Promoting Peace Amidst Group Conflict: An Intergroup Contact Field Experiment in Nigeria

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# Introduction

Intergroup conflict is responsible for many of the worst displays of human nature. In Nigeria, intergroup conflict between farmers and pastoralists has claimed countless lives and destroyed countless communities over the past two decades. As the conflict escalated, groups of anti-pastoralist vigilantes mobilized to pre-emptively prevent pastoralists from encroaching on land claimed by farmers (Duru 2018; McDonnel 2017). These groups, dubbed the “livestock guard”, ransacked pastoralist settlements and violently drove pastoralists from their homes, often with the assistance of the local farming community. Likewise, pastoralist groups enacted vigilante justice, raiding and burning down farming villages seen to encroach on land claimed by pastoralists. Attacks such as these forced up to 180,000 people from their homes in 2018 (Daniel 2018) and farmer-pastoralist conflict costs Nigeria $13 billion of lost economic productivity annually (McDougal et al. 2015).

Though farmer-pastoralist conflict was widespread, mass violence did not break out between these groups in all conflicting communities. In one village, farmers and pastoralists defended each other from hostile neighbors. When a group of livestock guard came for one pastoralist settlement, the neighboring farming village arrested them to protect the pastoralists. After the arrest, farmers and pastoralists convened to decide what should be done with the prisoners. They agreed that the group of livestock guard should not be punished, but should be disarmed and released home – a proposition proposed by *the pastoralists*. These farmers and pastoralists had also struggled with conflict, and people on both sides had died in disputes over farmland and grazing land. But their disputes had not escalated to the point that each side wanted the other removed by any means necessary. They had created structures that allowed them to settle disputes, and the same structures allowed them to reach a solution about the livestock guard.

Why were some farmer and pastoralist groups able to keep peace whereas others were swallowed by the escalating conflict? Why were some communities able to overcome their intergroup disputes whereas others were destroyed by them? These questions are not unique to Nigeria, and understanding the factors that help groups resolve their disputes is important for mitigating and preventing the myriad intergroup conflicts around the world. Using the framework of intergroup conflict as a bargaining failure, we argue that reducing intergroup prejudice during an ongoing conflict can increase intergroup trust and reduce violent conflict. In situations of high prejudice, groups are essentially locked into a mutually-defecting Prisoner’s Dilemma because each side assumes the other will defect, even if one side cooperated first. Interventions that reduce group prejudice could help the groups achieve peace by helping the groups update their perceptions of each other’s trustworthiness. Intergroup trust ameliorates bargaining problems and increases the likelihood of the groups solving disputes through bargaining instead of violence. Peacebuilding programs can help conflicting groups achieve trust through intergroup contact and superordinate goals.

Intergroup conflict is often conceptualized as a bargaining problem (Fearon 1994b; Powell 2006). Both groups want some resource – land, power, etc – and must decide how to distribute that resource. Groups can either bargain and split the resource, or groups can fight to claim all of the resource or to increase their bargaining position later. Fighting is costly, so both groups are better off finding a bargained solution than fighting. However, bargaining fails if neither group trusts the other side to be truthful or to honor bargained agreements (Kydd 2000; Rohner, Thoenig, and Zilibotti 2013, 2013). Without a reason to trust in the other side, groups are likely to remain in conflict.

How can groups in conflict escape this spiral of distrust and conflict? The classic answer is a strong external actor that can increase the cost of fighting, punish defections from bargained agreements, and facilitate information flows (Doyle and Sambanis 2000; Fearon 1994b; Ostrom and Walker 2003; Powell 2006). For many conflicts, international actors fulfill those role through military intervention and mediation (Di Salvatore and Ruggeri 2017; Doyle and Sambanis 2000). By providing reliable information and punishing defection from agreements, international intervention helps conflicting actors overcome the bargaining failures that lead to violent conflict (Fearon 1994b, 1995; Powell 2006; Smith and Stam 2003). If a strong external actor punishes groups for defecting, each side can trust the other to abide by their agreement because abiding by their agreement is in each group’s self-interest. A strong external actor serves as a substitute for the trust the groups lack.

