

**How to promote order and property rights under weak rule of law?  
An experiment in changing dispute resolution behavior through community education \***

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## **Abstract**

Dispute resolution institutions help reach agreements and preserve the peace whenever property rights are imperfect. In weak states, strengthening formal institutions can take decades, and so state and aid interventions also try to shape informal practices and norms governing disputes. Their goal is to improve bargaining and commitment, thus limiting disputes and violence. Mass education campaigns to promote alternative dispute resolution (ADR) are common examples. We study short-term impacts of one campaign in Liberia, where property disputes are endemic. From 246 towns, 86 were randomly provided training in ADR practices and norms, training 15% of adults. One year later, treated towns have higher resolution of land disputes and lower violence. Impacts spill over to untrained residents. We also see unintended consequences: more disagreements (mostly peaceful) and more extrajudicial punishment. Results imply mass education can change high-stakes behaviors, and improving informal bargaining and enforcement behavior can promote order in weak states.

Every land boundary, business deal, last will, loan, or labor contract risks a costly disagreement or dispute. Some turn violent. Effective systems of dispute resolution are thus essential to order and development. They reduce the chance of conflict, protect property rights, and keep transaction and contract costs low, promoting investment and impersonal exchange.

The quality of dispute resolution systems is tied to the quality of a society's institutions—the rules that structure social relations (Knight 1992; North 1990). Formal institutions such as the police or courts generally receive the most attention. But social interactions such as dispute resolution are also shaped by informal institutions—the shared, unwritten rules of appropriate behavior enforced through social sanction and praise (Ellickson 1994; Knight 1992; North 1993). In developing countries, informal rules, practices, and norms are often the main way communities address disagreements, protect property, and maintain order.

Informal institutions, however, are often imperfect. They may be biased in favor of the powerful. They may fail to elicit private information, resulting in long and costly negotiations and a greater risk of breaking down into deadlock or violence. Moreover, without central enforcement, they may produce bargains that are difficult to enforce. These are classic bargaining failures, most commonly applied to understanding labor and international relations (Fearon 1998; Kennan and Wilson 1993).

What can states and societies do to avoid these dilemmas? An obvious answer is to build and improve formal institutions. This effort, however, can take decades. In the short term, what (if anything) can states and societies do to improve the quality of informal dispute resolution?

We experimentally evaluate an information and education campaign designed to promote “alternative dispute resolution”, or ADR, across 86 communities in post-war Liberia. ADR is a set of informal skills, practices and norms of negotiation and mediation. They are intended to help parties reach self-enforcing bargains faster and at less cost than through courts (Lieberman and Henry 1986; Mnookin 1998). Seen through lens of non-cooperative bargaining theory, ADR practices and norms aim to speed the process of decentralized bargaining, reduce private infor-

mation, increase the range of enforceable bargains, and try to get parties to behave more rationally, avoiding breakdowns of anger or violence.

ADR first emerged in the US and Europe to address commercial and family disputes. In the 1990s, it began to be adopted more widely in the world, including in development aid (Sternlight 2007). UN agencies, the World Bank, USAID, and others now promote ADR across Africa, Latin America, Asia and Eastern Europe within their rule of law and peacebuilding programs. In countries with developed judiciaries, ADR may be implemented as an extension of the formal system, as in the US. In less developed countries, especially post-conflict ones, courts are weak and overloaded and civil disputes tend to be settled within communities. There, states often promote informal ADR through mass education campaigns.<sup>1</sup> While these campaigns are typically short, they nevertheless aim to change behaviors over the long term as well.

Implicit in this approach is a second theory, of behavior change and social engineering: that giving educating enough people is sufficient to change behavior over high-stakes matters such as property disputes. This advocacy-centered, “push” approach to behavior change is hardly unique to ADR interventions, and underlies a wide range of interventions and social engineering from public health (e.g. hand-washing education campaigns) to politics (e.g. voter education campaigns) to human rights (e.g. campaigns against female genital cutting).

Is this a credible theory of behavior change? With no direct change in incentives or constraints, why would rational actors respond? While possibly naïve, the approach does have some support. A number of field experiments in Africa, for instance, show that education and information change short-term political behaviors such as voting or violence.<sup>2</sup> We worry, however,

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<sup>1</sup> In post-conflict refugee contexts, these may be called called “peace education” programs (Baxter and Ikobwa 2005).

<sup>2</sup> In Africa, experimental information campaigns increase election turnout and reduce violence (Collier and Vicente 2011; Wantchekon and Vermeersch 2011). Studies of civic education pro-

that the hopes invested in mass ADR education campaigns in particular, and advocacy-centered behavior change in general, are unrealistically optimistic. We review a range of criticisms of ADR and social engineering in general, as well as possible unintended consequences.

We address these questions in Liberia, a small West African nation where formal institutions are weak, property disputes are endemic, and levels of violence are high. In 2009 and 2010 the Government of Liberia and the United Nations (UN) conducted a large-scale ADR education campaign. The government nominated 246 communities, and we randomly assigned 86 to receive the campaign. In treated communities, the implementer invited roughly 15% of adults (more than 12,000 in total) to participate in eight days of training spread over several months. Implementers deliberately chose this target to maximize the chances of community diffusion and adoption.

We report on short-term behavior changes an average of 10.6 months after training. Communities were trained sequentially, one to 21 months before our endline survey. We also randomized the sequencing of treatment, allowing us to identify decay over time. We collect survey data on dispute outcomes from nearly 5,500 people and conduct qualitative interviews in 20 treatment and control communities.

Our data focus on conflicts over money and property. These disputes are endemic in Liberia, and common across Africa in general (Onoma 2010; Pande and Udry 2005). Across the region, there are competing processes for granting rights and resolving disputes, and the justice system is inaccessible, expensive, and corrupt. Liberia's challenges are elevated, moreover, by the mass displacement induced by two civil wars, 1989-2003. As a result, in 2010 alone, 22% of our sam-

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grams also find durable changes in knowledge and (in some cases) civic behavior and violence (Finkel, Horowitz, and Rojo-Mendoza 2012; Finkel and Smith 2011). In Rwanda, radio programs improved conflict resolution and deliberation (Paluck and Green 2009). Most studies, however, measure changes over just days or weeks.

ple reported a dispute over land and 13% reported one over money. Nearly half of land disputes involve aggression. To the great concern of the government and peacekeepers, such violence occasionally escalates into national-level crises.<sup>3</sup>

We see large impacts in line with the predictions from bargaining theory. The education campaign results in shorter and less violent land disputes. In treated communities, land disputes are 29% less likely to remain unresolved at the end of the year and 32% less likely to result in property destruction. Disputants are 10% more satisfied with the outcomes. These effects appear to be largest among the most longstanding disputes—those dating from the war. We see little change, however, in money dispute outcomes.

We also observe unintended consequences. First, we see a large (though weakly significant) increase in informal extrajudicial punishment—witch-hunts and trials by ordeal. Second, we find statistically significant increases in fights, youth-elder disputes, and demonstrations. These are largely peaceful, however, and most violent forms of conflict decrease by large margins (though seldom statistically significantly so).

In our interpretation, ADR education encourages individuals to tackle old disputes, and inspired youth to challenge traditional authority. With the exception of extrajudicial punishment, however, these disagreements were largely peaceful. It is clear, though, the intervention carries risks of heightened conflict. Nonetheless, a byproduct of observing negative and null impacts is that it mitigates our concern that self-reported reductions in unresolved and violent disputes arise from social desirability bias.

How long do these impacts last? On the one hand, behavior changes could persist either because of mass skills transfer (many individuals learn and adopt new skills), or because of infor-

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<sup>3</sup> In 2008, for instance, a dispute over farmland between two politicians erupted into widespread violence (Amnesty International 2009). In 2010 the murder of a girl in one of our control villages escalated into countywide ethnic riots and political strain.

mal institutional change (a shared, generalized change in expectations of how others will resolve disputes, or how they ought to resolve them). On the other hand, behavior changes could fade because skills and especially informal institutions are difficult to change, or because our results reflect a Hawthorne effect. Only long-term follow-up will tell. The early evidence, however, is consistent with generalized, persistent change. First, the decrease in unresolved and violent land conflict shows no sign of decay over the two-years of our study. Second, we bound treatment effects and show that the intervention begins to change general behavior: untrained residents likely increase conflict resolution and decrease violence. We have limited data on the mechanisms underlying these treatment effects, however, and cannot distinguish between the skills transfer and institutional change views. This will be the subject of future follow-up research.

In the meantime, the qualitative findings are consistent with our bargaining theoretical frame, and suggest that the intervention helps people reach more self-enforcing bargains. ADR practices and norms help to keep disputants at the bargaining table, establish a shared language and resolution practices, improve communication, and contain emotion. It seems to have empowered ordinary citizens to tackle their own disputes directly, or act as informal mediators in friend or family disputes, rather than go to customary authorities for adjudication. Treated respondents' emphasis is on bargains agreeable to both parties, which are potentially more self-enforcing. Perhaps because of this, we see less emphasis on the external enforcement of bargains through fines.

Overall, we argue, the results support advocate-centered theories of behavior change, the effectiveness of ADR in resolving disputes more peacefully, and the possibilities for institution-building and social engineering on the margin.

## **1 Intervention**

Liberia is a West African nation of roughly 3.5 million people. Between 1989 and 2003, civil war killed hundreds of thousands and displaced a majority of the population. A 2003 agreement ushered in peace, and two democratic elections ensued. Police and court systems are slowly re-

building, but they have little reach outside a few towns and are largely expensive, inefficient and corrupt (Isser, Lubkemann, and N'Tow 2009; Unruh 2009).

As a result, Liberians mostly rely on local, non-formal institutions to manage disputes. The volume of disputes, however, is great. Nationally, in 2011, 16% reported a land dispute since the war's end, and 10% reported another major dispute, such as over money or inheritances (Vinck, Pham, and Kreutzer 2011). 20% of disputes turned violent (p.49). Roughly 40% of land disputes and 16% of non-land disputes remained unresolved (p.61). Liberia is hardly exceptional; high levels of disputes and violence are common throughout the region (Richards and Chauveau 2007).

Local disputes are also difficult to resolve. There is often no single acknowledged authority to mediate or enforce bargains, and there are rival forums for resolution, ranging from customary leaders, administrative leaders, elder councils, local peace committees, courts, and police. Parties to a dispute can thus “shop” forums for favorable treatment.

Agreements are seldom recorded, few records survived the war, boundaries are poorly marked, and there are often competing claims to the same house, market spot, or farmland. For example, a newcomer may occupy a home or market stall vacated during the war, and build a structure. Even when she acknowledges the original inhabitant's claim, they may disagree over compensation for the structural improvements. In other cases, rights are more poorly defined. One example is where a farmer uses fallow farmland customarily tilled (but not formally held) by his neighbor, as is often the case with communal land or land shared within a kin group.

## **1.1 Intervention design**

In 2009-10 the government and the UN directed the UN High Commission for Refugees (UNHCR) and a non-governmental organization (NGO), the Justice and Peace Commission, to run an ADR campaign in rural Liberian communities. Figure 1 maps treatment and control communities.

In treated communities, the NGO mobilized roughly 15% of adults to attend workshops. Each workshop involved eight days of training in groups of about 35 residents, led by two facilitators. Training days were spread over two months, allowing trainees to practice in between.

The training was designed to strengthen existing and longstanding informal practices (especially interventions by customary leaders) but also attempted to encourage and empower ordinary residents to better negotiate their own disputes or mediate their neighbors'. The specific tools, skills and practices emphasized in training include: (i) direct engagement in one's own or others' disputes; (ii) strategies for problem solving and negotiation; (iii) face-saving and "positive-sum" resolutions, and (iv) avoidance of forum shopping and the formal justice system. Workshops combined lectures with group discussion, participatory dramas, and opportunities for individuals to share their experiences. The training drew on a wide range of examples, including community and group conflicts, but emphasized interpersonal disputes, especially land, money, domestic, and neighbor disputes (e.g. arguments in the queue for water).<sup>4</sup>

Facilitators lived in communities for two to four months, and our qualitative work suggests that they formed bonds of trust with their hosts and were held in high esteem. This "after-hours" participation in community life provided an opportunity to demonstrate, facilitate, and reinforce the ideas and norms taught in workshops.

## **1.2 Target population and participants**

The intervention targeted three of Liberia's 15 counties: Lofa, Nimba and Grand Gedeh. These are denser and more war-affected, and were expected to have more disputes and weaker social bonds. County officials were asked to nominate communities they felt could benefit from the intervention. They nominated 246 ranging in size from 100 to 5000 persons. In the previous year, 10% of communities reported a violent strike or ethnic dispute and 7% a peaceful protest.

