GROUP CONFLICT AND INTERGROUP CONTACT

BY

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DISSERTATION

Submitted in partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Political Science
in the Graduate College of the
University of Illinois at Urbana-Champaign, 2020

Urbana, Illinois

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Abstract

This dissertation contains three papers. The first paper studies the effects of a peacebuilding intervention randomly assigned to conflicting farming and pastoral communities in Nigeria, where thousands die each year in farmer-pastoralist violence. Members of conflicting farming and pastoral groups worked together to build infrastructure projects beneficial to both communities, and that collaboration increased voluntary intergroup contact, intergroup trust, and feelings of security for the participants and for nonparticipants living in the same villages as the participants. The second paper uses a lab experiment to test a specific mechanism through which contact might work. Subjects vicariously experienced intergroup contact that either achieved or failed to achieve a joint goal. It finds that contact only improves attitudes towards the outgroup when it achieves a goal and that contact only improves attitudes of the majority group towards the minority group, not of the minority towards the majority group. The third paper bridges perspectives on group conflict in political economy and political psychology. The political economy literature focuses on bargaining; the political psychology literature focuses on group identities. This paper demonstrates that these two perspectives can work together by applying the group identity perspective to the bargaining perspective, showing how group identities and related psychological and cognitive biases complicate bargaining.

This is for you, grandpa

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Chapter 1

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

1.1 Abstract

Cooperative intergroup contact, originally designed as a tool for prejudice reduction, offers a promising means to resolve group conflict. Evidence for contact-based interventions is sparse, however, and violent conflict may nullify the effects of contact. We test the ability of a contact-based intervention to promote peace between conflicting groups with a field experiment in Nigeria, where farmer and pastoralist communities are embroiled in a deadly conflict over land use. We evaluate the program with surveys, direct observation of behavior in markets, and a behavioral game. We find that participation in the program increases intergroup trust, feelings of physical security, and voluntary intergroup contact measured both will self-reports and observed behavior in markets. Many of the program's effects also diffuse to group members who did not directly participate in the program but who lived alongside participants. The program had no effect on a placebo outcome, attitudes towards violence, that one would expect to improve if the survey results were affected by social desirability bias. These results suggest that reducing barriers to peace between conflicting groups is possible, and that structured intergroup contact is a promising method to do so.

1.2 Introduction

How can groups in conflict improve intergroup relations? Violent group conflict has caused 2 million deaths since the year 2000 (Sundberg and Melander 2013), forcibly displaced over 70 million people from their homes in 2018 (UNHCR 2019), threatens food supplies in numerous countries (Verwimp and others 2012), and extracts a psychological toll on participants and victims (Schomerus and Rigterink 2018). Intergroup animosity perpetuates conflict long after the original grievance is immaterial or forgotten (McDonnel 2017; Deutsch 1973; Tajfel and Turner 1979), so improving intergroup relations is vital to stem the human, economic, social, and psychological costs of violent group conflict.

Scholars and practitioners consider *cooperative* intergroup contact – contact in which members of two

groups work together to achieve common goals – to be one of the most effective tools for improving intergroup relations.[1] Evidence for the hypothesis that contact improves intergroup relations, known as the contact hypothesis (Allport 1954), goes as far back as the 1950s and motivated integrated public housing (Deutsch and Collins 1951) and workplace and school desegregation (Cook, Wrightsman, and Wrightsman 1971; Cook 1985; Slavin and Cooper 1999) in the United States. More recent studies demonstrated the prejudice-reducing effects of contact by leveraging random assignment to college dorms (Marmaros and Sacerdote 2006), college roommates (Burns, Corno, and La Ferrara 2015; Boisjoly et al. 2006; Van Laar et al. 2005), schools (Rao 2019.), U.S. Air Force groups (Carrell, Hoekstra, and West 2015), mixed sports teams (Ditlmann and Samii 2016; Mousa 2018), job training programs (Scacco and Warren 2018), and medical doctors (Weiss 2019). The contact hypothesis also increasingly motivates policy interventions, especially peacebuilding programs (Ditlmann, Samii, and Zeitzoff 2017; Lemmer and Wagner 2015).

Despite contact's many successes, scholars know little about the effects of contact-based interventions for people actively participating in and personally victimized by a violent conflict, or even for interventions directed at improving adults' attitudes towards racial or ethnic groups (Paluck, Green, and Green 2019). Cooperative intergroup contact has only recently been tested in the field, and never programmatically with communities who are currently perpetrating violence against each other. If one of the goals of cooperative contact is to mitigate violent conflict, then contact-based interventions must be tested between participants and victims in violent conflict.

Ongoing violence poses the most difficult test for contact and could interfere with mechanisms through which contact improves relations. The mechanisms through which contact improves relations assume that negative attitudes result from unfamiliarity, and that "familiarity breed[s] liking" (Pettigrew and Tropp 2006, 766). We posit that familiarity through cooperative contact allows groups to identify latent shared interests by providing positive interactions towards achieving a common goal. Those positive interactions counter existing negative beliefs and create cognitive dissonance (Tavris and Aronson 2008; Festinger 1962). Attitudes improve when that cognitive dissonance is resolved by rejecting negative beliefs rather than justifying negative beliefs (Gubler 2013). However, by reinforcing negative beliefs and obscuring shared interests, violent conflict could dull, prevent, or even reverse the predicted positive effects of contact.

Despite these reasons for caution, there are reasons to expect cooperative contact to improve intergroup relations even in contexts of ongoing violence. Even in contexts of group violence, it is often in each group's

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[1]We will use the term *cooperative contact* to refer to contact that meets Allport's conditions. Those conditions are (1) intergroup cooperation (2) with equal status (3) to achieve shared goals (4) with support of local authorities. Note that *equal status* does not mean that the groups must have the same status in society, but that the groups share equal status in the cooperative situation. Cooperative contact stands in contrast to other forms of incidental or unstructured contact that may not have positive effects on intergroup relations.

shared interest to reach a peaceful compromise because fighting is costly (Fearon 1995). Cooperative contact to achieve a common goal provides groups with an example of cooperation towards a shared interest, and that experience can make groups imagine future interactions for shared benefit. Cooperative contact can also remove the psychological barriers to identifying shared interests, such as stereotypes and feelings of threat and anxiety. Lastly, cooperation that benefits the group should generate group pressure to cooperate, thus creating cooperative social norms.

To learn about whether cooperative contact can improve intergroup relations amidst violent group conflict, we conducted a field experiment with conflicting farmer and pastoralist communities in Nigeria. More than an occupational difference, farmers who cultivate crops and pastoralists who graze cattle define a major social cleavage in many parts of the world. These groups conflict over land rights, which define both of their livelihoods. Farmer-pastoralist conflict has escalated throughout the Sahel in recent years, and nowhere more than in Nigeria. The most recent conflict escalation has caused 7,000 deaths from 2014-2019, displaced hundreds of thousands of people from their homes, and costs $13 billion annually in lost economic productivity (Harwood 2019; Daniel 2018; McDougal et al. 2015; Akinwotu 2018). In our sample, some members of each community had been killed by members of the other community in the year before the project began. Ongoing violence, occupational and ethnic differences, and fighting over resources necessary for livelihoods all make this context a hard test for contact theory.

We randomly assigned communities with ongoing farmer-pastoralist violence to receive a contact-based 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] The program also provided mediation training to each community's leaders and held forums where the groups discussed the underlying drivers of conflict. To measure the effects of the intervention, we conducted pre- and post-intervention surveys, a post-intervention natural public goods behavioral game,[3] and twelve months of systematic observations in markets and social events during the intervention.

We find that the program increased intergroup affect, intergroup contact outside of the intervention, and perceptions of physical security. We see signs of the positive effects in fieldwork as well as in data: in one of the treatment sites, farmers defended pastoralists from a group of anti-pastoralist vigilantes, rather than assist the vigilantes in removing the pastoralists and claiming their land. Our results also show that

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[2]The communities built boreholes, market stalls, and primary health care facilities, for example.

[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.

the intervention affected communities as a whole, not just community members directly involved in the intergroup contact. Individuals who directly engaged in intergroup contact changed the most positively from baseline to endline, but we also observe positive spillovers of trust to group members for whom we did not exogenously increase intergroup contact.

This study expands our knowledge about group conflict in two main ways. First, this study teaches us about the capacity of intergroup contact to improve intergroup relations and reduce conflict. Peacebuilding organizations implement numerous contact-based interventions in violent contexts each year, but its efficacy to improve intergroup attitudes amid real-world conflict is an open question (Paluck, Green, and Green 2019; Ditlmann, Samii, and Zeitzoff 2017). To our knowledge this is the first field experimental test of a contact-based peacebuilding intervention implemented during an active conflict. The results suggest that contact-based peacebuilding programs can effectively improve relationships between conflicting groups and is especially relevant to conflict resolution in the cases of intergroup and intercommunal conflicts.

Second, we contribute to the literature about informal structures, such as social norms, in solving commitment problems. Many scholars have identified group conflict as a commitment problem that is most likely to be solved by an outside actor enforcing commitments (Fearon 1994). While strong outside actors can resolve conflict by solving commitment problems, this study suggests that they are not a necessary condition for resolving conflict. Many communities in our treatment group significantly improved their relations without a strong actor to enforce commitments. Our results suggest that cooperative intergroup contact helped groups strengthen their own conflict resolution structures.

1.3   Improving Intergroup Relations Through Cooperative Intergroup Contact

Cooperative intergroup contact has long been posited as a means to improve intergroup relations. Popularized by Gordon Allport (1954), the contact hypothesis assumes that negative stereotypes cause intergroup animosity. Stereotypes, natural mental shortcuts that help an individual understand his/her experiences, are especially likely to go awry and create animosity when an individual has little or no experience with members of another group. Without intergroup experience, stereotypes will misrepresent groups, create imagined differences between ingroup and outgroup members, and obscure shared interests. To remove these negative stereotypes new experiences must override them, allowing an individual to re-conceptualize the outgroup.

Allport and subsequent authors specified four conditions under which contact will remove stereotypes and improve intergroup relations. First, the contact must involve ongoing personal interaction between members

of both groups. Second, both groups must have equal status in the interaction. Third, the interaction must involve cooperation towards a common goal. And fourth, the intergroup interaction must have the support of, or at least not be punished by, institutions and authorities. These conditions ensure positive interactions between group members.

Allport argued that contact works by enhancing knowledge and overriding negative stereotypes about the outgroup, and subsequent scholarship has identified three additional mechanisms through which contact improves attitudes. First, contact reduces the feelings of threat and anxiety that arise from fear of the unknown (Stephan and Stephan 1985; Page-Gould, Mendoza-Denton, and Tropp 2008). Second, contact enables perspective-taking so that ingroup members empathize with the outgroup (Batson et al. 1997; Broockman and Kalla 2016). And third, contact makes salient a shared identity based on the groups' similarities and interests (Gaertner et al. 1993; Gaertner and Dovidio 2014). Through these mechanisms group members can experience positive cross-group interactions, which triggers cognitive dissonance against the preexisting negative attitudes. Attitudes improve when that dissonance is resolved by rejecting, rather than justifying, negative attitudes towards the outgroup (Gubler 2013).

These mechanisms support the reduction of group-based prejudice for individuals involved in the intergroup interaction, but the positive effects of contact must diffuse to individuals not involved in the interaction for intergroup contact to meaningfully improve intergroup relations. This diffusion to other group members occurs through changing social norms about cross-group interaction (Paluck 2009; Christ et al. 2014) and through the knowledge that other ingroup members had positive contact with outgroup members (Wright et al. 1997). Norms and awareness of cross-group cooperation shows that cross-group interaction is safe and socially encouraged. It also creates the expectation of future interaction with outgroup members, which motivates individuals to see the outgroup more positively (Klein and Kunda 1992; Van Dessel, Hughes, and De Houwer 2019). Through social diffusion cooperative contact improves attitudes even for ingroup members with no cross-group contact.

Taken together, the existing literature suggests that cooperative contact improves intergroup relations through four steps. First, cooperative contact provides positive interactions that remove the psychological barriers – negative stereotypes, feelings of outgroup threat, and a lack of empathy – that bias perceptions of the other side. Second, without these perceptual biases groups can identify shared interests, and cooperative contact facilitates the identification of shared interests by having the groups cooperate towards a common goal. Third, positive interactions and the identification of shared interests challenge pre-existing negative beliefs and trigger cognitive dissonance. Attitudes improve when that dissonance is resolved by rejecting preexisting negative attitudes in lieu of new positive experiences. Fourth, positive attitudes diffuse to other

group members through awareness of cross-group cooperation and changing social norms.

1.3.1 Cooperative intergroup contact in the context of violent group conflict

Violent group conflict poses a hard test for cooperative intergroup contact to improve attitudes. First, in the context of ongoing violent conflict, even cooperative contact towards a joint goal may not provide group members with a subjectively positive cross-group interaction. Due to psychological biases, individuals perceive cross-group interactions negatively so that those interactions conform to pre-existing beliefs; individuals also more readily store and recall negative interactions that confirm pre-existing attitudes than positive interactions that are dissonant with pre-existing attitudes (Nickerson 1998; Ward et al. 1997). If individuals perceive cooperative contact negatively, contact could make attitudes worse, not better (Barlow et al. 2012; Paolini, Harwood, and Rubin 2010; Stark, Flache, and Veenstra 2013).

Even if contact succeeds in providing positive experiences with outgroup members, the resulting cognitive dissonance may not be resolved by embracing positive attitudes. Participation in and victimization by violence motivates group members to justify their existing attitudes (Kunda 1990). Existing attitudes are harder to reject once an individual has acted on them (Tavris and Aronson 2008; Festinger 1962). Once an attitude is acted upon, rejection of the attitude threatens an individual's self-identity because the the individual must come to terms with his or her own immoral behavior. Likewise, individuals are less likely to reject existing attitudes when they have personal experiences that reinforce those attitudes. In the case of prejudice, prejudiced attitudes are least likely to be rejected when an individual has harmed or been harmed by the outgroup. Instead of rejecting negative attitudes, violent experiences can lead individuals to resolve cognitive dissonance by justifying previous attitudes (Gubler 2013) or, at best, by differentiating "good" outgroup members from typical outgroup members (Doosje, Spears, and Koomen 1995).

Beyond past violent, ongoing group violence provides negative experiences with outgroup members that counter the positive experiences provided by cooperative contact. These negative experiences bolster the psychological barriers to groups' identifying their shared interests. Rather than dispelling stereotypes and alleviating feelings of threat, negative experiences reinforce negative stereotypes and justify feelings of threat. Taking the perspective of the other side will not improve cross-group relations if taking their perspective reveals incentives for belligerence (Kertzer, Brutger, and Quek 2018). And far from revealing common identities and interests, group violence perpetuates opposing group identities and interests (Fearon and Laitin 2000). To overcome preexisting negative beliefs, individuals need strong and consistent information that counters those existing beliefs – a signal that the object of their belief has changed (Nickerson 1998). For that reason, some scholars believe reconciliation cannot begin until conflict is resolved (Bar-Tal 2000).

Social norms are a potent means to change attitudes and behavior, but in contexts of group violence social norms prevent rather than facilitate attitude change (Bar-Tal 2007; Bar-Tal and Avrahamzon 2017). These pre-existing norms self-perpetuate by discouraging ingroup members with positive attitudes from displaying those attitudes, either through talking about or engaging in cross-group interaction publicly. Group members who do not conform to these norms risk being branded as traitors (Bornstein 2003). With no opportunities to hear about or observe positive cross-group interaction, the effects of contact cannot extend to ingroup members without contact.

But these barriers do not mean that contact cannot improve intergroup relations for groups in violent conflict. Conflicting groups share an interest in obtaining peace because fighting is costly (Fearon 1995), and cooperative contact can make that shared interest salient. Though existing norms likely support negative attitudes, successful cross-group cooperation can generate cooperative social norms because cooperation and peace are in the interest of both groups. Cooperative contact also shows that the outgroup is composed of differentiated individuals (Rimé et al. 2011), opening the possibility that past negative experiences with a few outgroup members do not characterize the entire outgroup.

1.4   Farmer-pastoralist conflict in Nigeria's Middle Belt

Nigeria's Middle Belt is plagued by violent conflict over land use. Farmers, who claim land for agricultural production, and pastoralists, who claim land for animal grazing, increasingly clash over claims to the same land. Both groups depend on land for their livelihoods, but their divide is also cultural, ethnolinguistic, and, in some locations, religious. The pastoralists are almost homogeneously of the Fulani ethnic group, speak Fulfulde as their primary language, and practice Islam. They maintain a semi-nomadic way of life, belonging to a home community but traversing vast distances to secure access to pastureland and water as seasons change. The farmers live in sedentary villages and exploit land for agriculture. The ethnic group, language, and religion change by village. In our study, farmers came from more than a dozen ethnic groups, often residing in the same village.

Historically, these communities cooperated through trade and sharing land that was abundant relative to populations. Pastoralists would graze their animals on crop residue after harvests and follow migration paths away from farmland during planting seasons. The groups were complementary: pastoralists gained food for their animals and farmers gained animal manure/urine to replenish soil; farmers bought milk and meat from pastoralists and pastoralists bought grains and vegetables from farmers. There were tensions, but these were typically overcome by negotiation and violence seems to have been rare. The Middle Belt

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came to be known as Nigeria's "food basket" due to the abundance of foodstuffs coming out of the region, like beef, dairy, yam, and cassava[4].

In recent years, this relationship has been stressed by populations booms and climate change. Nigeria's population at independence in 1960 was about 50 million; Nigeria's population in 2019 is estimated around 200 million. At the same time, the Sahara's size expanded over 10%, decreasing land available for farming and grazing (Thomas and Nigam 2018; Okpara et al. 2015). As the number of farmers, pastoralists, and mouths to feed increased, the amount of land available to produce food declined. These factors also pushed pastoralists southward, towards farming communities with whom the pastoralists had no pre-existing relationship. Land scarcity and new migrants jeopardize traditional cooperative agreements that have managed farmer-pastoralist interactions for decades (Cotula et al. 2004; Kuusaana and Bukari 2015). Sharing land is easier when people are scarce and land is plentiful; it is not so easy when land is scarce and people are plentiful.

Government policies exacerbated the issues caused by demographic and geographic changes. Land privatization encouraged farmers to plant crops that occupy land continuously, like orchards, and effectively nullified farmer-pastoralist land sharing agreements (Bassett 2009). Official cattle reserves for moving herds are rarely enforced by the government, leading farmers to plant crops in once-protected areas and further limiting pastoralists' available grazing space. The "indigene versus settler" policy limits economic and political rights to certain ethnic groups in each state, often denying the "settler" pastoralists the ability to own land and run for political office (Network 2014).

These stressors have sparked violent conflict between farmers and pastoralists in recent years (Ilo, Ier, and Adamolekun 2019). The most recent conflict escalation, beginning roughly in 2014, has caused 7,000 deaths (Harwood 2019) and displaced hundreds of thousands of people from their homes (Daniel 2018; Akinwotu 2018). The scale of economic damage is unknown, but farmer-pastoralist conflict *before* this escalation cost Nigeria $13 billion annually in lost economic productivity (McDougal et al. 2015). This violence has impeded food production, leading to an impending food crisis (Ilo, Ier, and Adamolekun 2019; Hailemariam 2018; Unah 2018). Compounding matters, state governments' response to the conflict has been to enact anti-grazing laws. These laws spark more violence because many pastoralists reasonably viewed the law as biased against their way of life. In the state of Benue, the government mobilized state-sanctioned vigilante groups called "livestock guard" to enforce the law, but the livestock guard have sometimes sought out pastoralists, rather than guard farmland (Duru 2018).

Though we have discussed the conflict as between two large and cohesive groups ("Farmers" and "Pas-

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[4]https://qz.com/africa/1315749/nigeria-herdsmen-farmer-attacks-are-damaging-agriculture-economy/

toralists"), the conflict occurs between numerous small, independent farming and pastoral groups. The groups typically reside a couple miles from each other – like people from the next town over. These independent groups are aware of the broader context of farmer-pastoralist conflict, but their concerns are local and mostly unrelated to what happens in distant villages. Different versions of the same story initiate and sustain the local conflicts. First, cattle graze on farmland.[5] Next, a farmer retaliates by stealing cattle from the pastoralists (because the farmer does not know *which* herd grazed on his land, the stolen cattle do not necessarily come from the transgressing herd). This cycle continues and eventually explodes when a member of one side physically attacks a member of the other side. From there, a little war often breaks out. As one reporter noted, "The countryside is littered with the charred ruins of homes, schools, police stations, mosques and churches." (McDonnel 2017).

Farmer-pastoralist conflict poses a tough test for intergroup contact to improve group relations. The material, social, and psychological incentives of these groups are opposed. They want the same land for different purposes and their livelihoods depend on that land. The groups are involved in a bloody, violent, and escalating conflict for land in which thousands of farmers and thousands of pastoralists have been killed by members of the other group. Within an individual's community, several people will have been attacked or killed; several others will have attacked or killed members of the other side. To justify killing, groups create collective myths about the retaliatory/defensive nature of their belligerent action and the iniquity and inhumanity of the other side. Despite their physical proximity, the groups have little to bond over; they are distinct culturally, ethnically, linguistically, and often religiously. And finally, government favoritism of farmers over pastoralists creates a power disparity between the groups.

Despite the forces pushing these groups into conflict, their interests are not completely misaligned. Peace is in the interest of both groups because fighting is costly, both materially and psychologically. The conflict has destroyed billions of dollars in agricultural produce, animal products, and physical infrastructure. Crops have been destroyed, cattle stolen, homes burned, and neighbors murdered. Farmers fear violence when working in their fields; pastoralists fear violence when grazing their cattle. Peace can end the economic, social, and human costs. Moreover, the groups formerly maintained mutually beneficial trade agreements: farmers trade the crop residue left on their fields for animal manure/urine to replenish soil; farmers traded grains and vegetables in exchange the pastoralists' milk and meat. Peace rekindles the possibility of these mutually-beneficial trade agreements. Cooperative intergroup contact should improve group relations by revealing these shared interests.

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[5]In past decades, compensation for crop damage would have been standardized, but these traditional agreements have fallen apart in recent years (Cotula et al. 2004; Kuusaana and Bukari 2015). With no agreed upon compensation and no authority to punish illegal grazing or illegal cattle rustling, groups take justice into their own hands.

Farmer-pastoralist conflict is not confined to Nigeria's Middle Belt. Farmer-pastoralist clashes are a persistent problem throughout the Sahel and savanna areas of Africa, including Mali, the Ivory Coast (Bassett 1988, 2009), Niger (Thebaud and Batterbury 2001), and Ghana (Tonah 2002). Farmer-pastoralist clashes are destabilizing to these countries politically, socially, and economically. Similar group dynamics exist in Europe with Roma, an outgroup viewed as culturally, ethnically, and linguistically distinct and apart from the rest of the polity. Similar conflict dynamics exist between Jews and Arabs, who also conflict over land that both groups claim. Scholars can learn about intergroup conflict generally from farmer-pastoralist conflict in Nigeria's Middle Belt.

1.4.1 Intervention: Engaging Communities for Peace in Nigeria

To address farmer-pastoralist conflict, peacebuilding NGO Mercy Corps implemented a four-year, USAID-funded program titled Engaging Communities for Peace in Nigeria (ECPN) in Middle Belt sites embroiled in violent conflict. The main objective of the program was to foster positive contact between farmers and pastoralists, improve attitudes, improve intergroup relations, and ameliorate conflict. Mercy Corps implemented the project in two Middle Belt states, Benue and Nassarawa, which have been focal points for farmer-pastoralist conflict.

The intervention formed mixed-group committees with equal numbers of farmers and pastoralists and provided them with funds to build infrastructure that would benefit both communities; committees then collaboratively chose and constructed infrastructure projects. It started with separate farmer and pastoralist community meetings to avoid negative contact experiences. These intra-community meetings eventually built up to joint decision-making meetings with the two groups together. Each joint project committee included an even number of farmers and pastoralists, as well as women and youth representatives, and totaled between 12 and 15 members. Each committee received two grants, one for quick-impact projects, of approximately $2,000, and one for joint projects, of approximately $25,000.

The quick-impact projects were conceived as a trust-building initiative, intended to let community members see that cooperation was possible. Projects, managed by both farmers and pastoralists, included hand pumps; construction or rehabilitation of market stalls, schools, and health centers; and construction of fences along grazing routes to protect farmlands and avoid accidental crop damage. The joint economic development projects aimed to address an underlying issue related to the conflict: sharing of resources that impact livelihoods. Pollution of water, affecting both farming and livestock, was the primary issue people raised. As a result, each site chose to build a new borehole well, with members of both farmer and pastoralist communities helping to construct the wells.

To ensure support of authorities, the program involved community leaders from both sides in all aspects of the project. They were involved in the quick-impact projects and joint economic development projects. We also provided mediation training to each community's leaders and held forums where the groups discussed the underlying drivers of conflict.

These projects were designed with the conditions of Contact Theory in mind. Groups (1) cooperated with (2) equal status to achieve (3) shared goals with (4) support of local authorities. These projects were meant to help the groups solve, through intergroup cooperation, problems relevant to both groups. This would reveal to groups that they shared many of the same struggles and that cooperation could help them overcome these struggles. Collectively, these project give groups the opportunity so send costly signals about their willingness to cooperate (Kydd 2000, @rohner2013war).

In the next section we describe the research design to determine the effects of intergroup contact on intergroup attitudes and behaviors.