While not universally successful, military intervention and mediation are effective strategies to promote peace in many conflicts (Doyle and Sambanis 2000; Gartner 2011; Hartzell, Hoddie, and Rothchild 2001; Wallensteen and Svensson 2014; Walter 2002). But strong external actors guaranteeing peace are not desirable or possible everywhere. Intervening as an external actor is costly, and often there are no external actors strong enough or interested enough to intervene (Fey and Ramsay 2010; Kydd 2006). In many conflicts, the conflicting groups are not united and therefore it is not clear who is involved in bargaining and who the external actor should punish if one side defects. Where an external actor is available, its presence is a short-term peace solution and its effects do not endure with the external actor’s departure (Beardsley 2008; Rohner, Thoenig, and Zilibotti 2013; Weinstein 2005). With or without external actors to halt the conflict, the groups must eventually build trust rather than find a substitute for trust.

Increasing trust amidst conflict is difficult, however, for psychological reasons. Group conflicts are often driven and perpetuated by intergroup animosity and prejudice long after the original grievance is forgotten [McDonnel (2017); cite more about intergroup conflict & intergroup prejudice]. Intergroup animosity and intergroup prejudice can be insurmountable barriers to peace for direct and indirect reasons. Directly, highly prejudiced groups are less likely to trust information they receive from the other side or any peace commitment they get from the other side. In this way, prejudice directly inhibits intergroup bargaining and prevents peaceful resolution of the conflict.

Indirectly, prejudice biases interpretations of ingroup and outgroup behavior, preventing each group from updating and improving their attitudes about the other. Ingroups will perceive their own belligerent actions as defensive and justified, whereas behavior by outgroup members may be perceived as more threatening and more malicious than the same behavior committed by a neutral party [Hewstone (1990); cite fundamental/ultimate attribution error, motivated reasoning, confirmation bias, anchoring bias]. The perceived negative behavior may be seen as *defining* of the group, whereas any perceived positive behavior may be seen as the *exception* to the group (Allison and Messick 1985; Pettigrew 1979). This biased information processing reinforces negative group stereotypes and can subvert the groups’ own attempts to foster peace. It can also sabotage intergroup bargaining by causing the groups to have inaccurate beliefs about each other and each other’s willingness to make peace, adding to information and commitment problems that cause conflict.

Existing strategies to reduce intergroup conflict do not deal with prejudice reduction. One approach to reducing intergroup prejudice comes from intergroup contact theory. Intergroup contact theory hypothesizes that interactions in which group members cooperate to achieve shared goals will reduce prejudice and the likelihood of violence. Intergroup contact works by demystifying the outgroup, presenting the other group’s perspective, and replacing imagined stereotypes with firsthand knowledge (Allport 1954; Pettigrew and Tropp 2008). This type of structured face-to-face contact also provides groups the opportunity to send costly signals about their willingness to cooperate (Kydd 2000; Lupia, McCubbins, and Arthur 1998; Rohner, Thoenig, and Zilibotti 2013), helping each group update its opinion of the other side’s preference for peace. Intergroup contact is likely especially good at reducing intergroup conflict when groups cooperate to achieve superordinate goals – goals that require the cooperation of both groups and benefit both groups – because groups experience the material benefits of cooperation (Gaertner et al. 2000; Sherif 1958).

The prejudice-reducing effects of intergroup contact have been demonstrated in a variety of countries and using a variety of methodological approaches (Paluck, Green, and Green 2017; Pettigrew and Tropp 2006). Notably, intergroup contacted programs reduced prejudice between white people and black people in the U.S. and South Africa (Burns, Corno, and La Ferrara 2015; Marmaros and Sacerdote 2006), Jews and Arabs (Ditlmann and Samii 2016; Yablon 2012), and Hindus and Muslims (Barnhardt 2009). Peacebuilding programs utilizing intergroup contact and superordinate goals are increasingly used to reduce intergroup conflict by peacebuilding organizations (Ditlmann, Samii, and Zeitzoff 2017).