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<sup>4</sup> Curriculum available by request.

9% of residents reported a dispute over money in the past year and 24% reported a land dispute since the war (Appendix Table 1). Though officials tried to select conflict-prone communities, by these data our sample is not extreme—nationally, land conflict is only moderately lower (Vinck, Pham, and Kreutzer 2011).

Communities also had prior exposure to ideas underlying the intervention. At baseline, 41% said they were active participants in a dispute resolution process or group and 28% reported exposure to “peace training” in the past—usually a short NGO workshop. Any impacts must be considered in light of this exposure.

The intervention was not very selective within communities. Community leaders mobilized residents in very heterogeneous ways. They often started with leaders and opinion-makers but focused largely on ordinary residents in order to meet the ambitious 15% target. In the end, those who participated look much like those who did not. Comparing pre-intervention traits shows that religion and minority status had little association with attendance, nor did several of the strongest correlates of land conflict—having your land or house taken during the war, having been a refugee or displaced, or being a victim of war violence. However, trainees were more likely to be older, male, have land, and be born in the community (Appendix Table 2).

## **2 Theory and intended impacts**

We draw on three theoretical literatures. First, we frame disputes and ADR in terms of non-cooperative bargaining theory to generate specific predictions about how ADR might affect dispute dynamics and outcomes—including the predictions we can and cannot test with available data. Second, we draw on ADR theory and practice to identify intended and unintended consequences beyond those predicted by non-cooperative bargaining. Third, we consider the assumptions and plausibility of advocate-centered theories of behavior change, and reasons why any change may or may not persist.

## 2.1 Non-cooperative bargaining

Non-cooperative bargaining is usually modeled as a series of alternating offers between two parties with an interval in between offers (Kennan and Wilson 1993). If both parties have complete information and bargains are enforceable, then a self-enforcing agreement is quickly reached. Costly delays in bargaining, then, come from incomplete information (usually the private cost of delay), commitment problems, and the delays between alternating rounds.

Fearon (1998) develops a simple formal model where two parties bargain over two possible deals. Their bargaining resembles a common  $2 \times 2$  coordination problem (Battle of the Sexes), while enforcement resembles a repeated Prisoners' Dilemma. Both would prefer coordinating on one deal to no deal, but they prefer different deals. Lengthy bargaining is costly to both sides. Rational behavior leads to the classic "war of attrition": each party rejects the other's offer until the party with the highest cost of delay concedes. With complete information, the party with the lower cost of delay receives his preferred deal immediately. It is private information, such as uncertainty over the opponent's cost of delay, which causes long, costly wars of attrition.

Once the parties agree on a bargain, they begin an enforcement phase in which both have a short-run incentive to renege. As with the bargaining phase, there is an interval between observing each other's actions (without it there would be no gains from defection and no enforcement problem).

This simple two-phase game yields a fairly standard set of comparative statics. The length and cost of the bargaining process decreases as (a) the cost for not reaching a deal rises, (b) uncertainty and information asymmetries fall, and (c) the value of future payoffs declines. Meanwhile, enforcement becomes easier as (i) the short-run benefits of defection fall, (ii) the costs of not finding a deal rise, and (iii) the value of future payoffs increases. Finally, at every phase of the game, there is an interval between rounds that is essential to the costliness of bargaining (otherwise alternating offers would proceed rapidly to a conclusion). In bargaining this might be the time to get back to the table, and in enforcement this could be driven by one's ability to mon-

itor and respond to violations. As we discuss below, ADR and informal institutions are explicitly designed to affect nearly all of the above.

Note three things. First, that if an intervention improves both bargaining and enforcement that there is an ambiguous effect on the length and cost of disputes. Better enforcement raises the stakes of the bargaining phase and thus gives disputants an incentive to bargain harder and longer.

Second, a drawback of non-cooperative bargaining theory is that it does not necessarily generate predictions about when, or if, violence will erupt. For simplicity, we interpret violence as a risk that increases in the length of delay, one that leads to a pause or cessation in bargaining.

Third, this model treats the parties as rational, but in practice we know that disputants often behave emotionally and irrationally. A large body of behavioral decision-making research emphasizes that people rely on simplifying strategies and cognitive heuristics and are prone to a number of errors. Bazerman et al. (2000) and Kahneman and Tversky (1995) summarize the evidence as it applies to two-party negotiations: parties are often loss averse; they assume their preferences are incompatible, undervalue concessions and falsely assume a fixed pie and miss mutually advantageous moves; they allow conflict to escalate even when the optimal decision would be to change strategy; and they hold self-serving recall biases that are accentuated by ambiguous information. Less is known about the sources and effects of emotion and anger. In practice we know emotion is important, and may accentuate the irrational tendencies above. In the context of non-cooperative bargaining, we could also think of anger much as we do violence: emotion can induce parties to leave the negotiating table and thus prolong the delay between bargaining rounds. Together, irrationalities and emotion may increase information asymmetries, slow the bargaining phase, and thus increase the length of disputes and the risk of violence.

## 2.2 Alternative dispute resolution

### 2.2.1 ADR through the lens of bargaining theory

ADR explicitly aims to reduce the length and cost of disputes and to improve the quality of outcomes (Lieberman and Henry 1986). According to conflict resolution theory, the failure to resolve disputes is rooted in parties' lack of trust and the failure to communicate. Parties also assume a zero-sum game, and so they bluff or use misleading information and strong-arm tactics in order to gain advantage (Deutsch, Coleman, and Marcus 2006)

ADR training thus tries to impart a set of skills and practices (*how* to resolve disputes) and foster a set of norms (how people *ought* to resolve disputes) that improve communication, mutual understanding, and trust. ADR is designed to enhance negotiation as well as informal third party mediation. Some examples of skills encouraged by ADR training include: framing problems in positive and cooperative terms; speaking one's mind plainly and addressing disputes directly; managing anger and avoiding accusatory statements; "active listening", or repeating back the other person's concerns; being aware of one's own biases; confronting problems through engagement with the other party; and avoiding the negative consequences of misinformation. Norms of ADR include maintaining mutual respect; seeking mutually satisfactory bargains; stigmatizing defection and forum-shopping; enhancing the legitimacy of informal forums; and (particularly with this specific training), encouraging people to view themselves as mediator, capable of intervening productively in their neighbors' disputes.

In effect, ADR techniques are designed to tackle problems at the root of rational and irrational bargaining failure. First, ADR aims to reduce imperfect information by building trust, encouraging communication, and discouraging misinformation. It also encourages active listening, awareness of biases, and empathy to reduce the incentives to misrepresent, and promotes the use of mediators to observe, elicit and share information. If so, our theory predicts shorter and less violent disputes.

A second and related aim of ADR skills and norms is to get parties to behave more like rational actors and avoid the behavioral decision-making problems outlined above. The emphasis on positive framing, awareness of own bias, and mutually advantageous bargains are examples. If successful, we again expect shorter and less violent disputes.

Third, ADR aims to improve coordination on deals. Our simple bargaining model assumes there are only two deals, but if we expand the range of bargains available, there will be multiple equilibria that accentuate the coordination problem (Fearon 1998). With multiple equilibria, the comparative statics can vary depending on the specific arrangement. Where there are multiple potential bargains (multiple equilibria), some more mutually advantageous than others, norms of cooperation can help parties coordinate on the superior bargain (Ellickson 1994). Norms that discourage defection and forum shopping can, in theory, reduce this coordination problem, reduce bargaining delays, and help parties reach more mutually advantageous bargains.

Fourth, ADR may decrease intervals between alternating offers and thus reduce bargaining costs and delays. The gap between offers is sometimes interpreted in the formal literature as a result of monitoring costs. Mediation potentially increases monitoring. More generally, we can think of delays arising from people “walking away from the table”, perhaps in frustration or anger. ADR aims to keep disputants at the table, to help them manage their anger and to empathize with the other party.

Finally, ADR can reduce commitment problems and increase the range of enforceable contracts. In general, social sanction or praise are a means of enforcing bargains in the absence of strong, centralized, third party institutions (Bardhan 1993). ADR attempts to activate these mechanisms by stigmatizing defection and forum-shopping. This may result in higher rates of resolution and more durable bargains in the long run.

### *2.2.2 Potential drawbacks*

A sizeable literature documents why ADR may not live up to these high expectations. First, its boosters have been accused of unrealistic optimism about the reduction in cost, length and

bias (Sternlight 2007). Some disputes, for instance, are not rooted in miscommunication but reflect fundamentally different views and values (Edwards 1986).

Second, even if ADR helps some disputants, informal institutions may prove very difficult to change. New rules and mechanisms of social enforcement are inherently uncertain, and so communities may fail to coordinate on them (Knight 1992). A related anthropological critique is that institutions are embedded in context-specific social structures, cannot be understood in isolation, and tend to resist one-size-fits-all solutions (Merry 1984). When it comes to ADR education, moreover, there is nothing enforceable about the new system (Sternlight 2007). In the developed countries where it originated, ADR is enforced because it works in the shadow of the law. Not so in countries such as Liberia.

Third, over-reliance on informal dispute resolution could undermine the rule of law. Informal systems tailor to circumstance and do not attempt to provide consistent solutions to similar conflicts. Of course, this flexibility is an advantage in the eyes of some disputants. A more serious concern is that ADR may exacerbate inequality by reflecting existing power structures and thus disadvantage marginalized groups (Edwards 1986; Lieberman and Henry 1986).

Fourth, while ADR discourages forum-shopping, it often introduces new mechanisms of dispute resolution beyond those already in place. Dispute resolution systems tend to be additive, and adding new ones creates a more plural system (Merry 1984). This pluralism could have ambiguous effects on dispute resolution. Multiplying the number of potential mediators could increase defection and thus undermine coordination and enforcement, especially in fragile post-conflict societies (Unruh 2003).

Finally, a practical concern is that ADR may encourage people to address their own disputes (or mediate those of their neighbors) without improving the requisite dispute resolution skills. This may result in more disputes but fewer and less durable solutions.

### **2.3 Behavior change through mass education**

Finally, recall that this intervention does not introduce and impose ADR. Rather, it merely educates and persuades communities to adopt its practices and principles. As a result, all of the theoretical discussion above—the advantages and disadvantages of ADR, and the predictions of bargaining theory—is predicated on the effectiveness of the education campaign at changing behaviors.

One can be forgiven for skepticism. Education campaigns are often promulgated by foreigners and elites. They are short, sometimes as minimal as a radio campaign (or, in this case, eight days of workshops). A rationalist might argue that norm and behavior change is the product of changed economic fundamentals and constraints, on which the intervention has no direct effect (Jackman and Miller 2004). We may also worry about a “Hawthorne effect”—a temporary increase in behaviors due to training and observation. Finally, we have cause to be skeptical of social engineering in general: efforts to change practices and rules often fail to achieve their intended purposes or have unintended consequences when thrust upon strong, preexisting social relations and obligations (Moore 1972; Scott 1998).

This advocate-centered theory of change, however, is typical of a range of state social engineering interventions, from public health to voter education. As we note in the introduction, there is a growing base of evidence that information campaigns can change political behavior in the short term, such as around elections. Furthermore, a large case literature on international norm diffusion emphasizes the power of persuasion in explaining change across and within countries, from the adoption of human rights (Finnemore and Sikkink 1998) to female genital cutting (Cloward 2010) and Chinese footbinding (Mackie 1996). These accounts argue that third parties can use their status, resources, and skills of persuasion to convince a core of influential actors to change their actions and value systems. Once this core grows large enough, the rest follow in a “cascade effect”. The same idea underlies the design of this intervention. UNHCR deliberately

chose to target 15% of adults in the hopes of reaching some “critical mass” of adults and inducing a cascade of changing skills, practices and norms.

Persistent change, then, could come about for two reasons. First, much like a new agricultural technology or technique may be adopted (and diffuse) for its own evident value, mass training could simply lead to mass adoption of particular resolution skills. Second, individuals could change their shared expectations of how others will act (or practices they will use) in a dispute, or how they ought to act. They may even sanction or praise behavior accordingly. It is this change in expectations and norms that would distinguish mere skills transfer from informal institutional change.

### **3 Research design**

#### **3.1 Experimental design**

We worked with UNHCR to randomize the intervention at the community level. Of the 246 nominated communities, 116 were initially randomly assigned to treatment, stratified by the three counties. We were unable to randomize training within communities.

24 facilitators, working in pairs, visited communities sequentially, implementing the intervention over 21 months, from March 2009 to November 2010. We randomly assigned communities to one of five phases, thus introducing randomness into the order of treatment.<sup>5</sup> We did so to measure the impact of time since treatment, but also to guard against interruption. Luckily so—resource constraints meant UNHCR stopped in phase 4, with 85 communities treated out of the

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<sup>5</sup> Each phase lasted roughly 3 months and implementers were free to visit the communities in the most convenient order with each phase.

