant pineapples (an increase of 9 percentage points, $p < 0.1$) and coffee (an increase of 12 percentage points, $p < 0.01$).

6.4 Effects on Norms of Women’s Property Rights

Table 11 outlines the results of the survey experiment. The experiment aimed to test whether framing the upcoming land reform in terms of its support for women’s property rights changes support for the reform. We find that male respondents primed with the version of the question that mentions women’s equal property rights as part of the reform process are more likely to view land reform less favorably than those without that prime. This result is statistically significant the inclusion of the equal women’s rights prime leads to a 8.6 percentage point reduction in favorable views toward land reform.

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Figures and Tables

Figure 1

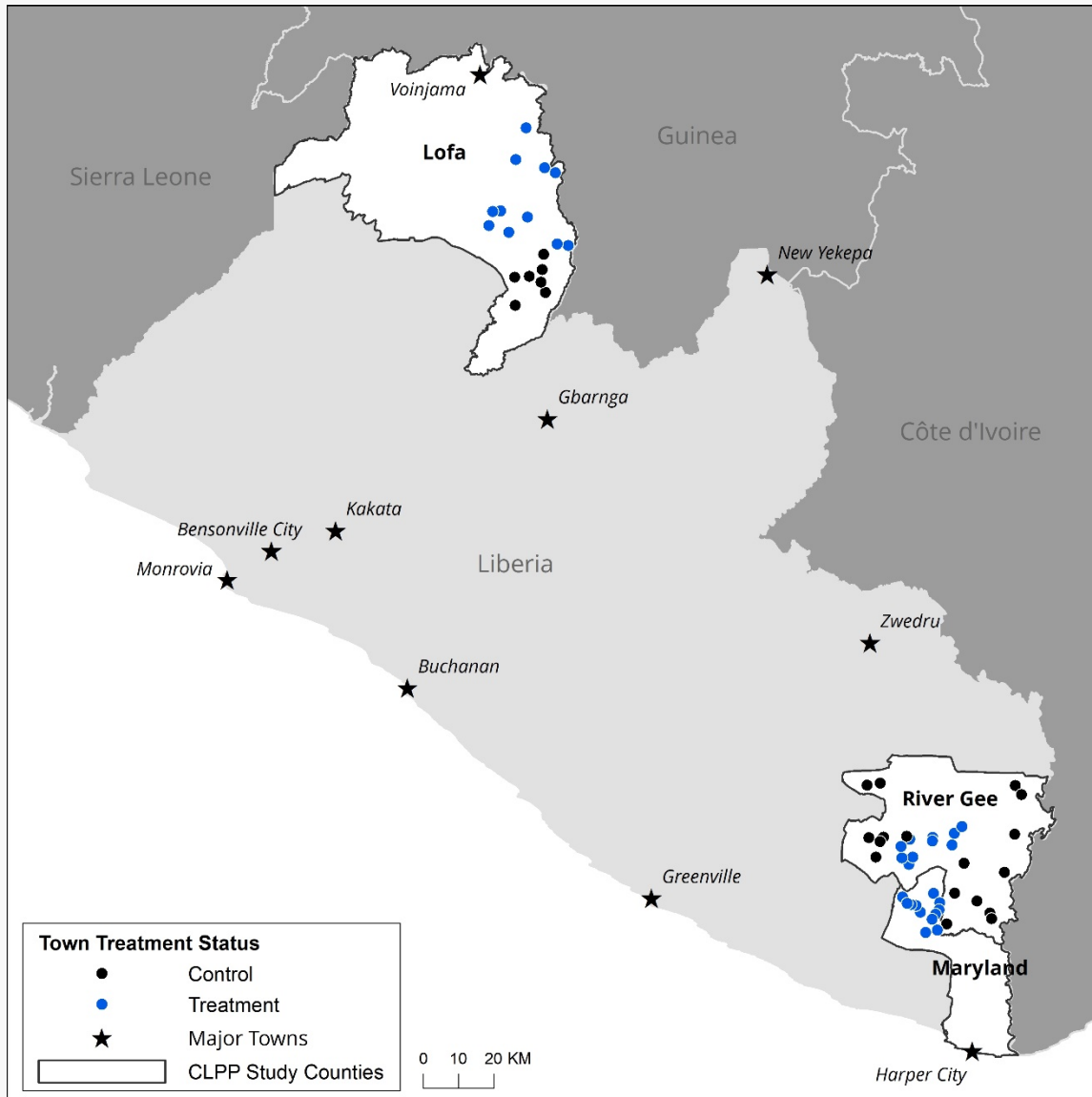


Table 1

Baseline Balance						
Variable	All mean	Treat mean	Control mean	Coeff	P-value	N
Baseline community						
RoadDistanceKM	6.87	6.99	6.74	0.26	0.9307	683
concessionall	1.66	2.02	1.25	0.78	0.2883	683
ls_ellphn	0.66	0.72	0.59	0.12	0.344	683
ls_it_inv	0.07	0	0.15	-0.15	0.0186	683
Baseline household						
age	41.78	41.3	42.31	-1	0.4151	683
poor	0.25	0.27	0.23	0.05	0.4825	353
gender	0.61	0.63	0.59	0.04	0.5738	683
anyschool	0.58	0.58	0.58	0	0.9291	537
minority	0.44	0.45	0.43	0.02	0.698	683
overall_landgov	2.88	2.74	3.03	-0.3	0.0774	673
tensecindex_panel_bin_s	0.69	0.59	0.79	-0.19	0.0709	683
cc_nodays	2.18	2.37	1.98	0.39	0.1853	683