Although research shows support for intergroup contact theory generally, its efficacy to reduce prejudice amid real-world conflict is an open question. First, most research about intergroup contact uses correlational studies or lab experiments, both of which have methodological weaknesses. Correlational studies cannot demonstrate causal effects, and results from lab experiments may not apply to real world conflicts, where groups compete for resources and share a history of intergroup violence (Ditlmann, Samii, and Zeitzoff 2017). Second, no prior studies of intergroup contact have involved groups engaged in active intergroup violence[[1]](#footnote-22), and some studies suggest that intergroup contact in violent settings could be ineffective or even backfire. Negative experiences with outgroups increase prejudice, and the most prejudiced individuals are most likely to interpret intergroup contact negatively (Gubler 2013; Paolini, Harwood, and Rubin 2010). Despite a lack of evidence about the effects of contact-based peacebuilding programs in violent contexts, and the risks of programs going badly, peacebuilding organizations implement numerous contact-based interventions in violent contexts each year. These peacebuilding programs might defuse intergroup conflict, but these programs also might do more harm than good.

To study the effect of bottom-up psychological interventions on violent conflict, we conduct a field experiment with farmer and pastoralist communities in Nigeria to determine if an intergroup contact-based program effectively increases intergroup trust and increases the physical security of group members. We randomly assigned communities with farmer-pastoralist violence to receive the peacebuilding intervention or serve as a control group. The intervention formed mixed-group committees and provided them with funds to build infrastructure that would benefit both communities; committees then collaboratively chose and constructed infrastructure projects.[[2]](#footnote-23) The program also provided mediation training to each community’s leaders. To measure the effects of the intervention, we conducted pre- and post-intervention surveys, a post-intervention natural public goods behavioral game,[[3]](#footnote-24) and twelve months of systematic observations in markets and social events during the intervention.

We find that the program increased trust between groups and decreased perceptions of physical insecurity. Compared to the control group, the treatment group expressed more outgroup trust and more willingness to interact with outgroup members. The treatment group was also less prevented by violence from engaging in routine tasks, such as working, going to the market, and getting water. The results also suggests that intergroup contact for a relatively small percentage of a group can indirectly affect attitudes of group members with no exogenous increase in contact with the outgroup. We observe the most positive changes from individuals directly involved in the intergroup committees, but we also observe positive spillover to group members who were not involved in the intergroup contact intervention.

This study expands our knowledge about intergroup conflict in several ways. First, this study teaches us about the capacity of psychologically-based peacebuilding programs to improve intergroup relations. To our knowledge this is the first field experimental test of a psychologically-based peacebuilding program implemented during an active conflict. We evaluated the program’s effects on both attitudinal and behavioral outcomes. The results suggest that bottom-up psychologically-based peacebuilding programs can effectively reduce conflict and is especially relevant to conflict resolution in the cases of intergroup and intercommunal conflicts.

Second, this study is one of the only field experimental interventions to test intergroup contact theory with groups actively engaged in violence. Each of the groups in our study were part of an active and escalating conflict, with members of each side being killed within one year of the intervention’s onset. Even in such a context, community members who engaged in direct interpersonal interaction with an outgroup member changed more positively than other community members. Importantly, the intergroup contact involved achieving superordinate goals that benefited both groups materially. This suggests that contact with superordinate goals is robust to actively violent contexts.

Third, we contribute to the literature about the role of social diffusion and social institutions in shaping attitudes and behaviors. Bottom-up peacebuilding interventions seek to provide a structure in which groups can solve their own conflicts, and those structures are social rather than coercive. Understanding how those structures form and are maintained is relevant to other institutional setups attempting to influence behavior. In this study, though the greatest changes in attitudes and behaviors were from individuals directly interacting with outgroup members, the attitudes of other community members also improved. This type of “social effect” is also a potential way to “scale up” the effects of intergroup contact.