86 assigned to phases 1 to 4. Our control group thus has 160 communities: the 30 randomly assigned to phase 5 plus the original 130 controls.<sup>6</sup>

Moreover, because of unexpected delays, only the phase 3 communities had completed treatment by the time of the endline survey. 68 of the 70 assigned to phases 1 to 3 were treated before the endline survey. Phase 4 was conducted concurrent with the endline survey (an unfortunate necessity given financial and logistical constraints). These concurrently treated communities are randomly assigned, and so we can estimate their effect separately.

Communities were widely spread across space, with little risk of spillovers between them. A comparison of baseline individual and community characteristics—including demographics, prior levels of conflict and cohesion, and prior exposure to NGO programs and education campaigns—shows balance between treatment and control communities (Appendix Table 1).

### **3.2 Data**

We collected baseline surveys from March to April 2009 and endline surveys from November 2010 to January 2011. We have endline data on 243 of the 246 communities, as two extremely remote villages could not be reached by surveyors, and one tiny village disbanded before the endline. All three were in the control group.

The main outcomes come from survey questions about the incidence, nature, and resolution of disputes. The survey was brief, and focused on individual and community dispute events and outcomes rather than mechanisms. To measure community-level outcomes (e.g. ethnic violence) and traits (e.g. population) we surveyed four leaders at baseline and endline—typically a town

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<sup>6</sup> 26 of the 116 communities (and 16 of the 68 in phases 1 to 3) were assigned to “intense” treatment and offered 30 to 40% more workshops. Partly because of the early end of the intervention, however, this analysis is low-powered and inconclusive (Appendix Table 5).

chief and a female, youth, and minority leader. We use the average response for continuous measures and the modal response for indicators.

The intervention and our theory emphasized inter-personal disputes rather than inter-group disputes. Hence the survey focuses on individual outcomes and traits. We surveyed random cross-sections of roughly 20 residents per community at both baseline and endline.<sup>7</sup> Non-response was typically less than 5 to 10% per community, and the only attrition comes from the three lost villages. At baseline, before assigning treatment status, we also asked leaders to propose three “targeted residents”—one elder, one “influential person” and one “troublemaker”—who would be invited to attend the training if the community were treated. We followed these as a panel in both treatment and control communities, mainly to ensure a minimum sample with a high likelihood of training. Attrition is 13%. We pool targeted and randomized residents in our analysis, and so the sample slightly over-represents persons targeted by the intervention. As we are measuring impacts at the community level (rather than individual impacts) this does not pose a problem for inference.

### **3.3 Qualitative methods**

We also collect longitudinal qualitative data to deepen our understanding of disputes and dispute resolution processes, assess the quality of implementation, and help us hypothesize about the mechanisms driving the results. First, researchers acted as participant-observers in 15 community trainings. Second, over the course of the intervention, we interviewed 15 facilitators to solicit their opinions on intervention successes and shortcomings. Third, in conjunction with two

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<sup>7</sup> No census frame existed, so a team walked each community and divided it into roughly equal blocks, chose a random pathway, counted all houses in that path, and randomly chose a set number. Household members were selected randomly and appointments made for interview.

Liberian research assistants trained by the authors, we interviewed leaders and residents in 20 purposefully-selected communities, including 15 treatment and 5 control.<sup>8</sup>

Based on these interviews, we attempt to understand changes first by exploring before-after changes in treated communities and second by treatment-control comparisons. We conducted 104 interviews with 52 respondents between April 2009 and December 2010. We interviewed town leaders plus a convenience sample of participants in the training and community residents. Sampling was purposefully unsystematic, providing a quasi-random sample.

The interviews followed a semi-scripted, open-ended questionnaire covering a range of topics, including dispute behavior, community relations, and intervention reactions. In treated communities, we typically interviewed respondents at least twice: before and some months following training. In control communities, we attempted to interview the same individuals twice as well. Interviewers took detailed notes and recorded interviews, which were then transcribed, reread, edited, and annotated using a set of thematic coding rules that reflect key program outcomes and other factors hypothesized to influence program outcomes.<sup>9</sup> Following initial coding and analysis, we selected and coded additional categories we believed to be important.<sup>10</sup>

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<sup>8</sup> We selected communities with high and low values of the dependent variable (dispute levels) and important traits (wartime violence, remoteness and size).

<sup>9</sup> Including war experiences; dispute types; dispute dynamics including violence; dispute remedies; the role of traditional, administrative and central government authorities; customary and statutory governance at the community level; land and natural resource management; and the role of women and minorities in dispute resolution.

<sup>10</sup> Including direct interventions in disputes, longstanding disputes, reports of transformative experiences, key relationships between authorities and community members, and experiences of conflict during the workshop.

#### 4 Qualitative findings I: Descriptive analysis

We highlight six key features of the setting. First is the near absence of state presence, especially formal justice, in most places outside major towns. Even when basic services are available they are often only accessible through interpersonal relationships and side payments. We found this contributed to a general enthusiasm for ADR among residents.

Second, we found multiple, competing, and unpredictable institutions involved in dispute resolution, impeding easy resolution. When people narrated the history of their dispute, they almost always mentioned the intervention of multiple authorities. In interviews, nearly every authority stated they were responsible for land disputes—including statutory authorities (e.g. judges); state-appointed administrative authorities (e.g. district commissioners); customary authorities (traditional chiefs and elder councils); and civil society actors including religious leaders, ethnic leaders, family heads and influential residents.

As a result, committing to a single institution proved difficult. For instance, a dispute emerged between two villages when an NGO helped one plant a palm oil plantation on the land between them. When leaders in the two villages could not agree on the traditional (undocumented) boundary, they first visited traditional leaders, then a district official, and finally went to court. Each authority offered conflicting decisions, and neither village abided by the rulings.

This case illustrates a third point: the inability to cooperate increases tensions and can escalate into violence. Unable to resolve the above dispute through a succession of authorities, violent tit-for-tat incidents and reprisals ensued as armed men from each village attacked the other. When one village's youth leader disappeared in the forest, the village leadership accused the rival village of cannibalizing him because of the dispute, deepening the cleavage and the conflict.

Fourth, institutions are unpredictable and inconsistent. Each authority uses a combination of negotiation and adjudication, and statutory authorities often use non-statutory practices. In one domestic dispute, the local magistrate decided not to enforce a legal penalty, but rather tried to extra-legally fine one party. In addition to the expense of formal remedies to disputes, residents

also complained of unpredictability. The absence of calculable law makes it difficult to commit beforehand to a forum and its ruling. As a result, we found that people often disagreed over the appropriate authority or shopped forums for favorable outcomes.

Fifth, we found that informal and formal institutions favored certain groups over others, exacerbating forum shopping, irresolution, and escalation. One example comes from our observation of the workshop, where the issue that ignited some of the most furious debate were program messages that emphasized the equal rights of youth who disagree with elders.

Another example is ethnic cleavages. Most of the communities have a minority “immigrant” group (who had often been present for generations). These ethnic cleavages are also economic ones as some Muslim minorities are wealthier traders. In our study communities, two thirds of report reported prejudicial views of other ethnic groups. Disputes that fall along group lines are often marred by suspicion and prejudice, and few forums are seen as unbiased. For instance, we observed that members of non-indigenous tribes may not have a voice even when directly involved. During a meeting of elders over one land dispute, a respected elder schoolteacher said that he was not invited because although he had lived in the town for 20 years and the dispute involved school land, he was not “from” the community.

Sixth, while some ideas and norms in the intervention (such as equal rights for youth) were controversial and seen as foreign, the principles of mediation and negotiation were broadly consistent with traditional practices and norms of resolving conflicts. Thus the training mixed new ideas, and introduced new problem-solving skills, with familiar practices. We expected this congruence to improve chances of success, and it may be an important scope condition.

## **5 Empirical strategy**

### **5.1 Summary of predictions**

If ADR training reduces imperfect information and behavioral biases and speeds the pace of alternating offers, then our theory predicts the intervention should (1) speed the pace of dispute

resolution, and (2) decrease the probability of violence. To the extent that ADR training leads to more enforceable bargains, however, these increases in speed and order will be offset. If ADR improves coordination in bargaining and the range of enforceable agreements, however, ADR training should also (3) increase the use of informal forums over formal ones, (4) increase the durability of bargains, and (5) increase both parties' satisfaction with the agreement. Overall, if the ADR training works as described, we should also observe (6) shifts in the skills, practices, and norms reported by residents towards those emphasized in the curriculum.

In reviewing the potential drawbacks of increased informal dispute resolution, we also raised the worrisome possibility that the intervention would have the unintended consequences of (7) increasing the incidence of disputes and dispute-related violence, and (8) bias decisions against low-powered groups.

In the long run, if the intervention is successful in its ambitious aim to create sustained behavior change in the community, and even reshape informal institutions, then we would expect to see predictions 1 through 6 sustained and even grow larger. In addition to this, however, we might expect to see (9) improvements in perceived property rights and security, (10) increased investment and economic activity (as a consequence of this increased security)<sup>11</sup>; and (11) evidence that untrained community members adopt the practices and norms of ADR and hence reduce their unresolved and violent disputes as well.

## **5.2 Empirical strategy**

Given that our survey takes place 1 to 21 months after the intervention, we focus on short-term effects. To examine propositions 1 to 8, we calculate average treatment effects (ATEs) for

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<sup>11</sup> The theoretical link between increased property security and investment is well established (Besley and Ghatak 2009), though in practice the empirical evidence is mixed, especially with African land (Fenske 2011).

self-reported dispute outcomes. By far the most important and common disputes are those over land, followed by money, and so our survey concentrates on these. In part because of the need for such a large-scale survey to be short, we have minimal survey data on ADR norms and skills, are mostly unable to test proposition 6.

Nonetheless, we do have data on the incidence of disputes in the previous year (proposition 7), whether it resulted in violence (2), whether at the time of the survey the dispute had been resolved (1 and 4), whether it was resolved through an informal institution (3), and whether the parties are satisfied with the resolution (5). We do not have data on the specific length of the dispute, but one implication of propositions 1 and 4 is that at any point in time we should observe fewer unresolved disputes (especially relative to the total number of disputes) and so we use our incidence of unresolved disputes. We do not have direct data on bias towards low-powered groups (7), but we do look for evidence of lower impacts among youth, women and minorities.

We also look for early indications of the long-term goals of the intervention. We test whether the treatment effects above diminish over time (using random assignment to phase as an instrument for months since the intervention). We ask respondents to report their perceived land security and major investments (9 and 10).

Finally, and importantly, we look for changes in behavior of the untrained community members (11). Absent random assignment of residents to training, we cannot identify the direct causal effects on trained versus non-trained residents. We develop a technique, however, that bounds the effect on untrained residents.

### **5.3 ATE estimation**

Our preferred estimator is a Complier Average Causal Effect (CACE). This uses random assignment as an instrument for being treated.<sup>12</sup> We estimate the ATE using two-stage least squares regression, controlling for concurrent treatment (instrumented with assignment to Phase 4), a vector of baseline covariates,<sup>13</sup> and district fixed effects. We cluster standard errors at the community level. The ATE thus includes the direct effect of the intervention on trained residents plus spillovers onto untrained residents, and averages earlier and later treatment. We do not weight by population sampling. We test for robustness to ITT and alternate CACE estimates, probit estimation, population weights, and exclusion of controls (Appendix Table 4).

### **5.4 Measurement error and potential bias**

All outcomes are self-reported. If disputes are underreported, then we will underestimate the ATE. We are more concerned with measurement error that is correlated with treatment. If training leads to social desirability bias (so that residents to under-report disputes, or repeat back norms) we will overestimate the ATE. While this is certainly a risk, we argue that the pattern of treatment effects we observe is inconsistent with social desirability bias because, even though some ATEs are consistent with the normed messages of the intervention (e.g. less property destruction), other normed messages show no change (e.g. egalitarian attitudes) and residents even report an increase in some discouraged behaviors (e.g. trial by ordeal, which is illegal).

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<sup>12</sup> The intent-to-treat (ITT) estimate is nearly identical, as 68 of 70 phase 1 to 3 communities were treated before the survey, and 15 of 16 phase 4 communities (plus two phase 3 communities) were treated concurrently with the survey.

<sup>13</sup> Resident age, sex, religion, ethnicity, education, income, assets, land, occupation, and war experiences, and community distance from roads, infrastructure, ethnic and religious composition, and size (Appendix Tables 1 and 3).