Baseline panel outcomes						
cc_nodays	2.18	2.37	1.98	0.39	0.1853	683
prt_hlpenf_bin	0.41	0.39	0.44	-0.05	0.3119	664
prt_hwoften_bin	0.35	0.32	0.38	-0.07	0.1026	662
prt_mtgatnd_bin	0.57	0.53	0.62	-0.09	0.1676	663
prt_indprt	0.48	0.47	0.49	-0.02	0.7924	665
prt_mntr_bin	0.35	0.33	0.38	-0.05	0.2426	664
prt_rslv_bin	0.36	0.34	0.38	-0.04	0.3833	575
ga_cmrmlldr_alex_bin	0.6	0.58	0.63	-0.04	0.3902	572
ga_cmwrnldr_alex_bin	0.38	0.35	0.42	-0.08	0.2109	572
ga_comtllldr_alex_bin	0.31	0.3	0.31	-0.01	0.8843	572
ga_ldrcnsrv_alex_bin	0.76	0.65	0.88	-0.23	0.0824	572
ga_ldrsat_alex_bin	0.28	0.25	0.32	-0.07	0.1674	570
ga_ldrsbenfam_alex_bin	0.58	0.57	0.61	-0.04	0.637	572
ga_ldrsbrb_alex_bin	0.69	0.6	0.8	-0.19	0.1269	572
ga_ldrsfl_alex_bin	0.67	0.6	0.75	-0.15	0.1532	572
ga_ldrslzy_alex_bin	0.74	0.66	0.83	-0.18	0.1621	572
ga_ldrspnsh_alex_bin	0.78	0.67	0.9	-0.23	0.0721	572
ga_ldrsscrt_alex_bin	0.66	0.57	0.77	-0.2	0.059	572
ga_ldtrst_alex_bin	0.74	0.67	0.81	-0.14	0.2821	572
prt_hlpenf_alex_bin	0.41	0.39	0.44	-0.05	0.3119	664
prt_hwoften_alex_bin	0.35	0.32	0.38	-0.07	0.1026	662
prt_mtgatnd_alex_bin	0.4	0.34	0.47	-0.14	0.0295	663
prt_indprt_alex_bin	0.48	0.47	0.49	-0.02	0.7924	665
prt_mntr_alex_bin	0.35	0.33	0.38	-0.05	0.2426	664
prt_rslv_alex_bin	0.36	0.34	0.38	-0.04	0.3833	575
landgov_index1_bin	0.72	0.65	0.8	-0.15	0.2667	572
landgov_index2_bin	0.66	0.59	0.74	-0.15	0.3391	683
lead_sat_index_bin	0.75	0.67	0.84	-0.17	0.1386	683
lead_acc_index_bin	0.74	0.76	0.72	0.05	0.5971	683
prt_index_bin	0.61	0.58	0.65	-0.07	0.0715	683