Fourth, this paper’s focus on farmer-pastoralist conflict is especially important because the pastoralists are of the Fulani ethnic group. The Fulani are the largest semi-nomadic people on Earth, but their way of life makes them targets for violence throughout Africa. Along with this conflict in Nigeria, Fulani in Mali have been the targets of violence so severe that researchers at Armed Conflict Location & Event Data Project called it “ethnic cleansing” (Economist 2019). Understanding how to prevent conflict between Fulani and settled peoples can help prevent the eradication of a people and their way of life.

In the next section we provide a theoretical framework for how and why bottom-up interventions that focus on prejudice reduction can reduce intergroup violence. We then discuss Nigeria’s farmer-pastoralist conflict, our experimental intervention, and two designs to evaluate the effect of the intervention. Last we present the results of the study and conclude by connecting these findings to theories of group conflict and prejudice.

# Theory

## Intergroup Conflict as a Bargaining Problem

Intergroup conflict is most often conceptualized as a bargaining problem (Fearon 1994b; Powell 2006), and most solutions to reducing intergroup conflict strive to help the groups overcome those bargaining problems [Di Salvatore and Ruggeri (2017); chris: this cite is just for peacekeeping/intervention]. Intergroup conflict is a bargaining problem because both groups want some resource – land, power, etc – but cannot reach an agreement about how to distribute that resource peacefully. Because fighting is costly, the groups are better off reaching a bargained compromise and not fighting. However, two bargaining problems prevent this: information problems and commitment problems. To successfully bargain, the groups need (1) accurate information about each other, and/or (2) the assurance that each side will abide by its agreements.

An *information problem* arises because neither group possesses accurate information about the other, and both groups have an incentive to deceive the other in order to achieve an advantageous bargaining outcome. Groups have an incentive to portray themselves as stronger, more willing to fight, and less willing to make concessions than they truly are (Fearon 1995). This causes bargaining failures because neither group knows what agreements the other side is willing to accept or what their side should receive from bargaining. A *comittment problem* arises because neither group can credibly commit to honor bargained agreements if bargaining power shifts in the future. If bargaining power shifts, one side will have an incentive to renege on the status quo agreement to achieve a better agreement. Neither group can commit to honor agreements made today when both groups know that bargaining power may shift tomorrow.[[4]](#footnote-27) Without the ability to commit to agreements, bargaining will not be successful.

Groups in conflict overcome these bargaining problems in several ways. Groups can overcome information problems through fighting, as they learn about each others capacity and willingness to fight (Smith and Stam 2003). Groups can also overcome information problems through mediation. An interested third party mediator with no stake in the conflict can provide accurate information to both sides, helping each side reach a bargain (Beber 2012; Kydd 2006; Ott 1972)

Even if groups overcome information problems, commitment problems could prevent groups from reaching an agreement. The main way that groups overcome commitment problems is through strong third parties that add large costs to reneging on agreements (Doyle and Sambanis 2000; Fearon 1998; Powell 2006). Though each group may have an incentive to defect on their agreement if bargaining power changes in a vacuum, the groups have no incentive to defect if a strong third party is capable and willing to punish defection from bargained agreements. With a third party punishing defection, the groups can bargain in good faith knowing that the other will abide by its word.

## The Persistence of Intergroup Conflict

If we know how to resolve intergroup conflict, why does conflict persist? International mediation and intervention are dogged by two issues of motivation. First, mediators are usually motivated for peace. This motivation implies that mediator’s provide information that is biased towards encouraging the groups to negotiate a peace agreement. Groups engaged in bargaining must believe that mediators provide accurate, unbiased information for mediators to reduce information problems. Since both groups know that mediators are biased towards peace, mediators may not help groups achieve peace (Fey and Ramsay 2010; Kydd 2006; Smith and Stam 2003). Second, international actors may lack the motivation to mediate or to intervene into the conflict, even if one group reneges on its agreement. Intervention is costly and so international actors cannot credibly commit to intervene into the conflict unless they have a stake in the conflict (Kydd 2006).

