

Common pool resources, spillover effects, and local security: A theoretical foundation

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Abstract

Existing research suggests that communities can successfully govern common pool resources, ensuring long term viability of the resource (Ostrom 1990, Agrawal and Chhatre 2006). However, little research has been done to evaluate the potential of positive externalities of these forms of local cooperation. To what extent does participation in common pool resource management regimes (CPRs) yield spill over effects into other spheres of behavior, influencing individual behavior beyond the realm of natural resource management? This question is of particular importance, given that international aid agencies have begun implementing CPRs in an attempt to build peace, though there is limited academic work to support this assumed effect. In this paper I explore the theoretical potential of spill over effects of common property rights regimes at the community level. Specifically, I develop a theory to evaluate how participation in common property regimes affects the likelihood that members of those communities join a rebel movement, support rebels, or take up arms to defend the community and common pool resource they manage. I lay the groundwork for future empirical work that will shed light on the local geography of conflict, the behavioral dimensions of coupled human and natural systems, and potential policy implications for property rights regimes, and their effect on conflict immunity at the local level.

Keywords: common pool resources, violent conflict, informal institutions, local politics

Introduction

Peace building efforts have become more focused on the local dimensions of conflict in the last 20 years. Interventions at the local level by international and local aid agencies and NGOs have sought to facilitate norms and institutions for the building and maintenance of peace in conflict and post conflict environments, particularly given widespread recognition that violent conflict is occurring more commonly within sovereign boundaries, as opposed to across them. Interventions have blended development and security oriented strategies in the form of building institutions for livelihoods. In particular, many forms of intervention include the facilitation of participation by local communities, with the goal of facilitating a “local peace”, with a subset of these aimed at facilitating common pool resource management regimes (CPRs). While policymakers and practitioners presume the potential benefits

of CPRs for peace building, there is limited academic support for such a strategy. In fact, while the literature on CPRs is rich and well developed, a theoretical exploration of the potential positive externalities of CPRs does not yet exist. In this paper I propose several hypotheses whereby CPRs could facilitate local peace.

It is not surprising that international peacebuilding interventions have turned to the management of natural resources in conflict and post-conflict settings, given three specific turns in peacebuilding. As noted, since the 1990s, peacebuilding and post-conflict reconstruction policy interventions have taken a turn to the local (Mac Ginty and Richmond (2013)). In part this reflects an academic turn to the local dynamics of violent conflict. In political science, studies at the local level often consider what authors have called the “microdynamics” or “microfoundations” of violent conflict (Kalyvas et al. (2006), Justino (2009)), though there remains a lacuna with respect of the consequences of these microdynamics for local peace building interventions outside of the context of “statebuilding” (with the notable exception of Brainard and Chollet (2007)). The framing of the local, particularly for practitioners, has come to rest on the role of the community. Goodhand and Hulme (1999) note how “in contemporary conflicts, ‘the community’ represents the nexus of conflict action where contending claims for people’s ‘hearts ad minds’ are fought and where most of the physical violence and suffering occurs.” (pp. 17) International institutions, national governments, and NGOs, have begun to elevate and address the role of local actors in facilitating and building local peace.

This turn has evolved with, if slightly after, a similar turn in the field of development studies, which has focused on “participation, ownership, partnership leading to ...a facade of local consent and legitimacy” (Mac Ginty and Richmond (2013)).¹ While “local” and “participatory” are not synonymous, rights based approaches to development have accompanied this shift to the local. As a consequence, while some efforts at establishing local stability have focused on the building of local institutions for justice and accountability (construction of local courts, truth and reconciliation processes), other interventions have more explicitly aimed to bridge the nexus between development and peacebuilding, yielding a second trend in international peacebuilding toward the blending of development and peacebuilding interventions. In rural regions, this has led to a focus on livelihoods improvement and the building of social capital. There are two underlying assumptions of this approach. First, this approach is the result of the recognition that improvements in income and wellbeing undermine the drivers of violent conflict, building on work linking poverty and conflict (Justino (2009); Blattman and Miguel (2010)). Second, that the construction of social capital will undermine or mitigate identity based cleavages that have been blamed for conflict (Varshney (2003)).