Table 2

Baseline Weighted Balance						
Variable	All mean	Treat mean	Control mean	Coeff	P-value	N
Baseline community						
RoadDistanceKM	6.2	6.92	4.18	2.73	0.2872	476
concessionall	1.96	2.06	1.67	0.39	0.6805	476
ls_cllphn	0.71	0.71	0.72	-0.01	0.9689	476
ls_it_inv	0	0	0	0	1	476
Baseline household						
age	42.78	41.42	46.62	-5.2	0.5313	476
poor	0.24	0.28	0.16	0.12	0.1244	248
gender	0.64	0.63	0.64	-0.01	0.9422	476
anyschool	0.54	0.58	0.43	0.15	0.026	399
minority	0.45	0.45	0.45	0	1	476
overall_landgov	2.75	2.74	2.77	-0.04	0.9377	476
tensecindex_panel_bin_s	0.66	0.61	0.79	-0.18	0.3517	476
cc_nodays	2.23	2.42	1.69	0.73	0.1116	476
Baseline panel outcomes						
cc_nodays	2.23	2.42	1.69	0.73	0.1116	476
prt_hlpenf_bin	0.38	0.39	0.35	0.04	0.6567	472
prt_hwoften_bin	0.3	0.32	0.26	0.05	0.2971	471
prt_mtgatnd_bin	0.51	0.53	0.46	0.07	0.5164	470
prt_indprt	0.44	0.47	0.36	0.1	0.3107	472
prt_mntr_bin	0.34	0.33	0.37	-0.04	0.6374	471
prt_rslv_bin	0.35	0.34	0.38	-0.04	0.6845	382
ga_cmrmlldr_alex_bin	0.53	0.58	0.37	0.21	3.00E-04	413
ga_cmwrnldr_alex_bin	0.32	0.35	0.23	0.11	0.054	413
ga_comtllldr_alex_bin	0.28	0.3	0.22	0.08	0.4424	413
ga_ldrcnsrv_alex_bin	0.66	0.65	0.69	-0.04	0.8379	413
ga_ldrsat_alex_bin	0.22	0.25	0.15	0.1	0.0279	412
ga_ldrsbenfam_alex_bin	0.53	0.57	0.4	0.16	0.2146	413
ga_ldrsbrb_alex_bin	0.61	0.6	0.65	-0.04	0.7752	413
ga_ldrsfl_alex_bin	0.59	0.6	0.56	0.04	0.7758	413
ga_ldrslzy_alex_bin	0.67	0.66	0.7	-0.04	0.8542	413
ga_ldrspnsh_alex_bin	0.7	0.67	0.78	-0.1	0.6401	413
ga_ldrsscrt_alex_bin	0.59	0.57	0.66	-0.09	0.6434	413
ga_ldtrst_alex_bin	0.68	0.67	0.71	-0.03	0.8702	413
prt_hlpenf_alex_bin	0.38	0.39	0.35	0.04	0.6567	472
prt_hwoften_alex_bin	0.3	0.32	0.26	0.05	0.2971	471
prt_mtgatnd_alex_bin	0.32	0.34	0.26	0.08	0.2413	470
prt_indprt_alex_bin	0.44	0.47	0.36	0.1	0.3107	472
prt_mntr_alex_bin	0.34	0.33	0.37	-0.04	0.6374	471
prt_rslv_alex_bin	0.35	0.34	0.38	-0.04	0.6845	382
landgov_index1_bin	0.67	0.65	0.72	-0.06	0.7715	413
landgov_index2_bin	0.61	0.61	0.64	-0.04	0.8658	476
lead_sat_index_bin	0.73	0.69	0.83	-0.14	0.4204	476
lead_acc_index_bin	0.72	0.78	0.57	0.21	0.1552	476
prt_index_bin	0.58	0.59	0.53	0.06	0.5305	476