1.5 Research Design

We evaluate the effects of Engaging Communities for Peace in Nigeria (ECPN) with a site-level field experiment. Each site contains two communities, one of farmers and one of pastoralists. The communities within a site engaged in deadly clashes within one year of our scoping exercise.[6] We identified fifteen sites eligible for the study and surveyed ~50 randomly selected respondents per community. We then randomly selected the communities in ten of fifteen sites to receive the ECPN program, blocking by state so that an equal proportion of sites in Benue and Nassarawa received the program. After 18 months, we surveyed another ~50 randomly selected respondents and ~10 respondents from the baseline survey per community. In between the surveys, we monitored farmer-pastoralist interactions in markets and at social events.[7]

This designs gives us two datasets to analyze. First, we aggregate the randomly-sampled individuals to compare communities before and after ECPN. The main goal of this analysis is to learn about the effect of implementing ECPN in a community. Communities were randomly assigned to receive ECPN or function as a control group, which allows us to determine the causal effect of ECPN at a community-level. This comparison between communities that received or did not receive ECPN is our main analysis.

Second, we supplement the community-level analysis by creating a dataset of ~10 respondents per com-

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[6]To identify eligible sites, we undertook a scoping exercise to determine if the two communities in an implementation site had a demonstrated need for a peacebuilding program and were willing to participate in one. We defined "demonstrated need" as the communities engaging in violent clashes within one year of the scoping exercise. Willingness to participate in the program was obtained through conversations with community leaders, none of whom refused the program.

[7]This experimental design was pre-registered with Evidence in Governance and Politics (EGAP) under ID 20150716AA. The preregistration can be found at http://egap.org/registration/1242.

munity before and after ECPN. The main goal of this analysis is to learn about the effect of participating directly in ECPN committees, and thus directly experiencing intergroup contact, relative to the effect of living in communities where ECPN was implemented but not participating in committees, and thus only experiencing indirect intergroup contact. From our baseline random sample, we identified and resurveyed (1) ECPN committee participants, (2) respondents who lived in intervention sites but did not participate in ECPN committees, and (3) respondents from the control group, who neither participated in ECPN committees nor lived in communities where ECPN was implemented. We then compare the change of participants and nonparticipants in intervention sites to the change in control respondents. Our ability to make generalizable causal claims about participation is limited, though, because individuals in intervention sites were not randomized into participation or nonparticipation with ECPN committees.[8]

In total, we randomly sampled 1539 respondents at baseline in 2015. 1027 of those respondents were in intervention sites and 512 were in control sites. At endline, we resurveyed 287 of those respondents. 74 of those respondents directly participated in ECPN, 121 were in intervention sites but did not participate, and 92 were in control sites. At endline, we also randomly sampled 1523 respondents, 1028 in intervention sites and 295 in control sites.

1.5.1 Estimation

Here we describe our estimation procedure for the community-level analysis and the individual-level analysis. For both analyses we estimate one-tailed tests because our hypotheses are that the change in outcomes for treatment units will be *greater than* control, not that the change in outcomes for treatment units will be *different* than control. Both analyses also use randomization inference for p-values and bootstrapping for standard errors. The specifics of each procedure are described in Appendix A.

We use two estimators to estimate the treatment effect of ECPN. When treatment groups are balanced on the baseline outcome, we use the baseline outcome as a covariate to predict the endline outcome, as seen in equation 1. When treatment groups are not balanced on the baseline outcome, we use the change score of the outcome as Y, as seen in equation 2.[9]

$$Y_{i,j} = \beta_0 + \beta_1 Z_{i,j} + X_{i,j} + \delta_j + \epsilon_{i,j}$$

Where i is the community in state j, Z is the treatment indicator, X is the outcome at baseline, and Y is

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[8]We initially randomly assigned baseline survey respondents to be part of ECPN committees, but random assignment proved difficult. Many people who were not selected wanted to be on the committees, and some people who were selected were not able to participate or could not be located when the committees were launched. As a result, people self-selected into committees.

[9]We use two different equations because the effectiveness of each equation depends on the correlation between treatment assignment and baseline outcomes. The "controlling-for" method of equation 1 is more precise but is biased when treatment assignment correlates with baseline outcomes. The "differencing" method of equation 2 is unbiased but less precise. For a comparison between these methods, see https://declaredesign.org/blog/2019-01-15-change-scores.html.

the outcome at endline. δ is a fixed effect for the state j in which the community belongs.

$$Y_{i,j} = \beta_0 + \beta_1 Z_{i,j} + \delta_j + \epsilon_{i,j}$$

Where i is the community in state j, Z is the treatment indicator, and Y is the change in outcome from baseline to endline. δ is a fixed effect for the state j in which the community belongs.

We use randomization inference for p-values and bootstrapping for standard errors because our units of analysis, communities and individuals, are clustered in sites and we have only fifteen sites. Analytic standard errors may underestimate the uncertainty of our causal estimate. Bootstrapping yields a distribution of possible treatment effects given the observed data, and the 95% confidence interval is between the coefficients at the 2.5th percentile and the 97.5th percentile.

1.5.2 Outcomes

We measured three outcomes to estimate the effect of ECPN: (1) intergroup attitudes, (2) intergroup contact, and (3) insecurity. If ECPN improved intergroup relations, we would expect respondents to report better attitudes towards the outgroup, more intergroup contact and willingness to engage in intergroup contact, and reduced insecurity due to violence. We also measured three mechanisms from the contact literature through which contact could affect outcomes: (1) empathy/perspective-taking, (2) perceived threat, and (3) ingroup expansion. Lastly, we measured a placebo outcome that may be affected by social desirability: attitudes about violence. We measured these outcomes with survey self-reports, survey experiments, a natural-field behavioral game, and monitoring of farmer-pastoralist interaction in markets and social events.

For most survey self-reports, we combine together several survey questions to create an index. We create both additive indices and inverse-covariance weighted indices. Inverse-covariance weighting constructs an index by down-weighting index questions that are correlated with other index questions and up-weighting those that are uncorrelated with other questions. This approach maximizes the amount of unique information the index takes from each question and prevents "double counting" when two questions measure the same underlying concept. We report results using inverse-covariance weighted indices, but results hold with additive indices. Results with additive indices are included in Appendix A.

Primary outcomes

Intergroup affect: Our first outcome is affect towards the other side. A primary goal of our contact intervention, and of much previous contact research, was for individual's attitudes to improve, Changing attitudes towards the other side is one pathway towards improving intergroup relations and changing behavior, though not the only pathway (Paluck 2009; Scacco and Warren 2018).

We measure intergroup affect with survey self-reports and an endorsement experiment. The survey questions include two measures of intergroup trust and a five item social distance scale created for the farmer-pastoralist context.

In an endorsement experiment, respondents are asked how much they support a hypothetical policy. In the treatment condition, the policy is 'endorsed' by a group that the respondent has a positive or negative opinion about. In the control condition, the policy is not endorsed by any group. The average difference in support between the endorsed and unendorsed policy represents the change in support for the policy because of the group's endorsement. In our case, we asked respondents how much they would support a water policy if it was endorsed by a farmer organization (asked of pastoralists), if it was endorsed by a pastoralist organization (asked of farmers), or if no endorsement was mentioned (the control condition posed to both pastoralists and farmers). Support was measured on a 5-point scale, where high values indicated support and low values indicated opposition.

Intergroup contact: Our second outcome is intergroup contact that occurs outside of the intervention. Natural, voluntary intergroup contact provides behavioral evidence that farmer-pastoralist relations are improving. We measure intergroup contact with survey self-reports, monitoring of farmer-pastoralists interactions in markets and social events, and a survey experiment.[10]

The self-reports and behavioral observations tell us the real, descriptive change in intergroup contact. The survey self-reports ask if and how often the respondent interacted with the other group in the past month. The respondents are asked about interaction in markets, at public social events, in the respondent's own home, at the home of a member of the other group, and in any other way. The responses are then ranked, scaled from 0-1, and combined into an index. The behavioral observations provide a measure of contact independent of response biases.

In the markets, we measured interactions related to buying and selling market goods, such as the number of farmer and pastoralist sellers present and the number of farmer and pastoralist buyers. We then create a farmers index and a pastoralist index to measure the presence of farmers and pastoralists in the market. At social events, we measured the number of members of the other group in attendance and the number who ate or drank anything[11], both in absolute numbers and as a percentage of total attendees. We then create measures for the number of farmers and pastoralists attending social events and the number of farmers and pastoralists eating at social events.[12]

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[10]Much of the self-reports and the observations are overdispersed count data. We recode all count data as rank.

[11]Taking food or beverages at a social event is a sign of closeness and intimacy in these contexts. Casual attendees would not take food or beverages

[12]Observations were made in two periods: July 2016 – February 2017, immediately after the project commenced but before joint project committees convened, and September 2017 – December 2017, after project committees convened but before the endline survey began. Events that occurred February 2017 or earlier are baseline measurements; events occurring September

A survey experiment, which we are calling the *percent experiment*, tells us about respondents' willingness to engage in contact. It asks respondents two questions about their willingness to interact with members of the other side. We asked respondents if they would (1) join a group and (2) live in a community with some percentage of the other group. The percentage is randomized between 5%, 25%, 50%, and 75%; the percentage is the same for those two questions but varies across individuals. We take the mean response so that a respondent saying yes to both is assigned a 1, a respondent saying yes to one is assigned a 0.5, and a respondent saying no to both is assigned a 0. These questions allow us to determine if treatment communities become more willing to interact with outgroup members and if treatment communities become less sensitive to higher proportions of the outgroup.[13]

Insecurity: Our third outcome is feelings of insecurity due to conflict. The end goal of ECPN is to reduce conflict between farmers and pastoralist. The disaggregated and diffuse nature of the conflict makes obtaining an accurate measure of violent conflict extremely difficult.[14] Instead, we measured the effect that violent conflict has on individuals. We ask respondents if they avoid any areas during the day or night due to insecurity and if insecurity restricted them from engaging in various activities, such as grazing their animals, working on their farms, fetching water for their families, and working for wages. We combined these ten insecurity questions into an index, with high values indicating low perceptions of insecurity and low values indicating high perceptions of insecurity.

Violence Placebo: Several of our outcomes are survey self-reports, and all self-reports could be affected by social desirability bias. Our survey results are suspect if respondents in treatment communities learned the "correct" answers better than respondents in control communities. If social desirability accounts for the effect in survey self-reports, we would also expect differences between treatment and control for other normatively desirable attitudes. To test social desirability effects, we conduct a placebo analysis using attitudes about violence as a placebo. Attitudes about violence are a good candidate for a placebo because intergroup contact should not affect general attitudes about violence, but respondents may feel social pressure to answer violence questions in a desirable way. We measure attitudes about violence with a six question index asking respondents if it is always, sometimes, rarely, or never justified to use violence in certain situations, such as retaliating against violence or bringing criminals to justice.

2017 or later are endline measurements.

[13]This experiment was based on a question from the GSS asking respondents if they would favor or oppose living in a neighborhood that was half white/black.

[14]Asking respondents to recount the number of violent events does not accurately measure the scale of the conflict because those answers are determined by the awareness and memory of the community members. Awareness of individual violent events is low because many of the violent events occur in fields and grazing routes far from the town center and residential areas. In addition, ECPN sought to increase awareness of violent events through its conflict forums. The type of event that all community members are aware of – large massacres, burning of homes, etc... – generally lead to the disintegration of both communities as community members flee the area fearing further violence or reprisals. These large-scale events are rare and none occurred in intervention or control communities during the study.

Mechanisms

The primary outcomes of intergroup affect, intergroup contact, and insecurity tell us if ECPN worked but provide no evidence for how the program worked. Previous work on contact specified three mechanisms through which contact affects attitudes: empathy/perspective-taking, threat/anxiety, and ingroup expansion (Pettigrew and Tropp 2008; Al Ramiah and Hewstone 2013; Dovidio et al. 2017). We do not manipulate these mechanisms directly, and so cannot make causal claims about the mediating role of these variables for ECPN. But we can provide exploratory evidence that these mechanisms played a role if (1) ECPN affects these mechanisms and (2) these mechanisms affect intergroup affect, intergroup contact, and insecurity.

Threat: We use three self-report survey questions to measure threat felt by the outgroup. These questions ask if the outgroup is a threat to the respondent's community, believe in different morals than the respondent's community, and overly influence the respondent's community.[15].

Empathy/Perspective-taking: We measure empathy with two questions and perspective-taking with one question. For empathy, one question asks if the respondent's group would help a member of the other side if something unfortunate happened to that person, like a serious illness or the death of a parent. The second questions is the same but asks if someone from the other group would help someone from the respondent's group. For perspective-taking, the question asks who the respondent believes is responsible for the violence between their community and the other community: the other group or both groups.

Ingroup expansion: We measured respondents' recategorization of their ingroup to include outgroup members with eight survey self-reports and a public goods game. Five survey questions ask respondents to answer questions about "people in this area, including people from the other group", such as if the groups share the same morals and if the groups work together to achieve common goals. Three more questions ask the respondent about the groups working together on specific goals, such as repairing a road or solving a water supply problem.

We also used a natural-field public goods game to measure the ability of the groups to cooperate to achieve a common goal. If ECPN causes respondents to incorporate the former outgroup into their ingroup, then we expect those communities to better cooperate in a public goods game. Compared with lab-based behavioral games, whose choice-making situations are necessarily artificial, the choice-making situation of a natural-field game is akin to the choices people make in their lives (Harrison and List 2004); Winking and Mizer (2013)]. Because these communities often decide how to contribute to some public good, such as repairing a borehole or a market, we chose to use a natural-field public goods game (PGG) as a realistic behavioral measure of cooperation.[16]

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[15]These threat questions are based on questions from Van Zomeren, Fischer, and Spears (2007)

[16]This game is similar to the one implemented by Fearon, Humphreys, and Weinstein (2009) as part of a similar study on

These designs and measurements put us in a strong position to identify effects if effects exist. First, we have data at the community-level and individual-level. If the two analyses show similar relationships, we can be more sure that those relationships are not spurious. Second, both community and individual-level analyses use a baseline/endline + control group design to differentiate a secular trend from a treatment effect. Many changes occurred in the social environment between the beginning and the end of ECPN that could change intergroup relations, such as the economic downturn in Nigeria and the anti-grazing law in Benue. By comparing the change in the treatment group to the change in the control, we are more certain that differences are due to ECPN and not other factors. Third, outcomes are measured using survey self-reports, survey experiments, a behavioral game, and monitoring of social behavior. If we observe similar relationships across multiple modes we can be more certain that the relationship is not spurious.

1.6   Results

Our major finding is that the program improved intergroup attitudes, spurred intergroup contact outside of the program, and reduced feelings of insecurity. The program had the largest impact on respondents who participated on ECPN committees, but the effect extended to respondents who did not participate with ECPN. We use coefficient plots to report average treatment effects in our community-level data and in our individual-level data. We also use coefficient plots to show differences between participants, nonparticipants, and controls in our individual-level data. All coefficient plots show bootstrapped 95% confidence intervals and standardized coefficients.

community-driven development in Liberia.
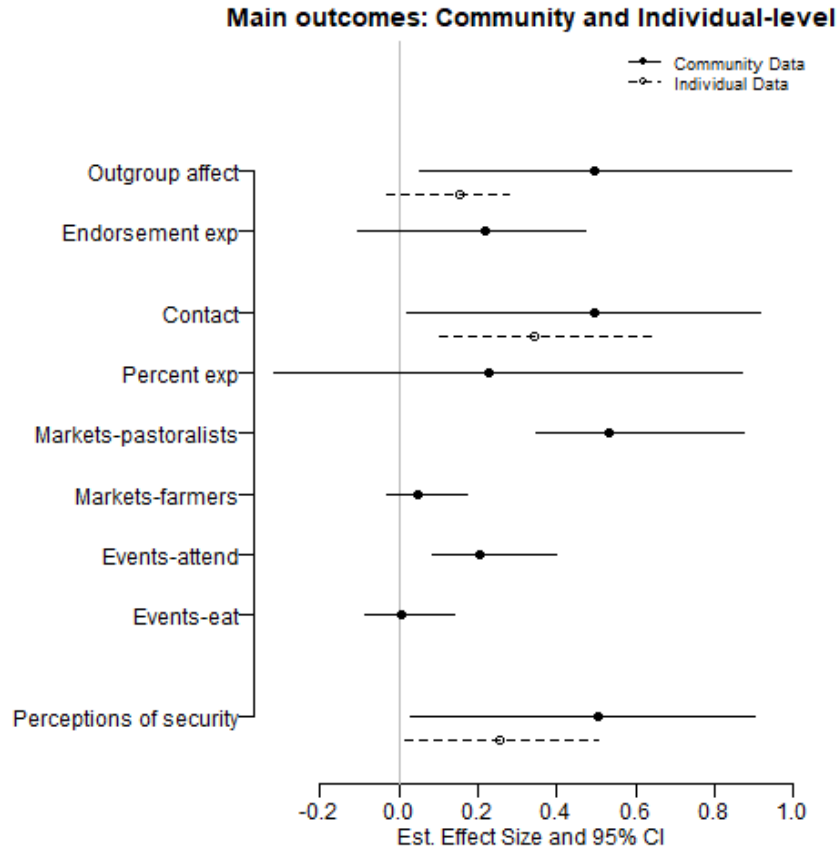
Figure 1.1: Effect of treatment assignment on outcomes in community-level and individual-level data.
Points are average treatment effects versus control estimated using OLS. Lines are bootstrapped 95% confidence intervals. Solid lines are effects in the community-level data, dashed lines are effects in the individual-level data. The first set of effects concern intergroup affect; the second set concern voluntary contact; the last concerns insecurity. Effects in the figure are positive if ECPN improved outcomes and negative if ECPN worsened outcomes.

Figures 1.1 and 1.2 shows ECPN's effect on all primary outcomes. Figure 1 shows the main analyses, where the solid lines are the community-level data and the dashed lines are the individual-level data. Figure 2 shows participants and nonparticipants compared to controls. From top to bottom, the outcomes are ordered to correspond with: (1) intergroup attitudes, (2) intergroup contact, and (3) insecurity. Some outcomes – observations in markets and at social events, survey experiments – are only possible in the community-level analysis.

Main outcomes: Individual-level
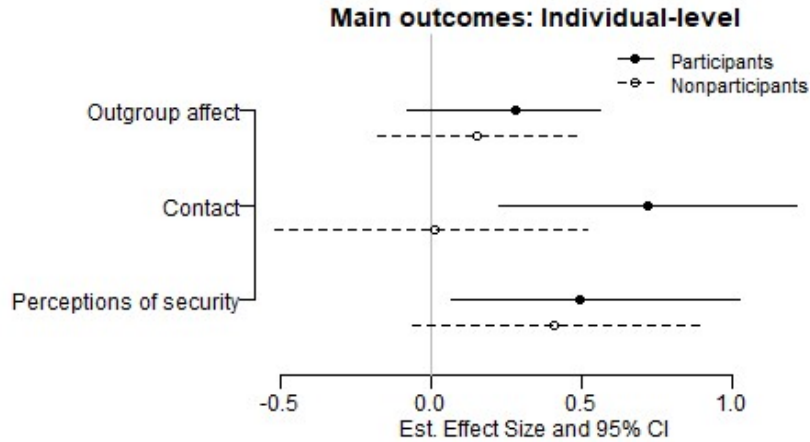
Figure 1.2: Effect of treatment assignment on participants and nonparticipants. Points are average treatment effects versus control estimated using OLS. Lines are bootstrapped 95% confidence intervals. Solid lines are effects among participants, dashed lines are effects among nonparticipants living in treatment communities. Effects in the figure are positive if ECPN improved outcomes and negative if ECPN worsened outcomes.

1.6.1 Intergroup Affect

ECPN bolstered intergroup affect in treatment communities. Compared to control communities, respondents in treatment communities report more trust in the other group and are more comfortable engaging in various relationships with the outgroup, such as trading goods and intermarriage. Intergroup affect as measured by the endorsement experiment also improves more in the treatment group than the control group, though the difference is not statistically significant at conventional levels.

Figures 1.3a and 1.3b show the descriptive change in affect for treatment and control communities. Affect in control communities decreased from baseline to endline, while intervention communities improved over the same time period. As measured by the endorsement experiment, affect declines in both treatment and control communities, but declines more in control communities. Both measures suggest that ECPN improved affect towards the outgroup.

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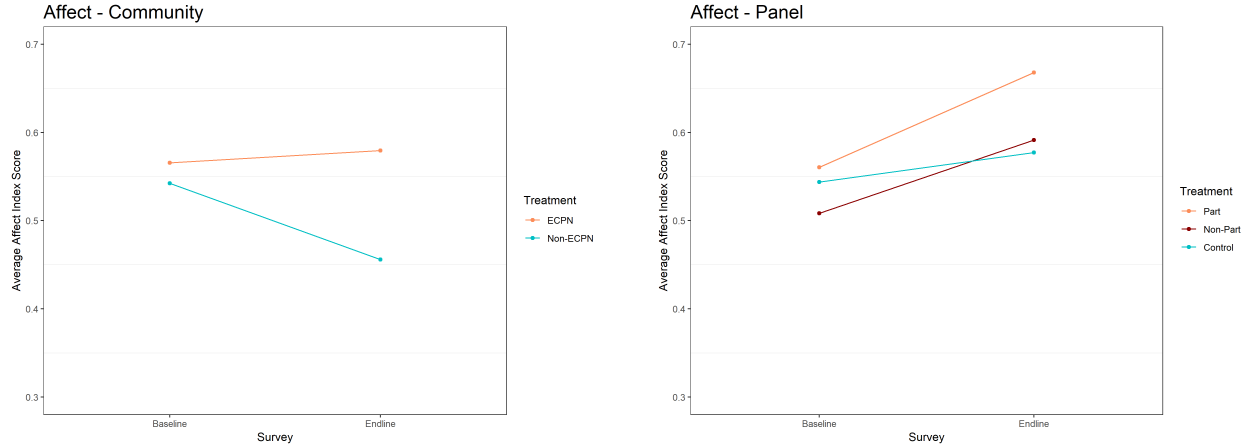
(a) Descriptive change in community-level intergroup affect from baseline to endline. Red line is treatment site average, blue line is control site average. Moving up the Y-axis indicates improved affect between groups.

(b) Descriptive change in individual-level intergroup affect from baseline to endline. Red line is participant average, dark red line is nonparticipant average, blue line is control average.

Figure 1.3: Intergroup Affect

1.6.2 Contact

The effect of ECPN on contact is substantial. Respondents in treatment communities report more contact and more willingness to engage in contact at all levels of the percent experiment; we also observe more pastoralists in markets interacting with farmers. Since the markets are all located in the farming community, the sustained presence of pastoralists there suggests that (1) farmers were accepting/tolerant of pastoralists in their community and (2) pastoralists felt comfortable spending time in the farmer community. The number of farmers present in the markets does not change in either group, which makes sense because the market is inside the farming community.

(a) Descriptive change in community-level voluntary contact from baseline to endline. Red line is treatment site average, blue line is control site average. Moving up the Y-axis indicates improved affect between groups.

(b) Descriptive change in individual-level voluntary contact from baseline to endline. Red line is participant average, dark red line is nonparticipant average, blue line is control average.

Figure 1.4: Voluntary Contact

Figures 1.4a and 1.4b show the descriptive change in contact for treatment and control communities. The community-level self-reports show that intergroup contact declined sharply in control communities but rose slightly in treatment communities. It is impressive that ECPN increased contact while the social environment led to a sharp decline in control sites. The secular decline is due to the displacement in Benue, where intergroup contact went down for every group, though it declined far less in treatment sites. In Nassarawa, intergroup contact increased in both treatment and control sites, but far more in treatment sites.

At the individual-level, intergroup contact increased for committee participants but stayed largely the same for nonparticipants and controls. The large community-level effect, however, suggests that the effects of ECPN *did* extend to nonparticipants in treatment communities. But the effect did not extend to the type of nonparticipant who we could track down and resurvey.

1.6.3   Insecurity

ECPN's substantially decreased feelings of insecurity in the treatment group. The effect is large in both the community-level and the individual-level data. Security in ECPN communities improved far more from baseline to endline than in control communities. At the individual-level, participants and nonparticipants improved equally, suggesting that these increases reflect a change in the conflict environment that impacts the entire community, not just respondents involved in ECPN committees. These improvements in treatment communities are especially powerful because other survey questions show that ECPN increased awareness

of the conflict – respondents in ECPN communities are more likely than the control to know that violence between groups has occurred recently, yet they feel more secure.
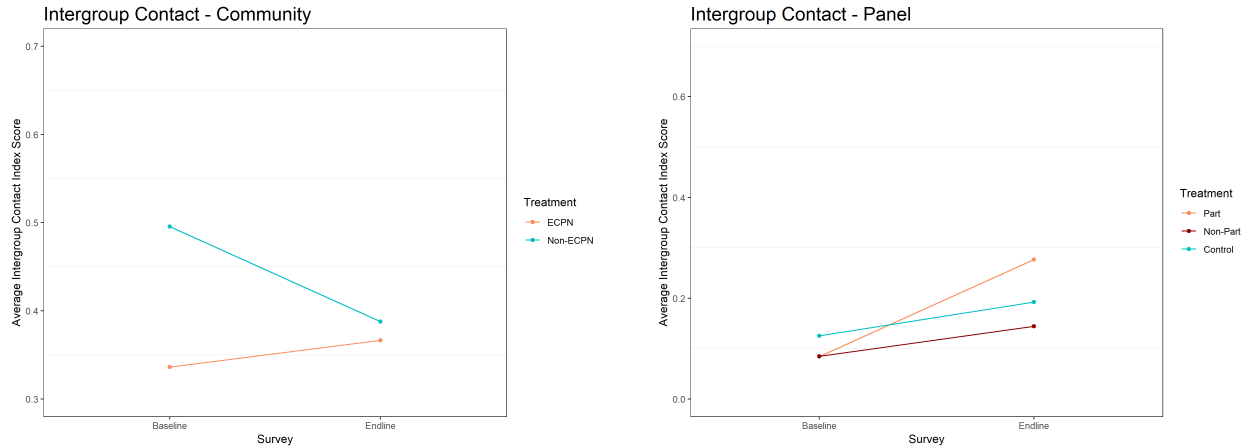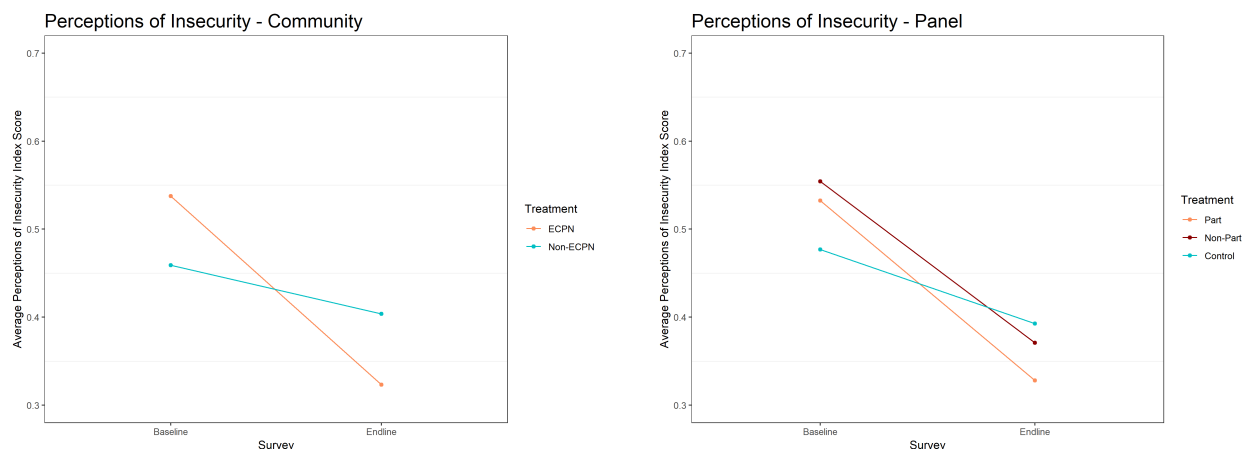

(a) **Descriptive change in community-level insecurity from baseline to endline.** Red line is treatment site average, blue line is control site average. Moving up the Y-axis indicates improved affect between groups.