## 6 Results

### 6.1 Land Disputes

Table 1 reports land disputes impacts. 22% of the sample reported *Any serious land dispute* in the past year, mainly over boundaries or right of use. These conflicts result in aggression in roughly half of disputes: 4% of the sample (16% of disputes) report that the *Dispute involved property destruction* (e.g. arson or crop spoilage); 7% (33% of disputes) report *Physical violence*; and 11% (50% of disputes) report *Threats*. 72% of those with a dispute say it was resolved, leaving 6% of the population with an *Unresolved land dispute*. 20% of disputes were *Resolved via an informal mechanism*. Finally, of those reporting a dispute, 60% are *Satisfied with the outcome*.

Table 2 displays ATE estimates in absolute terms and relative to the control mean. There is no evidence of a decrease in levels of land disputes—the coefficient is positive but small. This is useful because it means there are unlikely to be positive or negative selection effects on outcomes conditional on a dispute.

Unresolved land disputes fall by 2 percentage points (a 29% fall relative to the control group). Among those who report a dispute, this implies a 7.3 point increase in the proportion of *Resolved land disputes*. Disputes are also 1.3 points less likely to result in property destruction (a 32% relative fall). We also see smaller but not statistically significant reported decreases in physical violence and threats. There is a 3.3 percentage point (17%) increase in disputes resolved informally (not significant) and a 5.9 point (10%) increase in reported satisfaction (significant at the 10% level). These results are highly robust to specification changes (Appendix Table 4).

We see little effect of intense treatment, perhaps because of the small number of communities and modest increase in intensity (see Appendix Table 5).<sup>14</sup>

### 6.1.1 *Investigating bias*

In Table 3 we examine treatment heterogeneity by 6 measures of status: Women, youth 20 to 40, wealth, relation to a “big person” (i.e. leader), and Muslim and ethnic minorities (the former is a subset of the latter). The sign on the interaction term could indicate bias, especially large positive coefficients for unresolved and violent disputes, and negative ones for dispute incidence and satisfaction. In general these interaction terms either point in the opposite direction or are small relative to the treatment effect. One exception is the result for ethnic minorities, who do not report improvements in resolution rates or violence (though they are not highly significant and probably not greater than zero). This does not hold for the subset of religious minorities.

### 6.1.2 *Are the easiest or most difficult disputes resolved?*

Some of the most persistent and intransigent conflicts are those that relate to the war. 9% report that their *House spot was taken during the war*, and 9% report *Farm land was taken*, and these are the largest and most robust correlates of later land conflict (Appendix Table 6). Unfortunately we do not have other data on the history or seriousness of the land disputes. However, we can look at the impact of treatment depending on whether they had their *House or land taken*, an indicator of longstanding disputes. In Table 4, we see from the level term that *House or land taken* is a strong determinant of the incidence and violence of land disputes. Looking at the interaction term, the treatment had a substantial impact on those with house or land taken—roughly

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<sup>14</sup> 25% of our sample reports participating in the training, and this is just 9 percentage points greater in the 16 intense treated communities. We see no significant difference in levels of land disputes or the nature of their resolution.

half of the ATE on unresolved land disputes is explained by it, and these are also the conflicts most likely to be resolved in an informal forum.

### 6.1.3 *Impact on property ownership and security*

This short-term follow-up is probably too soon to see any impact on property rights or investment. This impression is confirmed by Table 5, which displays ATEs on property ownership, use, and perceptions of security. There is little effect of treatment on investments such as *Acres of farmland owned*, *Ownership of land for business*, *Owning or planting trees*, or *Housing quality*. Among those who own farmland, expected security is already high, with 76% of the control group reporting they felt they would still possess that land in five years. Tenure security is 3% higher from treatment, but the difference is not significant.

## 6.2 **Other interpersonal disputes**

13% of residents also report a *Money or business dispute* in the past year (Table 1), typically with family and neighbors, concerning loans, shared farming, and theft. Roughly half are resolved, with 6% reporting an *Unresolved money dispute* at the time of the survey. The most common forums for resolution of these disputes are informal systems.

Table 6 displays ATEs. Like land disputes we see a weak rise (15%) in the incidence of disputes, not statistically significant. Unlike land, however, we do not see significant increases in resolution. Of those with a dispute, we see 6% higher resolution rates and 8% higher satisfaction with the outcome as a result of treatment, but neither is significant.

Table 6 also displays ATEs for whether the individual was in a *Fight with others* in the past year. The question asked about physical fights but our qualitative work suggests it was interpreted to include heated arguments. We see a significant increase: 5% of the control group report a physical fight but residents in treated communities are 1.6 percentage points (or 32%) more likely to report a fight. We do not have data on resolution or satisfaction for this dispute type, and will return to the interpretation of the result below.

### 6.3 Community-level events

Table 7 displays the ATEs for a number of town-level disputes. Violent communal disputes decline with treatment. The incidence of *Inter-tribal violence* and *Violent strikes or protest* fall 49% and 51% relative to the control, though none of these declines is statistically significant.

Like fights, however, non-violent disputes increase. Treated towns report a 17 percentage point (or 70%) increase in the *Number of youth-elder disputes* reported, and an 8.4 percentage point (or 147% increase) in whether leaders report a *Peaceful strike or protest*. Youth-elder disputes are commonplace and often stem from struggles over power in the community.<sup>15</sup>

We see a large but weakly significant increase in the number of trials by ordeal and witch killings—a 5.6 point increase over a control group average of just 1.9 percentage points (significant at the 10 percent level). Trials by ordeal and witch killings are extrajudicial, largely informal, and illegal means of community punishment and truth-telling.

### 6.4 Norms

The theory of change underlying the intervention relied on persuasion to change practices and norms. Unfortunately, we have a limited number of measures to assess any such impact. Table 8 displays ATEs for the handful of available measures. We have data from targeted residents and leaders only on whether they *Would bring a money dispute to a magistrate's court*, to assess the impact of the intervention's message against using formal institutions for small matters. This is 4.3 percentage points (or 22%) lower in treated communities.

We also have data from targeted residents and leaders about three hypothetical conflicts, and what resolution approach they would take. Each question offered an *Assertive mediation* option

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<sup>15</sup> Youth frequently complain that elders do not give them enough voice in decisions about collective agriculture or community fines and taxes. Strikes and protests occur over the perceived corruption of leaders and the absence of youth influence in community decisions.

consistent with the curriculum. Residents score high on this index on average (3.4 out of 4), with little treatment difference. This suggests either that the messages were not internalized or our hypothetical scenarios generated little relevant variation (accounting for the high average).

Finally, we have data on a range of egalitarian and progressive attitudes, related to attitudes to women's and minority rights, and ethnic prejudice. These are not main outcomes, but may have been influenced by program messages, or could be a market for social desirability bias in survey responses. We combine these responses into a z-score, an *Index of egalitarian attitudes*. Residents in treated communities report a small (0.063 standard deviation) increase, not significant. The ATEs on sub-indices (women's rights, minority rights, or ethnic prejudice) are likewise small and not significant, though we see a small (0.05 standard deviation) and significant increase in the acceptability of ethnic intermarriage (Appendix Table 7).

## **6.5 Impacts over time**

Do impacts increase or decay over time? Is there any evidence that the impact on land conflict resolution we observe is temporary? Table 9 examines treated communities only, using random assignment to phases as instruments for time since the midpoint of the intervention. The first stage is strong, with an F-statistic over 200.

Two major results emerge. First, most coefficients are small, not statistically significant, and do not point in a consistent direction (either improvements or decay). Most of all, the coefficient on unresolved land dispute and property destruction are neither large nor significant and suggest these main effects are sustained over 21 months. Second, the coefficient on the incidence of money disputes is negative and significant, suggesting that the weak increase in incidence we saw in Table 6 diminishes over time to zero. In general, however, this analysis is lower-powered than the ATE analysis, and some of the significant results are sensitive to specification. We take all of these results with caution. Nonetheless, there is no evidence of decay of our major impacts.

## 6.6 Spillovers

The largest effect of the intervention seems to be on the most common and highest-stakes form of conflict: land disputes. Does the intervention only affect trainees?

If we include in our ATE regression an indicator for having been trained, the coefficients on both the participation and treatment indicators are positive, similar in magnitude and significant at the 10 percent level (Appendix Table 6). This pattern is consistent with non-participants explaining roughly half the treatment effect, though that regression is not identified.

Alternatively, we place bounds on the treatment effect on untrained residents. Suppose proportion  $D$  of residents have a land dispute with another resident, and these land disputes are uniformly distributed. In control communities these disputes go unresolved with probability  $\mu$ . The proportion of unresolved disputes in a control community,  $U_C$ , equals  $\mu D$  (0.7 in our sample). Now imagine proportion  $q$  of residents are trained. If training is independent of dispute incidence (a simplifying assumption) then the proportion of unresolved disputes is:

$$U_T = [ q^2 \mu_{tt} + 2q(1 - q)\mu_{tc} + (1 - q)^2 \mu_{cc} ] \times D$$

The probability both parties are trained is  $q^2$ , and the probability their conflict is unresolved is  $\mu_{tt}$ . The probability that one party is trained is  $2q(1 - q)$  and the probability their conflict is unresolved is  $\mu_{tc}$ . Finally, the probability that neither party is trained is  $(1 - q)^2$  and the probability their conflict is unresolved is  $\mu_{cc}$ . We assume  $0 \leq \mu_{tt} \leq \mu_{tc} \leq \mu_{cc} \leq \mu$ .

The difference between  $\mu$  and  $\mu_{tt}$  represents the direct effect of treatment on the trained. Any difference between  $\mu$  and  $\mu_{tc}$  indicates some degree of spillover in the community. But the clearest indication of a spillover would be untrained pairs with increased resolution:  $\mu > \mu_{cc}$ .

We bound  $\mu_{cc}$  using the equations above. Our data provide levels of  $\mu$ ,  $D$ ,  $q$ , and the ATE,  $U_T - U_C$ . The strongest assumption is the independence of conflict from the probability of training, but may be reasonable given that the main determinants of disputes are unrelated to the probability of training (Appendix Table 6).

The most extreme bound would assume complete resolution if at least one person is trained ( $\mu_{tt} = \mu_{tc} = 0$ ). In this case,  $\mu_{cc} = 0.36 > \mu$ . However, it is only in such extreme cases where  $\mu_{cc} \leq 0$ . Figure 2a illustrates the values  $\mu_{cc}$  takes on for various values of  $\mu_{tt}$ , for three different cases: where  $\mu_{tc}$  is just as effective as  $\mu_{tt}$ ;  $\mu_{tc}$  is two-thirds as effective; and  $\mu_{tc}$  is half as effective. For nearly all values of  $\mu_{tc}$  and  $\mu_{tt}$ , we see evidence of spillovers to the untrained:  $\mu_{cc} \leq \mu$ . It is only in the most optimistic cases—where  $\mu_{tc} = \mu_{tt} < 0.10$ —that the treatment effect is fully explained by conflicts with trainees only. Figure 2b does the same bounding analysis for the probability of property destruction. Overall, the bounding analysis implies that the ATE is too large to be explained by even extremely high direct impacts of training on a trainee’s own conflicts.

## 7 Qualitative findings II: Mechanisms

Our qualitative data suggest several ways in which the program led to changes in how community members reach and maintain agreements. With just 52 respondents interviewed over time, we do emphasize that these findings are merely suggestive. Nonetheless, we see interesting patterns. A common thread is evidence of new skills to help disputants reach mutually satisfactory agreements. These skills include keeping people at the bargaining table, maintaining communication, keeping calm, and attempts to make all parties satisfied. Community members also use these skills in a more decentralized and informal way than before. Finally, we find that respondents in treatment communities focus on self-enforcing, non-punitive agreements, while in control and pre-treatment communities we see more emphasis on externally enforced sanctions, especially fines.

### 7.1 Communication and self-enforcing agreements

First, we observe a change in people’s discourse about how communication can help resolve disputes and about who should make efforts at that communication. Respondents were typically asked to describe recent disputes and the process of resolution. In control communities and in pre-training interviews, several respondents raised the importance of communication in dispute

resolution, but most often in reference to a community leader (referencing, for instance, their skill as an orator). In contrast, several treated respondents not only explained how facilitated communication was an important element of the dispute resolution process, but also how it is an individual's responsibility and role. The idea that ordinary residents have as much legitimacy and ability to resolve disputes as traditional authorities appears to be a major outcome of the intervention. One interviewee explained: "I bring people together, I tell them to communicate, to bring their position forward until they can reach an agreement" (MM, Zwedru, 5.1.2009). In treatment communities we see also a disproportionate increase in people reporting direct engagement in their own disputes.