Table 3

Cross-Sectional and Panel Analysis - Participation in Land Protection Activities									
	Drew a map of your community land	Resolved land disputes	Agreed on boundaries with neighboring communities	Signed MOUs with neighbors about the agreed boundaries	Planted boundary markers like stones or trees	Drafted by-laws or rules	Adopted your community by-laws and a natural resource management plan	Established a Land Governing Council to govern decisions about your community lands	Household reports their community has written bylaws
Treatment	0.17*** (0.06)	0.09 (0.06)	0.04 (0.06)	0.03 (0.05)	-0.03 (0.05)	0.05 (0.03)	0.001 (0.03)	0.07* (0.04)	
Difference-In-Difference									0.16* (0.09)
Mean, control group	15%	20%	34%	8%	16%	5%	4%	3%	37%
ATE as % of control	111%	44%	13%	42%	-20%	101%	2%	234%	44%
Vector of household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Vector of community controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	818	818	818	818	818	818	818	818	669
R-squared	0.06	0.01	0.11	0.08	0.07	0.03	0.03	0.05	0.02
Corrected treat P-value	0.08	0.38	0.75	0.8	0.79	0.4	1	0.33	
Corrected DID P-value									0.33

Notes: *p<0.1; **p<0.05; ***p<0.01

Notes: **BOLD** results retain their significance even after using a conservation false discovery rate approach to correct p-values for multiple hypothesis testing

Community controls: Distance to road (km); distance to land concession (km); cellphone service present (binary); investor present (binary); started boundary harmonization (binary)

Household controls: Respondent age; HH is in poorest quartile of HHs (binary); respondent gender; respondent formal education (binary); respondent minority status (binary); baseline governance perception (scale index); baseline tenure security perception (sum index); baseline community work (# of days)

Table 4

Cross-Sectional and Panel Analysis - Household land governance satisfaction with leaders										
	Leaders protect forest	Satisfaction with leaders	Leaders equally distribute benefits	Leaders don't take bribes	Leaders consult community	Leaders are not lazy	Leaders punish rule breakers	Leader don't act in secret	Leaders are trusted	Leaders' land decisions are fair
Difference-In-Difference	0.25* (0.13)	0.09* (0.05)	0.12 (0.08)	0.22** (0.09)	0.16* (0.09)	0.15 (0.12)	0.23* (0.13)	0.20** (0.08)	0.13 (0.12)	
Treatment										0.09* (0.05)
Mean, control group	89%	27%	57%	75%	70%	83%	88%	75%	84%	83%
ATE as % of control	28%	32%	21%	30%	24%	18%	26%	27%	16%	11%
Vector of household controls	No	No	No	No	No	No	No	No	No	Yes
Vector of community controls	No	No	No	No	No	No	No	No	No	Yes
Observations	572	570	572	572	572	572	572	572	572	818
R-squared	0.13	0.01	0.01	0.04	0.02	0.03	0.07	0.04	0.08	0.09
Corrected treat P-value										0.3
Corrected DID P-value	0.3	0.31	0.36	0.22	0.3	0.46	0.31	0.19	0.49	

Notes: *p<0.1; **p<0.05; ***p<0.01

Notes: **BOLD** results retain their significance even after using a conservation false discovery rate approach to correct p-values for multiple hypothesis testing

Community controls: Distance to road (km); distance to land concession (km); cellphone service present (binary); investor present (binary); started boundary harmonization (binary)

Household controls: Respondent age; HH is in poorest quartile of HHs (binary); respondent gender; respondent formal education (binary); respondent minority status (binary); baseline governance perception (scale index); baseline tenure security perception (sum index); baseline community work (# of days)