(b) **Descriptive change in individual-level insecurity from baseline to endline.** Red line is participant average, dark red line is nonparticipant average, blue line is control average.

Figure 1.5: Perceptions of Insecurity

Figures 1.5a and 1.5b show the descriptive change in insecurity for treatment and control communities. The insecurity of control communities declines slightly from baseline to endline but insecurity in treatment communities declines substantially more. ECPN communities initially felt more insecure than control communities but were more secure at the end of the program. ECPN substantially improved the security of people in intervention communities.

1.6.4 Placebo: attitudes about violence

To provide evidence that these survey results are due to intergroup contact and not due to social desirability bias, we analyze the effect of ECPN on attitudes about violence. If ECPN affects attitudes about violence, then we worry that other self-reports were affected by social desirability bias. If ECPN has no effect on attitudes about violence, then it is unlikely that other self-reports were affected by social desirability bias.

ECPN has no effect on attitudes about violence in the community-level data or the individual-level data. The lack of an effect on this placebo outcome, plus our use of survey experiments and behavioral observation to corroborate survey self-reports, suggests that our self-report results for primary outcomes are not due to social desirability bias. More details about the placebo analysis are available in Appendix A.

1.6.5   Mechanisms: Empathy, Threat, and Ingroup Expansion

Our results suggest that ECPN improved intergroup relations between farmers and pastoralists. We also undertook an exploratory analysis to learn the mechanisms through which ECPN affected attitudes. Based on the literature about contact theory, we looked for evidence that ECPN worked through empathy and perspective-taking, reduced feelings of threat, and expansion of the respondent's ingroup to include the former outgroup.

Our exploratory analysis suggests that ECPN may have worked through increasing empathy. ECPN led to increased empathy in the community and individual-level analyses. In turn, increased empathy correlated with improved intergroup affect in the community-level data and with increases in intergroup affect and intergroup contact at the individual level. Increased perspective-taking also correlated with intergroup affect and intergroup contact in both analyses. ECPN may have led to increased perspective-taking, though not quite to a statistically significant level. This analysis suggests that increased empathy is a plausible mechanism through which ECPN improved intergroup relations. Because empathy was not randomly assigned, though, it's equally plausible that ECPN improved intergroup affect and fostered intergroup contact, and that those outcomes led to increased empathy.

There is no evidence that ECPN reduced perceptions of threat or expanded perceptions of the ingroup. ECPN did not effect either survey index, and the public goods game shows that the treatment group was not better at coordinating than the control group. Treatment communities donated *less* to the shared community fund than control communities. At the individual-level, ECPN participants donated less than nonparticipants who donated less than respondents in the control group. This is the opposite pattern of what we would expect if intergroup contact caused the communities to think of each other as part of one ingroup. Reduced threat and ingroup expansion are still plausible psychological mechanisms – each correlated strongly with at least one outcome – though neither was increased by ECPN.

More details about the mechanisms analyses can be found in Appendix A.

1.7   Discussion

This paper provides evidence that intergroup contact can improve intergroup relations, even in dire circumstances. We tested the effects of a programmatic contact intervention in an active and escalating conflict between farmers and pastoralists in Nigeria. The extreme violence of this context and personal involvement of the research subjects poses a tough test for contact to improve intergroup relations. The violence provides grievances that feed outgroup animosity and reinforce group differences, strengthen social and psychological

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barriers to improving attitudes, and reinforces the perception that groups' material incentives are opposed. Despite the difficult context, the program improved intergroup affect, fostered more intergroup contact, and decreased feelings of insecurity in these communities. Methodologically, this study demonstrates the benefits of measuring outcomes at baseline and endline in a treatment group and in a control group as a means of capturing the secular trend.

We believe the program improved group relations and the prospects for peace because groups shared a latent interest that could be activated by contact. The shared interest was "latent" because it was not being identified by the groups in conflict. Cooperative contact helped reveal the latent shared interest to both groups by demonstrating how the groups can work together to achieve a common goal and removing psychological and social barriers to identifying the shared interest. Contact also provides the groups with opportunities to send costly signals of their intent to cooperate, which are important for intergroup cooperation (Kydd 2000). More studies need to be conducted to determine the limits of contact and the conditions under which contact can effectively improve intergroup relations.

This study also points to an opportunity for collaboration between scholars of intergroup contact and scholars of conflict. These literatures are often concerned with the same end goal – reducing conflict – but rarely speak to one another. Conflict scholars often see conflict as a bargaining problem, and violence as a bargaining failure. The conflict literature points to a lack of trust as the primary cause of conflict and usually posits a strong third party actor as necessary to guarantee peace. Intergroup contact research hints that intergroup contact can create cooperative norms and institutions that serve the same function as a strong third party. Improving relations – especially improving trust – through psychological interventions like intergroup contact can help groups overcome commitment problems and reduce the likelihood of violence.

Contact could help establish cooperative norms and institutions in a number of ways. In our fieldwork, we see evidence that contact strengthened existing conflict resolution structures, like leader arbitration. The leadership of each group convene with the "plaintiff" and "defendant" to arbitrate cross-group disagreements, such as cows caught grazing on farmland. Our research partners on the ground noted that these structures became more effective in ECPN communities because pastoralists became more aware of the financial value of the crops destroyed by cows and farmers became more aware of the difficulty of controlling and corralling thousands of cows.[17] Contact could also encourage ingroup policing: ingroup members punishing other ingroup members who violate the rights of outgroup members (Fearon and Laitin 1996; Ditlmann and Samii 2016). If groups "punish [their own] miscreants" (Fearon and Laitin 1996, 722), in a way that is visible to the other side, then the other side does not need to retaliate against the transgression.[^ingroupPolice]

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[17]We are especially grateful to Israel Okpe for his observations about farmer-pastoralist conflict dynamics.

Visible ingroup policing shows each side that the other can be trusted, alleviating commitment problems.

This paper also teaches us about settling disputes between sedentary peoples and semi-nomadic peoples. Violent conflict between settled peoples and semi-nomadic peoples is on the rise throughout Africa (Nnoko-Mewanu 2018; Kuusaana and Bukari 2015; Mwamfupe 2015). This study focuses on the Fulani, the largest semi-nomadic people on Earth (Encyclopedia 2017). 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 violent conflict between Fulani and settled peoples can help prevent violence that targets other nomadic, semi-nomadic, and itinerant peoples, such as the Tuaregs in West Africa, Kochi in Afghanistan, Khoisan of Southern Africa, and Romani of Europe. Preventing such violence could help preserve a dying way of life.

There remain several opportunities to learn about the effects of contact in conflict environments. First, this study employed a design to test the hypothesis that contact would improve group relations in an active conflict. It also provided exploratory evidence of the mechanisms through which contact affects group relations, showing that contact may have worked through increased empathy. Future studies can bring more causal evidence to the question of *how* contact improves group relations. Second, our program was designed, implemented, and randomized at the community-level because conflict between farmers and pastoralists occurs at the community level. Future studies should randomize individual community members' participation in a contact-based intervention. Such studies could learn much about the affect of contact on individuals, including the dosage of contact necessary to improve attitudes, as well as how social norms and interpersonal discussion diffuse the positive effects of contact to individuals without outgroup contact.

Third, contact interventions, explicitly or implicitly, involve the groups cooperating to *achieve* a joint goal. ECPN was designed to benefit all communities by having the conflicting communities cooperate successfully. But what if contact is not successful and the goal is not achieved? Does contact itself still improve attitudes, or does contact work because groups begin to associate cross-group cooperation with good outcomes? In a similar vein, are Allport's conditions necessary for contact to achieve its aims, or are they only needed insofar as they ensure the intergroup cooperation generates positive outcomes for both groups? Future studies should determine the necessity of Allport's conditions and attempt to differentiate the fact of contact from the outcomes that group cooperation produces.

Chapter 2

Contact itself or contact's success? How intergroup contact improves attitudes

2.1 Abstract

Intergroup contact is one of the most common methods of reducing intergroup prejudice and improving group relations, but it does not always achieve these ends. To explain variation in contact's success, most scholarship focuses on the conditions under which contact occurs and neglects the outcomes that contact achieves. In this paper, I propose that intergroup contact will improve intergroup attitudes when the contact helps groups achieve a desirable outcome and I argue that the underlying mechanism through which contact improves attitudes is changing group members' expectations about the likely outcomes of intergroup interaction. As a first test of the idea that contact's effects depend on the expectation that contact helps achieve desirable outcomes, I conduct an experiment in which subjects experience vicarious intergroup contact that does or does not achieve a joint goal. The results suggest that intergroup attitudes only improve if contact achieves a joint goal. I end by discussing the implications for contact theory and for contact-based interventions.

2.2 Introduction

Intergroup contact is the preeminent means of reducing prejudice and improving affect towards an outgroup. Be the groups based on ethnicity (Burns, Corno, and La Ferrara 2015; Boisjoly et al. 2006; Van Laar et al. 2005), religion (Mousa 2018; Weiss 2019), gender (Finseraas et al. 2016), ability (Evans 1976; Krahé and Altwasser 2006; Sheare 1974), socioeconomic status (Rao 2019), or age (Meshel and MCGlynn 2004), cross-group interaction can improve relations between groups. Reviews and meta-analyses confirm the positive effects from contact in real-world settings and international organizations base programs and policies on the idea that cross-group interaction improves relations, decreases violence, and reduces discriminatory behavior.[1]

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[1] See Search for Common Ground, Mercy Corps, and United States Institute of Peace for examples of peacebuilding programs based on contact theory.

But contact does not always improve attitudes, and the literature is not unanimous on when contact should improve attitudes and when it should not. A review by Paluck, Green, and Green (2019) suggests contact's effects are weak for ethnic prejudice, and Gubler (2011) suggests contact causes backlash effects for highly prejudiced people. Some scholars postulate that contact is only effective when it meets certain conditions, but other scholars argue about whether and when those conditions are necessary (Pettigrew and Tropp 2006; Pettigrew et al. 2011). To use contact theory to reduce prejudice, discrimination, and conflict throughout the world, it is vitally important to understand when and how contact will improve attitudes between groups.

Researchers have made great strides towards understanding when and how contact will improve attitudes by focusing on cognitive mechanisms – what contact does in the minds of participants. Originally, Allport (1954) focused on dispelling negative stereotypes. Recent findings suggest contact must trigger empathy (Broockman and Kalla 2016), relieve anxiety (Page-Gould, Mendoza-Denton, and Tropp 2008), or make salient a shared identity (Gaertner and Dovidio 2014). Another vein of research focuses on how participants resolve the cognitive dissonance that positive cross-group contact creates. When participants resolve dissonance by updating attitudes, attitudes improve; when participants resolve dissonance by doubling down on existing attitudes, negative attitudes remain or are strengthened (Gubler 2013).

This work raises the question of when people will be motivated to resolve cognitive dissonance by updating attitudes, rather than doubling down on negative attitudes. People are naturally motivated to maintain existing attitudes (Festinger 1962; Tavris and Aronson 2008; Kunda 1990; Ward et al. 1997). How can contact motivate attitude change more strongly than other factors motivate attitude maintenance? Drawing on theories that conceptualize humans as goal-oriented (Chartrand and Bargh 2002; Austin and Vancouver 1996; Bandura 2001; Tolman 1951; Kunda and Spencer 2003), I propose that participants will update attitudes when they expect cross-group interaction to help them and their group achieve goals. The expectation of achieving goals through cross-group cooperation provides participants with the motivation to update attitudes about the other side. If participants do not expect cross-group cooperation will help them achieve their goals, participants have little motivation to change attitudes and are likely to resolve cognitive dissonance by doubling-down on existing attitudes. This theory suggests that the process of working together is not enough to change attitudes; the working together should create the expectation that cooperation will achieve something of value.

To test the hypothesis that contact's effects depend on the perception that contact helps achieve goals, I conduct a lab experiment in which subjects experience vicarious intergroup contact that does or does not achieve its goal. In the experiment, subjects watch a video in which two people from opposing political

parties (Democrats and Republicans) cooperate to achieve a shared goal. In the "success" condition they achieve their goal; in the "failure" condition they fail to achieve their goal. If the effects of contact depend on the expectation that contact will help participants achieve a goal, attitudes should only improve in the "success" condition. If contact itself improves attitudes, regardless of how contact helps achieve goals, then attitudes should improve in both conditions.

The results suggest that most effects of contact depend on contact helping groups achieve goals. When subjects saw group members achieve their joint goal through contact, ingroup favoritism and outgroup animosity decreased relative to other experimental groups. The video diminished the difference between ingroup and outgroup members on an index that includes measures of affect, social distance, feelings of threat, attributions of blame, willingness to interact with outpartisans, and information seeking. When subjects saw group members cooperate with the other side but fail to achieve their goals, they favored their ingroup over the outgroup on all measures. These subjects' attitudes were often worse than a control group who saw no video.

I also take advantage of group status differences in my research context to assess how effects of contact differ among a context's majority group and minority group. Most contact studies concern the majority group's attitudes towards the minority group, though much theory and evidence suggest that majority groups conceptualize minority groups differently than minority groups conceptualize majority groups (Shelton 2000; Monteith and Spicer 2000; Maoz 2000) and that minority groups respond differently than majority groups to intergroup contact (Ditlmann and Samii 2016; Galily, Leitner, and Shimion 2013; Amir et al. 1980; Neely, Heckel, and Leichtman 1973; Hässler et al. 2020; but see Mousa 2018). Minority group opinions often go unstated; in social situations, minority opinion groups tend to keep their views to themselves for fear of social sanction, contributing to a false consensus bias among the majority group and even a lack of awareness of cross-group interactions on the part of the majority group when group status cannot be identified visually (Ross, Greene, and House 1977; Bassili 2003; Noelle-Neumann 1974; Glynn, Hayes, and Shanahan 1997). This is the case at universities like the one where this study takes place (Larson, McNeilly, and Ryan 2020; Ambrose 2016; Usher 2017). A recent study of the student body at a large public university by Larson, McNeilly, and Ryan (2020) found that almost 70% of conservatives, the minority opinion group, self-censor to hide their views from peers; only 24% of liberals, the majority opinion group, engage in similar self-censorship. Without awareness of an outgroup member's group status, an individual cannot use interactions with that outgroup member to learn about the outgroup; consequently, these interactions have minimal effects on intergroup attitudes (Brown and Hewstone 2005). In the present study, the reticence of conservative students to express their beliefs suggests that Democrat students are less likely to be *pretreated*

with intergroup contact than Republican students. As a result, the effect of the contact treatment should be muted among Republican subjects (Gaines, Kuklinski, and Quirk 2007; Druckman and Leeper 2012).[2]

Consistent with the ideas that intergroup attitudes differ between minority and majority groups and that group status moderates the effects of contact, this study finds that Republicans in the control group express less ingroup bias than Democrats in the control group, but Republicans are unaffected by watching either contact video. The ingroup bias of Democrats, on the other hand, significantly decreases after watching the video where group members cooperate and achieve a joint goal. This pattern suggests that Republican subjects have been pretreated with intergroup contact but that intergroup contact is novel for Democrat subjects. This difference illustrates the importance of considering the intergroup attitudes of, not just towards, minority groups. It also highlights the necessity of considering pretreatment context when interpreting experimental results (Gaines, Kuklinski, and Quirk 2007; Druckman and Leeper 2012).

This study contributes to the literature about intergroup contact in two main ways. First, it suggests that the effects of contact are conditional on contact helping achieve goals. Contact that helps achieve a goal now changes expectations about the likely outcomes of future contact, providing motivation for individuals to improve attitudes towards the outgroup. Contact itself may improve relations a small amount, but major gains are made when contact successfully achieves something of value to both parties. This finding is consistent with Gubler (2013)'s theory that improving attitudes towards another group requires individuals to resolve cognitive dissonance by updating attitudes; it suggests that achieving goals provides this motivation. This implication is especially relevant for organizations using contact-based programs to reduce prejudice, discrimination, and group-based violence. Contact-based interventions should accomplish something of value to the participating individuals and groups.

Second, this study suggests that the effect of contact-based interventions differ for majority and minority group members. The experiences of minority and majority groups may diverge in several ways, moderating contact's effects. The logic of numbers dictate, for example, that minority groups will interact with majority group members far more frequently than majority group members interact with minority group members (Horowitz 2019). Fear of social sanction also prevents many minority group members from expressing their opinions. Contact-based interventions may then be most effective at improving the attitudes of majority groups members, who experience less intergroup contact in their daily lives. Minority group members, who experience frequent intergroup contact, may be less affected by new instances of contact. In the context I study, the minority and majority groups interact frequently but minority group members are likely to hide

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[2]I consider the analysis of partisan differences exploratory. The difference of contact effects for majority/minority groups was not the primary goal of the study and the study is not well-powered to detect effects among Republicans, the minority group in this context.

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their group status. The vicarious contact had no effect on the minority group but substantially improved attitudes of the majority group.

In the next section, I lay out the theoretical arguments for contact itself improving attitudes and for contact only improving attitudes when it helps group members achieve a goal. I then describe the vicarious contact video and lab experiment designed to test the effect of contact with and without goal achievement. Lastly, I present the experiment's results and discuss their implications.

2.3   Overcoming Group Bias

The goal of intergroup contact is to improve participants' attitudes towards an outgroup, and contact accomplishes this improvement by structuring positive interactions between ingroup and outgroup members. From some perspectives, any effects of contact are surprising. Improving outgroup attitudes requires a participant with negative attitudes to dismiss their negative attitudes because of the positive interactions, rather than dismiss the positive interactions because of their negative attitudes (Gubler 2013). Research about cognitive dissonance and motivated reasoning suggest that this kind of change is unlikely for most people (Festinger 1962; Tavris and Aronson 2008; Paharia, Vohs, and Deshpandé 2013; Kraft, Lodge, and Taber 2015; Kunda 1990; Ward et al. 1997). First, it is less cognitively costly for an individual to reject one piece of new information than to reject their worldview. Second, as the individual seeks to form an accurate view of the world, one piece of new information is more likely to be aberrant than a worldview built on a lifetime of information-gathering.

These factors provide a strong motivation for individuals to maintain their existing attitudes. For something like intergroup contact to cause attitude change, the contact must motivate individuals to change attitudes more strongly than other factors motivate individuals to maintain attitudes. What could provide that motivation?

First, individuals may be motivated to hold accurate views of the world (Kunda 1990). Positive intergroup contact can provide powerful firsthand experience that previous beliefs were inaccurate, especially when those previous beliefs were based on little information. For example, a belief that the other side is lazy could be dispelled by interactions with diligent outgroup members. Second, individuals may be more motivated to maintain positive beliefs about themselves than they are motivated to maintain negative outgroup attitudes. Individuals receive psychological rewards from the belief that they are fair and moral people (Rilling et al. 2002; Bandura 1999), and positive intergroup contact reveals that negative outgroup attitudes are unfair and immoral. Thirdly, the very expectation of interaction with a group provides motivation to improve

attitudes towards that group (Klein and Kunda 1992).

Those motivations apply to contact itself; they do not depend on the outcome of contact. But achieving positive outcomes through contact can also provide powerful motivation to change attitudes because humans are motivated to obtain positive outcomes and achieve goals (Austin and Vancouver 1996; Bandura 2001; Tolman 1951; Huang and Bargh 2014; Tate, Stewart, and Daly 2014; Lewin 2013). Objects in an individual's environment are evaluated as a function of their ability to satisfy active goals, with more positive evaluations made when objects are perceived to be more compatible with those goals (Markman and Brendl 2000). If a negatively evaluated object is shown to help achieve a goal, goal achievement motivates more positive evaluations about that object. Interactions with members of disliked outgroups are, in general, not expected to generate positive outcomes or help achieve goals. Contact that achieves a goal can change that expectation and thereby motivate positive evaluations of the outgroup.

For cooperative contact, these goal-oriented theories suggest that cooperative contact is especially likely to improve attitudes towards the outgroup if contact helps an individual achieve her goals. First, the contact itself provides counter-stereotypical experiences that conflict with negative outgroup stereotypes. These experiences cause cognitive dissonance due to the motivations to hold accurate views about the world, maintain positive beliefs about the self, and hold positive evaluations about people we expect to interact with frequently. Second, achieving a goal through cross-group cooperation provides a counter-expectant experience that is dissonant with the belief that working with the outgroup generates negative outcomes. Associating cross-group interaction – and, by extension, the outgroup – with achieving goals provides motivation to reject negative attitudes because those negative attitudes deter cross-group interaction and prevent goal achievement.

The effects of contact interventions, however, may be different among majority and minority groups. Minority group members interact far more frequently with majority group members than majority group members interact with minority group members (Horowitz 2019). Minority group members' attitudes, therefore, are more likely to be based on personal experience with members of the majority group. New contact experiences with majority group are not novel for minority group – if contact improves attitudes, the effect should have already occurred due to pretreatment (Gaines, Kuklinski, and Quirk 2007; Druckman and Leeper 2012). New contact experiences with the minority group are likely novel for the majority group, so effects of contact should be strongest on attitudes of the majority towards the minority. Minority group attitudes are also more likely than majority group attitudes to be based on unfair treatment and power differentials (Shelton 2000; Monteith and Spicer 2000; D'souza 1995; Duckitt and Mphuthing 1998). When power is unequal and the less powerful group perceives that the power differential has been abused, it

is possible that the minority group will see no potential benefit from cross-group interaction.[3] As such, even a contact experience in which both groups achieve a joint goal may not change the minority group's expectations about working with the majority group. Without the belief that working with outgroup can help achieve goals, minority groups have little motivation to reject extant negative attitudes. That belief is unlikely to be generated by one-shot contact experiences and may require a lengthy contact experience to cultivate.

2.4 Experimental Design

To test the hypothesis that cooperative contact is especially likely to improve attitudes when that contact leads to achievement of a shared goal, in 2017 I conducted an experiment with students from the University of Illinois subject pool. In the experiment, subjects watch a video in which two students collaborate on a class project. One student is a Republican and the other is a Democrat. In one condition, their class project receives an A grade; I refer to this as the "success" condition. In the other experimental condition, their class project receives a D; I refer to this as the "failure" condition. A control group of subjects watch no video. The video is approximately 7 minutes long.

People commonly experience intergroup contact vicariously through televised media programs, and researchers have dubbed this type of simulated contact experience *vicarious intergroup contact.* Based on Bandura (1971)'s social learning theory, which posits that individuals learn attitudes and behavior by modeling what they observe, and Horton and Richard Wohl (1956)'s idea of parasocial interaction, which posits that viewers react to television characters as if the characters are real people, researchers have developed and tested theories of when and how videos displaying cross-group interaction improve attitudes. These theories and tests show that vicarious intergroup contact improves attitudes towards the outgroup in much the same way that direct contact improves attitudes, including similar effect sizes, mechanisms, and personal and social correlates (Wright et al. 1997; Pettigrew et al. 2007; Vezzali et al. 2014; Page-Gould, Mendoza-Denton, and Tropp 2008; Moyer-Gusé, Dale, and Ortiz 2018). Vicarious contact through videos has successfully reduced prejudice against gay people (Schiappa, Gregg, and Hewes 2005, 2006) and improved affect of Germans towards Chinese and vice versa (Eller et al. 2011).

The video contains six scenes (an opening and five acts) to follow the typical structure of television programs. In the video's opening scene, the characters are assigned by their teacher to work together on a group project.[4] In Act I, they meet to work on the project and their political differences are revealed in

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[3]Allport (1954) recognized the problem of power differentials. For this reason, one condition believed to be necessary for contact to improve attitudes is the equal status of both groups within the contact context.

[4]The project the students work on is unrelated to politics. The students are assigned to work on a paper comparing theories

a conversation about President Trump and the issue of abortion. It is important to establish their group difference early because intergroup contact has no effect if participants and observers are unaware of group affiliations (Voci and Hewstone 2003; Brown and Hewstone 2005).[5] In Act II, the characters separately express reservations about working together to friends and family members, and are encouraged by their friends and family to work together. This scene is important to establish that the intergroup contact is supported by their ingroup.