A third trend has been the proliferation and general acceptance of the role of natural resources in shaping conflict dynamics (Ross (2004)). While the literature in this area is rich,

¹The multitude of studies on participatory development in the 1990s and criticisms into the 2000s demonstrate this focus. A few include Michener (1998); Chopra et al. (1990); Cornwall (2003); Hickey and Mohan (2004); Nelson, Wright et al. (1995)

policymakers and practitioners often focus on the finding that high value natural resources can present a funding source for rebels, facilitating and perpetuating a wartime economy through the creation of spoilers. As a consequence, policy makers have focused on legislation and certification schemes to limit the profitability of these resources on an international market.

The joint effect of these three trends (a movement toward the local, the importance of bridging the development-security nexus, and the recognition of the role of natural resources in conflict) has been to lead a portion of the international peace building community to focus its attention on the local management of natural resources as part of the peace building process. This is a particularly strong tendency in rural areas affected by conflict, far from the capital, where livelihoods are often derived from and reliant upon natural resources and where state institutions may have limited reach. The result is a series of efforts at local institution building for the management of natural resources, with the stated aim of securing livelihoods. This focus is perhaps most apparent in the series of six edited volumes compiled by the Environmental Law Institute (ELI), United Nations Environment Programme (UNEP), the University of Tokyo and McGill University, which provide a series of case studies to provide lessons learned in post-conflict peace building through natural resource management (Young and Goldman (2015)).

Interventions focused on common pool resource management in conflict and post conflict settings have occurred primarily in South Asia, though have begun to spread to Africa. In general, these efforts have sought to either 1) mitigate conflict related to the management of the resource specifically or 2) improve livelihoods in the context of insecurity, relying primarily on linkages between development and security. Some international peacebuilding efforts by aid agencies have actually designed interventions aimed at developing common property management regimes (CPRs), particularly of community forests, as a peace building strategy. They report that the facilitation of community managed forests allows community members to build bridges across groups that have traditionally participated in different warring factions, can mitigate the role of timber in a wartime economy, and can create buy-in by community members. Interventions aimed at creating CPRs are thus not *only* for the management of a long term resource, but are also explicitly expected to have positive externalities on its participants. In addition to preserving the forest for future use, the intervention is meant to prevent individuals from joining a rebel group, or from facilitating the trade of illegal timber supporting the rebels and perpetuating insecurity.

While policy interventions presume a fundamental importance in promoting livelihoods through community management of resources for peace building, there is little scholarly basis to expect that such policy interventions should have long term effects on peace building and stability. And yet the policy interventions underway in Senegal and Nepal presents the opportunity for expanding the academic literature. To what extent can the development of CPRs affect outcomes related to local stability (and thus unrelated to long term resource viability)? Recent policy interventions in which CPRs are facilitated with the specific goal of peacebuilding bring to the forefront an as yet unexplored area in relation to existing literature on conflict and the environment, and peace building.

Theoretical Foundation and Proposed Hypotheses

CPRs have been widely studied since Ostrom’s response to Hardin’s “Tragedy of the Commons”². CPRs may be defined as local institutional arrangements for the management of a common pool resource, whereby the resource rights are held by the group of users who can exclude others. CPRs may emerge in response to a common pool resource dilemma (given the rivalrousness of the resource, and the high cost of exclusion), and in contrast to private or public management of the resource. Rules for who may use the resource, how much of it may be harvested/consumed, monitoring and enforcement of these rules are usually developed by the commons users themselves. A successful CPR will lead to the long term viability of the commons for the user group.³

One of the overall functions of a successful CPR management system is to reduce conflict over the use of the common pool resource, through the specification of clear rules for its management, and monitoring and enforcement of these rules. But this says nothing about reducing conflict in other domains or systems, at least not a priori. There are reasons to believe that the implementation of CPRs could facilitate local stability in conflict and post conflict contexts. I group these possible mechanisms into two frameworks: a pure economic framework, and a framework that views actors as acting within a (or multiple) strategic context(s).