Table 5

Panel Analysis - Household land governance participation									
	Can remove leader	Can admonish leader	Can tell leaders what to do	Helps enforce rules	Helps create rules	Attends meetings	Participates in meetings	Helps monitor for rule breaking	Helps resolve conflicts
Difference-In-Difference	0.03 (0.06)	0.1 (0.08)	0.01 (0.08)	0.001 (0.07)	0.15** (0.07)	0.04 (0.09)	-0.11 (0.1)	0.03 (0.09)	0.08 (0.05)
Mean, control group	64%	44%	33%	36%	45%	49%	71%	34%	44%
ATE as % of control	5%	23%	3%	0%	34%	9%	-15%	8%	18%
Observations	572	572	572	663	662	447	384	663	575
R-squared	0	0.02	0	0.05	0.1	0.08	0.07	0.01	0.05
Corrected DID P-value	0.77	0.45	0.94	0.99	0.23	0.77	0.49	0.89	0.38

Notes: *p<0.1; **p<0.05; ***p<0.01

Notes: **BOLD** results retain their significance even after using a conservation false discovery rate approach to correct p-values for multiple hypothesis testing

Community controls: Distance to road (km); distance to land concession (km); cellphone service present (binary); investor present (binary); started boundary harmonization (binary)

Household controls: Respondent age; HH is in poorest quartile of HHs (binary); respondent gender; respondent formal education (binary); respondent minority status (binary); baseline governance perception (scale index); baseline tenure security perception (sum index); baseline community work (# of days)

Table 6

Cross-Sectional and Panel Analysis - Household contribution to community farm													
	Plant palm	Plant cocoa	Plant coffee	Plant rubber	Plant rice	Farm work	Fencing	Town work	Count	Binary (above/below mean)	Days worked on community farm	Days worked fencing	Days worked total
Treatment	-0.06*	-0.03	-0.03	-0.04	-0.04	-0.03	0.05	0.01	-0.11	-0.06*	-1.85	-3.48	
	(0.03)	(0.02)	(0.02)	(0.03)	(0.07)	(0.06)	(0.04)	(0.05)	(0.14)	(0.04)	(3.73)	(2.2)	
Difference-In-Difference													-1.86*
													(1.08)
Mean, control group	7%	12%	5%	8%	51%	89%	16%	26%	2.13	34%	7.29	5.82	2.29
ATE as % of control	-79%	-27%	-58%	-45%	-9%	-3%	30%	4%	-5%	-19%	-25%	-60%	-81%
Vector of household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Vector of community controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	663	663	663	663	663	663	663	798	656	656	575	100	683
R-squared	0.06	0.11	0.13	0.06	0.04	0.02	0.03	0.06	0.09	0.07	0	-0.04	0
Corrected treat P-value	0.3	0.38	0.39	0.45	0.74	0.77	0.47	0.92	0.65	0.32	0.77	0.36	
Corrected DID P-value													0.32

Note: *p<0.1; **p<0.05; ***p<0.01

Note: **BOLD** results retain their significance even after using a conservation false discovery rate approach to correct p-values for multiple hypothesis testing

Community controls: Distance to road (km); distance to land concession (km); cellphone service present (binary); investor present (binary); started boundary harmonization (binary)

Household controls: Respondent age; HH is in poorest quartile of HHs (binary); respondent gender; respondent formal education (binary); respondent minority status (binary); baseline governance perception (scale index); baseline tenure security perception (sum index); baseline community work (# of days)

Table 7

Cross-Sectional and Panel Analysis - Female household survey respondent contribution to community farm													
	Plant palm	Plant cocoa	Plant coffee	Plant rubber	Plant rice	Farm work	Fencing	Town work	Count	Binary (above/below mean)	Days worked on community farm	Days worked fencing	Days worked total
treat	-0.07*** (0.03)	-0.06** (0.03)	-0.02 (0.02)	-0.06** (0.03)	-0.11 (0.08)	-0.03 (0.05)	0.04 (0.05)	0.01 (0.05)	-0.28* (0.15)	-0.15*** (0.05)	0.54 (3.34)	-3 (2.73)	
did													-1.66 (1.06)
gender	-0.02 (0.03)	-0.03 (0.04)	-0.01 (0.01)	-0.07* (0.04)	-0.16** (0.07)	-0.10** (0.05)	-0.06 (0.06)	-0.10** (0.04)	-0.56*** (0.15)	-0.21*** (0.06)	5.41 (5.14)	-1.24 (2.87)	0.07 (0.79)
treat:gender	0.06 (0.04)	0.09 (0.06)	-0.01 (0.02)	0.09* (0.05)	0.21*** (0.07)	0.01 (0.05)	0.03 (0.08)	0.01 (0.06)	0.49** (0.2)	0.26*** (0.07)	-7.56 (4.65)	-1.96 (2.73)	
did:gender													-0.56 (0.71)
Interaction coefficient sum	-0.03	0	-0.04	-0.05	-0.06	-0.12	0.01	-0.08	-0.34	-0.1	-1.61	-6.19	
Vector of household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Vector of community controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	663	663	663	663	663	663	663	798	656	656	575	100	683