In Act III, the two characters again meet to work on the project and share details of their lives before college. In Act IV, they meet to finish the project and discuss their lives in college. These scenes establish the shared humanity of the characters and help the subjects relate to the experiences of the characters. In the final scene, Act V, they meet with their professor to receive her comments on their paper. In the "success" condition, the professor congratulates them for overcoming their differences and receiving the highest grade in the class. In the "failure" condition, the professor informs the students that they received the lowest grade in the class and implores them to work through differences more effectively in the future. The final scene demonstrates that cross-group interaction will or will not help subjects achieve goals.[6]

These videos were designed to maximize the effects of vicarious contact. Research on vicarious learning shows importance for modeled characters to be relatable to subjects (Rosenthal et al. 1978; Bandura 1969). In this video, the characters, like the subjects, are University students. The video is filmed on Illinois' campus, in locations familiar to the student subjects. The film's characters discuss topics relevant to student subjects, like college classes and their experiences in high school. The characters should be very relatable to subjects.

The video also fits the conditions Allport (1954) believed were necessary for group contact to improve relations: cooperation with equal status towards a common goal with support of authorities. The students in the video work together on a class project for which both want a high grade. They are equal partners in the

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of what caused the dinosaurs to go extinct.

[5]This video signaled partisanship with a discussion of President Trump and abortion because of the salience of those issues. Donald Trump was elected to the Presidency one year prior to this experiment and his election was still a salient issue on this campus. Abortion is an omnipresent issue in American politics and opinions about abortion divide Democrats from Republicans, with only about 1/3 of Republicans and over 80% of Democrats believing abortion should be allowed in all or most cases (Center 2019). However, it's possible that Republicans in the sample who believe abortion should be allowed and do not support President Trump would not find the video's Republican character relatable. If so, the video would have no effect on those Republicans. I find no evidence that Republicans generally found the characters unrelatable or less relatable than Democrats. Nor are attitudes about abortion and feelings towards President Trump associated with character relatability in the sample overall or a partisan subset. Moreover, subjects do not mention abortion or Trump as a reason they found the characters unrelatable. Abortion is never mentioned as a reason any subject found the characters relatable or unrelatable. For characters who found the characters relatable, Trump is mentioned by five subject, all five saying they relate to the character who disagreed with Trump and/or relate to overcoming political differences about Trump. These analyses are included in the Appendix B.

[6]The professor explicitly ties the students' grade to the students overcoming or failing to overcome their differences. The professor makes this causal connection to further the expectation that future intergroup contact will have the same result as the present intergroup contact. The theoretical mechanism through which a good outcome improves attitudes is the expectation that future contact will also generate a good outcome. A good grade and a bad grade are used to affect those expectations.

project; one does not dominate the other. Their teacher, a relevant authority figure, assigns them to their work group; when the students political differences are revealed, they are encouraged to work through those differences by friends and family. The only difference comes in the video's final scene, where the students either achieve or do not achieve the common goal they have been working towards. The students either (1) receive an A grade for doing good work to reinforce the idea that cross-group interaction yields good outcomes or (2) receive a D for doing bad work to reinforce the idea that cross-group interaction yields bad outcomes.

This experiment varies only the *outcome* of contact to influence subjects' perceptions that future contact will yield desirable outcomes. The expectation that future contact will yield desirable outcomes should provide the motivation needed for subjects to improve attitudes towards their outgroup. The *process* of contact could also influence the expectation that working with another group will yield desirable outcomes. In this experiment, process is held constant between experimental conditions so that it cannot systematically influence the results; a good process in which both characters expend equal effort is matched with a good or a bad outcome. The only difference between experimental conditions, and so the only factor that can explain differences between experimental groups, is that one set of subjects sees the characters achieve their joint goal and the other set sees them fail to achieve that goal.

The video also features interaction between groups for which a salient and powerful cleavage exists in the United States: political partisanship. Partisan polarization has increased drastically in recent decades, driven by dislike of outpartisans (Abramowitz 2013). The election of Republican President Donald Trump in November 2016 exacerbated this partisan cleavage: at the time of this experiment in 2017, 88% of Republicans approved of Trump's performance compared to just 8% of Democrats, the largest divide in the modern polling era (Doherty 2017). Recent studies suggest that negative affect and discrimination towards members of different political parties is now on par with negative affect and discrimination towards members of different racial groups (Iyengar and Westwood 2015; Iyengar et al. 2019). Partisan disdain is displayed even more openly due to a lack of norms against expressing negative partisan affect, which reduces concerns about social desirability bias in survey results. If outpartisan animus can be ameliorated through vicarious contact, it's likely that vicarious contact could ameliorate animus between many other groups.

This partisan cleavage is powerful on college campuses like the one where this experiment was conducted. Democrats make up a sizable majority on most college campuses and students perceive their campus environment as overwhelmingly liberal (Larson, McNeilly, and Ryan 2020). In my sample over 2/3 of students self-identify as liberal or left of center and only 20% identify as conservative or right of center. Disparaging remarks about political conservative are incredibly common on college campuses – Larson, McNeilly, and

Ryan (2020) found that 83% of conservative students encounter such remarks, compared to only 21% of liberal students who encounter disparaging remarks about political liberals. As a result of the perceived anti-conservative atmosphere, many conservative and Republican students hide their views to avoid social sanction from peers (Larson, McNeilly, and Ryan 2020; Ambrose 2016; Usher 2017).

Another consequence of Republicans on campus keeping their views private is that Democrats on campus may not realize when their peers are Republican. When Larson, McNeilly, and Ryan (2020) asked students to describe the political leanings of their classmates, only 1% perceived that their peers were conservative. In a focus group, one student stated "'I'm always under the impression that the classes are one hundred percent liberal'" (Larson, McNeilly, and Ryan 2020, 22). While classes are unlikely to be homogeneously liberal, if liberal and Democrat students cannot identify their conservative and Republican peers, then liberal and Democrat students cannot use personal interaction with conservatives and Republicans to update their views about those groups (Voci and Hewstone 2003; Brown and Hewstone 2005). Republican students, on the other hand, are aware that they frequently interact with Democrats. Republican students, then, are *pretreated* with intergroup contact before entering the experiment; Democrats are not. As a result, the effect of the contact treatment should be muted among Republican subjects (Gaines, Kuklinski, and Quirk 2007; Druckman and Leeper 2012).

2.4.1 Procedure

The study was conducted in a small computer lab. To maximize privacy, no more than three subjects were ever present in the lab at one time and room dividers were placed so that the lab was divided into three discrete sections not visible from other sections. All subjects were told that they would participate in two separate studies, one in which they may watch a video and answer questions and one for which they will be asked questions about different groups in America; subjects were then assigned a subject ID to be input before study one and an experimental condition number to be used for study two. The separation of the video from outcome measurement was done to mitigate experimenter demand effects by which subjects behave differently because they have inferred the purpose of the experiment.

After the introduction, subjects were randomly assigned to one of three experimental conditions: (1) the "success" condition in which the video's characters receive the highest grade on their project, (2) the "failure" condition in which the video's characters receive the lowest grade on their project, or (3) a control condition in which subjects do not watch the video. After watching the video, subjects answer questions about topics discussed in the video and a manipulation check to ensure they watched the video. Subjects in the control group are asked generic versions of these questions that do not refer back to the video.

Subjects are then thanked for completing study one and asked if they are ready to begin study two. Once subjects are ready, they are told that study two will randomly select them to answer questions about people from different groups in America. Those groups were: (1) Muslims and Christians, (2) African-Americans and Caucasians, (3) Republicans and Democrats, (4) The rich and the poor, (5) Voters and non-voters, (6) Rural people and urban people. Groups were chosen based on salience at the time of the study.[7] Subjects then enter the "experimental condition number" they were assigned upon entering the lab; this number ostensibly assigns subjects to answer questions about one of the six categories listed above. In reality all subjects answered questions about Republicans and Democrats. After subjects answer questions about Republicans and Democrats, the study is completed and subjects leave the lab.

2.5 Outcomes and Hypotheses

During the study, subjects answer two distinct sets of questions. The first set is about topics from the video. These questions are primarily to distract the respondents and convince them that the first study, the video intervention, is separate from the second study. The video questions ask about the relatability of the video's characters, if the characters worked well together or if working together was a problem, the subject's attitudes towards abortion, and the subject's perception of the abortion attitudes of typical Democrats and Republicans.

Subjects are then asked about Democrats and Republicans. For both parties, subjects are asked questions to measure several aspects of their attitudes, including group affect, social distance, feelings of threat, blame attribution, willingness to interact with partisans, and desire for information about political organizations aligned with each party. Where outcomes are measured with multiple questions, I combine the questions into party-specific additive indices. For each specific outcome, I assign respondents the difference between their ingroup response and their outgroup response to measure how much they favor their ingroup over their outgroup in that domain.[8] I then create my main outcome of interest, subject's overall partisan bias, by combining the measures of specific attitudes into an inverse-covariance weighted (ICW) index.[9] As a

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[7]Relations between African-Americans and Caucasians and between Republicans and Democrats are almost permanently salient in American politics. Relations between Muslims and Christians were salient because of Executive Order 13769, colloquially known as the "Muslim ban" on travel to the United States. Relations between rural people and urban people and between voters and non-voters were salient after the 2016 Presidential election, in which rural and urban areas seemed deeply divided. Relations between the rich and the poor are salient on college campuses and were especially salient after the 2016 Presidential election.

[8]For example, each respondent answers a feeling thermometer question about Democrats and about Republicans. For subjects who identify with the Democratic party, their response for Democrats is their *ingroup feeling* score and their response for Republicans is their *outgroup feeling* score; for subjects who identify with the Republican party, this is switched. My outcome of interest, the difference between the *ingroup feeling* score and the *outgroup feeling* score, is *feeling difference*.

[9]I use an index because I am interested in the ensemble of attitudes that reflect how an individual feels about their partisan outgroup. I still present results for specific attitudes, like feelings of social distance, but I am interested in them mainly instrumentally, insofar as those component attitudes inform me about each subject's holistic attitude toward the outgroup. I

robustness check, I also combine the outcomes into an additive index; the results hold with both methods of index construction. More details about the questions measuring specific outcomes are given below; the wording used for each question and the results using an additive index are included in Appendix B.

A background survey sent to respondents about a month before they participated in this study measures demographic information. From it, I use the respondent's self-reported *Party identification* to assign the respondents a partisan ingroup and partisan outgroup. For respondents who self-report as independents or who missed the background survey[10], I supplement self-reported party affiliation with feeling thermometer ratings. For those respondents, I assign them a party affiliation if their highest rated party is at least a 50 on the feelings thermometer and at least 10 points higher than the other party. Respondents left without a partisan affiliation are removed from the analysis.[11] Among subjects for whom I have both self-reported party affiliation and feeling thermometer responses, these metrics agree in over 70% of cases. In ~25% of cases one metric classifies partisans in the other metric as independents. In only 5% cases do these metrics disagree and place respondents in opposing camps.

2.5.1 Main Outcomes

Attitudes Index: I list each hypothesis separately below, but my main interest is in evaluating the effect of the contact video treatment on subjects' overall partisan bias, not evaluating its effect on one or another component of their overall attitude. To evaluate the effect of showing subjects a goal-achieving contact experience on their partisan bias, I propose $\mathbf{H_{main}}$. I hypothesize that the "success" video treatment will reduce subject's overall bias against their partisan outgroup. I measure overall evaluations with an inverse-covariance weighted index of all other outcomes. I have strong expectations about overall partisan bias and consider analysis of this outcome confirmatory. I will analyze other outcomes to provide some evidence for what components of this overall attitudinal index were changed by the video. All hypotheses are compared to the control group.

- $\mathbf{H_{main}}$: **The difference between subjects' overall evaluation of copartisans and subjects' overall evaluation of outpartisans will be reduced by the "success" video treatment.**

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also increase my ability to detect effects, despite a relatively small sample, by leveraging these multiple attitudinal domains into components of a holistic attitudinal concept. I use inverse-covariance weighting to make my overall index because, conceptually and statistically, some of these outcomes are highly related whereas others are only marginally related. Inverse-covariance weighting constructs an index by down-weighting index questions that are correlated with other index questions and up-weighting those that are uncorrelated with other questions. This approach maximizes the amount of unique information the index takes from each question and prevents "double counting" when two questions measure the same underlying concept. ICW is preferable to an additive index in my case because the specific outcomes being combined into an index were not chosen to measure distinct components of an underlying concept.

[10]Subjects who joined the subject pool late missed the background survey. This applied to 15 of the 112 subjects in this study.

[11]I removed eight subjects due to them not having any discernible partisan attachment. Attrition was random with respect to treatment assignment. More details included in Appendix B.

Outgroup affect: Generalized negative affect towards outpartisans drives many of the adverse consequences of partisanship, from refusal to form social relationships with outpartisans to government distrust (Iyengar et al. 2019; Hetherington and Rudolph 2015). I measured outgroup affect with a feeling thermometer and questions about positive and negative emotional activation when thinking about Democrats and Republicans. The use of a feeling thermometer to measure partisan affect comes from Iyengar, Sood, and Lelkes (2012); the emotional activation questions are based on Parker and Janoff-Bulman (2013).

- **H_1: The difference between subjects' affect for copartisans and subjects' affect for outpartisans will be reduced by the "success" video treatment.**

Social distance: Feelings of social distance between Democrats and Republicans have grown in recent decades, with respondents increasingly expressing displeasure at the idea of their children marrying an outpartisan (Iyengar, Sood, and Lelkes 2012). I measured social distance using a modified Bogardus social distance index (Bogardus 1926). Subjects were asked if they would be happy to have a Republican/Democrat as one of twelve types of relationships, such as the governor of the subject's state or as a roommate. The use of social distance to measure partisan bias comes from Iyengar, Sood, and Lelkes (2012).

- **H_2: The difference between subjects' social distance to copartisans and subjects' social distance to outpartisans will be reduced by the "success" video treatment.**

Feelings of threat: The rhetoric around partisan debates suggests that partisans feel that the other side is a threat to them and the country. For Democrats, Republicans threaten their social freedoms and the nation's civil rights; for Republicans, Democrats threaten their economic rights and the nation's security. I measured feelings of threat with a nine question index asking how threatening the subjects found Republicans/Democrats in a variety of ways. The items measured distrust of outpartisans and threats to American society, personal values, personal freedoms, fairness and justice, economic opportunities, physical health, physical safety, and the functioning of America. These threat questions are based on Parker and Janoff-Bulman (2013).

- **H_3: The difference between subjects' feelings of threat from copartisans and subjects' feelings of threat from outpartisans will be reduced by the "success" video treatment.**

Blame Attribution: Partisans increasingly attribute blame to outpartisans for problems occurring in America. I measured the tendency to blame the other side with one question: "Some people say *[Democrats/ Republicans]* are responsible for most of the problems in this country, some say *[Republicans/Democrats]* are responsible, while others say that both groups are responsible for the problems here. Which is closer to

your view?" Subjects are assigned a 1 if they say both groups are responsible and a 0 if they say the other group is responsible.[12]

- **H₄: Subjects viewing the "success" video treatment will be more likely to express that both Democrats and Republicans are responsible for problems in America.**

Willingness to interact with outpartisans: Several studies have noted that Americans avoid interacting with or living among outpartisans (Iyengar et al. 2019; Center 2017; Huber and Malhotra 2017). Isolating ourselves in enclaves of copartisans prevents experiences that could reduce partisan prejudice (Mutz 2006). I measure willingness to interact with outpartisans by asking if respondents would (1) join a group and (2) live in a community with some percentage of the other party. The percentage is randomized to be 5% or 75%; the percentage is the same for those two questions but varies across individuals. A respondent saying yes to both is assigned a 1, a respondent saying yes to one is assigned a 0.5, and a respondent saying yes to neither is assigned a 0.

These questions allow me to determine how willing respondents are to enter situations where cross-group interaction is likely. These questions can also be analyzed as a survey experiment to learn how sensitive respondent's are to small percentages versus large percentages of outpartisans. In this survey experiment, which I am calling a percent experiment, I look at the difference between the proportion of respondents who would join groups/live in communities with 5% outpartisans compared to 75% outpartisans. I expect treated individuals to become more willing to interact with outpartisans overall and less sensitive to higher proportions of outpartisans. These questions were based on a question from the General Social Survey (GSS) asking respondents if they would favor or oppose living in a neighborhood that was half white/black.[13]

- **H₅: The difference between subjects' willingness to interact with copartisans and subjects' willingness to interact with outpartisans will be reduced by the "success" video treatment.**

Information Seeking: Seeking information that confirms pre-existing biases and avoiding information that challenges pre-existing biases is one contributor to the partisan divide in America (Nickerson 1998; Stroud 2011). I measure information seeking by requests for information about political organizations aligned with each party. Before subjects left the lab but ostensibly after they had completed the study, the survey asks subjects if they would like information about various organizations "to help connect students with organizations they might be interested in."[14] Heritage Foundation, Americans for Prosperity, and College

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[12]No subjects attributed blamed their own group.

[13]The GSS documentation and data can be found at: https://gss.norc.org.

[14]The exact wording of the information seeking question is: "To help connect students with organizations they might be interested in, we have gathered information about several organizations. Would you like to receive information from any of

Republicans counted as Republican-oriented organizations. Southern Poverty Law Center, Center for American Progress, and College Democrats counted as Democrat-oriented organizations. For *ingroup information*, subjects are assigned the number of ingroup organizations they select; for *outgroup information*, subjects are assigned the number of outgroup organizations they select. For robustness, I also assign *ingroup information* a 1 if the respondent selected any organizations from their ingroup and a 1 for *outgroup information* if respondents selected any organizations from their outgroup.

- **H₆**: **The difference between subjects' desire for information about copartisans and subjects' desire for information about outpartisans will be reduced by the "success" video treatment.**

Table 2.1 shows descriptive statistics for the sample on all outcomes. Outcomes in this table are scaled from -1 to +1 so that positive numbers indicate ingroup bias, negative numbers indicate outgroup bias, and 0 indicates no bias towards ingroup or outgroup. Subjects, on average, show a moderate amount of bias towards their own partisan group. This bias is strongest for social distance and feelings of threat, but is present for each outcome.

	Affect	Distance	Blame	Threat	Interact	Information
Mean	0.33	0.37	0.22	0.38	0.14	0.14
SD	0.24	0.28	0.41	0.28	0.46	0.30

Table 2.1: Mean and standard deviation for outcomes. All variables range from -1 to +1 where +1 indicates bias for copartisans, -1 indicates bias against copartisans, and 0 indicates no partisan bias.

Partisan Differences

Majority and minority groups often respond differently to intergroup contact (Ditlmann and Samii 2016; Galily, Leitner, and Shimion 2013; Amir et al. 1980; Hässler et al. 2020). The factors that drive majority attitudes towards the minority may be different than those that drive minority attitudes towards the majority (Shelton 2000; Monteith and Spicer 2000; D'souza 1995; Duckitt and Mphuthing 1998). In addition, members of minority groups tend to have more prior interaction with members of majority groups than members of majority groups have interacting with members of minority groups (Horowitz 2019). Further reducing opportunities for majority group members to learn from interactions with members of minority groups,

the following groups: Heritage Foundation, Americans for Prosperity, Southern Poverty Law Center, Center for American Progress, College Democrats, College Republicans." Subjects who selected an organization were sent a brief description of the organization and a link to the organization's website. Some subjects may not know the partisan leanings of some of these organizations, so Appendix B also includes the analysis only using College Republicans and College Democrats. The results are substantively unchanged.]

minority group members often (reasonably) hide their group status when possible, which prevents majority groups from using interactions with minority group members to update attitudes about minority groups (Brown and Hewstone 2005; Bassili 2003; Noelle-Neumann 1974). In the university context, Democrats are the majority and Republicans the minority. Democrats should not be pretreated with intergroup contact and so the intervention video should improve the attitudes of Democrats. Republicans, on the other hand, are likely pretreated with contact and so the intervention video should minimally affect Republicans if effects of contact endure for any length of time (Gaines, Kuklinski, and Quirk 2007). I consider analysis of partisan differences as exploratory.

- **H_{party}: The "success" video treatment will affect Democrats but not Republicans.**

Covariate Adjustment

My main analyses will have no control variables; treatment is randomly assigned, so no subject characteristics should confound the treatment effect.[15] For robustness, I will also conduct a secondary analyses of overall effects using two variables for covariate adjustment, the respondent's *gender* and *party affiliation*.[16] Though these variables should not confound the effect of treatment on outcomes in an experiment, they could explain variation in the outcomes described above and increase the precision of statistical estimates. Republicans and Democrats in my sample may have systematically different attitudes towards their partisan outgroup because majority groups often look at minority groups differently than minority groups look at majority groups (Shelton 2000; Monteith and Spicer 2000). Females and males may also hold systematically different views towards the two parties because of systematic differences in the policy preferences and partisan affiliations of men and women (Box-Steffensmeier, De Boef, and Lin 2004). There is no need to control for age or education level because those do not vary throughout the sample. By using these as covariates in a regression, I will absorb error but not affect the relationship between treatment and outcomes. Table 2.2 shows subjects broken down by partisan affiliation and gender.

2.5.2 Estimation

I estimate the effect of assignment to watch the "success" video and the "failure" video. As specified in the hypotheses, my outcomes are an outgroup attitudes index (H_{main}), group affect (H_1), social distance

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[15]An omnibus balance test confirms that these groups are balanced on gender, age, ethnicity, ideology, partisan affiliation, college major, GPS, religion, family income, and immigration status. This test is included in Appendix B.

[16]I also expect people from different ethnic backgrounds to hold systematically different views of the two parties. I do not use this as a covariate, however, because the sample includes too few subjects from most ethnic groups to calculate effects by ethnic group. While only about half of the sample identify as "Caucasian/White", no other ethnic identification was higher than 15% of subjects.

Party	Female	Male	Missing
Democrats	35	27	13
Republicans	14	12	1
Independents	2	7	1

Table 2.2: Subject partisan affiliation and gender. The table shows the number of male and female Republicans, Democrats, and independents in the study. Gender is missing for respondents who did not complete the background survey. Independents are removed for the analysis because they cannot be assigned a partisan ingroup and outgroup.

(H_2), feelings of threat (H_3), blame attribution (H_4), willingness to interact (H_5), and information seeking (H_6). H_{party}, the hypothesis that that Democrats respond to the "success" video but Republicans do not, is estimated using the same equations but on subsets of Democrats and Republicans, respectively.

My estimator of the average treatment effects are mean differences. I use the following linear model in equation 2.1 and ordinary least squares (OLS) to calculate those estimates.

$$Y_i = \beta_0 + \beta_1 Z_i + \epsilon_i \tag{2.1}$$

where i is the individual, Y is the outcome, and Z is the treatment indicator.

In Appendix B, I also present results from equation 2.2, a model using covariates to absorb error and account for any possible confounding due to the imbalance from a relatively small sample. The results with equation 1 and equation 2 are substantively the same.

$$Y_i = \beta_0 + \beta_1 Z_i + Z_i * X_i + \epsilon_i \tag{2.2}$$

where i is the individual, Y is the outcome, Z is the treatment indicator, and X is the set of mean-deviated for individual i. My covariates are the gender and partisan affiliation of individual i. This regression adjusts for covariates by interacting mean-deviated covariates with the treatment indicator (Lin 2013).

2.6   Results

Figure 2.1 reports the results for the outcomes index and for each outcome that makes up the index. Coefficients in the figure are positive if ingroup bias increased and negative if ingroup bias decreased. The "success" video lowered bias towards the ingroup on every outcome, and by about 0.31 standard deviations on the outcome index ($p=0.026$ without covariates and 0.012 with covariates). The effect of the "success" video is strongest on blame attribution – only 8.5% of subjects treated with the "success" video blame the other side for the country's problems, compared to 28% in the control group and the "failure" video group.

Conversely, there is no evidence that the "failure" video impacted bias towards the ingroup on any outcome. None of the coefficients are distinguishable from zero, and the largest coefficient, willingness to interact, suggests that the "failure" video discourages cross-group interactions. About 60% of subjects who watched the "failure" video expressed no preference for interacting with copartisans or outpartisans, compared to 77% of subjects who watched the "success" video and 69% of the control group.
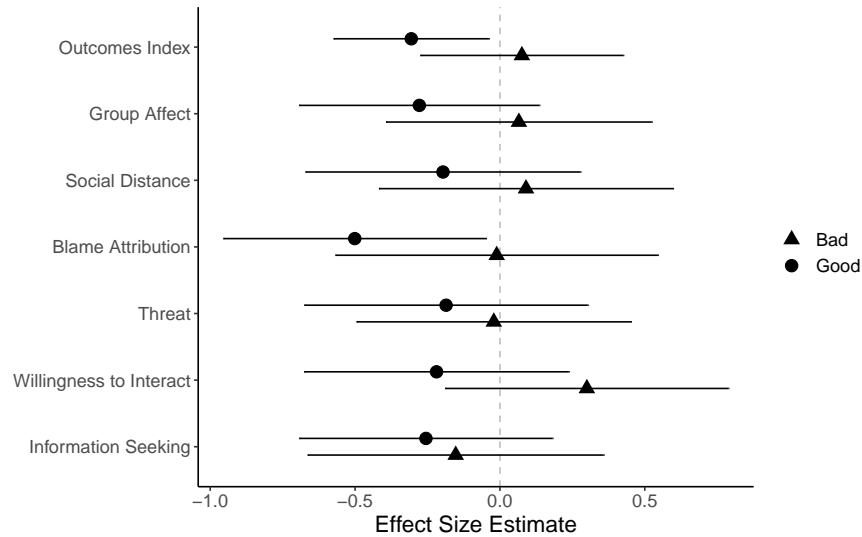
Figure 2.1: Effect of treatment assignment on survey outcomes. Points are average treatment effects versus control estimated using OLS. Lines are 95% confidence intervals. Circles are effects of the "success" video, triangles are effects of the "failure" video. Effects in the figure are positive if ingroup bias increased and negative if ingroup bias decreased. The "good" video decreased partisan bias on every measure.