Second, we find evidence of a shared vocabulary of dispute resolution in treated communities. For instance, when describing the process of reaching agreements, we observed respondents in trained communities using words and phrases such as "bringing people together", "talking", "finding the common way", "working as one", "internal conflict", "external conflict", "win-win", and "calming them down". Respondents may have been merely repeating lessons learned in the workshop, and in some cases this was our impression. In other cases, however, the vocabulary came up as part of a narrative description of a respondent's experience with a particular case, emphasizing not only communication but also mutually agreeable bargains (such as "win-win solutions").

## **7.2 Promoting rational dialogue and behavior**

Third, we see signs that the program helped community members manage their emotions, identify and experience empathy, and increase the recognition of wrongdoing by both sides in a dispute. In control and pre-treatment interviews, for instance, not one respondent mentioned apologizing or admitting wrongdoing as part of the dispute resolution process. In contrast, several post-treatment respondents demonstrated such self-reflection. For instance, one respondent explained: "If I have offended someone, I must be able to realize that I did something wrong. Both parties must admit it and say 'I am sorry'" (GP, Barteh Jam, 2.15.2010). We also see some

evidence that, in treatment communities, interviewees exhibited an increased capacity for self-reflection and empathy. In no control communities did the respondents mention the importance of seeing the problem from the other person's different perspective.

Similarly, respondents in treatment communities described how self-control helps mitigate conflict. One interviewee described another community member after the workshop: "Now if he gets angry, for example when his children disobey him, he remembers the workshop, he thinks about the things the workshop leader told him and he tries to control himself (EB, Lawalazu, 3.20.2010). Consistent with a new inclination to empathy and anger management, several interviewees spoke of reconnecting to brothers, wives and other family members with whom they had contentious relationships in the past.

Our impression is that recognizing wrongdoing and managing emotions helped respondents to express more open views about opposing parties. For instance, when describing another party to a dispute, they would highlight that person's humanity, making statements such as "we are all human". This echoes a lesson from the workshop, which encouraged people to focus on similarities not differences when they are divided by conflict. We must weigh this impression, however, against the absence of survey evidence for a large change in egalitarian and progressive attitudes, especially prejudice (Table 8 and Appendix Table 7).

### **7.3 Decentralized negotiation and mediation**

Fourth, after the intervention we noticed an increase in ordinary residents' getting involved in others' disputes, and of disputants engaging directly with one another rather than through third parties. Before the intervention and in control communities, it was customary for disputants to say they would take their cases to "powerful people" in the community. One problem, however, is that disputants to a conflict seldom agreed on the appropriate authority. In a separate study of land dispute dynamics in the same counties, one of this paper's authors shows that a serious obstacle to dispute resolution can be disputants' inability to commit to one authority's process. In 35% of cases, individual disputants bring their problem to different authorities when first trying

to resolve their dispute, and in 20% of cases individual disputants visited three or more authorities to try to resolve their dispute (reference omitted). When asked why they went to different authorities, respondents commonly described authorities' corrupt behavior and lack of transparency. Frequently, respondents also accused different authorities of "favoritism" for one particular group or another. In spite of these problems, respondents in the control and pre-treatment interviews seldom raised instances where they attempted to tackle their own disputes directly outside these traditional forums.

These problems were by no means absent in communities that hosted the workshop. During interviews following treatment, however, respondents demonstrated a marked shift towards more decentralized mediation and negotiation. Respondents gave specific examples of how they personally helped to resolve problems and how disputants accepted their intervention. This was one of the most common examples of change we witnessed. For example, in one community, a respondent explained how she had intervened during a dispute over livestock between two neighbors, and helped them find a mutually beneficial solution, a new experience and new role for her in the community (MM, Zwedru, 5.1.2009). Another explained that bringing people together was his "favorite lesson from the workshop" and something he regularly did since the training (AZ, Toe Town, 10.03 2010). We also witnessed new informal structures designed to promote dialogue in the community, such as "peace groups". In a village in Lofa, one participant explained: "After the workshop, we sat down together... we decided that in order to work together we need to organize a club...we never had a club in this town here, but after the workshop were able to establish one" (TS, Shandadu, 2010.09.03).

#### **7.4 Self-enforcing rather than enforcing agreement**

Our fifth observation is that the nature and objectives of informal third-party interventions shifted away from adjudication and towards mediation. Prior to the workshop, disputes were generally taken to customary authorities, who mostly used a combination of mediation and adjudication to resolve disputes, often without being able to describe how they resolved a dispute

other than saying that they “cut’ (decided) a case. Respondents in treated communities appeared to hold different expectations of authorities: the appropriate objective was to bring parties together to agree on a solution as opposed to working with just one party for a judgment. One community member explained: “I am not adjudicating a case to decide who is right. Instead I bring people together, I tell them to communicate, to bring their position forward until they can reach an agreement” (MM, Zwedru, 5.1.2009). Similarly, another noted of participants and leaders who were trained, “now they are available and it is okay for a person to go to them, and these people use the same skills they learned in the workshop and talk to both people involved in the dispute to solve it” (AG, Toe Town, 10.03.2010).

Sixth and last, respondents in treatment communities also spoke about pressuring disputants to commit to solutions that did not require external punitive enforcement. The program training manuals repeatedly emphasized that disputes resolved through ADR are self-enforcing, as both parties agree to a solution that serves their interest. In interviews following treatment, respondents spoke about engaging with disputants and then pressuring them to commit to working through their problem until both parties were satisfied with the resolution. No control or pre-treatment interviewees focused on this aspect of dispute resolution. Instead, they focused on punitive methods and norms. Indeed, the threat of fines and of external adjudication of disputes is the most common approach to dispute resolution in rural Liberia. As one interviewee in a control community put it: “If you’re wrong then you will pay that fine and when the town people call you to pay that fine if you refuse then they’ll carry you to the town chief” (J.J., Barglor, 06.01.2009).

## **7.5 Unintended consequences**

Finally, while the qualitative interviews did not collect explicit data on the unintended consequences we see in the quantitative results, we did observe that the workshop increased tensions over certain issues. In particular, during observations of the workshop itself, certain discussions inflamed disputes between youth and elders. Discussions of equal rights in the community gave a

space for traditionally low-powered groups, such as the youth, to speak up and make complaints about the status quo with support from the workshop facilitators. These opportunities led to passionate and sometimes unresolved debates about whether new ideas about “human rights” and sharing power were suited to the community. These observations could explain some of the results on increased disputes, especially if the intervention increased the willingness of certain groups to stand up for their rights rather than submit to existing power structures.

## **8 Conclusions**

A great deal of public policy involves social engineering, and a principal tool is the education campaign. The claim that mass education can change deeply rooted behaviors without changing fundamental incentives is a bold one. Aspirations are often bolder still, aiming not just to change behavior for a few for the short term, but also to shape practices and norms so successfully they become embedded in social structures.

We began this study with an optimistic view of ADR and its ability to solve bargaining problems, but skeptical of the “push” and advocacy-based theory of behavior change. Worse still, we worried that such an intervention could lead to the escalation of local conflict by upsetting existing balances of power or opening old wounds that would prove difficult to heal.

Our findings are thus all the more striking. They suggest that modest education campaigns have the potential to change behavior around longstanding disputes over valuable resources, bolstering the case for advocacy-driven theories of change. Land disputes are resolved at higher rates, less violently, with more satisfactory outcomes, especially the longstanding land disputes. We see no evidence of bias against low-powered groups. These results are thus consistent with an improvement in bargaining efficiency, including reduced imperfect information and better coordination. For unknown reasons, however, these impacts do not extend money disputes.

We see some signs, moreover, that short-term behavior change could be persistent and general. Most behavior change studies look at behavior only a few weeks post-treatment. Our main effects on land conflict resolution seem to persist over two years. Our bounding exercise also

implies that untrained pairs of disputants share in the gains. This evidence weighs against the possibility that we are simply seeing temporary or Hawthorne effects on behavior. We cannot say conclusively whether the change is due to mass skills transfer or broader institutional change, but some of the qualitative findings—the emphasis on shared language, the attempt to reach mutually agreeable rather than adjudicated bargains, or the increased legitimacy residents feel around negotiating and mediating—imply some degree of new shared rules, practices and norms. Future longer-term data collection on disputes outcomes, norms and skills will answer this question.

At the same time we see troubling unintended consequences, such as higher incidence of some disputes. On balance, we tend to see a decrease in levels of violence, though this decrease is seldom statistically significant, so at best we can say violence is not increasing. We believe this indicates more people engaging peacefully with more disputes, with more enthusiasm. A more troubling finding, however statistically weak, is the large increase in extrajudicial sanctions. Increased informal resolution appears to increase illegal forms of punishment, especially when ADR explicitly teaches against retributive forms of justice.

With so little hard evidence on sub-national norm diffusion, and almost none of it experimental, this also leads to the predictable demand for more evaluation. Future experiments ought to more directly test mechanisms, for instance by varying treatment intensity, different “critical masses”, and curriculum content.

The stakes are high. Peacekeepers and governments are searching for transitional justice policies to promote stability, providing space for economic development and the strengthening of formal institutions. The importance of “good institutions” to poverty alleviation and peace is belied by the glaring absence of micro-level research, especially experimentation and experiments. Filling this gap ought to be among the first priorities of social science.

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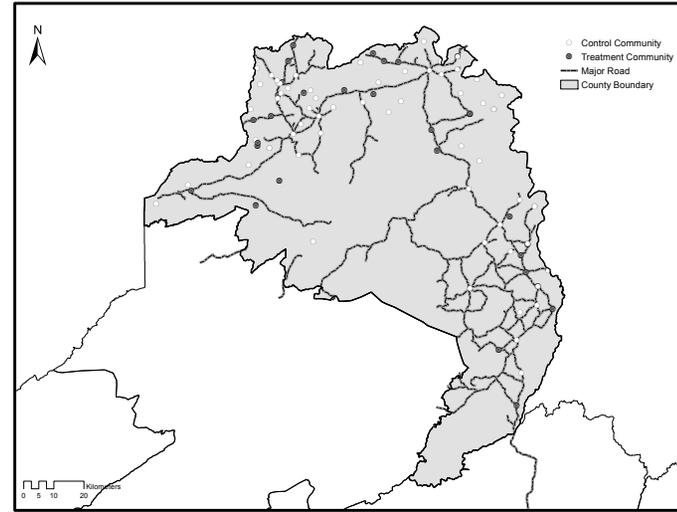
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**Figure 1: Map of Liberia and study communities, by County**

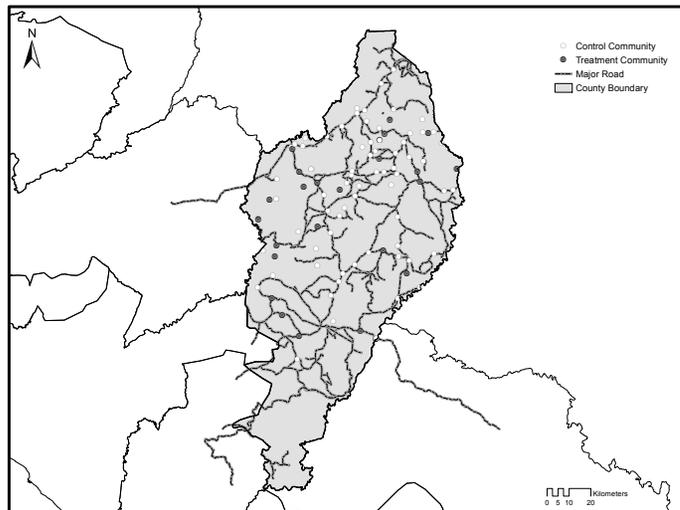
Liberia Administrative Boundaries



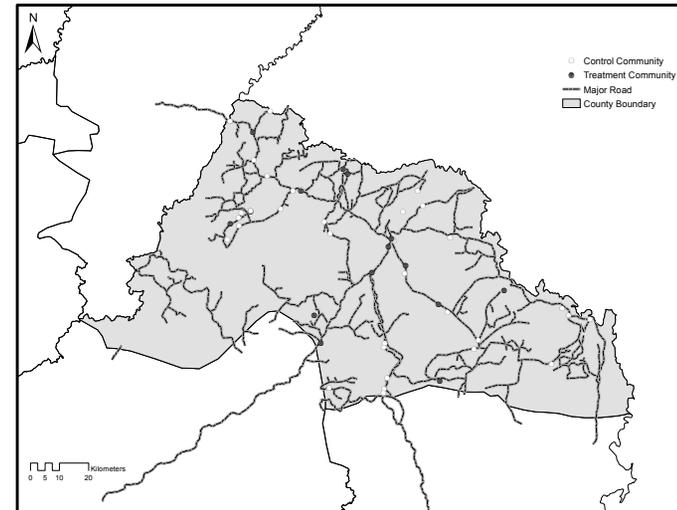
Treatment and Control Communities in Lofa County