Notes: *p<0.1; **p<0.05; ***p<0.01

Notes: **BOLD** results retain their significance even after using a conservation false discovery rate approach to correct p-values for multiple hypothesis testing

Community controls: Distance to road (km); distance to land concession (km); cellphone service present (binary); investor present (binary); started boundary harmonization (binary)

Household controls: Respondent age; HH is in poorest quartile of HHs (binary); respondent formal education (binary); respondent minority status (binary); baseline governance perception (scale index); baseline tenure security perception (sum index); baseline community work (# of days)

Table 8

Cross-Sectional and Panel Analysis - Poor household survey respondent contribution to community farm													
	Plant palm	Plant cocoa	Plant coffee	Plant rubber	Plant rice	Farm work	Fencing	Town work	Count	Binary (above/below mean)	Days worked on community farm	Days worked fencing	Days worked total
treat	-0.10*** (0.04)	-0.09*** (0.03)	-0.04 (0.03)	-0.05* (0.03)	-0.02 (0.15)	-0.07 (0.1)	0.01 (0.07)	-0.04 (0.06)	-0.32 (0.3)	-0.11* (0.06)	7.44 (6.25)	0.27 (4.63)	
poor	-0.09** (0.04)	-0.03 (0.05)	-0.02 (0.02)	-0.11** (0.05)	0.13 (0.11)	0.04 (0.06)	0.07 (0.09)	-0.06 (0.08)	-0.02 (0.24)	0.06 (0.09)	1.45 (1.31)	5.82 (3.92)	
treat:poor	0.08** (0.04)	0.01 (0.06)	0.01 (0.03)	0.03 (0.06)	-0.33** (0.14)	0.02 (0.09)	-0.07 (0.11)	0.02 (0.09)	-0.31 (0.28)	-0.22* (0.11)	-3.9 (3.41)	-6.15 (5.82)	
did													-0.35 (1.14)
did:poor													0.16 (1.1)
Interaction coefficient sum	-0.11	-0.1	-0.05	-0.14	-0.21	-0.01	0.01	-0.09	-0.65	-0.26	4.99	-0.06	
Vector of household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Vector of community controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	663	663	663	663	663	663	663	798	656	656	575	100	683

Notes: *p<0.1; **p<0.05; ***p<0.01

Notes: **BOLD** results retain their significance even after using a conservation false discovery rate approach to correct p-values for multiple hypothesis testing

Community controls: Distance to road (km); distance to land concession (km); cellphone service present (binary); investor present (binary); started boundary harmonization (binary)

Household controls: Respondent age; respondent gender; respondent formal education (binary); respondent minority status (binary); baseline governance perception (scale index); baseline tenure security perception (sum index); baseline community work (# of days)