I also measure willingness to interact as a survey experiment by comparing the proportion of subjects willing to join a group or live in a community with 5% outpartisans compared to 75% outpartisans. Here we see that subjects who watched the "success" video do not differ from the control group: subjects in those conditions are about 35% - 40% less willing to interact with large proportions of outpartisans than small proportions of outpartisans. The "failure" video, however, substantially decreased subjects' willingness to interact with large percentages of outpartisans. Subjects in the bad condition are about 70% less willing to interact with outgroup members, meaning that the effect of moving from 5% to 75% outgroup members in the bad condition is twice the effect of moving from 5% to 75% outgroup in the control or good condition. The difference between the "failure" condition and the control group is statistically significant ($p= 0.026$).
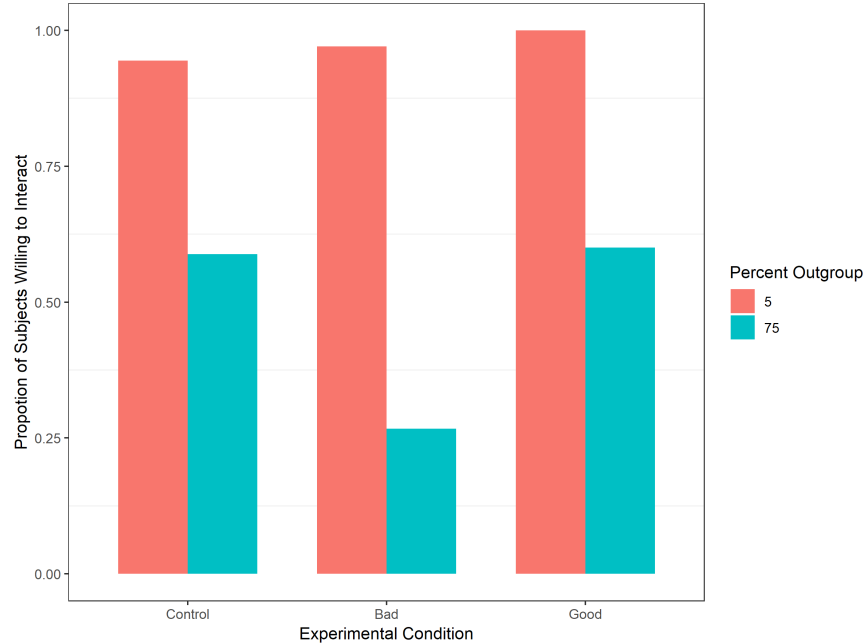
Figure 2.2: Willingness to join a group and live in a community dependent on the proportion of outpartisans in the group or community. Red bars represent 5% outpartisans, blue bars represent 75% outpartisans. All subjects are less willing to interact with 75% outpartisans than 5% outpartisans, but the effect of 75% outpartisans is especially large for subjects who saw the "failure" video.

While few of the individual results are statistically significant, the "success" video decreases ingroup bias on every outcome relative to the control group. This pattern of results, reflected in the outcome index, indicates that the "success" video decreased partisan bias. The "failure" video, on the other hand, had no systematic effect on partisan bias and appears to decrease willingness to interact with outpartisans. These results holds or strengthen when including covariates in statistical models and when creating the outcomes index additively, both presented in Appendix B. Next I turn to differences between Democrats and Republicans in the sample.

2.6.1 Democrats and Republicans

The aggregate effects hide major differences by partisan affiliation. Democrats and Republicans entered the experiment with very different feelings towards outpartisans, and Democrats and Republican responded substantively differently to the videos. Table 2.3 below shows the mean for each outcome by party in the control group, and Figure 2.3 reports the effect of the "success" video and the "failure" video for Democrats and Republicans separately. The outcomes in the table are coded so that positive numbers indicate copartisan bias, negative numbers would indicate outpartisan bias, and 0 indicates no bias based on partisan status. Coefficients in the figure are positive if ingroup bias increased and negative if ingroup bias decreased. The

sample contains more Democrats than Republicans (see Table 2.2), and consequently estimates of effects among Republicans are less certain, represented by larger confidence intervals.[17]

	Affect	Distance	Blame	Threat	Interact	Information
Democrat Mean	0.39	0.44	0.36	0.47	0.16	0.18
Republican Mean	0.16	0.14	0.00	0.11	0.00	0.19

Table 2.3: **Means for Control group Democrats and Republicans on all outcomes.** All variables range from -1 to +1 where +1 indicates bias for copartisans, -1 indicates bias against copartisans, and 0 indicates no partisan bias. Democrats in the control group display more partisan bias than Republicans in the control group.

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[17]I cannot estimate confidence intervals for Republicans on willingness to interact because 100% of Republicans are willing to interact with groups of 5% Democrats.
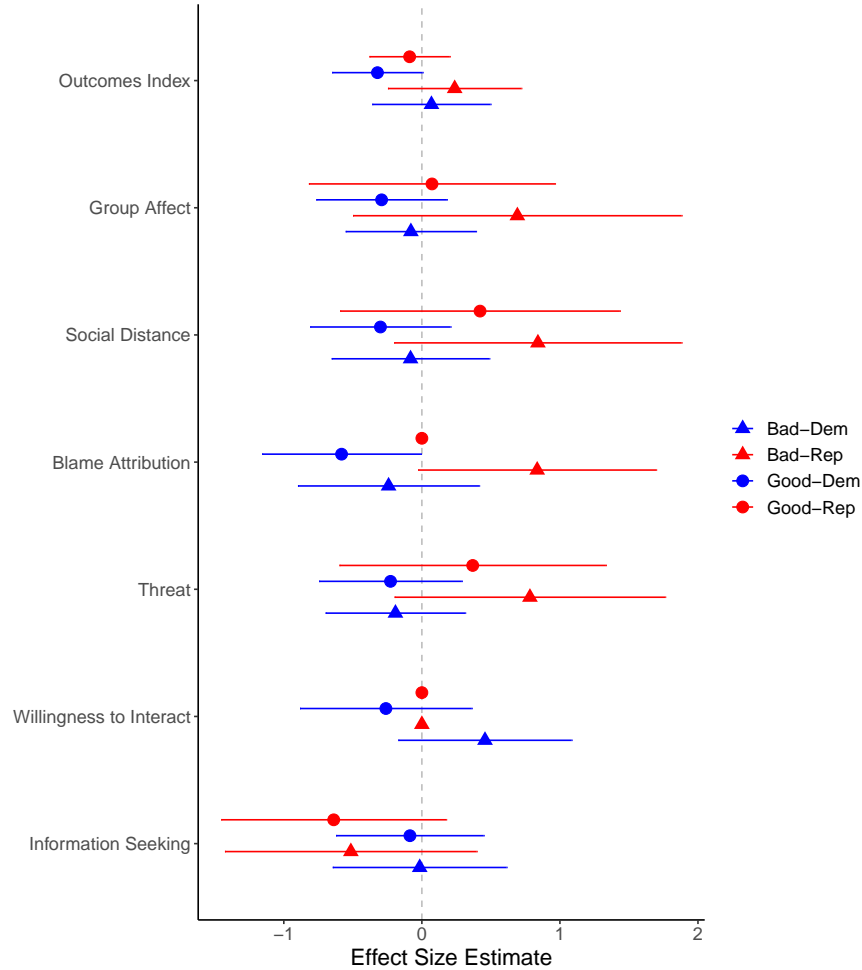
Figure 2.3: Effect of treatment assignment on survey outcomes among Democrats and Republicans. Points are average treatment effects estimated using OLS. Lines are 95% confidence intervals. Circles are effects of the "success" video, triangles are effects of the "failure" video; red are effects for Republicans, blue are effects for Democrats. Effects in the figure are positive if ingroup bias increased and negative if ingroup bias decreased. Effects of the "success" video are strongest among Democrats. There are no confidence intervals on the "interact" outcome for Republicans or on the "blame" outcome for Republicans who watched the "success" video because no Republicans expressed ingroup or outgroup bias on these outcomes.

Republicans in the control group show less overall ingroup bias than Democrats and very little bias overall. Notably, no control group Republicans blamed the other side for problems in the country or expressed a preference for interacting with copartisans over outpartisans. Democrats in the control group, however, feel a significant amount of threat and social distance from Republicans, tend to blame Republicans for problems in the country, and express a preference for interacting with other Democrats. This pattern is consistent with the hypothesis H_{party} that, if intergroup contact reduces ingroup bias, Republicans have been pretreated with intergroup contact but Democrats have not.

The videos also affect Democrats and Republicans differently. The "success" video has no effect on

Republicans overall, but the "failure" video increases their ingroup bias by 0.08 standard deviations (this effect is not statistically significant). Conversely, the "failure" video has no effect on Democrats, but the "success" video decreases their ingroup bias by 0.32 standard deviations (p=0.054 without covariates and 0.019 with covariates.) These differences are most pronounced for blame attribution, where the "success" video decreases Democrats' ingroup bias ($p < 0.10$) and the "failure" video increases Republicans ingroup bias ($p < 0.10$). For willingness to interact, Democrats seem less willing to interact after watching the "failure" video, the only outcome for which the "failure" video increases ingroup bias among Democrats.[18] For information seeking, Republicans who watch any video display less bias, the only outcome for which watching any video decreases bias among Republicans.

To visualize how the videos affected overall ingroup bias for Democrats and Republicans, Figure 2.4 shows mean index scores for Democrats and Republicans in each experimental condition. Error bars represent one standard deviation among the subgroup. For interpretability, the index is scaled from 0-1 where 1 is the maximum amount of ingroup bias observed and 0 is the minimum amount of ingroup bias observed. As the graph shows, Republicans in every experimental condition are less biased than Democrats. While no experimental condition makes Democrats less biased than control group Republicans, Democrats who saw the "success" video do not express statistically more ingroup bias than control group Republicans. Two other details of the figure are worth mention. First, the error bars are smaller for Republicans than for Democrats, representing that this sample's Democrats are more varied in their partisan bias than this sample's Republicans. Second, the error bars are smaller for subjects who watched the "success" video compared to the "failure" video, representing that the "failure" video engendered more varied responses than the "success" video.

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[18]I cannot estimate effects of confidence intervals on willingness to interact for Republicans because all Republicans, regardless of condition, responded the same way to the question: no group bias.
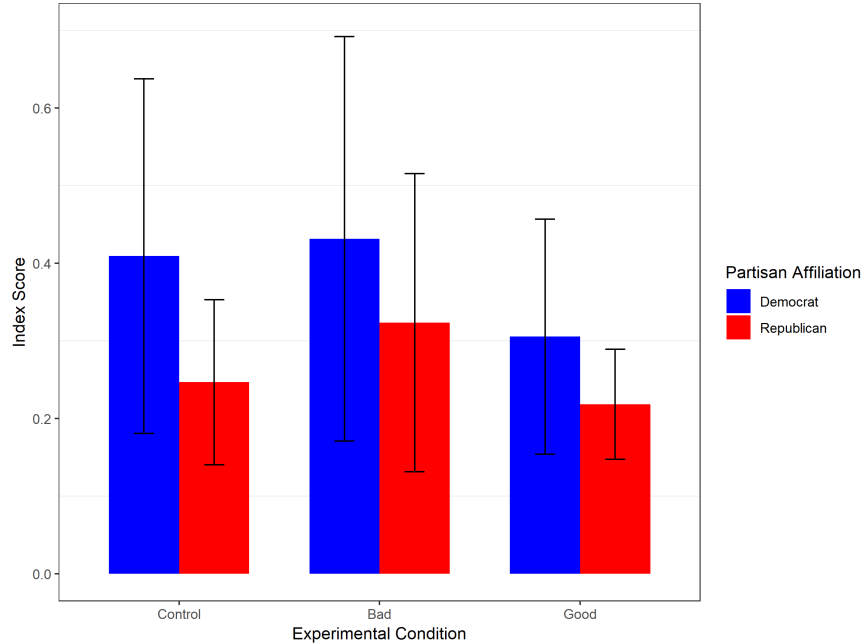
Figure 2.4: **Mean partisan bias on survey index among Democrats and Republicans in different experimental groups.** Index scores are scaled from 0-1 where 0 is the minimum amount of partisan bias and 1 is the highest amount of partisan bias. Republicans display less bias than Democrats in all conditions, but Democrats assigned to watch the "success" video are not statistically more biased than Republicans in the control group.

The last illustrative difference between Democrats and Republicans comes from analyzing the questions measuring willingness to interact with outpartisans when the percentage of outpartisans is 5% compared to 75%. Figure 2.5 show these questions broken down by subjects' partisan affiliation and treatment assignment. Among Republicans, I observe no statistical differences by group. Descriptively, watching either video decreases Republicans' willingness to interact with a large percentage of Democrats by a small amount, perhaps by reminding Republicans of differences between groups. Among Democrats, willingness to interact with Republicans is consistent between the control group and the "success" video group, but plummets in the "failure" video group: less than 20% of Democrats in the "failure" video condition are willing to interact with large percentages of Republicans, compared to over 50% in the control group and over 60% in the "success" video condition. The difference between Democrats in the control group and Democrats in the "failure" video group is statistically significant (p=0.017).
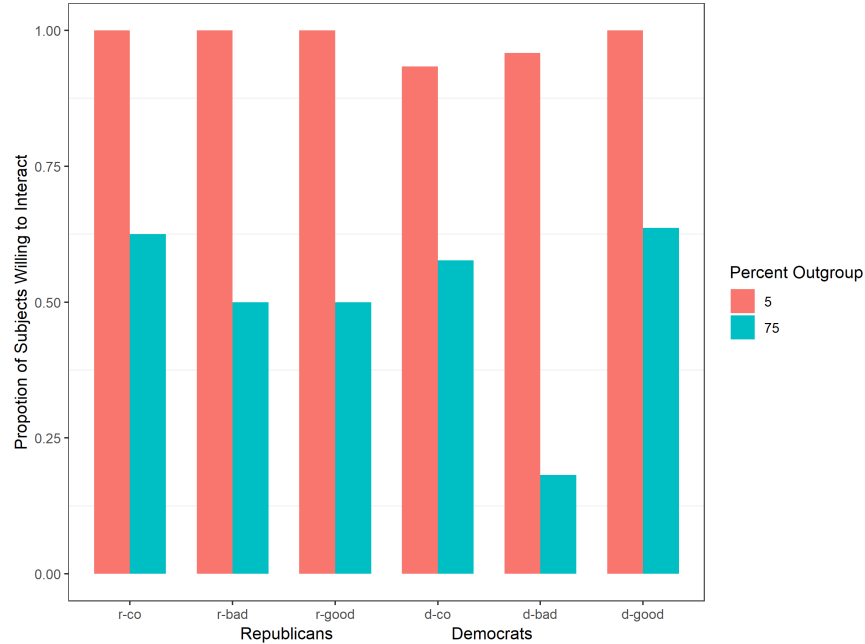
Figure 2.5: Willingness to join a group and live in a community dependent on the proportion of outpartisans in the group or community. Red bars represent 5% outpartisans, blue lines represent 75% outpartisans.

Pretreatment Context

Why are Republicans in the sample less biased than Democrats, unaffected by the "success" video, and possibly made more biased by the "failure" video? Why are Democrats in the sample more biased than Republicans, generally unaffected by the "failure" video, but made less biased by the "success" video? These patterns point to the importance of pretreatment context when interpreting experimental results (Gaines, Kuklinski, and Quirk 2007; Druckman and Leeper 2012; Slothuus 2016). Pretreatment context refers to the environment that subjects are in before participating in the experiment. That environment may be "treating" subjects continuously, which causes a null experimental finding even when the treatment has a large effect on outcomes.

Why would pretreatment context lead to the pattern of results above, where Republicans start off less biased than Democrats but are unaffected by the contact videos? Democrats and Republicans experience very different partisan contexts before entering the lab and participating in the experiment. Being a minority opinion group in the university population from which the experimental sample was drawn, Republicans' pretreatment context likely includes interaction with Democrats where group affiliation is salient. Being the majority opinion group, Democrats do not need to hide or moderate their attitudes when discussing politics, so the partisan leanings of Democrats are likely salient to Republicans. The "success" video thus

replicates their experiences and provides no new information; the "failure" video counters their experiences and provides new information.

Democrats, on the other hand, are not likely pretreated with salient cross-group interactions. Being the minority opinion group, Republicans are unlikely to volunteer their attitudes on political topics (Bassili 2003; Noelle-Neumann 1974); consequently, their party affiliation may not be known to their Democratic colleagues. Since the Republican identity of colleagues is not known or salient, the Democrats in the sample cannot use those interactions to update their attitudes about Republicans. In lieu of personal interactions, their information about Republicans is likely to come primarily from negative media portrayals, unfavorable social norms, and from exposure to more extreme Republicans (Fujioka 1999; Rahn and Cramer 1996; Rios 2012; Iyengar and Westwood 2015). Their pretreatment opinion about Republicans, therefore, may be negative and their expectations for interactions pessimistic. The "failure" video thus conforms to their expectations and provides no new information; the "success" video counters their expectations and provides new information.

2.7   Discussion

In this paper, I consider the idea that intergroup contact improves attitudes towards outgroups conditional on the contact helping the group members achieve goals. Achieving a goal through intergroup contact now changes expectations about the likely outcomes of future intergroup contact; the prospect of benefits from future intergroup contact motivates individuals to update their attitudes towards the outgroup. I administered an experiment in which subjects experienced cross-group contact vicariously by watching a video in which members of their group and an opposing group interact. Some subjects saw the interaction yield positive outcomes; others saw it yield negative outcomes. I hypothesized that subjects would only change attitudes when motivated by the prospect of achieving beneficial outcomes through contact.

This study's results indicate that the effects of intergroup contact are dependent on the cross-group interaction leading to a positive outcome. Compared to a control group who saw no video, a video showing contact yield positive outcomes reduces partisan bias on every outcome and statistically decreased bias on an index of outcomes. Subjects who saw contact yield negative outcomes, on the other hand, were not statistically different from the control group and the direction of their treatment effects suggests that observing contact yield negative outcomes may increase group bias. This suggests that a key mechanism through which contact affects outgroup attitudes is creating the perception that working with the outgroup will lead to good outcomes.

This study's results also demonstrate why some majority groups and minority groups may respond in different ways to contact-based interventions. Members of majority groups tend to have little exposure to and interaction with members of minority groups; they benefit greatly from contact intervention because those interventions provide them with novel experiences with and information about the minority group. Members of minority groups tend to have substantial contact with majority group members in daily life; a contact intervention does not provide them with novel experiences or information. If contact affects attitudes, members of minority groups are likely to have already benefited from contact's effects before experiencing a contact intervention, rendering a null effect due to pretreatment (Gaines, Kuklinski, and Quirk 2007).

In the university context from which my sample is drawn, Democrats are the majority group and Republicans are the minority group. Consistent with the idea that minority groups are pretreated with intergroup contact, Republicans entered the study with less biased attitudes than Democrats but were unaffected by observing contact that yielded positive outcomes. Democrats, on the other hand, entered the study with strong ingroup bias but had that bias tempered by observing contact that yielded positive outcomes. Observing contact that yielded negative outcomes did not improve the attitudes of either group and may have increased bias among Republicans. This pattern is relevant to other contexts in which one group has substantially more cross-group contact than the other group, which describes contexts like Black-White relations (Horowitz 2019) and Arab-Israeli relations (Schroeder and Risen 2016).

This study highlights the importance of motivation in attitude change. As decades of research on cognitive dissonance has demonstrated, humans are naturally motivated to maintain existing attitudes (Festinger 1962; Tavris and Aronson 2008; Gubler 2013). For an intervention to change an individual's attitudes, it must provide motivation sufficient to overcome the individual's natural inclination to maintain attitudes. In this study, I motivated individuals by changing their expectation about the likely material outcomes of working with the other side. Subjects attitudes towards the other side improved only when treated with an intervention designed to increase their expectation that working with the other side will generate good material outcomes. But the promise of good material outcomes should not be the only way to motivate individuals to change attitudes. Individuals are motivated by a whole array of non-material outcomes, such as reciprocity (Ostrom 2000), social norms (Arias, n.d.; Paluck 2009), and pursuing behavior consistent with their values (Bryan et al. 2016). Future research should attempt to motivate intergroup attitude change by harnessing these non-material desires.

This study's focus on motivation and individual's expectations about the utility of future contact supports other mechanisms noted to mediate the effect of contact (for a review, see Pettigrew and Tropp 2008). Dispelling stereotypes (Allport 1954), increasing empathy (Batson et al. 1997; Broockman and Kalla 2016),

reducing anxiety (Stephan and Stephan 1985; Page-Gould, Mendoza-Denton, and Tropp 2008), and making a shared identity salient (Gaertner et al. 1993; Gaertner and Dovidio 2014) all increase the likelihood that participants will perceive that intergroup cooperation can help them achieve goals. It is very unlikely that an individual will expect that cross-group interaction can help achieve goals if that individual holds negative stereotypes about the other side's work ethic and honesty, for example. Many conditions believed necessary for contact to improve attitudes are conditions under which cooperation should benefit both groups – equal status ensures that one side will not dominate the other, working towards a joint goal has the potential to provide groups with value, and having the support of authorities should protect individuals involved in contact from negative social sanctions. The theory that contact works by creating positive expectations about future contact complements these conditions.

This study indicates that contact-based peacebuilding programs, which seek to use intergroup contact to reduce group conflict, should pay particular attention to the outcomes that groups achieve through contact. The results of this experiment suggest that contact itself will not improve attitudes: the outcomes of contact must show the groups that cross-group interaction can be beneficial. The strictures of contact theory already include many conditions that should increase the likelihood that each group believes cooperation with the other side will benefit them, such as pursuit of a joint goal, but the design and implementation of contact-based programs should ensure that (1) a joint goal is achieved and (2) both sides equally benefit from its achievement. The theory that the intervention must provide sufficient motivation to overcome individual's internal motivation for attitude maintenance also suggests that the most prejudiced individuals may not be affected by contact because they are the most motivated to maintain existing negative beliefs (Gubler 2013, 2011). This motivation-based theory could help explain when contact is and is not successful and why contact not doing much to improve ethnic/racial prejudice (Paluck, Green, and Green 2019).

Several key questions about intergroup contact remain to be answered. One is the role of the outcomes that contact achieves compared to the process that generates those outcomes. In this paper's experiment, a good process is matched with a good or a bad outcome; only the good process matched with the good outcome improved attitudes. It would be wrong, however, to use this study as evidence that outcome matters more than process. More likely is that the outcome informs the viewer about the quality of the process that generated that outcome. The process, not the outcome, is what travels to the future, and a process that generated a good outcome today is likely to generate a good outcome tomorrow. Future research should assess the interaction between a process and outcome by varying the quality of the outcome and the process.

An obvious next step is to test the efficacy of contact that does and does not achieve goals with different groups in different contexts, especially those where the minority group cannot hide their group status and

where the groups have less ability to select into and out of the groups. The particular groups studied here are based on ideology and so can be (1) hidden and (2) easily joined or left. To understand what types of group dynamics are most and least likely to improved through contact interventions, future research should also determine what information individuals must learn from intergroup contact if contact is to improve their attitudes. Individuals may need to update about factors commonly discussed in the literature – negative stereotypes, empathy, and feelings of threat – but equally important might be specific factors that would lead cross-group interaction to yield desirable outcomes, like the effort the other side is willing to expend cooperating or the other side's competence at specific tasks. Individuals might also need to update about the social consequences of cooperating with the outgroup – is cross-group interaction favored by social peers and social elites? Answers to these questions will inform research about when and how contact will affect attitudes, and point to group dynamics that are most and least likely to be improved through contact interventions.

Future work should also consider the differential effects of contact for majority and minority groups and think about why minority groups would respond to contact differently than majority groups. Contact research has historically focused on majority attitudes towards the minority and we know comparatively little about contact's effect on minority attitudes towards majority groups. In this paper, I argue that contact effects both groups similarly but that contact interventions most impact majority groups because most members of minority groups are frequently pretreated with contact. The data support this interpretation, but they also support several other interpretations. It's plausible, for example, that the type of Republican who selects into a liberal institution is less biased to begin with, sans contact, rather than Republicans being pretreated with contact. And that said unbiased Republicans were not moved by the "success" video because the effects of contact may be nonlinear: it is easier to move someone from a -5 to a -3 than to move them from a -3 to a -1. Future research should attempt to assess variation in pretreatment among subjects and use that variation to predict the effects of contact.

Chapter 3

Bargaining and Identity Perspectives on Group Conflict

3.1 Abstract

There are two major perspectives on group conflict in political science. One, which I refer to as the *bargaining perspective*, considers group conflict as the result of information and commitment problems. The other, which I refer to as the *identity perspective*, considers group conflict as the result of the prejudice and other negative emotions that naturally arise between groups or arise when groups compete for resources. These two perspectives are rarely combined, but their synthesis could benefit both literature's attempts to understand group conflict and craft policies to reduce it. In this paper, I apply insights about group biases from the identity perspective to the bargaining perspective's framework of information and commitment problems. I show how a solution originating from the identity perspective, intergroup contact, alleviates information and commitment problems. I then use farmer-pastoralist conflict in Nigeria as an illustrative example of how to understand group conflict using both perspectives. I close by proposing six policy implications of combining these perspectives and offering five avenues for future research.