Treatment and Control Communities in Nimba County

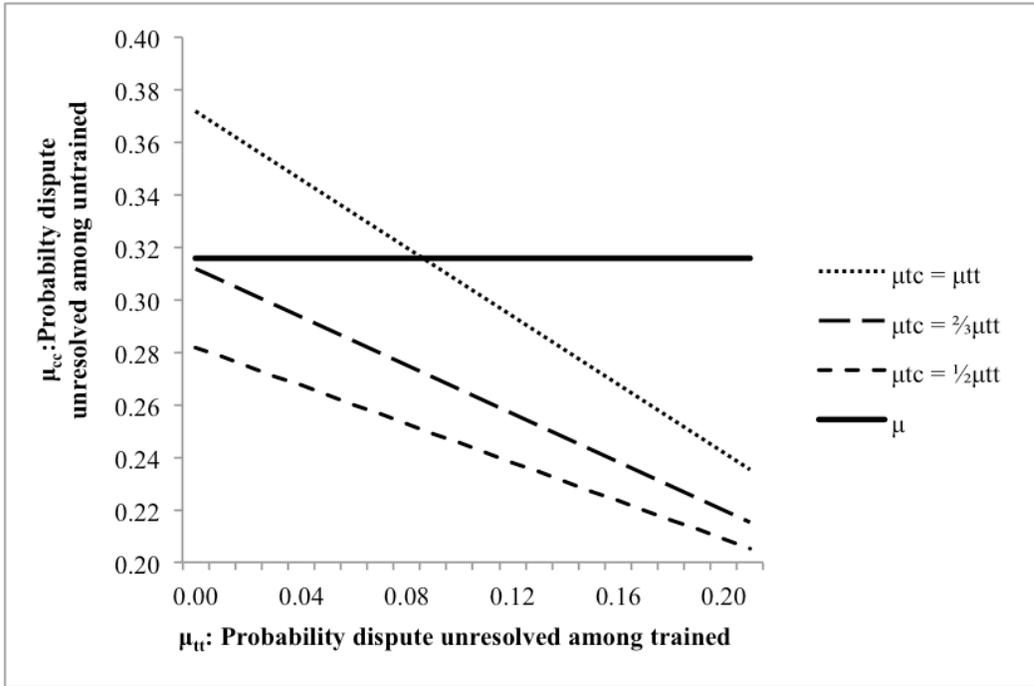


Treatment and Control Communities in Grand Gedeh County

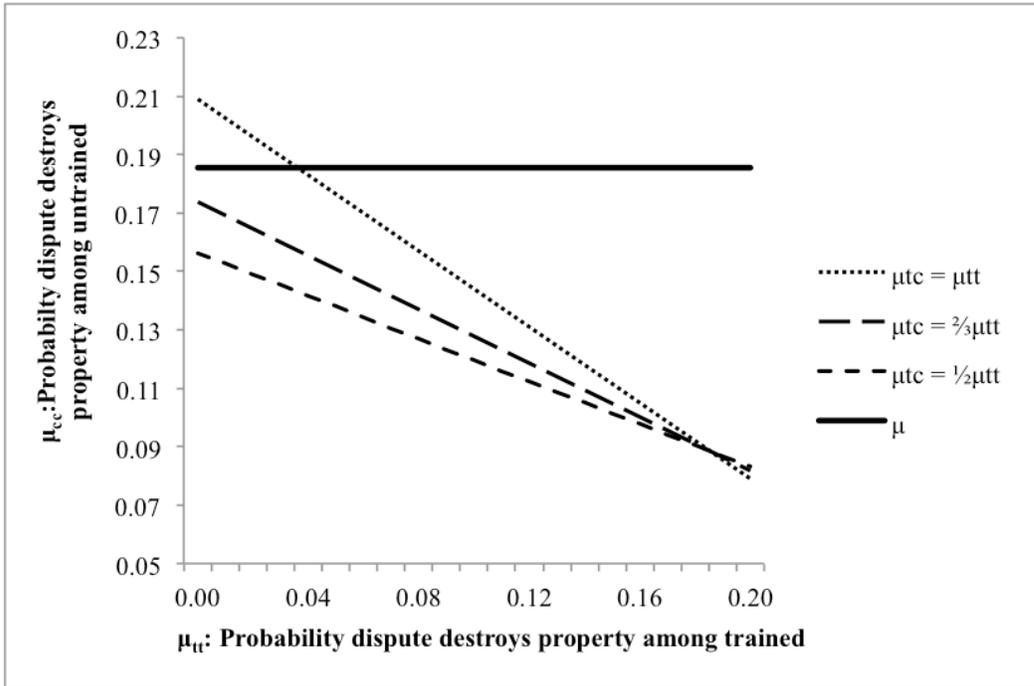


**Figure 2: Bounds on the treatment effect on untrained pairs of residents**

*a. Probability land dispute unresolved*



*b. Probability land dispute results in property destruction*



**Table 1: Key outcomes**

<i>A. Resident-level (including targeted residents)</i>	<i>Serious land dispute</i>		<i>Money/business dispute</i>	
	<b>Mean</b>	<b>N</b>	<b>Mean</b>	<b>N</b>
Any serious land dispute	22%	5,435	13%	5,435
Any unresolved dispute	6%	5,435	6%	5,435
Any dispute resulting in:				
Property destruction	4%	5,435		
Physical violence	7%	5,435		
Threats of violence	11%	5,435		
<i>Among residents with disputes:</i>				
<i>Other party</i>				
Within family	26%	1,212	23%	721
With neighbor/friend	39%	1,212	56%	721
With stranger	30%	1,212	20%	721
Other	4%	1,212	2%	721
<i>Resolution</i>				
Dispute resolved	72%	1,211	58%	721
Satisfied with outcome	60%	1,212	52%	721
<i>Resolution mechanism</i>				
Informal	20%	1,212	28%	721
Customary	36%	1,212	20%	721
Formal	8%	1,212	4%	721
Administrative	2%	1,212	0%	721
Other	4%	1,212	6%	721
No resolution	28%	1,212	42%	721
<i>Nature of conflict</i>				
Over land boundaries	39%	1,212		
Over land inheritance	10%	1,212		
Over land use	43%	1,212		
Over other issue	7%	1,212		
<i>Violent consequences</i>				
Property destroyed	16%	1,212		
Physical violence	33%	1,212		
Threats of violence	50%	1,212		
 <i>B. Town-level</i>	 <b>Mean</b>	 <b>N</b>		
Youth-elder disputes	28%	243		
Inter-family land disputes	47%	243		
Disputes with other towns	20%	243		
Peaceful strike or protest	7%	243		
Violent strike or inter-tribal dispute	4%	243		
Inter-tribal violence in town in 2010	2%	243		
Violent strike or protest in town in 2010	2%	243		
Witch killing or trial by ordeal	3%	243		
Trial by ordeal in town in 2010	3%	243		
Witch killing/beating in town in 2010	0%	243		
Rape or murder	11%	243		
Rape	7%	243		
Murder	6%	243		

**Table 2: Impacts on land disputes (CACE)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<b>All residents</b>							
	<b>Any serious land dispute</b>	<b>Any unresolved land dispute</b>	<b>Dispute resulted in property destruction</b>	<b>Dispute resulted in physical violence</b>	<b>Dispute resulted in threats</b>	<b>Resolved land dispute</b>	<b>Resolved via informal mechanism</b>	<b>Satisfied with outcome</b>
Community ever treated	0.001 [0.017]	-0.02 [0.008]**	-0.013 [0.006]**	-0.007 [0.008]	-0.007 [0.012]	0.073 [0.028]***	0.033 [0.024]	0.059 [0.033]*
Concurrent treatment	0.043 [0.030]	0.004 [0.013]	-0.004 [0.012]	0.001 [0.015]	0.028 [0.020]	0.049 [0.053]	-0.037 [0.057]	-0.009 [0.064]
Mean, Control Group ATE as % of controls	0.221 1%	0.0698 -29%	0.041 -32%	0.0772 -9%	0.114 -6%	0.684 11%	0.193 17%	0.579 10%
Observations	5,435	5,435	5,435	5,435	5,435	1,212	1,212	1,212
R-squared	0.162	0.059	0.073	0.121	0.132	0.065	0.057	0.077

IV regression using assigned to treatment (ever and concurrently) as instruments. Robust standard errors clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Omitted regressors include district indicators; demographics; town-level baseline conflict measures; and a targeted resident dummy.

**Table 3: Treatment heterogeneity with individual characteristics**

	(1)	(2)	(3)	(4)
	Any serious land dispute	Any unresolved land dispute	Dispute resulted in property destruction	Satisfied with Outcome
Community assigned to treatment	0.010 [0.024]	-0.023 [0.011]**	-0.018 [0.007]**	0.074 [0.041]*
Female × Assigned	-0.005 [0.024]	0.011 [0.013]	0.006 [0.008]	-0.038 [0.057]
Female	-0.021 [0.016]	-0.008 [0.010]	-0.003 [0.007]	0.032 [0.040]
Community assigned to treatment	0.015 [0.021]	-0.012 [0.010]	-0.009 [0.008]	0.072 [0.047]
Betw 20 and 40 yrs. old × Assigned	0.023 [0.020]	0.009 [0.013]	-0.003 [0.011]	0.009 [0.058]
Betw 20 and 40 yrs. old	-0.016 [0.025]	-0.012 [0.014]	-0.013 [0.011]	-0.031 [0.064]
Community assigned to treatment	0.007 [0.016]	-0.018 [0.008]**	-0.015 [0.006]**	0.058 [0.034]*
Wealth index × Assigned	0.016 [0.030]	-0.016 [0.015]	-0.010 [0.014]	0.006 [0.066]
Wealth index	0.118 [0.020]***	0.045 [0.012]***	0.020 [0.012]*	-0.037 [0.043]
Community assigned to treatment	-0.007 [0.020]	-0.013 [0.010]	-0.021 [0.007]***	0.067 [0.042]
Related to a "big person" × Assigned	0.030 [0.021]	-0.009 [0.014]	0.012 [0.010]	-0.019 [0.053]
Related to a "big person"	0.033 [0.014]**	0.007 [0.009]	0.008 [0.006]	0.037 [0.036]
Community assigned to treatment	0.002 [0.020]	-0.020 [0.009]**	-0.015 [0.007]**	0.055 [0.036]
Muslim minority × Assigned	-0.105 [0.024]***	-0.046 [0.013]***	-0.012 [0.011]	0.140 [0.078]*
Muslim minority	0.045 [0.034]	0.027 [0.017]	0.004 [0.012]	0.041 [0.101]
Community assigned to treatment	0.004 [0.020]	-0.022 [0.008]***	-0.019 [0.006]***	0.062 [0.037]*
Ethnic minority × Assigned	0.036 [0.040]	0.037 [0.021]*	0.033 [0.020]	-0.016 [0.081]
Ethnic minority	0.006 [0.022]	0.006 [0.014]	-0.006 [0.010]	-0.086 [0.054]
Observations	5435	5435	5435	1212

ITT regression. Robust standard errors clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Omitted regressors include district indicators; demographics; town-level baseline conflict measures; and a targeted resident dummy.

**Table 4: Heterogeneity in land dispute impacts**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	All residents							
	Any serious land dispute	Any unresolved land dispute	Dispute resulted in property destruction	Dispute resulted in physical violence	Dispute resulted in threats	Resolved land dispute	Resolved via informal mechanism	Satisfied with outcome
Community ever treated	0.002 [0.017]	-0.011 [0.008]	-0.01 [0.005]*	-0.005 [0.008]	0.002 [0.011]	0.05 [0.036]	-0.009 [0.029]	0.028 [0.041]
Concurrent treatment	0.039 [0.031]	0.002 [0.013]	-0.006 [0.012]	-0.002 [0.015]	0.025 [0.020]	0.053 [0.053]	-0.035 [0.056]	-0.006 [0.065]
Treated × House or land taken during war	-0.013 [0.037]	-0.064 [0.028]**	-0.024 [0.025]	-0.013 [0.032]	-0.06 [0.032]*	0.064 [0.057]	0.114 [0.048]**	0.087 [0.064]
House or land taken during war	0.358 [0.025]***	0.154 [0.020]***	0.111 [0.015]***	0.198 [0.021]***	0.264 [0.020]***	-0.097 [0.038]**	-0.082 [0.029]***	-0.138 [0.037]***
Mean, Control Group ATE as % of controls	0.221 1%	0.0698 -15%	0.041 -24%	0.0772 -7%	0.114 2%	0.684 7%	0.193 -5%	0.579 5%
Observations	5,435	5,435	5,435	5,435	5,435	1,212	1,212	1,212
R-squared	0.17	0.063	0.069	0.121	0.137	0.065	0.06	0.078

IV regression using assigned to treatment (ever and concurrently) as instruments. Robust standard errors clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Omitted regressors include district indicators; demographics; town-level baseline conflict measures; and a targeted resident dummy.