Table 9

Cross-Sectional and Panel Analysis - Minority household survey respondent contribution to community farm													
	Plant palm	Plant cocoa	Plant coffee	Plant rubber	Plant rice	Farm work	Fencing	Town work	Count	Binary (above/below mean)	Days worked on community farm	Days worked fencing	Days worked total
treat	-0.03 (0.03)	-0.04 (0.03)	-0.02 (0.02)	-0.02 (0.03)	-0.1 (0.08)	-0.06 (0.06)	0 (0.05)	-0.01 (0.05)	-0.23* (0.14)	-0.11*** (0.04)	-2.87 (4.33)	-5.39* (3)	
did													-2.19* (1.14)
minority	0.05 (0.04)	-0.04 (0.04)	0.04* (0.02)	0.01 (0.04)	-0.23*** (0.07)	-0.10** (0.05)	-0.005 (0.04)	-0.05 (0.06)	-0.31** (0.13)	-0.10** (0.05)	-1.1 (1.98)	-3.74* (1.93)	-0.06 (0.49)
treat:minority	-0.07* (0.04)	0.01 (0.05)	-0.02 (0.02)	-0.06 (0.04)	0.17* (0.09)	0.11 (0.07)	0.15** (0.07)	0.07 (0.07)	0.37** (0.17)	0.16** (0.06)	3.46 (3.39)	4.78 (2.93)	
did:minority													1.16 (0.7)
Interaction coefficient sum	-0.05	-0.06	0	-0.06	-0.16	-0.05	0.15	0.01	-0.17	-0.06	-0.5	-4.34	
Vector of household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Vector of community controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	663	663	663	663	663	663	663	798	656	656	575	100	683

Notes: *p<0.1; **p<0.05; ***p<0.01

Notes: **BOLD** results retain their significance even after using a conservation false discovery rate approach to correct p-values for multiple hypothesis testing

Community controls: Distance to road (km); distance to land concession (km); cellphone service present (binary); investor present (binary); started boundary harmonization (binary)

Household controls: Respondent age; HH is in poorest quartile of HHs (binary); respondent gender; respondent formal education (binary); baseline governance perception (scale index); baseline tenure security perception (sum index); baseline community work (# of days)

Table 10

	Cross-Sectional and Panel Analysis - Youth household survey respondent contribution to community farm												
	Plant palm	Plant cocoa	Plant coffee	Plant rubber	Plant rice	Farm work	Fencing	Town work	Count	Binary (above/below mean)	Days worked on community farm	Days worked fencing	Days worked total
treat	-0.06*	-0.04	-0.03	-0.05	-0.06	-0.03	0.06	-0.02	-0.16	-0.08*	0.57	-2.18	
	(0.03)	(0.03)	(0.02)	(0.03)	(0.08)	(0.06)	(0.05)	(0.05)	(0.15)	(0.04)	(2.86)	(1.63)	
youth	-0.01	-0.04	-0.01	-0.04	-0.06	0.02	0.05	-0.11**	-0.17	-0.02	9.91	5.75	
	(0.02)	(0.06)	(0.03)	(0.03)	(0.07)	(0.04)	(0.06)	(0.05)	(0.25)	(0.1)	(6.16)	(5.5)	
treat:youth	-0.001	0.02	0.01	0.07	0.07	0.06	-0.08	0.15**	0.26	0.07	-10.64	-5.66	
	(0.03)	(0.07)	(0.03)	(0.05)	(0.09)	(0.06)	(0.07)	(0.07)	(0.26)	(0.1)	(7.36)	(5.57)	
did													-2.02*
													(1.07)
did:youth													0.41
													(0.83)
Interaction coefficient sum	-0.06	-0.05	-0.03	-0.02	-0.04	0.04	0.03	0.02	-0.08	-0.03	-0.15	-2.09	
Vector of household controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Vector of community controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Observations	663	663	663	663	663	663	663	798	656	656	575	100	683

Notes: *p<0.1; **p<0.05; ***p<0.01

Notes: **BOLD** results retain their significance even after using a conservation false discovery rate approach to correct p-values for multiple hypothesis testing

Community controls: Distance to road (km); distance to land concession (km); cellphone service present (binary); investor present (binary); started boundary harmonization (binary)

Household controls: Respondent age; HH is in poorest quartile of HHs (binary); respondent gender; respondent formal education (binary); baseline governance perception (scale index); baseline tenure security perception (sum index); baseline community work (# of days)

Table 11

Survey experiment: View of land reform after women's equal land rights prime:	
	<i>Dependent variable:</i>
	Views land reform favorably
survexp2treat	-0.086*** (-0.026)
gender	0.008 (-0.024)
survexp2treat:gender	0.033 (-0.048)
Mean, experiment control group	0.95
ATE as % of experiment control	-9%
Observations	683
R ²	0.06

Notes: *p<0.1;**p<.05;***p<0.01