3.2 Introduction

Groups fight for the resources – land, wealth, power, or otherwise – that fighting destroys. As such, groups could almost always divide the resources before war in a way that benefits them more than their postwar settlement. This is the enigma of violent conflict: why do groups engage in violent conflict when violent conflict often destroys the very thing the groups are fighting for? One answer is that groups suffer from a bargaining failure when negotiating for peace (Fearon 1995; Powell 2006; Reed et al. 2016). These bargaining failures can be caused by a lack of trust (a commitment problem) or a lack of information (an information problem). The commitment problem occurs when both sides are better off negotiating a peaceful agreement but neither group trusts the other to abide by negotiated agreements. The information problem occurs when neither side knows the other side's power or preferences. If groups (1) trusted each other to abide by

agreements and (2) knew the strength and preferences of the other side, they would not need to fight and each group would enjoy superior outcomes relative to their outcomes after fighting. I call this the *bargaining perspective* of group conflict.[1]

Another answer to the question of why groups fight focuses on the negative attitudes, emotions, and biases that explain individual group members' lack of trust in and lack of accurate information about the other side, as well as why groups might prefer fighting relative to a peace deal even if fighting destroys resources (Campbell 1965; Tajfel et al. 1971; Stephan, Stephan, and Oskamp 2000; Allport 1954; Runciman and Runciman 1966; Sherif et al. 1988; Ross and Ward 1995; see Böhm, Rusch, and Baron 2018 for a review of psychological theories of conflict). The lack of trust can occur due to conflicts of interests and competition for scarce resources or as a natural consequence of categorization into ingroup and outgroup. The lack of accurate information is a consequence of group members' perceptual biases, outgroup stereotyping, and limited interaction. Preferences for fighting (over agreeing to a peace deal acceptable to the other side) stem from feelings of group superiority and considerations of relative gains over absolute gains. If members of opposing groups can identify common interest or a common identity, they can avoid the competition, emotions, and perceptual biases that lead to conflict. I call this the *identity perspective* of group conflict.

In this paper, I argue that these perspectives are compatible and attempt to synthesize them by applying the identity perspective to the bargaining perspective. There is growing interest in bridging political psychology and political economy explanations for phenomena like group conflict, which is a concern for both literatures (Little and Zeitzoff 2017; Kertzer and Tingley 2018). At their heart, both perspectives focus on preferences, trust, and information, and both consider preferences based on material resources and non-material goods like values, esteem, norms, and power.[2] The identity perspective tends to highlight the formation of preferences and trust and the perceptual biases that cause information asymmetries, while the bargaining perspective tends to highlight how preferences, mistrust, and information asymmetries cause conflict.[3] Combining these perspectives will help scholars better understand the causes of group conflict and practitioners better develop policies to reduce group conflict.

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[1]Another common explanation for bargaining failures is *issue indivisibility*: when the thing that groups would gain from fighting cannot be split easily or at all (the throne of a monarchy or control over holy land). Issue indivisibility is thought to rarely be a problem, however, because almost all things that groups fight for are divisible or can be substituted by something divisible (Fearon 1995). For this reason, issue indivisibility is sometimes seen as a commitment problem (Powell 2006). If the group being given the throne could commit to providing a substantial portion of the spoils to the other side, the groups could make that peace agreement and avoid fighting. The group given the throne cannot credibly make this commitment, however, because once in power nothing prevents that group from reneging on their agreement. I do not consider issue indivisibility as a distinct explanation for bargaining failures in this paper.

[2]I use "material" to refer to things that exist in the world, like physical resources and infrastructure. I use "non-material" to refer to things that exist in the mind but not in the world, like values, emotions, trust, and reputations.

[3]This characterization necessarily lacks the nuance to describe the entirety of these two perspectives. There is, of course, work in the identity perspective that considers how preferences, trust, and information cause conflict and work in the bargaining perspective that considers the formation of preferences and trust. But I believe this characterization describes the main arguments of each perspective and the seminal articles on which subsequent work has been built.

I begin by reviewing the bargaining perspective on group conflict, focusing on information problems, commitment problems, and solutions to those problems. I follow that review by applying the identity perspective to these bargaining problems and their solutions, focusing on how group biases and other psychological factors contribute to bargaining failures. In doing so, I propose intergroup contact as a way to reduce group conflict by providing opportunities for the groups to gain accurate information about each other and to build intergroup trust, which alleviates information and commitment problems. I then apply a synthesis of these perspectives to farmer-pastoralist conflict in Nigeria, describing factors that push groups into conflict, institutions groups have developed to avoid violence, and the consequences when no such institutions exist. I conclude by describing implications for peacebuilding programs and considering avenues for future research.

3.3   Bargaining Perspective on Group Conflict

The bargaining perspective considers conflict a the result of a bargaining failure. The two groups both want something and can either fight for it or negotiate over it. Both groups are better off negotiating pre-war to get their expected outcome post-war, without paying the cost of fighting. But sides cannot agree to negotiated bargain due primarily to commitment problems and information problems (Fearon 1995). These problems cause a bargaining failure, and sides resort to fighting.

Commitment Problem: One reason sides resort to fighting is that neither group can credibly commit to honor bargained agreements. This "commitment problem" prevents any agreement from being made because neither group will commit to agreements today that they believe will be broken tomorrow. Because they cannot reach an agreement, the groups fight.[4] Commitment problems are often called trust problems because the problem arises because neither group *trusts* the other to honor commitments. Commitment/Trust problems are a common explanation for the inefficiency puzzle of violent conflict (Fearon 1994, 1998; Powell 2006; Reed et al. 2016; Lake 2003)

The canonical example of a commitment problem is the Prisoners' Dilemma. In the Prisoner's Dilemma, two criminals are arrested and interrogated separately. The law enforcement officers lack the information to convict the criminals for the full extent of their crimes but have enough information to convict each criminal for a lesser charge. The officers offer each criminal a deal: testify against your partner and you will be set free; your partner will spend three years in prison. If both criminals stay silent, they will each serve one year in prison. If they both testify, they will each serve two years in prison. The prisoners face a dilemma: why

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[4]A commitment problem can occur for many reasons. It often surfaces due to the potential for bargaining power to shift after an agreement. If bargaining power shifts after an agreement, one side will have an incentive to renege on that agreement to achieve a better outcome.

stay silent if you are best off testifying regardless of what your partner does? The problem here is each side's inability to commit to remaining silent – a commitment problem. If they could commit, they could get their second favorite outcome; without the ability to commit, they get their second least-favorite outcome.

The Prisoner's Dilemma is formalized in Table 3.1. The criminals are referred to as "players". Staying silent is referred to as "cooperating" with your partner; testifying is referred to as "defecting" against your partner. Each player wants their highest payoff.

		Player 2	
		Cooperate	*Defect*
Player 1	*Cooperate*	$(2, 2)$	$(0, 3)$
	Defect	$(3, 0)$	$(1, 1)$

Table 3.1: Example of Commitment Problem. Numbers represent payoffs to players. The first number in each cell represents Player 1's payoffs, the second number represents Player 2's payoffs. Player's want the highest payoff.

Unless the criminals value cooperation above freedom or have some way of punishing defection – both of which change the above payoff structure –, both criminals have an incentive to defect regardless of their partners behavior. No one is happy with the resulting outcome. The two sides would commit to mutual cooperation to avoid mutual defection, but they cannot credibly commit to cooperating because they both prefer to defect regardless of what the other does.

This can be applied to group conflict where "cooperation" is abiding by a peace agreement and "defection" is breaking it. If one side abides by a peace agreement and disarms, for example, the other side has an incentive to break the agreement by staying armed. Since neither can trust the other to honor the peace agreement, both sides defect.

Information Problem: Another reason groups fight is that neither side knows the preferences of the other. This "information problem" prevents peace agreements from being made, even if both sides prefer mutual cooperation, because neither side knows that the other would reciprocate cooperation and both sides have an incentive to lie about their preferences to extract more concessions from their opponent. Because both sides fear defection if they cooperate, the groups fight. The information problem of conflict is one of the most common explanations for violent conflict (Fey and Ramsay 2011; Smith and Stam 2003; Fearon 1995; Kydd 2000; Moon and Souva 2016; Rohner, Thoenig, and Zilibotti 2013; Wolford, Reiter, and Carrubba 2011)

We can observe an information problem by modifying the Prisoner's Dilemma above. Imagine that each criminal is "honorable" and values reciprocating cooperation. This bonus to cooperation can be seen as the

psychological value that each side places on being honorable; it is represented by adding +2 to the payoff of joint cooperation. Each criminal wants to cooperate if the other cooperates but wants to defect if the other defects. Each criminal knows that they are honorable, but neither knows that the other is also honorable. The problem here is a lack of information – an information problem.

This modified Prisoner's Dilemma, often called a Trust Game (Kydd 2000), is formalized in Table 3.2. Each player again chooses whether to cooperate or defect. Player 1 is honorable and prefers to cooperate if Player 2 will cooperate but defect if Player 2 will defect. Player 1 is unsure if Player 2 is also honorable.[5] World A represents the payoffs if Player 2 is honorable; World B represents the payoffs if Player 2 is not. In World A there is only an information problem: if groups knew each other's preferences, they have an incentive to cooperate. In World B there is also a commitment problem: even if groups knew each other's preferences, each still has an incentive to defect.

(a) World A
Both sides prefer to cooperate if the other side cooperates but defect if the other side defects.

(b) World B
Player 1 prefers mutual cooperation, but Player 2 prefers to defect regardless of Player 1's Behavior.

		Player 2	
		Cooperate	*Defect*
Player 1	*Cooperate*	$(4,4)$	$(0,3)$
	Defect	$(3,0)$	$(1,1)$

		Player 2	
		Cooperate	*Defect*
Player 1	*Cooperate*	$(4,2)$	$(0,3)$
	Defect	$(3,0)$	$(1,1)$

Table 3.2: Example of Information Problem. Numbers represent payoffs to players. The first number in each cell represents Player 1's payoffs, the second number represents Player 2's payoffs. Player's want the highest payoff.

Player 1 cooperates or defects depending on her belief that Player 2 is honorable. If Player 2 is honorable, Player 1 wants to cooperate. If Player 2 is not honorable, then Player 1 is in the Prisoner's Dilemma above and wants to defect. Without a way to for Player 2 to signal honor, Player 1 defects. Again, no one is happy with the resulting outcome. The two sides would prefer mutual cooperation to betraying the other player, but because neither side knows the other's preferences both players defect.

This can again be applied to group conflict where "cooperation" is abiding by a peace agreement and "defection" is breaking it. Conflict occurs due to information problems: unless both sides know that the other will reciprocate cooperation, both sides may defect to avoid being betrayed. It is common in group conflict for each group to claim that the other is the barrier to peace, reflecting their belief that the other group will not reciprocate cooperation.

Another way to represent the information problem in a conflict setting is to say that two groups need to split a resource, but neither knows each other's fighting strength (capacity) or valuation of the resource

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[5]In a Trust Game, Player 1 would believe Player 2 is honorable with probability p, where p represents Player 1's trust in Player 2.

(willingness). Without knowing the other side's capacity and willingness to fight, neither side knows what they should offer or receive from a peace agreement. If, for example, each side believes (incorrectly) that they are stronger than the other, that overconfidence prevent both sides from finding a peace agreement in which they receive more than they expect to receive through fighting (Johnson 2009). This information problem can cause bargaining failures even if the two sides communicate. Both groups have an incentive to portray themselves as stronger, more willing to fight, and less willing to make concessions than they truly are in order to achieve an advantageous bargaining outcome (Fearon 1995).

Groups can suffer from information problems and commitment problems simultaneously. In this example of splitting a resource, groups may fight even if both know each other's fighting strength and valuation of the resource under dispute (i.e. under complete information). With this complete information, groups could presumably allocate a portion of that resource to each side, with the higher-strength side taking a larger portion. The problem, however, is that once a group takes a larger portion of the resource, they now have more fighting strength and could renegotiate an even more advantageous deal for themselves. Knowing this, the weaker side may prefer to fight rather than acquiesce to a series of peace agreements under weaker and weaker bargaining power.

No bargaining range: A third reason groups fight is that one or both sides prefers fighting to peace. In other words, there is no bargaining range, no peace agreements acceptable to both sides. I will refer to this as a "preferences problem". This preferences problem is not a bargaining failure; if one or both sides prefer fighting to any peace deal, then groups are not bargaining for peace. Nor is this a "problem" in the way that commitment problems and information problems are a problem. In those problems, conflict is a puzzle because groups end up with outcomes neither group wants and which do not maximize overall utility (benefit, broadly defined). If mutual fighting maximizes overall utility, it is a problem normatively in that we normatively dislike fighting, but it is only a puzzle if we think groups should not prefer fighting. For these reasons, preferences for fighting over peace are an important reason for group conflict but are discussed less frequently in published literature (but see Coe (2012), Slantchev (2012), and Chang and Luo (2013)).

We can observe a preferences problem by again modifying the Prisoner's Dilemma. Imagine that the criminals hate each other and would regret *not* ratting out the other guy. This is represented by adding +1 to the payoff of joint defection and -1 to the payoff of joint cooperation. Their payoffs would look like Table 3.3.

This setup, like the Prisoner's Dilemma, results in mutual defection. Unlike the Prisoner's Dilemma, the players would not commit to cooperation even if they could; nor does knowledge about each other's

		Player 2	
		Cooperate	*Defect*
Player 1	*Cooperate*	(1, 1)	(0, 3)
	Defect	(3, 0)	(2, 2)

Table 3.3: Example of Preferences Problem. Numbers represent payoffs to players. The first number in each cell represents Player 1's payoffs, the second number represents Player 2's payoffs. Player's want the highest payoff.

preferences avoid defection. Mutual defection is the Pareto-optimal outcome in that it maximizes the total utility of both sides.

Preferences for fighting can also be seen in group conflict. Each side may prefer to fight because peace is relatively more costly, perhaps because peace entails mounting armament costs (Coe 2012; Chang and Luo 2017) or because of debt payments that a state can only repay if they win the conflict (Slantchev 2012). Sides may also prefer fighting to peace because fighting is less costly than assumed due limited destruction of resources (Chang and Luo 2013). Sides may also use fighting today to improve their bargaining position with their current adversary (Slantchev 2003) or potential future adversaries (Crescenzi 2007). [6]

3.3.1 Solutions to Group Conflict in the Bargaining Perspective

Third party intervention, reputation-building, and signaling are the primary solutions to commitment and information problems in the bargaining perspective. Third party intervention can solve information problems by providing accurate, credible information to both sides; it can solve commitment problems by punishing defection so that it is in both side's interests to cooperate. Reputation-building can solve commitment problems and information problem by revealing the preferences of each player and by the prospect of better future outcomes from a cooperative reputation than a noncooperative reputation. Each side can also reveal their preferences by sending costly signals of their preferences to the other side. Because the signals are costly, non-cooperative types do not send costly signals.

Third party intervention is a common mechanism for overcoming information and commitment problems and resolving group conflict. Third parties can solve information problems by mediating disputes, providing accurate information about the preferences and strength of both sides (see Crescenzi et al. (2011) and Gartner (2011) for this perspective; but see Kydd (2003), Kydd (2006), and Beber (2012) for the problem of mediator credibility). Third parties can solve commitment problems by punishing defection, which incentivizes each side to honor agreements. Though each group may have an incentive to defect on an agreement after it is

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[6]Lack of information and overconfidence (Johnson 2009) about likely victory in conflict can cause what looks like a "preferences problem" in that groups may prefer fighting relative to any peace deal the other side is willing to accept. The difference between an information problem and a preference problem is that the information problem disappears if both sides have complete information about the other, but complete information does not change the preferences problem.

made, the groups have less incentive to defect if a strong third party is capable of and willing to punish defection from bargained agreements (Fearon 1994). Third parties that facilitate information flows and enforce agreements often effectively reduce conflict (Doyle and Sambanis 2000; Di Salvatore and Ruggeri 2017; Walter 2002; Hartzell, Hoddie, and Rothchild 2001; Wallensteen and Svensson 2014).[7]

In many group conflicts, however, there exists no third party with the capacity and incentive to intervene into the conflict (Fey and Ramsay 2010, 530). This situation is common for internal conflicts in weak states, where conflicts are diffuse and the state lacks the capacity to mediate or intervene effectively. Many group conflicts occur in such states.

In those cases, groups can resolve information and commitment problems without relying on third party intervention. Groups can resolve those problems by cultivating reputations for trustworthiness in repeated interactions. Like third parties, repeated interactions between groups help overcome these problems by providing each group with the incentive to honor agreements. Here the incentive comes not from fear of punishment by a third party but the prospect of better future outcomes from cooperation than defection. Though each group may have an incentive to defect on an agreement today if the groups will not interact tomorrow, the groups have an incentive to cooperate now if their behavior today will be reciprocated by the other side in future interactions (Ostrom and Walker 2003; Kydd 2000; Axelrod and Hamilton 1981).[8]

When third parties are not present, groups can also solve information and commitment problems through costly signals of cooperative intent (Kydd 2000; Rohner, Thoenig, and Zilibotti 2013; Gambetta and others 2000; Jervis 2017). Costly signals can reassure each side of the other's trustworthiness because only a trustworthy player will pay the cost to send the signal. The signal must be sufficiently costly to deter noncooperative players from sending it (uninformative signals are referred to as "cheap talk") but not so costly that even cooperative types will not send it. When both groups stand to gain more from enduring cooperation than enduring defection, but information and/or commitment problems would stymie cooperation in one-shot interactions, repeated interactions and costly signals provide groups with the incentive to cooperate and the opportunity to communicate their preference for cooperation.

In this section, I reviewed common explanations for and solutions to group conflict under the bargaining perspective. In the next section, I show how the identity perspective fits with and adds to the bargaining perspective.

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[7]Some scholars have noted that third parties do not create trust between those groups that will last beyond the third party's presence (Gambetta and others 2000; Rohner, Thoenig, and Zilibotti 2013; Beardsley 2008).

[8]I discuss reciprocity and reputations together, but these mechanisms are subtly different. The reciprocity mechanism is generally mobilized for contexts with just two groups. In those contexts, cooperation in previous interactions assists in obtaining cooperative behavior in the future from the same partner; other potential partners are unnecessary. The reputation mechanism is generally (though not always) mobilized for contexts in which many groups observe the behavior of many other groups. In those contexts a good reputation assists in obtaining *other* cooperative partners; reciprocity from the same partner is unnecessary. I discuss these mechanisms together because both rely on creating cooperative expectations from bargaining partners in future interactions.

3.4 Applying the Identity Perspective to Bargaining

The bargaining perspective explains formalizes the reasons groups can fight: preferences (lack of bargaining range), information problems, and commitment problems. I argue that the identity perspective adds to these explanations by describing how psychological and social factors (1) decrease the bargaining range by providing incentives for groups to fight, (2) cause commitment problems by preventing the formation of trust, and (3) cause information problems by biasing information processing about the other group and perceptions of their preferences. By looking at groups as a collection of individual group members and focusing on individuals' perceptual and cognitive biases, the identity perspective helps explain when and why fighting will occur.

3.4.1 Costs of Peace and Benefits of Fighting Reduce the Bargaining Range

Psychological and social factors can contribute to group conflict by reducing or erasing the range of peace agreements both sides will accept. These factors reduce the bargaining range by adding costs to peace and benefits to fighting. I identify three main ways that psychological and social factors add costs to peace: (1) direct costs of changing attitudes and social norms, (2) loss of self-esteem, and (3) loss of sunk costs.[9]

First, direct costs to attitude change occur to the extent that accepting peace requires individuals in the group to change attitudes about the outgroup. Individuals use many strategies to maintain existing attitudes – searching for information that confirms pre-existing beliefs, counter-arguing information divergent with their beliefs – suggesting that costs to attitude change are not insubstantial (Festinger 1962; Nickerson 1998; Kunda 1990). Changing negative attitudes towards an enemy may be especially challenging because negative outgroup attitudes are supported by a social norms and justifications that feeds conflict (Bar-Tal 2007). At the group-level, a peace agreement requires groups to dismantle the social institutions that feed conflict and encourage violence against the outgroup (Bornstein 2003). Those institutions must be reformed to prevent, not encourage, intergroup violence.

Second, peace agreements may cause a loss of self-esteem for individual group members. Group members derive self-esteem from positively comparing their group to a rival group, and any agreement in which their side acknowledges the legitimacy of the other challenges this group-based boost to self-esteem (Tajfel 1981; Wood 2000; Tajfel and Turner 1979; Fein and Spencer 1997; Martiny, Kessler, and Vignoles 2012; Brown and Pehrson 2019). Group members may also pay psychological costs to their self-esteem from losing their rationalization for engaging in discriminatory or aggressive behaviors towards outgroup members. People

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[9]These three reasons are not an exhaustive list of the ways that psychological and social factors add costs to peace. Rather than give an exhaustive list, I seek to demonstrate that explicitly considering psychological and social factors helps explain why groups would find peace costly.

rationalize their behavior to maintain a moral self-image (Bandura 1999, 2014; Mazar, Amir, and Ariely 2008), and people who harmed the outgroup must come to terms with past behaviors that are now deemed immoral.

Third, individuals are affected by sunk costs and want the gain from a peace deal to make up for the cost of fighting even though those costs were already born (Arkes and Blumer 1985). The desire to recoup sunk costs induces both sides to demand that the other concede more in a peace agreement. It would be "dissonant for the disputing parties to accept terms today that could have been achieved, without the ensuing costs, at some earlier point in time" (Ross and Ward 1995, 264). In conjunction with biased perceptions and memories of conflict history (discussed below), each group is also prone to believe that they are morally entitled to more concessions than the other side (Ward et al. 1997). Accepting terms that could have been achieved without fighting is also to admit that fighting was a mistake, and people are loathe to admit their mistakes (Tavris and Aronson 2008). This partially explains why "emotions stemming from past interethnic violence serve as impediments to peaceful resolutions to present-day conflicts" (Little and Zeitzoff 2017, 5; Horowitz 2001; Petersen 2002)

To see how these psychological costs to peace might sabotage peace efforts, imagine that groups fighting over land sign a peace agreement that assigns some land to each group. This agreement may make material sense in that each group can enjoy the benefits of some land instead of fighting for all of it. But in addition to the material cost of losing potential access to land granted to the other side, each group must begin punishing violence against outgroup members rather than encouraging it. Individuals in the group must adjust their behavior to conform to new norms and rethink the status of their group relative to the outgroup; they can no longer "bask in the reflected glory" of their group's superiority (Brown and Pehrson 2019, 312). Individuals who felt justified in overcharged outgroup members for services or physically harming outgroup members are now told that such behaviors are wrong and immoral. Individuals must also accept that their sacrifices to benefit fighting – dead friends and loved ones, material deprivation, time and energy spent fighting – were for naught: the sacrifices did not help the group win. Sustaining conflict against the outgroup allows group members to maintain existing attitudes and behaviors and preserves the possibility that their group will be victorious.

Other than avoiding these costs, group members may gain benefits from fighting for two main reasons. First, group members may feel pleasure in response to outgroup pain (Weisel and Böhm 2015; Cikara et al. 2014). This pleasure adds psychological utility to participating in conflict for individual group members. Second, individuals may like gaining glory and other social rewards for participating in violent conflict. Societies use various social carrots and sticks to encourage participation in conflict (Gneezy and Fessler

2012), and group members give up those rewards when conflict ends. These social rewards add social utility to participating in conflict, which could make fighting more attractive than peace. These benefits to fighting may work in conjunction with each side's desire to signal strength and resolve to future potential adversaries and each side's tendency to overestimate their chances of victory, which can also promote preferences for fighting in the bargaining perspective (Johnson 2009; Crescenzi 2007).

As a result of these costs to peace and benefits to conflict, there may exist no peace agreement that both sides prefer to fighting. Each group may prefer mutual defection and their payoff structure may resemble Table 3.3, where fighting occurs because groups have a "preferences problem". Each side may only accept a peace agreement that materially favor their group because the material gains from peace must overcome its non-material costs; it is difficult for each side to appreciate the non-material costs of the other (Ward et al. 1997). Groups may also consider their gains relative to the outgroup, rather than in absolute terms. Indeed, many group members are willing to accept lower absolute gains to increase relative gain over the outgroup (Turner, Brown, and Tajfel 1979; Waltz 2010; Halevy et al. 2010). The preference for gains relative to the outgroup makes any mutually beneficial peace agreement impossible.

3.4.2 Biased Perceptions Cause Information and Commitment Problems

Though the above factors can increase the costs of peace and increase benefits of conflict, the high cost of conflict may be such that both sides still prefer peace. Even when both sides prefer peace, psychological and social factors can contribute to the information and commitment problems that prevent groups from negotiating peace agreements. I identify two main ways that these factors contribute to information and commitment problems. First, cognitive dissonance, motivated reasoning, and confirmation bias[10] cause each side to interpret the other's behavior in a way that supports existing negative attitudes. Second, loss aversion and reactive devaluation[11] cause the two sides to overvalue concessions they give up and undervalue concessions they receive. These phenomena introduce significant friction in the ability of groups to accurately perceive the other's preferences and to build trusting relationships.

Cognitive dissonance, motivated reasoning, and confirmation bias cause group members to interpret and recall outgroup behavior in negative ways. These phenomena prevent cross-group interactions from accu-

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[10] *Cognitive dissonance* is the mental discomfort that occurs when one individual holds two contradictory beliefs. Individuals resolve this dissonance by rejecting one of the contradictory beliefs (Festinger 1962; Tavris and Aronson 2008). Individuals tend to resolve this dissonance by rejecting the newer or less central belief because it is costly to reject older and more central beliefs (Schwartz and Bilsky 1990; Converse 1970; Bryan, Yeager, and Hinojosa 2019). *Motivated reasoning* and *confirmation bias* are related concepts. Motivated reasoning is the tendency for individuals to "reason" in whatever way allows them to reach their desired conclusion (Kunda 1990). Confirmation bias is the tendency for individuals to interpret new information and search memory for information to confirm existing beliefs (Nickerson 1998).