**Table 5: Impacts on property ownership and security**

	(1)	(2)	(3)	(4)	(5)
	<b>ln(Acres of farmland)</b>	<b>Owns land for business (if business-person)<sup>§</sup></b>	<b>Owns/ planted trees<sup>§</sup></b>	<b>House quality index (0-3)<sup>§</sup></b>	<b>Believes household will have farm in 5 yrs</b>
Community ever treated	0.002 [0.002]	0.017 [0.028]	-0.033 [0.035]	-0.012 [0.042]	0.02 [0.016]
Concurrent treatment	-0.001 [0.004]	0.004 [0.061]	0.014 [0.069]	0.06 [0.066]	0.006 [0.032]
Mean, Control Group	1.236	0.213	0.834	0.871	0.759
ATE as % of controls	0%	8%	-4%	-1%	3%
Observations	5,435	1,342	4,801	4,801	4,619
R-squared	0.996	0.064	0.207	0.253	0.123

§ Data from residents only. No targeted residents.

IV regression using assigned to treatment (ever and concurrently) as instruments. Robust standard errors clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Omitted regressors include district indicators; demographics; town-level baseline conflict measures; and a targeted resident dummy.

**Table 6: Impacts on interpersonal disputes**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<b>Disputes over money/business</b>					<b>Other disputes</b>	
	<b>All residents</b>		<b>Residents with a dispute</b>			<b>All residents</b>	
	<b>Any serious dispute</b>	<b>Any unresolved dispute</b>	<b>Resolved dispute</b>	<b>Resolved dispute via informal mechanism</b>	<b>Satisfied with outcome</b>	<b>Physical fights with others</b>	<b>Fight with weapons</b>
Community ever treated	0.021 [0.013]	0.002 [0.009]	0.031 [0.042]	-0.001 [0.038]	0.041 [0.042]	0.016 [0.007]**	0.003 [0.004]
Concurrent treatment	0.016 [0.038]	0.007 [0.021]	0.031 [0.077]	-0.073 [0.069]	-0.116 [0.074]	0.003 [0.014]	-0.001 [0.009]
Mean, Control Group	0.126	0.0558	0.557	0.271	0.507	0.0504	0.123
ATE as % of controls	16%	4%	6%	0%	8%	32%	2%
Observations	5,435	5,435	721	721	721	5,435	5,435
R-squared	0.052	0.027	0.099	0.081	0.088	0.041	0.896

IV regression using assigned to treatment (ever and concurrently) as instruments. Robust standard errors clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Omitted regressors include district indicators; demographics; town-level baseline conflict measures; and a targeted resident dummy.

**Table 7: Impacts on community-level violence**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<b>Inter-tribal violence in town in 2010</b>	<b>Violent strike or protest in town in 2010</b>	<b>Witch killing or trial by ordeal</b>	<b>Number of youth-elder disputes</b>	<b>Peaceful strike or protest</b>	<b>Number of inter-family land disputes</b>	<b>Number of conflicts with other towns</b>
Community ever treated	-0.016 [0.018]	-0.013 [0.016]	0.056 [0.034]*	0.134 [0.076]*	0.073 [0.039]*	-0.094 [0.180]	-0.029 [0.065]
Concurrent treatment	-0.017 [0.017]	-0.022 [0.021]	-0.064 [0.078]	0.495 [0.164]***	-0.063 [0.078]	0.074 [0.270]	0.139 [0.130]
Mean, Control Group	0.0318	0.0255	0.0191	0.242	0.0573	0.962	0.217
ATE as % of controls	-49%	-51%	292%	56%	128%	-10%	-14%
Observations	243	243	243	243	243	243	243
R-squared	0.17	0.148	0.147	0.222	0.134	0.3	0.151

IV regression using assigned to treatment (ever and concurrently) as instruments. Robust standard errors clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Omitted regressors include district indicators; demographics; town-level baseline conflict measures; and a targeted resident dummy.

**Table 8: Impacts on resolution norms & egalitarian attitudes**

	(1)	(2)	(3)
	<b>Indicator: Would bring a money dispute to court§</b>	<b>Assertive mediation index§</b>	<b>Egalitarian / progressive attitudes index (z-score)</b>
Community ever treated	-0.043 [0.039]	0.067 [0.081]	0.062 [0.040]
Concurrent treatment	-0.031 [0.078]	0.168 [0.195]	-0.125 [0.078]
Mean, Control Group	0.198	3.391	-0.00163
ATE as % of controls	-22%	2%	-3796%
Observations	631	631	5,435
R-squared	0.092	0.083	0.064

§ Data from targeted residents and leaders only. Remaining regressions are for targeted residents and residents alone.

IV regression using assigned to treatment (ever and concurrently) as instruments. Robust standard errors clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Omitted regressors include district indicators; demographics; town-level baseline conflict measures; and a targeted resident dummy.

**Table 9: IV estimate of relation between months since intervention and dispute outcomes (treatment group only)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<b>Individual-level disputes</b>									
	<b>Any serious land dispute</b>	<b>Any unresolved land dispute</b>	<b>Land dispute involving property destruction</b>	<b>Cond. on land dispute: Satisfied with outcome</b>	<b>Interpersonal dispute over money</b>	<b>Any unresolved money dispute</b>	<b>Cond: found resolution to money conflict</b>	<b>Cond: resolution to money conf via informal mech</b>	<b>Cond: 1 if resolution to money conflict was fair</b>
Months since implementation	0.0013 [0.0015]	-0.0001 [0.0007]	0.0006 [0.0005]	0.0035 [0.0035]	-0.0029 [0.0014]**	-0.0005 [0.0009]	-0.0022 [0.0052]	-0.0045 [0.0067]	-0.0008 [0.0064]
Observations	1,900	1,900	1,900	429	1,900	1,900	277	277	277
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)
<b>Town-level events</b>									
	<b>Physical fights with others</b>	<b>Fight with weapons</b>	<b>Inter-tribal violence in town in 2010 (ldr. mode)</b>	<b>Violent strike or protest in town in 2010 (ldr. mode)</b>	<b>Witch killing or trial by ordeal</b>	<b>Number of youth-elder disputes</b>	<b>Peaceful strike or protest</b>	<b>Number of inter-family land disputes</b>	<b>Number of conflicts with other towns</b>
Months since implementation	0.0012 [0.0009]	0.0009 [0.0004]**	0.0007 [0.0012]	-0.0008 [0.0011]	-0.0001 [0.0030]	-0.0193 [0.0104]*	-0.004 [0.0050]	0.0489 [0.0187]**	-0.011 [0.0068]
Observations	1,900	1,900	85	85	85	85	85	85	85

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

2SLS IV regression with indicators for blocks 1 and 2 as instruments (first stage F-statistic = 226)

Omitted regressors include district indicators; demographic characteristics; town-level demographics and baseline conflict

**Appendix Table 1: Baseline Test of Balance**

	Sample Mean	Treatment Mean	Control Mean	Difference (Regression)	p-value
<b><i>Resident characteristics</i></b>					
<i>Demographics</i>					
Age	40.65	40.25	40.88	0.50	0.44
Male Dummy	0.56	0.56	0.57	0.00	0.91
Years of education	5.21	5.07	5.29	0.04	0.87
Muslim Dummy	0.12	0.12	0.12	0.01	0.76
Traditional religion Dummy	0.05	0.04	0.05	0.01	0.27
Christian Dummy	0.84	0.84	0.83	0.02	0.52
Wealth index	0.01	0.01	0.01	0.05	0.30
Landless	0.13	0.15	0.13	0.01	0.50
Farmless	0.07	0.08	0.06	0.01	0.54
<i>War Experiences</i>					
1 if refugee	0.58	0.58	0.58	0.02	0.48
1 if displaced	0.43	0.48	0.40	0.08	0.01
All violence experienced index (0-13)	4.24	4.15	4.30	0.19	0.33
<i>Land and Interpersonal Conflict</i>					
House spot or farm land taken during war	0.10	0.10	0.10	0.00	0.96
Any land conflict since end of war	0.24	0.22	0.26	0.03	0.20
Had a money conflict in 2008	0.09	0.09	0.08	0.01	0.41
Any burglary or armed robbery in 2008	0.13	0.13	0.14	0.01	0.59
Victim of witchcraft in 2008	0.09	0.07	0.10	0.02	0.16
Had a dispute at the water source in past 6 months	0.08	0.08	0.08	0.00	0.70
<b><i>Town-level characteristics</i></b>					
Town population	2,026	2,056	2,010	88	0.60
Town education level	5.16	5.05	5.22	0.06	0.82
Number of tribes in town	2.62	2.93	2.46	0.48	<b>0.03</b>
% of community members in largest tribe in 2008	0.82	0.80	0.83	0.03	0.31
Town wealth index	0.02	0.01	0.03	0.05	0.31
# of services available in town (0-14)	5.61	5.45	5.70	0.23	0.52
# of resources within 2 hrs. of comm. (0-5)	1.45	1.52	1.41	0.11	0.28
Distance to nearest road in hours in rainy season	1.07	1.07	1.08	0.02	0.92
Town exposure to war violence	4.28	4.19	4.33	0.16	0.43
Proportion of town losing land during war	0.10	0.10	0.11	0.00	0.73
Index of progressive political beliefs in town at baseline	3.85	3.84	3.85	0.01	0.88
Index of progressive ethnic attitudes in town at baseline	5.78	5.73	5.81	0.09	0.55
<b><i>Town-level crime and conflict events</i></b>					
% of town accepting inter-religious marriage at baseline	0.66	0.67	0.66	0.01	0.59
% of town reporting assault at baseline	0.19	0.18	0.19	0.01	0.56
Proportion of town reporting land dispute	0.24	0.22	0.25	0.03	0.33
% of town reporting witchcraft victimization at baseline	0.09	0.07	0.10	0.03	0.09
% of town reporting violent palava at water source at baseline	0.05	0.06	0.05	0.01	0.61
Peaceful strike or protest in town in 2008	0.07	0.06	0.07	0.01	0.74
Violent strike or ethnic dispute in town in 2008	0.10	0.07	0.12	0.05	0.20
Witch killing or trial by ordeal in town in 2008	0.09	0.10	0.09	0.02	0.68
Rape or murder in town in 2008	0.15	0.16	0.15	0.02	0.74

**Appendix Table 2: Correlates of participation within treated communities**

	(1)	(2)	(3)	(4)
	<b>Indicator for attended at least one day of the program</b>			
	<b>All</b>	<b>Residents</b>	<b>Targeted residents</b>	<b>Leaders</b>
<b>Demographics</b>				
Age	0.002 [0.001]**	0.002 [0.001]***	0.000 [0.002]	-0.002 [0.002]
Years of education	0.004 [0.003]	0.004 [0.003]	0.006 [0.006]	
Female Dummy	-0.146 [0.034]***	-0.147 [0.036]***	-0.136 [0.070]*	-0.287 [0.065]***
Not born in town	-0.067 [0.027]**	-0.065 [0.028]**	-0.141 [0.097]	-0.029 [0.072]
Christian	0.018 [0.043]	0.013 [0.042]	0.093 [0.107]	-0.159 [0.122]
Minority (muslim or mandingo)	-0.004 [0.073]	-0.025 [0.078]	0.254 [0.116]**	-0.148 [0.151]
Targeted resident	0.378 [0.034]***			
<b>Wealth</b>				
Earnings in past week	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
No. town plots or farm land	-0.118 [0.039]***	-0.123 [0.039]***	0.185 [0.138]	-0.107 [0.180]
Farm size (acres)	0.000 [0.001]	0.001 [0.001]	-0.003 [0.001]*	
<b>War experiences</b>				
Index of violent war experiences (0-14)	0.005 [0.004]	0.004 [0.004]	0.013 [0.010]	
House spot taken during war	-0.019 [0.044]	-0.02 [0.047]	-0.025 [0.102]	0.119 [0.078]
Farm land taken during war	-0.044 [0.046]	-0.029 [0.046]	-0.186 [0.147]	0.011 [0.079]
Displaced	0.028 [0.025]	0.029 [0.026]	-0.014 [0.061]	
Refugee	0.014 [0.031]	0.02 [0.034]	-0.047 [0.070]	
<b>Town-level</b>				
Town education level	-0.009 [0.011]	-0.01 [0.012]	0.009 [0.014]	-0.003 [0.018]
Log of town population	-0.066 [0.017]***	-0.071 [0.019]***	-0.025 [0.020]	-0.034 [0.026]
Number of tribes in town	-0.009 [0.012]	-0.007 [0.013]	-0.025 [0.016]	0.001 [0.020]
Town wealth index	0.092 [0.055]*	0.099 [0.060]	0.000 [0.070]	0.065 [0.088]
Town exposure to war violence	-0.004 [0.017]	-0.006 [0.018]	0.009 [0.015]	-0.02 [0.021]
Proportion of town losing land during war	-0.02 [0.192]	0.031 [0.217]	-0.339 [0.257]	0.441 [0.329]
Proportion of town reporting land dispute	-0.054 [0.113]	-0.09 [0.127]	0.225 [0.133]*	0.214 [0.165]
Observations	1,558	1,383	175	268
R-squared	0.167	0.095	0.171	0.151