This lack of motivation is especially relevant for intergroup conflict between groups within a state. Most international actors and strong third parties lack an incentive to intervene into intrastate intergroup conflicts, and these disputes tend to take place within states that lack the capacity to compel both sides themselves. Since intervention is costly, strong third parties have an incentive to intervene only *after* fighting escalates, so intervention will generally not be used to prevent conflict from escalating or to reduce the persistent, smaller-scale violence that plague many countries. The lack of a strong third party to prevent the intergroup bargaining failures that causes persistent intergroup conflict is a serious barrier to peace.

Conflict also persists due to intergroup prejudice. Groups in competition and conflict develop prejudiced attitudes that make peace difficult to attain (Allport 1954; Sherif 1958). Conflicting groups think the outgroup is untrustworthy, selfishly motivated, and innately bad [cite: dehumanization, tajfel1981, Gutsell and Inzlitch 2010 for brain mechanism, Schaller\_Neuberg\_2008]. Intergroup conflict fuels and is fueled by intergroup prejudice. Intergroup prejudice prevents peaceful resolution of conflict directly, through exacerbating bargaining problems, and indirectly, through biasing perceptions of ingroup and outgroup behavior and through changing each group’s preferences for peace and war.

Directly, intergroup prejudice prevents peace by exacerbating bargaining problems. At their heart, information and commitment problems are both problems of trust. For information problems, groups do not trust the information they get from the other group. For commitment problems, groups do not trust the other group to abide by its agreements. Highly prejudiced groups are less likely to trust information they receive from the other side or any peace commitment they get from the other side. As a result, prejudiced groups are unlikely to overcome bargaining problems and more likely to engage in violent conflict.

Indirectly, intergroup prejudice prevents accurate perceptions about the attitudes and preferences of the outgroup. Prejudice biases our interpretation of ingroup and outgroup behavior. Ingroups will perceive their own belligerent actions as defensive and justified, and are more likely to perceive outgroup actions as aggressive, negatively motivated, and unjustified [Hewstone (1990); Amir (1969); chris: fundamental attribution error, ultimate/group attribution error, confirmation bias, anchoring bias, Hunter et al 1991]. The perceived negative behavior may be seen as *defining* of the group, whereas any perceived positive behavior may be seen as the *exception* to the group (Allison and Messick 1985; Pettigrew 1979). Even positive intergroup interactions may be re-interpreted as negative to avoid cognitive dissonance (Festinger 1962; Gubler 2013; Paolini, Harwood, and Rubin 2010). Interpreting interactions negatively saps the power of each group to reassure the other with costly signals of willingness to cooperate in future interactions (Kydd 2000, Rohner, Thoenig, and Zilibotti (2013)). Adds to information problems as groups will hold inaccurate views about each other’s willingness to cooperate and likelihood of upholding agreements.

This indirect mechanism poses problems for groups to develop reputations as trustworthy. When there is no strong third party to enforce bargaining agreements, commitment problems are often overcome by reputations.[[5]](#footnote-29) Reputations, beliefs that groups have about the likely behavior of other actors, allow groups to bargain and negotiate even without an organization willing to punish defection from agreements. Though defecting may be beneficial in one specific instance, groups may not defect because getting a reputation for defecting on agreements harms a group’s ability to achieve agreements in the future. By relying on reputation and the knowledge that groups desire good reputations, groups can coordinate in the absence of a strong third party.

The reputation mechanism could prevent intergroup conflict but reputations, too, are hampered by prejudice. Prejudice biases interpretations of ingroup and outgroup behavior, which makes it very difficult for a group to develop a positive reputation with a group they are in conflict with, even when both groups are motivated to end the conflict. This bias likely pushes each group’s perception of the other side’s willingness to make peace further from their true willingness to make peace and so reputations hinder, rather than aid, intergroup bargaining processes.