[11] *Loss aversion* refers to individuals' tendency to prefer avoiding losses more than they attaining equivalent gains (Kahneman and Tversky 2013). Reactive devaluation is the tendency for individuals to undervalue concessions and proposals from antagonists (Ward et al. 1997; Ross and Stillinger 1991).

rately revealing each side's preferences because members of different groups experience and interpret the same event differently (Ward et al. 1997). Defensive action by outgroup members may be misperceived as belligerent and threatening while belligerent action by one's own group is seen as defensive and justified (Ward et al. 1997; Duncan 1976; Vallone, Ross, and Lepper 1985). Positive actions by outgroup members may be re-interpreted as negative to avoid cognitive dissonance (Gubler 2013; Paolini, Harwood, and Rubin 2010; Good 2000). Unequivocally positive behavior may be dismissed as an exception while negative attributes are believed to define all outgroup members (Hewstone 1990). These misperceptions can lead each group to believe the other side is untrustworthy or prefers fighting to peace. And when recalling information about the outgroup from memory, individuals selectively recall events that corroborate their pre-existing negative perceptions (De Dreu, Nijstad, and Knippenberg 2008).

Loss aversion and reactive devaluation can further sabotage the trust-building process. Individuals tend to weigh losses more heavily than equivalent gains, so anything their group gives up may be magnified in importance (Kahneman and Tversky 2013). At the same time, individuals tend to undervalue concessions from antagonists (Ward et al. 1997; Ross and Stillinger 1991). These biased valuations of concessions made and concessions given can prevent groups from reaching a mutually beneficial agreement. For an abstract example, imagine that Group 1 offers Group 2 a concession that is objectively worth five "negotiation units", but which Group 1 values as six due to loss aversion. Group 2 may interpret that five as a four due to reactive devaluation, and then offer something that is objectively only worth three but which they perceive as worth four due to loss aversion. Each group could come away from that encounter believing that the other is unreasonable and that there is no peace agreement mutually satisfactory to both sides.

These phenomena can also interfere with groups sending and receiving costly signals of cooperative intent. A costly signal from Group 1 to Group 2 can allow Group 2 to trust Group 1 because Group 1 would only pay the cost of the signal if Group 1 was trustworthy. Perceptual biases like reactive devaluation, however, may lower the perceived costliness of any cooperative signal. Group 2 may perceive the signal as cheap and uninformative of Group 1's preferences or intentions. Worse, Group 2 may perceive the signal as a cynical attempt to manipulate Group 2 into cooperating so that Group 1 can take advantage of their naivete.

Compounding these perceptual problems, accurate information and intergroup trust are hampered by a lack of opportunities to learn about the other side. Groups in conflict tend to limit contact between the two sides (Bornstein 2003), so most learning must come from observing the outgroup's interactions with other groups. Even if those opportunities are available, few of the outgroup's interactions will be with groups that are relevant for predicting the outgroup's behavior towards the ingroup, reducing the usefulness of observational learning (Kazdin 1974; Yang 2013). The main opportunity to observe outgroup behavior and

learn their reputation is the ingroup's own interactions with the outgroup, which are limited and hampered by perceptual biases.

3.4.3 Solutions in the Identity Perspective Applied to the Bargaining Perspective

I discuss intergroup contact as the primary solution to group conflict in the identity perspective. Intergroup contact, interactions between group members in which members of different groups work together to achieve common goals, is not the only solution for group conflict, but I believe it is the most promising solution (see Böhm, Rusch, and Baron 2018 for a summary of others.) Intergroup contact has the potential to (1) change incentives for fighting and peace, (2) debias perceptions of the outgroup, and (3) provide opportunities for costly signaling. Put another way, intergroup contact can increase the bargaining range and help solve information and commitment problems.

Intergroup contact can increase the value of peace and decrease the value of fighting by highlighting the material benefits of cooperation. Few members of groups in conflict are likely to have benefited from working with the outgroup, so they may associate the outgroup with undesirable outcomes. When groups achieve a goal through cooperation that is mutually beneficial to both, it adds previously unforeseen benefits to cooperation. The prospect of benefits through cooperation can motivate individuals to develop more positive attitudes towards cooperation (Grady 2020a; Rohner, Thoenig, and Zilibotti 2013). If cooperation is beneficial to the group, the group may develop norms that encourage cooperation (Axelrod 1986).

Along with increasing the perceived value of peace, intergroup contact can also remove benefits to fighting for group members who gain psychological utility or enjoy social rewards from harming the outgroup. Intergroup contact humanizes and creates positive attitudes towards the other side (Pettigrew 1998; Pettigrew and Tropp 2006), and group members only gain utility from harming the outgroup if the outgroup is viewed negatively and without empathy (Böhm, Rusch, and Gürerk 2016; Weisel and Böhm 2015; Cikara et al. 2014). Likewise, groups norms that promote cooperation will give social punishments, not social rewards, for aggressive action towards the outgroup. When the outgroup is not hated, harming them loses its luster.

As well as increasing the utility of cooperation relative to fighting, for intergroup contact to help resolve group conflict it must help solve information and commitment problems. Intergroup contact can solve these problems by assuring each group that the other side prefer cooperation to fighting. It is not enough that each group prefers cooperation, they must have the opportunity to signal that preference to the other side, and the other side must accept the signal. Without this shared knowledge, groups may remain in conflict because of information and/or commitment problems. Intergroup contact provides opportunities for signals

and knowledge sharing.

The second way that intergroup contact helps reduce conflict is by reducing perceptual biases that prevent groups from accurately perceiving the other side's preferences and building trust. Removing these perceptual biases helps solve information and commitment problems. Intergroup contact reduces perceptual biases by dispelling stereotypes, reducing feeling of threat and anxiety, engendering feelings of empathy, and making group commonalities salient (Allport 1954; Pettigrew and Tropp 2008; Page-Gould, Mendoza-Denton, and Tropp 2008; Batson et al. 1997; Broockman and Kalla 2016; Gaertner et al. 1993). By removing these causes of perceptual biases, groups are more able to form accurate views of each other's preferences. Without stereotypes and feelings of threat, and with empathy and group commonalities, group members will not be motivated to see the outgroup negatively or feel dissonance after positive experiences with outgroup members. Groups are also less likely to reactively devalue each other's concessions and more likely to have empathy for each other's positions. Through these mechanisms, contact builds trust even between members of conflicting groups (Grady 2020b; Hewstone et al. 2006).

By debiasing perceptions, each group may identify that it is in each group's interest to cooperate. All of the mechanisms above – reducing stereotypes and threat, increasing empathy – also increase the likelihood that group members perceive cooperation to be in their interest and in the interest of the other side. It is unlikely that one side will expect cross-group interaction to be in their group's interest if that side fears the outgroup and holds negative stereotypes about the outgroup's work ethic and honesty. It is equally unlikely that a group will expect the other side to cooperate with them if the other side believes them to be lazy and dishonest. Likewise, achieving a joint goal through cooperation reassures each group that the other side also prefers cooperation. Each side can trust the other to engage in cooperative behavior when both sides know that it is in each side's interest to do so (Gambetta and others 2000). Removing these perceptual biases helps each side see that cooperation is in the interest of their group *and* of the other group. It takes two to mutually cooperate.

Along with increasing the utility of cooperation and debiasing perceptions, the third way that intergroup contact can help resolve conflict is by offering opportunities for costly signaling. Intergroup contact allows group members to learn about each other based on personal experience, interacting and communicating directly. Direct cross-group interaction allows group members to signal their trustworthiness through communication with and behavior directly observed by the other side. This type of direct communication reduces competition and helps solve commitment problems in behavioral games like the Prisoner's Dilemma (Bornstein et al. 1989; Ostrom 2006) and in formal models (Rohner, Thoenig, and Zilibotti 2013). These interactions can serve as confidence-building measures and allow groups to start small and low-risk and

gradually increasing as groups build trust over time; trust is one of the few resources that increases with use (Gambetta and others 2000). Importantly, intergroup contact gives each group the opportunity to signal willingness to punish their own members if those members jeopardize peace (Fearon and Laitin 1996).

In this section, I showed how the identity perspective works with the bargaining perspective to explain group conflict. I also demonstrated how a solution proposed by the identity perspective, intergroup contact, works in the bargaining perspective. Intergroup contact can provide incentives for cooperation, reduce perceptual biases, and provide opportunities for costly signals of trustworthiness. Through incentives for cooperation, it can give each side a preference for peace over fighting. By reducing perceptual biases and providing opportunities for costly signaling, contact can help solve information and commitment problems. In the next section, I apply this joined perspective to farmer-pastoralist conflict in Nigeria and describe the form that institutions to improve intergroup cooperation have taken in that context.

3.5   Application: Farmer-Pastoralist Conflict

The conflict between farmers and pastoralists in Nigeria looks like a textbook case of a commitment problem preventing peace. The groups maintain complementary ways of life, making cooperation beneficial for both. Pastoralists have an excess of protein in the form of meat, milk, and other animal products, but they grow little in the way of grains, tubers and vegetables; the farmers have an excess of grains, tubers, and vegetables but they own few animals and have limited access to animal products.[12] Farmers also want animals to graze on their lands after harvest season to replenish the soil with animal waste, and pastoralists want to graze their animals on crop residue (stalks, leaves, seed pods, and other inedible parts of the plant) that is left on the fields after harvest.

By all accounts, farmers and pastoralists benefited from their complementarity for several generations (Tonah 2002; "Herders Against Farmers: Nigeria's Expanding Deadly Conflict" 2017; Thébaud and Batterbury 2001). There were, of course, disagreements between sedentary farmers and mobile pastoralists, but their relationship was characterized more by harmony than conflict. Recent decades, however, have brought farmers and pastoralists into conflict. Historically, farming was more common in southern Nigeria and pastoralism more common in the north, but the two ways of life increasingly overlap geographically. Farmers have moved north into marginal agricultural lands due to the increasing food needs of Nigeria's booming population, which grew from 50 million at Independence in 1960 to 200 million today (Abbass

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[12]This is not to say that farmers have no independent access to protein and pastoralists have no independent access to grain. Farming villages typically stock chickens for eggs and meat as their main protein source, with a few goats and sheep. They do not have excess food year round to support large animals like cows. Most pastoralists are semi-migratory and few stay in one place long enough to cultivate crops. Those who stay in a "home base" will set aside some land for rice or yams, but most of the land is left for cattle to graze.

2012; Kuusaana and Bukari 2015). At the same time, pastoralists have been pushed further south by the expansion of the Sahara, which brought them to higher population density areas (Thomas and Nigam 2018; Okpara et al. 2015). Less land and more people who depend on the land is a recipe for conflict over land and resources.

Farmer-pastoralist conflict has exploded in recent years. The most recent conflict escalation caused 7,000 deaths from 2014-2019 and displaced hundreds of thousands of people from their homes (Harwood 2019; Daniel 2018; Ilo, Ier, and Adamolekun 2019; Akinwotu 2018). The scale of economic damage is unknown, but farmer-pastoralist conflict *before* this escalation cost Nigeria $13 billion annually in lost economic productivity (McDougal et al. 2015). This violence has also impeded food production, leading to an impending food crisis (Ilo, Ier, and Adamolekun 2019; Hailemariam 2018; Unah 2018).

The proximate causes of violence are farmers sowing seeds on pastoralists' grazing lands and pastoralists grazing their cattle on farmers' crops. If either side retaliates – a farmer by stealing cattle from the pastoralists' herds, a pastoralist by grazing on more farmland – the scope of the conflict can rapidly expand. The farmer whose crops were destroyed by cattle does not know which herd grazed on his land; cattle he steals in revenge do not necessarily come from the transgressing herd. Pastoralists, likewise, do not know which farmer stole their cattle; the crops they destroy in revenge do not necessarily come from the transgressing farm. From there, a little war often breaks out. As one reporter noted, "The countryside is littered with the charred ruins of homes, schools, police stations, mosques and churches." (McDonnel 2017). In one case I witnessed, a farmer took revenge against cattle grazing on his farmland by poisoning the crop residue left on his fields after harvest. After grazing on the residue, the cattle of dozens of pastoralists became sick and died. More violence followed.

The land conflict is exacerbated by ethnic and religious differences between groups, which feeds mutual distrust. The pastoralists are almost all from the Fulani ethnic group and practice Islam; the farmers are from a non-Fulani ethnic groups and practice Islam and Christianity, though the violence is worst where the farmers are homogeneously Christian. Each group sees the other as biased towards their own side for economic, cultural, and religious reasons. Each group also sees their way of life as superior. Farmers see nomadic life as outdated, backwards, and anti-progress; the pastoralists think that sedentary farming makes one weak. One pastoralist commented to me that if he dropped off a sedentary adult and pastoralist child in the forest, the sedentary adult would depend on the child to survive.

Despite their cultural differences and competition for scarce land, mutual complementarity remains. Pastoralists still have animal products – though more farmers have bought animals in recent years, pastoralists still control roughly 90% of Nigeria's livestock ("Herders Against Farmers: Nigeria's Expanding Deadly

Conflict" 2017) – and farmers still have tubers, vegetables, grains, and the resultant crop residue. The violence is extremely costly to both sides, so both have an incentive to avoid conflict. Community leaders recognize that peace is in the interest of their communities, but many have been unable to prevent the violence. In interviews conducted in 2016 and 2019 by Grady (2020b), community leaders from farming and pastoral communities expressed their desire for peace between the two groups and blamed deviants from the other side for ongoing violence. Farmers argue that the local pastoralists do not prevent other pastoralists who migrate through from destroying cropland, and pastoralists argue that farmers on the outskirts of the farming village encroach on grazing routes more each year.

Peace between many farming and pastoral groups is prevented by a lack of trust (i.e. a commitment problem). Both sides are better off cooperating peacefully than fighting, but neither side trusts the other to honor agreements that would prevent fighting. The reasons each group does not trust the other side, however, is not that they believe the other side as a whole will defect on peace agreements, but rather that the farming group cannot credibly commit to preventing all farmers from expanding into grazing lands, and the pastoral group cannot credibly commit to preventing all herders from grazing cattle on croplands. Their between-group commitment problem is driven by a within-group collective action problem because neither group trusts the other to punish their own.

The cause of mistrust between farmers and pastoralists – deviants from both sides – highlights that peace is a public good. Peace benefits all members of a group, but contributing to peace is costly for group members because they must refrain from engaging in behaviors that benefit themselves at the expense of the outgroup. Achieving peace, as with any public good, requires overcoming this collective action problem: the group must compel group members to contribute to peace despite the members' individual incentive to shirk and rely on others to bear its cost. One group trusting the other to honor an agreement, then, means not only trusting that a high proportion of outgroup members desire peace, but also that those outgroup members can and will compel less cooperative group members to honor a peace agreement (Fearon and Laitin 1996). Peace can be derailed by a few radicals who do not reflect the preferences of most group members (Sambanis and Shayo 2013; De Sanctis and Galla 2009).

3.5.1   Resolving farmer-pastoralist conflict

Though conflict between farming and pastoral groups is common, not all farming and pastoral groups are in conflict. Many communities overcame their trust problems and enjoy the complementarity of farming and pastoral lifestyles. Grady (2020b) evaluated a contact-based intervention to reduce conflict between farmers and pastoralists. They find that intergroup contact in which farmers and pastoralists collaborated

to build boreholes and small infrastructure projects increased trust, voluntary contact between farmers and pastoralists, and feelings of physical security, relative to a control group. They also found that the group members in treatment communities who directly participated in the contact intervention benefited more than group members who did not participate, but even the nonparticipants improved relative to the control group. They speculate that the effects of intergroup contact diffuse to nonparticipants through social norms and social interaction, though they do not test their speculation in that paper.

Along with intergroup contact, communities that successfully navigated farmer-pastoralist tension generally have a noticeable commonality: an institution comprised of farmers and pastoralists to handle cases that threaten intergroup relations. This institution can tap into ingroup networks to identify transgressors from each side, much like an ingroup policing institution (Fearon and Laitin 1996). In addition to the benefit of ingroup networks, these joint institutions have another benefit: since both groups are represented, neither the plaintiff, the defendant, nor their group can credibly claim that the case was decided unfairly due to group bias. The collaborative nature of the institution helps curtail misperceptions, which can derail cooperative equilibria (Jervis 2017; Wu and Axelrod 1995; Bendor, Kramer, and Stout 1991).

These joint institutions function much like trial by jury. Representatives from each group meet, hear from the case's "plaintiff" and "defendant", and decide an appropriate punishment. For common occurrences – crop damage, cattle rustling, and the like – there may be something akin to a code of laws, such as a set cost per acre of cropland destroyed or head of cattle stolen. In past decades, agreements between the traditional leaders of each community function similarly, by setting compensation for specific actions. Conflict is often blamed on the breakdown of such institutions (Tonah 2002; Cotula et al. 2004; Kuusaana and Bukari 2015).

These joint institutions are themselves a peace agreement. Each group has conceded some local autonomy and agreed to an overarching legal framework that will govern both farmers and pastoralists. To do so, the groups must agree on several issues, like who serves on the joint institution, how they decide punishment, what is the range of acceptable punishments, and how punishments are enforced. This type of agreement is only possible if both groups share a baseline level of trust. Each group must also identify that the issue causing conflict between the two sides is a commitment problem, not a preferences problem. Before an agreement like joint punishment institutions can be reached, the groups first need to learn enough about each other's preferences to establish that each prefers mutual cooperation to mutual fighting. Put another way, groups need to solve their information problem before they can use joint punishment institutions to solve their commitment problem. A key challenge, then, is for groups to signal their preferences. Intergroup contact offers a means through which groups can send and receive those signals.

The evaluation in Grady (2020b) of a contact-based intervention between farmers and pastoralists did

not measure the extent to which the intervention affected institutional structures that govern intergroup relations, but they do recount anecdotes that suggest such institutions play an important role in conflict resolution. They describe farmers and pastoralists who had participated in the contact intervention meeting to jointly decide an appropriate punishment for vigilante farmers who intended to harm pastoralists. The would-be perpetrators, hailing from a nearby village, were noticed and arrested by the hometown farmers while on their way to steal the pastoralists' cattle. Rather than decide unilaterally how to punish the vigilantes, leaders from the farming community called in leaders from the pastoral community to jointly decide a punishment. Together the groups decided to disarm the vigilantes and let them go free without further punishment – a solution proposed by the *pastoralists.* Had the farmers unilaterally decided to let the vigilantes go free, the pastoralists may have interpreted the punishment as too lenient and accused the farmers of bias. Since the pastoralists had a say in the decision-making process, however, the groups were able to build trust through cooperation. The pastoralists appreciated the farmers calling a joint meeting, and the farmers appreciated the pastoralists magnanimity in proposing a lenient punishment.

They also describe a contrasting situation in which a farmers and pastoralists who had not participated in the contact intervention failed due to the lack of any joint institutions. In that situation, both sides were participating in a public goods game in which money raised would be jointly administered by both groups. These groups had no preexisting structure to handle situations that concerned both sides, and neither side trusted the other to hold the money. The pastoralists claimed that the money would be squandered by the corruption of the farming community's leader if a farmer held it; the farmers claimed that the pastoralists would migrate away with the money if a pastoralist held it. In the end, the groups agreed that the NGO administering the public goods game would hold the money and disburse it in chunks when the pastoralist leader and the farming leader agreed on its use.

In this section, I discussed farmer-pastoralist conflict in Nigeria, focusing on causes of violence and solutions that groups developed to curtail violence. In the next section I outline several policy implications that follow from the farmer-pastoralist example and from thinking about group conflict in the bargaining and identity perspectives.

3.6   Policy Implications for Peacebuilding Programs

I will discuss six policy implications from farmer-pastoralist conflict and the bargaining and identity perspectives. I also discuss some consequences of these implications. The implications are: (1) peace is not intrinsically preferable to fighting; (2) preferences for cooperation over fighting do not guarantee peace; (3)

groups are collections of individuals, not unitary actors; (4) misperceptions are a major threat to peace; (5) there is not one solution to group conflict; and (6) some attempts to alleviate group conflict can backfire.

The first policy implication is that peace is not intrinsically preferable to fighting. Some groups fight because the group members want to fight. No information or signaling will reduce conflict in these cases because the groups' preferences are misaligned. In those cases, the first step to peace is each side coming to believe that cooperation is superior to peace.

The best chance for groups to identify that cooperation is in their material interest are distinct group-based comparative advantages. Farmers and pastoralists each have group-based comparative advantages – farmers in produce, pastoralists in animals – that make identifying a shared interest easy. Though cultural differences may seem like a hindrance to peace, these groups have much to gain from cooperation. Two groups of farmers have little to offer each other that the groups could not obtain on their own, so there is less room for complementarity. In general, increasing gains from cross-group interaction, and therefore increasing the opportunity cost of fighting, is most likely to deter conflict (Rohner, Thoenig, and Zilibotti 2013).

Material interest is not everything, however, and many motivators for preferences are psychological and social. Groups may prefer fighting due to psychological and social rewards and penalties. Group members may resist peace if it sacrifices self-esteem and self-image. Some segment of each group may embrace fighting because it offers them the opportunity to garner social rewards. These costs and benefits can modify preferences so that there is no peace agreement each side prefers to fighting. Changing attitudes and norms can reduce the costs of peace and the benefits of fighting. Attitude and norm change can potentially be motivated by showing the groups that they can better accomplish their goals through cooperation than conflict (Grady 2020a).

The second policy implication is that preferences for cooperation over fighting do not necessarily end group conflict, and therefore policies that promote peace must assure each side that the other will cooperate. Even if both groups prefer mutual cooperation to mutual defection, lack of information about the other side's preferences and an inability to commit to cooperate can prevent peace. Cooperation is only in a group's interest if the other group also plans to cooperate. The easiest way to assure each side that the other will cooperate is to impose external punishment for defection or external reward for cooperation. That method of assurance, however, is not available in many contexts and does not build the intergroup trust necessary for cooperation once the external punishment mechanism is removed. It may nonetheless serve as a short-term solution to reducing group conflict and as a starting point for group cooperation.

In the absence of external rewards and punishment, intergroup contact in which groups achieve a joint

goal can show both groups that cooperation is in their interest and that the other side also sees that. The other side can be trusted to do what is in their own interest. Intergroup contact also brings group members into close personal contact, which offers opportunities for learning and costly signaling.

These first two policy implications suggest that contact-based programs where the groups do not work towards a joint goal, like discussion forums, may have no effect on group conflict. Discussion forums do not directly change preferences; nor do they provide credible information about the other side's preferences. It is possible that this minimal form of contact could reduce perceptual biases by exposing each group to the other's view points, but they mainly seem to be avenues for "cheap talk" which both sides will discount.

The third policy implication is that groups are collections of group members and the preferences of the group should not be taken as the preferences of each group member. Group members' preferences are likely correlated with the preferences of the amorphous "group", but they also deviate in important ways. For example, the group as a unitary actor does not face a collective action problem, but the group as a collection of individuals does because each individual wants to rely on others to provide public goods. An important attribute of a group, then, is its capacity to compel group members to contribute to the public good of peace. Group's with the power to compel will be better at fighting because they can compel group members to participate in violence (Bornstein 2003) but should also be more able to credibly commit to preventing their own from defecting.

Thinking of the group as a collection of group members also highlights (a) the psychological and social factors that make conflict attractive and (b) the perceptual and cognitive biases that color groups views of each other. These types of individual-based factors are not readily apparent when thinking of the groups as homogeneous units, but they likely contribute to group conflict. They may also systematically cause some group members to benefit more from peace than others, so peace as a public good is not equally valuable or desirable to all group members. The group is a useful but limited unit of analysis because it can only influence group conflict through its effect on group members.

The fourth policy implication is that misperceptions are a major threat to peace. It is easy to focus on changes to payoff structure and changes to the value of resources under dispute as the driver of conflict. In the farmer-pastoralist example, we readily blame population booms and land scarcity for the recent surge in violence, and these factors no doubt precipitated that surge. However, they do not necessarily result in group conflict unless they reduce the bargaining range to zero. They may instead cause conflict by creating the misperception that the other side now prefers fighting for the chance to control all of the land to cooperating to share the land between the two groups.

Misperceptions are also a significant cause of information and commitment problems. If groups desire

peace, the perception that the other side does not desire peace can prevent cooperation. Once groups are cooperating, misperceiving cooperation as defection can cause a series of defections. Any institution that limits such misperceptions should help maintain peace.

The fifth policy implication is that there are many ways to resolve group conflict, so practitioners should not be wed to one ideological idea about reducing group conflict. As long as the solution allows for credible commitments to cooperation, credible sharing of information, and groups' preferences to be aligned, conflict can be resolved. The means to accomplish each of these goals are likely to differ across contexts and depend on characteristics of the group conflict. By being wed to one ideological approach instead of assessing the situation, the solution may fail.

The sixth policy implication is that attempts to resolve group conflict can backfire and cause or exacerbate group conflict if they do not address preferences, commitment problems, and information problems. Contact programs, for example, could easily be mismanaged in such a way that works against cooperation. First, the groups may fail to achieve the goal, which could cause scapegoating and reinforce the perspective that cooperation with the other side is a waste of time. Second, the joint goal may not benefit both sides equally. Differing gains can *cause* a commitment problem and violent conflict because the group gaining less has an incentive to fight *now* before the other side gets stronger. The side gaining more cannot credibly commit to a deal based on today's balance of power when their power will increase tomorrow. Third, contact might be sabotaged by not involving influential members of each group or by involving members of each group who have the least to gain from peace.

Programs that incentivize cooperation by imposing external punishment or reward can also backfire. Third party punishment could undermine each group learning that the other prefers peace to fighting because each group's cooperation might be due to fear of punishment that disappears when the third party leaves. Any program imposing external carrots and sticks for cooperation should combine that approach with a way for group's to benefit from cooperation in a way that does not depend on the external incentives.

Programs that do not explicitly seek to reduce group conflict can also cause of exacerbate group conflict. First, any program that adds resources to an area afflicted by ongoing conflict runs the risks of those resources being captured by the conflicting groups (Findley et al. 2011). Second, programs designed to increase economic well-being and increase the value of land can make land worth fighting for; they can also upset traditional agreements that govern punishments for destroying crops, as in the farmer-pastoralist case. And third, aid programs can crowd out local employment opportunities and local institutions for conflict management, which will be needed when the aid program ends.