Robust standard errors in brackets, clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Appendix Table 3: Resident Characteristics at Endline (2010)**

	<b>Mean</b>	<b>Std Dev</b>	<b>Obs</b>
<i><b>Resident characteristics</b></i>			
Over 60 yrs. old	0.19	0.40	6375
Betw 40 and 60 yrs. old	0.30	0.46	6375
Betw 20 and 40 yrs. old	0.43	0.49	6375
Years of education	5.53	5.35	5435
Female Dummy	0.46	0.50	6375
Not born in town	0.27	0.44	6375
Christian	0.78	0.41	6375
Minority (muslim or mandingo)	0.13	0.34	6375
Hst: Earnings in past week	5.84	2.60	6373
No town plots or farm land	0.05	0.23	6375
Hst: Land size (acres)	2.56	1.81	6375
Hst: Farm size (acres)	1.53	1.22	5435
House spot taken during war	0.09	0.29	6375
Farm land taken during war	0.09	0.29	6375
Targeted resident	0.10	0.30	6375

**Appendix Table 4: Robustness Checks**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	"Original" result from main tables (CACE OLS with controls)	Original without controls	Original with population survey weights	Original excluding "targeted residents"	Original with ITT estimation	Original with ITT estimation by probit	Original with initial assignment to treatment (all 5 phases) <sup>#</sup>	Original with five phase dummies as instruments
<b>a. Any serious land dispute</b>								
Treated ever	0.001 [0.017]	0.001 [0.017]	-0.002 [0.017]	0.006 [0.017]	0.002 [0.016]	0.008 [0.062]	0.492 [2.337]	0.002 [0.016]
Observations	5,435	5,435	5,435	4,801	5,435	5,435	5,435	5,435
<b>b. Any unresolved land dispute</b>								
Treated ever	-0.02 [0.008]**	-0.017 [0.008]**	-0.023 [0.009]**	-0.018 [0.008]**	-0.02 [0.008]**	-0.165 [0.072]**	0.113 [0.728]	-0.02 [0.008]**
Observations	5,435	5,435	5,435	4,801	5,435	5,435	5,435	5,435
<b>c. Any land dispute resulting in property destruction</b>								
Treated ever	-0.013 [0.006]**	-0.011 [0.006]*	-0.016 [0.009]*	-0.012 [0.006]*	-0.013 [0.006]**	-0.192 [0.096]**	-0.351 [1.511]	-0.013 [0.006]**
Observations	5,435	5,435	5,435	4,801	5,435	5,394	5,435	5,435
	(28)	(30)	(31)	(32)	(33)	(34)	(35)	(36)
<b>d. Conditional on land dispute: Resolved dispute via informal mechanism</b>								
Treated ever	0.033 [0.024]	0.030 [0.024]	0.054 [0.027]**	0.026 [0.027]	0.033 [0.024]	0.141 [0.088]	0.888 [2.255]	0.033 [0.024]
Observations	1,212	1,212	1,212	1,055	1,212	1,212	1,212	1,212
<b>e. Conditional on land dispute: Satisfied with outcome</b>								
Treated ever	0.059 [0.033]*	0.064 [0.036]*	0.042 [0.034]	0.056 [0.034]	0.059 [0.033]*	0.163 [0.092]*	-1.091 [3.276]	0.059 [0.033]*
Observations	1,212	1,212	1,212	1,055	1,212	1,212	1,212	1,212
<b>f. Interpersonal dispute over money</b>								
Treated ever	0.021 [0.013]	0.024 [0.015]	0.02 [0.016]	0.022 [0.014]	0.021 [0.013]	0.081 [0.058]	0.153 [0.665]	0.021 [0.013]
Observations	5,435	5,435	5,435	4,801	5,435	5,435	5,435	5,435
<b>g. Physical fights with others</b>								
Treated ever	0.016 [0.007]**	0.016 [0.008]**	0.02 [0.008]**	0.019 [0.008]**	0.016 [0.007]**	0.139 [0.066]**	0.199 [0.861]	0.016 [0.007]**
Observations	5,435	5,435	5,435	4,801	5,435	5,435	5,435	5,435

Robust standard errors in brackets, clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>#</sup> This regression uses the original 116 assigned to treatment as an instrument for actual treatment, and ignores the fact that Phase 5 was randomly excluded from treatment (i.e. assigns it to treatment rather than controls).

**Appendix Table 5: Effect of intense treatment on disputes (CACE)**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	<b>Attended peace program</b>	<b>Any serious land dispute</b>	<b>Any unresolved land dispute</b>	<b>Land dispute involving property destruction</b>	<b>Interpersonal dispute over money</b>	<b>Physical fights with others</b>	<b>Egalitarian / progressive attitudes index (z- score)</b>
Randomly assigned to be	0.244 [0.0233]***	0.011 [0.0185]	-0.021 [0.0089]**	-0.012 [0.0068]*	0.022 [0.0150]	0.018 [0.0079]**	0.013 [0.0428]
Treatment: Intense treatm	0.092 [0.0466]*	-0.030 [0.0294]	0.014 [0.0147]	-0.004 [0.0096]	0.008 [0.0293]	-0.009 [0.0150]	0.204 [0.0639]***
Randomly assigned to be	-0.190 [0.0426]***	0.026 [0.0299]	0.004 [0.0128]	-0.005 [0.0112]	0.012 [0.0372]	0.000 [0.0144]	-0.076 [0.0746]
Observations	5,435	5,435	5,435	5,435	5,435	5,435	5,435
R-squared	0.2164	0.078	0.025	0.0293	0.0408	0.0358	0.0658

IV regression using assigned to treatment (ever and concurrently) as instruments. Robust standard errors clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Omitted regressors include district indicators; demographics; town-level baseline conflict measures; and a targeted resident dummy.

**Appendix Table 6: Impact of attendance (and other correlates of disputes) on disputes and resolution**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Any serious land dispute		Any unresolved land dispute		Interpersonal dispute over money		Physical fights with others	
Community ever treated	0.001 [0.016]	0.005 [0.016]	-0.018 [0.008]**	-0.015 [0.008]*	0.025 [0.013]*	0.021 [0.014]	0.015 [0.008]**	0.013 [0.008]*
Concurrently treated	0.053 [0.028]*	0.050 [0.028]*	0.004 [0.014]	0.001 [0.014]	0.002 [0.036]	0.005 [0.037]	0.003 [0.015]	0.004 [0.015]
Attended training		-0.013 [0.014]		-0.013 [0.007]*		0.014 [0.012]		0.007 [0.008]
Age	-0.001 [0.000]**	-0.001 [0.000]**	0.000 [0.000]	0.000 [0.000]	-0.002 [0.000]**	-0.002 [0.000]**	-0.002 [0.000]**	-0.002 [0.000]**
Years of education	0.002 [0.001]	0.002 [0.001]	0.001 [0.001]	0.001 [0.001]	-0.001 [0.001]	-0.001 [0.001]	0.000 [0.001]	0.000 [0.001]
Female Dummy	-0.043 [0.013]**	-0.044 [0.013]**	-0.007 [0.007]	-0.008 [0.007]	-0.028 [0.010]**	-0.028 [0.010]**	-0.009 [0.007]	-0.008 [0.007]
Not born in town	0.012 [0.013]	0.012 [0.013]	0.007 [0.008]	0.006 [0.008]	0.029 [0.011]**	0.029 [0.011]**	-0.002 [0.008]	-0.002 [0.008]
Christian	0.001 [0.020]	0.001 [0.020]	0.000 [0.011]	0.000 [0.011]	0.014 [0.015]	0.014 [0.015]	-0.001 [0.010]	-0.001 [0.010]
Minority (muslim or mandingo)	-0.031 [0.024]	-0.031 [0.024]	-0.029 [0.013]**	-0.029 [0.013]**	0.005 [0.020]	0.004 [0.020]	0.003 [0.013]	0.002 [0.013]
Weekly Earnings	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]	0.000 [0.000]*	0.000 [0.000]*	0.000 [0.000]	0.000 [0.000]
No town plots or farm land	-0.035 [0.023]	-0.036 [0.023]	-0.003 [0.014]	-0.005 [0.014]	0.023 [0.024]	0.024 [0.024]	-0.001 [0.015]	0.000 [0.015]
Log of land size (acres)	0.008 [0.004]**	0.008 [0.004]**	0.001 [0.003]	0.001 [0.003]	0.005 [0.003]	0.005 [0.003]	0.001 [0.002]	0.001 [0.002]
House spot taken during war	0.190 [0.025]**	0.190 [0.025]**	0.085 [0.019]**	0.086 [0.019]**	0.051 [0.020]**	0.051 [0.020]**	0.001 [0.013]	0.000 [0.013]
Farm land taken during war	0.306 [0.025]**	0.306 [0.025]**	0.105 [0.020]**	0.105 [0.020]**	0.086 [0.022]**	0.086 [0.022]**	0.058 [0.016]**	0.058 [0.016]**
Targeted resident	0.019 [0.018]	0.024 [0.019]	0.005 [0.011]	0.010 [0.011]	0.008 [0.014]	0.003 [0.015]	-0.009 [0.007]	-0.011 [0.008]
Town education level	-0.002 [0.005]	-0.002 [0.005]	-0.001 [0.003]	-0.001 [0.003]	0.013 [0.004]**	0.013 [0.004]**	0.004 [0.002]**	0.004 [0.002]**
Log of town population	0.010 [0.008]	0.010 [0.008]	0.002 [0.004]	0.002 [0.004]	0.012 [0.006]**	0.013 [0.006]**	-0.004 [0.004]	-0.004 [0.004]
Town wealth index	0.046 [0.027]*	0.046 [0.027]*	0.026 [0.014]*	0.025 [0.014]*	0.024 [0.021]	0.025 [0.021]	-0.009 [0.011]	-0.009 [0.011]
Town exposure to war violence	0.000 [0.005]	0.000 [0.005]	0.000 [0.003]	0.000 [0.003]	0.000 [0.004]	0.000 [0.004]	-0.001 [0.002]	-0.001 [0.002]
Proportion lost land during war	0.044 [0.062]	0.045 [0.062]	0.050 [0.036]	0.051 [0.036]	-0.083 [0.061]	-0.084 [0.061]	0.044 [0.033]	0.044 [0.033]
% of town reporting assaults	-0.092 [0.046]**	-0.092 [0.045]**	-0.014 [0.025]	-0.015 [0.025]	-0.066 [0.037]*	-0.065 [0.037]*	-0.025 [0.021]	-0.025 [0.021]
% of town reporting land dispute	0.038 [0.042]	0.039 [0.042]	-0.009 [0.024]	-0.009 [0.024]	0.036 [0.033]	0.035 [0.033]	0.004 [0.018]	0.003 [0.018]
Observations	5,435	5,435	5,435	5,435	5,435	5,435	5,435	5,435
R-squared	0.158	0.158	0.056	0.057	0.047	0.047	0.037	0.037

**Appendix Table 7: Impacts on resolution norms & egalitarian attitudes (sub-indices)**

	(1)	(2)	(3)	(4)
	<b>Standardized index of women's rights attitudes</b>	<b>Standardized index of minority rights attitudes</b>	<b>Standardized index of ethnic tolerance</b>	<b>Standardized index of intermarriage acceptance</b>
Community ever treated	-0.024 [0.040]	0.034 [0.045]	0.055 [0.037]	0.054 [0.020]***
Concurrent treatment	-0.067 [0.063]	-0.104 [0.081]	-0.096 [0.083]	-0.026 [0.038]
Mean, Control Group	0.0213	0.00378	-0.00838	1.645
ATE as % of controls	-115%	910%	-651%	3%
Observations	5,435	5,435	5,435	5,435
R-squared	0.108	0.08	0.103	0.068

§ Data from targeted residents and leaders only. Remaining regressions are for targeted residents and residents alone.

IV regression using assigned to treatment (ever and concurrently) as instruments. Robust standard errors clustered by community.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Omitted regressors include district indicators; demographics; town-level baseline conflict measures; and a targeted resident dummy.