Reputations to prevent conflict are also hampered by a lack of opportunities for groups to observe each others behavior and to learn the outgroup’s reputation. Compounding that problem, few of the outgroup’s interactions will be with groups that are relevant for predicting the outgroup’s behavior towards my group. This means that the main opportunity to observe outgroup behavior and learn their reputation is your own interactions with the outgroup. For groups in conflict, these opportunities are likely rare and almost always adversarial.

These negative attitudes also change the each groups preference for peace or war, both for leaders and for individuals who encounter disagreements with outgroup members. The utility an individual gets for attitudes and behaviors depends largely on how those attitudes and behaviors are received by their ingroup (Wood 2000). These “social payoffs” constrain the actions of leaders and individual group members. In the context of outgroup prejudice, the group might punish a leader for cooperating or compromising with the outgroup (Fearon 1994a). Individuals might get similarly socially punished for cooperating instead of taking a hard stand against the other side’s perceived transgressions. Leaders of highly prejudiced groups also cannot credibly commit to keep their group members in check. Individuals in highly prejudiced groups might not engage in ingroup policing, a strong, costly signal to the other side that your group will uphold its peace agreements (Fearon and Laitin 1996). While cooperation and ingroup policing might be punished, aggressive actions may be seen as righteous self-defense of the ingroup and rewarded.

Along with social benefits from aggressive attitudes and behavior, individuals might receive psychological benefits from conflict and from social differentiation with the outgroup (Wood 2000). Many groups define “us” by positive differences with a “them”, and an individual can derive self-esteem from positively comparing their group identity to a rival group (Brewer 1999; Tajfel 1981). When group members derive self-esteem from feeling superior to an outgroup, group members may reject rhetoric about group similarity due to cognitive dissonance it causes them. Group members may also reject actions that recognize the outgroup as equals.

## Psychological Reconciliation to Reduce Prejudice and Conflict

The problems of negative intergroup attitudes suggests that improving those attitudes could lead to peace-promoting behaviors and reduce conflict. One of the most promising approaches to improving intergroup attitudes comes from intergroup contact theory. Intergroup contact theory hypothesizes that interactions in which group members cooperate to achieve shared goals will reduce prejudice. Reducing prejudice can help groups overcome bargaining problems and reduce the likelihood of violence.

When groups are in conflict, most incidental intergroup contact will be highly adversarial. Intergroup contact theory posits several conditions necessary for intergroup contact to reduce prejudice. Groups must cooperate with equal status to achieve shared goals with the support of elites. Intergroup contact under these conditions gives the ability give strong costly signals about a group’s reputation and the “group type” as a conditional complier: we will honor our agreements if you honor yours. And about perceptual fairness/unbiasedness: we will interpret things you do fairly and we will interpret things we do fairly (i.e. we will not think everything we do is justified and everything you do is unjustified).

It is important for the intergroup contact to focus on superordinate goals (**???**).

Could improve reputations/remove stereotypes. Increase perception of trustworthiness/intergroup trust. Contact gives opportunity for costly signals. Reputations will help groups overcome information and commitment problems. Groups trust information they get from the other group. Groups trust the other group to abide by agreements because they believe the other group is also motivated by peace.

Can give group members interactions that reduce perceptual biases. Can decrease prejudice and encourage ingroup policing. Decrease prejudice also allows leaders to credibly commit entire group to peace. Encourage ingroup policing. Create norms against prejudice and violence, or connect existing norms to the outgroup by humanizing the outgroup.

Could improve dispute resolution and reduce conflict over resources. Encourage sharing resources *or* separation of resources. Mediation training – help community leaders resolve disputes.

Could decrease threat, though in cases of active conflict this might exacerbate rather than solve conflict (information about reduced outgroup threat == higher chance of my group winning).

Could increase empathy. Seeing the other side’s argument, seeing their motivations. Increase empathy/less prejudice helps interpret information in non-biased way. [Chris: cite literature on empathy making me interpret information about other people more accurately. Kertzer?]