3.7 Avenues for Future Research

This paper sought to show how combining two perspectives on group conflict, the bargaining perspective and the identity perspective, can provide a better understanding of the causes and consequences of group conflict. Doing so reveals several avenues for future research. The first avenue is to synthesize models of group conflict from the numerous disciplines that study it, as this paper attempts to do. Group conflict is an interdisciplinary research topic with scholarship in political science (Lopez and Johnson 2017), economics (Kimbrough, Laughren, and Sheremeta 2017), psychology (Böhm, Rusch, and Baron 2018), management science (McCarter et al. 2018), biology (Rusch and Gavrilets 2017), and evolutionary anthropology (Glowacki, Wilson, and Wrangham 2017). Each discipline emphasizes different causes and consequences of group conflict. More attempts at synthesis of these distinct perspectives could provide insights into causes of conflict and more effective methods to reduce it.

The second avenue is to further consider the role that collective action problems play in group conflict. As we saw with farmer-pastoralist conflict and as has been written about by Fearon and Laitin (1996) and Sambanis and Shayo (2013), among others, peace can be derailed by a small set of group members who refuse to "play ball" with the other side. Without the ability to compel cooperative behavior from group members, groups cannot credibly commit to honor negotiated agreements. This points to within-group collective action problems as the driver of some between-group commitment problems. Peace is a public good: group members must forego behaviors that benefit them individually for peace to be achieved, but once achieved all group members enjoy its benefits whether or not they bore its costs.

Overcoming collective action problems is notoriously difficult. In the case of intergroup conflict, collective action problems may be even more difficult to solve because costs must be born before benefits are obtained, and group members may be killed in the meantime and thus never enjoy the benefits of their sacrifice. Individuals are notoriously bad even at saving for retirement, where they can sacrifice now to benefit themselves later in a low-risk environment (Benartzi and Thaler 2013; Warner and Pleeter 2001). Individuals may rationally discount future payoffs quite significantly in conflict settings where individuals may never see the future and the benefits accrue to a group.

Bornstein (1992) and Bornstein (2003) were among the first to consider how groups dealt with the preferences of individual group members in the context of group conflict. Bornstein, and most subsequent scholarship, focused on how groups encourage group members to participate in violence against the other side, since winning the fight benefits all group members but only group members who fight bear the costs. Most literature about collective action problems in conflict is thus concerned with each group's attempt to compel group members to *fight* the other side or resist external pressure; relatively little has been written

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about each group's attempt to compel group members to *cooperate* with the other side (Keefer 2012; Kaplan 2010; Rubin 2020).

Implicit in the discussion of collective action problems is that groups are made up of individuals with preferences that differ from the group. Following that logic, war may not be equally costly to all members of society, and peace not equally beneficial. The public good of peace is more beneficial for some group members than for others. In the case of farmers and pastoralists, farmers on the outskirts of the community bear the brunt of "defections" during peace time, so peace may not be more costly than war for them. If group elites bear few costs from conflict and may suffer in prestige from peace, they could resist peace agreements. More scholarship should consider who bears the costs of conflict and who stands to benefit from peace.

A third avenue for future research is to study the manner in which groups solve their own commitment problems, with an eye to the within-group collective problem as the driver of the between-group commitment problem. Fearon and Laitin (1996) showed that ingroup policing, an institution wherein groups punish their own miscreants, can help groups avoid an escalation of violence. They credit the relative paucity of group conflict to such institutions. Ingroup policing is an excellent example of within-group institutions that prevent violence from escalating and for maintaining peace in many contexts.

Consideration of perceptual biases and mistrust between groups in or with a recent history of conflict indicates a potential limitation of ingroup policing. With ingroup policing, groups are restrained from overly lenient punishment of their own people by the threat of violence escalating if either group suspects the other of acting in bad faith. Since ingroup policing depends on the perceptions of outgroup members, if those perceptions are biased such that members of each group suspect the other is trying to take advantage of the ingroup policing institution, then the institution could break down as each group does not trust the other to allocate sufficient punishment to their own side. The risk of cooperative behavior being misperceived as uncooperative behavior is one of the main threats to enduring peace (Jervis 2017; Wu and Axelrod 1995; Bendor, Kramer, and Stout 1991). Groups could account for the biases of the other side and harshly punish their own to overcome the bias, but overly harsh punishments could reduce the legitimacy of ingroup policing among the ingroup. Future research should examine how misperceptions caused by biases like motivated reasoning and reactive devaluation affect the ingroup policing equilibrium.

If ingroup policing is unsustainable due to psychological biases, future research should also consider how to modify that institution to minimize and manage the misperceptions that result from those biases. A starting point could be the collaborative "joint-punishment" institutions used by some farming and pastoral groups to control their conflict. These institutions tap into ingroup networks to identify wrongdoers, like

ingroup policing, but involve both sides in the punishment decisions to increase transparency. They may also open up more lenient punishments, as neither group has to worry that the other will misperceive a lenient punishment as defecting from the agreement. Compared to ingroup policing, however, a joint-punishment institution is likely more difficult to initiate. Ingroup policing can be implemented by each group alone, whereas a joint structure requires many agreements about the structure's composition, decision-rules, and enforcement capacity.

The fourth avenue for future research is to use the bargaining and identity perspectives to develop mechanisms through which conflict can be resolved, and then to test those mechanisms in lab and field experiments. One promising method to reduce conflict is intergroup contact, but, to my knowledge, no contact-based intervention has explicitly considered contact as a method to solve information and commitment problems. Contact programs are beginning to be tested between groups in or with a history of conflict, including Nigerian farmers and pastoralists (Grady 2020b), Christians and Muslims in Iraq (Mousa 2018), and Jewish and Arab-Palestinian youth in Israel (Ditlmann and Samii 2016), but these programs have thus far focused more on causal inference (does contact work in these contexts) than causal mechanisms (how does contact work in these contexts). Contact-based interventions would benefit from considering how contact solves information and commitment problems that cause conflict.

Based on the bargaining and identity perspective, intergroup contact may reduce group conflict through the achievement of a joint goal. From this viewpoint, the key mechanism is goal achievement and without it contact will not improve attitudes or reduce conflict. Traditionally, goal achievement is thought to "further [the] process" of attitude change, but is not necessarily central to it (Pettigrew 1998, 66). To my knowledge, only one lab experiment has tested the effect of intergroup contact when it does or does not achieve a joint goal (Grady 2020a). More experiments should test this mechanism with different types of group dynamics and in more contexts.

Another mechanism to reduce group conflict is to increase the utility of peace, be it materially (i.e. financial benefit) or non-materially (i.e. alignment with values). Increasing peace's utility can solve the preference problem if one exists, but it could also solve the information problem if each side believes the preferences of the other group have changed. I suspect increasing peace's material utility is best for solving information problems because each side is more likely to believe the other is motivated by material outcomes than non-material outcomes ("If they had those values, why are they fighting us now?"). Future research should test the efficacy of different means to increase the utility of peace.

Interventions that reduce psychological and cognitive biases against the outgroup should also help groups solve information and commitment problems. Along with testing the efficacy of reducing these biases, further

research should test the best means through which such biases can be reduced. Intergroup contact is one method, but it may be difficult to implement in very violent contexts or in contexts with strict segregation. Vicarious intergroup contact – contact in which members of each side observe ingroup members interacting with outgroup members – could reduce biases in these contexts.

The last avenue for future research I will discuss is how group dynamics moderate the effect of interventions meant to reduce group conflict. Fearon and Laitin (1996) noted that group size changes effective strategies for deterring group conflict: large groups can use the threat of intergroup conflict to incentivize the cooperation of a small group, and small groups use ingroup policing to avoid the wrath of the larger group. Size and power disparities might influence conflict-reduction interventions in other ways. The smaller group, for example, is likely to interact more frequently with the larger group than the larger group interacts with the smaller group. Contact-based interventions may therefore have little effect on members of the smaller group, who have much personal experience with members of the larger group. Group dynamics other than size and power disparities could similarly change strategies to reduce group conflict, such as the homogeneity and hierarchy of each group and the centralization or decentralization of power within each group. Future research should investigate how these group dynamics affect the types of institutions that groups develop to alleviate conflict, and should determine which type of interventions are most effective in each context.

Appendix A

Measures, Mechanisms, and Alternative Estimations

A.1 Randomization Inference and Bootstrapping

Randomization inference and bootstrapping are nonparametric methods to generate p-values (randomization inference) and confidence intervals (bootstrapping). With *randomization inference*, we first shuffle the treatment variable to break the relationship between treatment and outcomes. Next we regress outcomes on treatment using our regression equation and store the resulting coefficient. Lastly, we repeat that process 10,000 times to create the distribution of coefficients we would observe if treatment had no effect on outcomes – the null hypothesis. Our p-value is the proportion of the null distribution that is greater than or equal to our observed coefficient.

Bootstrapping for standard errors is similar, but instead of shuffling the treatment indicator we resample units with replacement. By resampling with replacement, we create the empirical distribution of our data and the range of possible treatment effects we might observe if we repeated the experiment 10,000 times. The treatment effect at the 2.5th percentile and at the 97.5th percentile are equivalent to a 95% confidence interval (Efron and Tibshirani 1994).

In each of these procedures, we mimic our randomization process by randomizing/resampling the intervention to communities in site-level clusters and within state blocks. This means that both communities in an implementation site (farmers and pastoralists) will always be treated/sampled together and that assignment to the intervention and resampling are conducted separately in Nassarawa and Benue, just as the intervention was assigned in this study. This procedure ensures that our null distribution (for p-values) is created by randomizing the intervention between exchangeable units and that our empirical distribution (for confidence intervals) is created by resampling units as they were sampled.

A.2   Results with Additive Indices

These tables show results for self-report survey outcomes made with additive indices. The tables include the coefficients and p-values with additive indices for community- and individual-level analyses.

	ag_coef	ag_p	ind_coef	ind_p
Affect	0.093	0.037	0.062	0.056
Insecurity	0.015	0.174	0.030	0.011
Contact	0.054	0.193	0.070	0.143

Table A.1: Effect of ECPN on main outcomes with additive indices. The first and second columns are coefficients and p-values for aggregate community-level analyses. The third and fourth columns are coefficients and p-values for individual-level analyses.

A.3   Mechanisms and Placebo Analysis

These tables show results for mechanism and placebo outcomes using inverse-covariance weighted indices. The tables include the coefficients and p-values for community- and individual-level analyses.

	ag_coef	ag_p	ind_coef	ind_p
Threat	-0.065	0.796	0.007	0.350
Empathy	0.129	0.089	0.127	0.010
Perspective-Taking	-0.040	0.640	0.029	0.195
Ingroup Expansion	0.036	0.252	0.016	0.166
Placebo (Violence)	-0.067	0.691	-0.007	0.556

Table A.2: Effect of ECPN on mechanism and placebo outcomes. The first and second columns are coefficients and p-values for aggregate community-level analyses. The third and fourth columns are coefficients and p-values for individual-level analyses.

A.4   Survey Questions

Outgroup Affect

- With regards to someone from [X GROUP], would you feel comfortable:

    – if they worked in your field?

- paying them to watch your animals?

- trading goods with them?

- sharing a meal with them?

- with a close relative marrying a person from [X GROUP]?

• From 1-5, how much do you trust people from [X GROUP] in your area?

• Now I'm going to ask you questions about your community here in Benue/Nassarawa, including [X GROUP]. Please tell me how strongly you agree/disagree with each of the following statements: People in this area can be trusted.

Contact

• Now I'm going to ask you questions about your contact with [X GROUP] in your area.

- Think of the market you go to most frequently. During the past month, have members of X GROUP gone to that market too? In the past month, how many times did you interact with X group in the market?

• In the past month, have you:

- Joined a member of X group for a social event outside the home? How often?

- Hosted a member of X group for a ceremony in your home? How often?

- Gone to the home of a member of X group for a ceremony? How often?

- Have you interacted with members of X group in any other way in the past month?

Insecurity

• In the last year were there any areas that you avoided going to or through because of insecurity during the night?

• In the last year were there any areas that you avoided going to or through because of insecurity, during the day?

• In the last year, did insecurity ever prevent you from:

- Working when you wanted to work? About how many days were you unable to work?

- Going to the market?

– Getting water for the household?

– Going to your field/farm?

– Moving your animals to grazing areas?

– Moving your animals to water?

– Earning money or going to work?

– Going to school?

Endorsement Experiment

- Imagine that there is a proposal by [**the Farmer's Cooperative Society/MACBAN**] for action to enhance access to clean water in rural areas. Though expensive, the proposal aims to bring fresh, clean water to hundreds of areas without access to it, including this one. If this were proposed, how would you feel about it?

Percent Experiemnt

- Think about groups that you might join in your leisure time. Would you join a group that had **5/25/50/75**% X Group members?

- Think about the community you live in. Would you live in a community that had **5/25/50/75**% X Group members?

Violence Placebo

- Now I am going to ask you some questions about the use of violence. Is it always, sometimes, rarely, or never justified to use violence to do each of the following:

– Retaliate against violence

– Defend one's group

– Maintain culture and traditions

– Defend one's religion

– Bring criminals to justice

– Force the government to change their policies

Threat

- Please tell me how strongly you agree/disagree with each of the following statements:

  - You see X group as a threat to your community

  - You think X group have too much influence on your community

  - You think that people from X group have different morals than people from your group

Empathy and Perspective Taking

- Suppose something unfortunate happened to someone from X group in this community, such as a serious illness or the death of a parent. How likely is it that some people in the community from your group would get together to help them?

- Suppose something unfortunate happened to someone from your group in this community, such as a serious illness or the death of a parent. How likely is it that some people in the community from X group would get together to help them?

- Some people say [X GROUP] is responsible for most of the violence in this community, while others say that both groups are responsible for the violence here. Which is closer to your view?

Ingroup Expansion

- Now I'm going to ask you questions about your community here in Benue/Nassarawa, including X group. Please answer honestly and remember that your responses will remain confidential. Please tell me how strongly you agree/disagree with each of the following statements:

  - People in this area are willing to help their neighbors across ethnic and religious lines

  - People in this area can be trusted

  - People in this area generally do not get along together

  - People in this area do not share the same morals

  - People in this area see the benefits of working together to achieve common goals

  - What proportion of your group in this area contribute time or money toward common development goals, such as building a levy or repairing a road?

  - What proportion of X group in this area contribute time or money toward common development goals, such as building a levy or repairing a road?

– If there was a water supply problem in this community, how likely is it that people from your group and people from X group would cooperate to try to solve the problem?

Public Goods Game

"Thank you very much for participating in our survey. Before I go, there is one last thing. As you may have heard, we have development funds to use in this community. We have randomly selected you as one of the 50 people to receive these funds. These funds are not for a Mercy Corps project, but rather for you to keep personally or to donate to a community fund.

We have 1,000 Naira to give to you. It is yours, and you can use it either way–for yourself or for a community good.

Your community and [joint farmer/pastoralist community] have created a project committee to whom you can donate this money so that it may be used to help both communities. The project committee has 4 people from each community. We have found a donor that will match the funds that you all contribute to the project committee, so that if you donate 100 Naira the project committee receives 300 Naira, and if you donate all 1,000 Naira the project committee receives 3,000 Naira. You are welcome to donate none, some, or all of the money to the project committee.

These are your individual donation envelopes. All the donations will be private – only you will know how much money you donated. It essential that you keep how much you give private – please do not tell anyone. I have with me a donation envelope to collect donations. Please go into your home, put however much of the 1,000 Naira you wish to donate to the project committee in the envelope, take whatever amount you want to keep for yourself, and come back to place your envelope in the donation envelope. Remember, you are welcome to donate none, some, or all of the money to the project committee. After that we are finished and you may continue your day. We will come back and publicly announce how much money your community's project committee will receive."

Appendix B

Experimental Measures, Robustness Checks, and Balance Tests

B.1 Measures

Group Affect

- Please rate [**Republicans/Democrats**] from 0 to 100, where 100 means you like and feel very warmly towards the group and 0 means you dislike and feel very coldly towards the group. If you don't feel particularly warm or cold toward them, then you should place them in the middle, at the 50 degree mark.

- To what extent do you feel each of these emotions when thinking about [**Republicans/Democrats**]?

    – Negative traits: Angry, Disgusted, Fear, Resentful, Anxious, Contempt, Sad, Negatively

    – Positive traits: Respectful, Happy, Proud, Secure, Sympathetic, Positively

    – Placebo traits: Envy, Guilty, Pity, Hurt

Social Distance

To what extent do you agree or disagree with the following statements about [**Republicans/Democrats**]?
I would be happy to have a [**Republican/Democrat**] as: - President of the United States
- Governor of my state - A neighbor - The owner of a store I regularly shop at - My personal doctor - My spiritual advisor - A close friend - My significant other - A roommate
- Someone who marries into my family - The teacher of my children - A coworker

Threat

- To what extent do you agree or disagree with the following statements about [**Republicans/Democrats**]?

    – [**Republicans/Democrats**] are a threat to American society

    – [**Republicans/Democrats**] are not trustworthy

    – [**Republicans/Democrats**] are a threat to my values

- [**Republicans/Democrats**] threaten my personal freedoms and rights

- [**Republicans/Democrats**] violate norms of justice and fairness by choice

- [**Republicans/Democrats**] threaten economic opportunities of others

- [**Republicans/Democrats**] are a threat to the physical health of others in society

- [**Republicans/Democrats**] are a threat to the physical safety of others in society

- [**Republicans/Democrats**] hurt the overall functioning of American society.

Blame Attribution

- Some people say that Republicans are responsible for most of the problems in this country, some say that Democrats are responsible, and others say that both groups are responsible for the problems here. Which is closer to your view?

Willingness to Interact

- "Now imagine a group you might join or a community you might live in.

  - Would you join a group that had [**5%/75%**] [**Republicans/Democrats**] as group members?"

  - Would you live in a community that had [**5%/75%**] [**Republicans/Democrats**] as community members?

Information Seeking

- To help connect students with organizations they might be interested in, we have gathered information about several political organizations. Would you like to receive information about any of the following groups?

  - Republican-oriented organizations: Heritage Foundation, Americans for Prosperity, and College Republicans

  - Democrat-oriented organizations: Southern Poverty Law Center, Center for American Progress, and College Democrats.

B.2 Robustness of Results

Inverse-covariance weighted index with covariates

	term	estimate	p.value	conf.low	conf.high	n	outcome
2	treatmentbad	0.1082	0.5816	-0.2812	0.4977	88	Outcomes Index
3	treatmentgood	-0.3376	0.0124	-0.6003	-0.0750	88	Outcomes Index

Table B.1: Regression results using ICW index with covariates.

	term	estimate	p.value	conf.low	conf.high	n	party
2	treatmentbad	0.2407	0.2833	-0.2132	0.6945	26	Rep
3	treatmentgood	-0.0862	0.5790	-0.4037	0.2313	26	Rep
21	treatmentbad	0.0749	0.7778	-0.4538	0.6036	62	Dem
31	treatmentgood	-0.4354	0.0186	-0.7951	-0.0756	62	Dem

Table B.2: Regression results using ICW index with covariates. Separate effects for Democrats and Republicans.

Additive index, covariates, and collapsing the "failure" group into the control group

	term	estimate	p.value	conf.low	conf.high	n	outcome
2	treatmentbad	0.0451	0.8050	-0.3160	0.4062	102	Additive Index
3	treatmentgood	-0.2727	0.0762	-0.5746	0.0293	102	Additive Index

Table B.3: Regression results using additive index. No covariates. Separate "failure" and control group.

	term	estimate	p.value	conf.low	conf.high	n	outcome
2	treatment_01	-0.2942	0.0272	-0.5545	-0.0339	102	Additive Index

Table B.4: Regression results using additive index. No covariates. Control group and "failure" condition collapsed into one group.

	term	estimate	p.value	conf.low	conf.high	n	outcome
2	treatmentbad	0.1072	0.6012	-0.2993	0.5136	88	Additive Index
3	treatmentgood	-0.2645	0.0782	-0.5595	0.0306	88	Additive Index

Table B.5: Regression results using additive index. Covariates included. Separate "failure" and control group.

	term	estimate	p.value	conf.low	conf.high	n	outcome
2	treatment_01	-0.3232	0.0114	-0.5715	-0.0749	88	Additive Index

Table B.6: Regression results using additive index. Covariates included. Control group and "failure" condition collapsed into one group.

	term	estimate	p.value	conf.low	conf.high	n	party
2	treatmentbad	0.4393	0.2013	-0.2508	1.1294	27	Rep
3	treatmentgood	0.0374	0.8831	-0.4817	0.5565	27	Rep
21	treatmentbad	-0.0255	0.9020	-0.4364	0.3855	75	Dem
31	treatmentgood	-0.2913	0.0932	-0.6326	0.0500	75	Dem

Table B.7: Regression results using additive index. No covariates. Separate "failure" and control group. Separate effects for Democrats and Republicans.

	term	estimate	p.value	conf.low	conf.high	n	party
2	treatment_01	-0.2097	0.3520	-0.6652	0.2457	27	Rep
21	treatment_01	-0.2798	0.0739	-0.5873	0.0277	75	Dem

Table B.8: Regression results using additive index. No covariates. Control group and "failure" condition collapsed into one group. Separate effects for Democrats and Republicans.

	term	estimate	p.value	conf.low	conf.high	n	party
2	treatmentbad	0.4428	0.1864	-0.2304	1.1160	26	Rep
3	treatmentgood	0.0634	0.8186	-0.5034	0.6302	26	Rep
21	treatmentbad	-0.0172	0.9463	-0.5261	0.4917	62	Dem
31	treatmentgood	-0.4048	0.0246	-0.7560	-0.0536	62	Dem

Table B.9: Regression results using additive index. Covariates included. Separate "failure" and control group. Separate effects for Democrats and Republicans.

	term	estimate	p.value	conf.low	conf.high	n	party
2	treatment_01	-0.1859	0.4358	-0.6707	0.2990	26	Rep
21	treatment_01	-0.3966	0.0093	-0.6916	-0.1016	62	Dem

Table B.10: Regression results using additive index. Covariates included. Control group and "failure" condition collapsed into one group. Separate effects for Democrats and Republicans.

Information Seeking with only College Republicans/College Democrats

	term	estimate	p.value	conf.low	conf.high	n	outcome
2	treatmentbad	-0.1214	0.2879	-0.3469	0.1041	102	Information Seeking
3	treatmentgood	-0.1714	0.1142	-0.3849	0.0420	102	Information Seeking

Table B.11: Regression results for information seeking. Only using response groups "College Republicans" and "College Democrats".

	term	estimate	p.value	conf.low	conf.high	n	party
2	treatmentbad	-0.1746	0.4254	-0.6190	0.2698	27	Rep
3	treatmentgood	-0.1039	0.6427	-0.5602	0.3525	27	Rep
21	treatmentbad	-0.0885	0.5168	-0.3593	0.1823	75	Dem
31	treatmentgood	-0.1845	0.1490	-0.4367	0.0677	75	Dem

Table B.12: Regression results for information seeking. Only using response groups "College Republicans" and "College Democrats". Separate effects for Democrats and Republicans.

B.3 Balance and Potential Confounders

Relatability

Relatability by party affiliation: No difference between Republicans and Demcorats in relatability of the characters.

```
##            term  estimate  std.error      p.value df
## 1 (Intercept) 3.4255319 0.09969742 2.115551e-43 65
## 2      pidrep 0.2244681 0.23128382 3.353797e-01 65
```

Relatability by support for Trump: Support for Trump is unrelated to character relatability for Democrats and Republicans.

Republicans:

```
##            term       estimate    std.error      p.value df
## 1 (Intercept)  3.8938933785 0.405128318 1.522588e-07 14
## 2       gov2_2 -0.0003993316 0.007657199 9.591451e-01 14
```

Democrats:

```
##            term     estimate  std.error      p.value df
## 1 (Intercept)  3.397227592 0.14803651 7.359315e-22 33
## 2       gov2_2 -0.004031097 0.01247586 7.486493e-01 33
```

Respondents do not mention Trump when when stating what they found unrelatable about characters. Five respondents mention Trump in what they found relatable about the characters.

	No Mention	Mention
Relatable	97	5
Unrelatable	102	0

Relatability by abortion attitudes: Attitudes about abortion unrelated to character relatability for Democrats and Republicans.

Republicans:

```
##            term  estimate std.error      p.value df
## 1   (Intercept) 3.4254386 0.3768967 3.806056e-08 18
## 2 pers_abortion 0.1403509 0.1535074 3.726479e-01 18
```

91

Democrats:

```
##            term estimate std.error      p.value df
## 1  (Intercept)      4.0 0.4754852 8.719908e-11 45
## 2 pers_abortion    -0.2 0.1707408 2.476168e-01 45
```

Respondents do not mention abortion when stating what they found relatable or unrelatable.

	No Mention	Mention
Relatable	102	0
Unrelatable	102	0

Balance test

Balance comparing each experimental group to each other experimental group on.

	chisquare	df	p.value
Success-Control	22.00708	22	0.4594660
Failure-Control	20.22061	21	0.5073286
Success-Failure	18.36212	21	0.6259870

Table B.13: Omnibus balance test for all experimental groups. Groups are balanced on all measured demographic traits: Gender, Age, Ethnicity, Partisanship, Ideology, Immigrant status, College Major, GPA, Religion, and Family Income.

Attrition

Attrition (due to the responding not having partisan attachment) is unrelated to treatment assignment.

```
##
##      co bad good
##  dem 28  23   24
##  ind  2   4    4
##  rep  7   9   11

##               term    estimate  std.error   p.value df
## 1     (Intercept) 0.05405405 0.03768739 0.1543567 109
## 2  df$treatmentbad 0.05705706 0.06513224 0.3829463 109
## 3 df$treatmentgood 0.04851005 0.06198845 0.4355789 109
```

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