Could expand ingroup/make group similarities salient. Seeing our two groups as one, seeing our incentives as aligned.

Groups work together to gain more material resources, improves us now, makes me think working together in the *future* would be good.

Can give group members the capacity to affect conflict.

As an alternative to top-down international intervention to reduce conflict, bottom-up peacebuilding programs can reduce conflict by focusing on both the immediate economic concerns contributing to conflict (superordinate goals?) and the psychological attitudes contributing to conflict. Bottom-up psychological reconciliation programs should work for the types of conflicts for which international intervention is rarely used and is unlikely to be successful. Persistent intergroup conflict that plagues many countries. Low-level conflict before it builds to large-scale conflict. There are XX conflicts of this type accounting for XX deaths each year.

## Why Reducing Prejudice Could Fail

Yet reducing prejudice generally, and intergroup contact specifically, may not work in contexts of ongoing violence. As with mediation and intervention, bottom-up reconciliation programs may be ineffective while conflict is going on and only effective at maintaining peace once the formal conflict has ended. Many reasons contact may not work in this context.

Intergroup conflict is commitment problem solved by strong third party (Fearon 1994b; Powell 2006) and bottom-up programs do not provide a strong third party that can enforce commitments. Psychological reconciliation is not how we’ve thought of solving commitment problems between conflicting groups or improving reputations. Can psych reconciliation improve reputations in contexts of ongoing violence?

Psychological reconciliation can prevent resumption of conflict but requires conflict to already be resolved (Bar-Tal 2000). Active conflict produces many grievances and high prejudice; cognitive dissonance causes backlash for the most prejudiced people (Festinger 1962; Gubler 2011). Negative contact experiences reinforce negative stereotypes (Paolini, Harwood, and Rubin 2010). Motivated reasoning for attitudes towards others (Klein and Kunda 1992). If you don’t want to like someone, you will find a reason not to.

Underlying cause of conflict still present. Groups still engage in competition for resources, which breeds conflict (Campbell 1965; Sherif et al. 1988).

Few norms against prejudice, possibly group norms that support this particular intergroup prejudice. If intergroup contact works by activating “norms against prejudice”, unlikely to work here.

Intergroup contact may only reduce prejudice from high-status group to low-status group.

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1. Previous studies have involved groups with a history of violent conflict but not groups involved in an active conflict. See Scacco and Warren (2018) and Ditlmann and Samii (2016) for examples. [↑](#footnote-ref-22)
2. The communities built boreholes, market stalls, primary health care facilities, etc. [↑](#footnote-ref-23)
3. In a public goods game (PGG), research subjects are given money and told they can keep the money or donate it to a public fund. Money donated to the public fund is multiplied by some amount and then shared with all subjects. Our PGG is *natural* because it was conducted in a natural setting, rather than a lab. The funding for the PGG came from the National Science Foundation under Grant No. 1656871. [↑](#footnote-ref-24)
4. Power between the groups can shift due to factors that affect each group’s preferences and capabilities. Internally, one group may grow in power or size, one group may disarm before the other, the groups may have factions that reject the agreement, the groups may change leaders, or group members attitudes may change for other reasons. Externally, the groups may gain or lose de facto or de jure state support, other external actors may switch allegiances, or some other shock may change each group’s power relative to the other [Fearon (2004); Reed et al. (2016); chris: need to cite and add more]. Anything that will change group power in the future can cause commitment problems in the present. [↑](#footnote-ref-27)
5. The reputation argument is generally mobilized for contexts in which many groups observe the behavior of each other group. Because there are many potential partners in the future, a good reputation has high payoff in the form of many potential cooperative partners in the future. In our case, there are two main sides forming perceptions about the reputation of each other. This closely mimics repeating prisoner’s dilemma interactions. As shown in Axelrod (1980a) and Axelrod (1980b), beliefs about the “type” of player my partner is influence my decision to cooperate or defect under several decision rules designed to mimic human decision-making. [↑](#footnote-ref-29)