Before elaborating on the proposed hypotheses, the use of the terms “conflict” and “post-conflict” environments require a brief note. For some time, civil war scholarship has acknowledged that violent conflict is dynamic - intensity, scope and tactics may shift often between accepted (if contested) “start” and “end” dates of a conflict. Regions can persist in partial equilibrium of insecurity, where wartime economies remain a primary forum of economic exchange, even if outright hostilities have stopped. In both immediate post-conflict contexts and ongoing conflicts, hostilities can recur, and it is in these contexts where international peacekeeping interventions tend to operate.

Below I present four hypotheses about the mechanisms by which CPRs might affect local security in conflict or post conflict contexts. Of course, the implicit null hypothesis **H0**, is that CPRs have no effect on local stability in conflict and post conflict environments.

Economic Hypothesis

One of the most robust empirical findings in political science in the civil war literature is the central role of poverty in violent conflict onset (Brainard and Chollet (2007)). Empirical

²For example, Ostrom (1990); Agrawal and Gibson (1999); Agrawal (2001*b*); Warner (2000); Ratner et al. (2013); Agrawal (2001*a*); Kanbur and Mundial (1992); Chopra et al. (1990); Chhatre and Agrawal (2009); Walker and Gardner (1992) are a few.

³For more a more detailed and thorough background on CPRs, see Ostrom (1990).

studies of civil war suggest that income is a significant predictor of membership in an armed faction (Humphreys and Weinstein (2008); Justino (2009)). Attempts at circumventing the problem of reverse causality (in which violent conflict causes poverty), some scholars have relied on rainfall as an exogenous predictor of income in Africa (Miguel, Satyanath and Sargent (2004)). In a microlevel study, Nillesen and Verwimp (2009) demonstrate the effect of lower than average rainfall, which yields lower returns to coffee production, leading to increased rebel recruitment in Burundi (also supported by Miguel et al. 2004). The relative opportunity cost to fighting is low, especially in rural areas where average incomes are lower, and there may be limited opportunities for livelihood generation.

In addition to direct participation in armed conflict through fighting for an armed faction, individuals can participate more indirectly in perpetuating armed conflict. In particular, local dimensions of war time economies (as described by Reno 1997) yield opportunities for non-combatants to benefit from ongoing insecurity. Civilians may actively facilitate the illicit flow of resources to support armed factions, which may occur voluntarily or under coercion. In central DRC, civilians constitute labor for armed groups that rely on the illicit transport of tin (Rawlence (2012)). Alternatively, civilians may receive payment for facilitating illicit trade. Both types of behavior (direct and indirect participation) make the cessation of hostilities less likely.

From a pure political economy perspective, perhaps the most intuitive mechanism by which one could expect CPRs to increase local stability is through directly improving the well being of participants, thereby decreasing the likelihood of participation in an armed faction. Successful CPRs ensure the long term viability of a resource. As such, they have the potential to ensure livelihood derivation over the long term. For instance, a successful CPR for a fishery ensures that the fishing stock will not be depleted. If there is a sufficient local market for fish, then ensuring the continued supply of the fish also ensures the continued livelihood of the fisherman. If participation in CPR facilitates sufficient access to the natural resource so as to secure a livelihood which was not available in the absence of the CPR, it is likely that CPRs could lead to local stability by increasing the opportunity cost to participating, directly or indirectly in conflict. This is the implicit assumption made in many of the cases outlined in the six UNEP/ELI volumes about natural resources, livelihoods, and conflict resolution: the provision of livelihoods and incomes that are unrelated to wartime activities can facilitate the end of the conflict and build stability through increasing the opportunity costs of fighting. (Young and Goldman (2015))

A significant caveat must be acknowledged. Even if the individual opportunity cost is not sufficiently low for individuals to join a rebel group, consider that it is also the case that conflict itself destroys the environment (Westing (1990)). As a consequence, there emerges a potential conflict-environment feedback loop whereby high unemployment may make fighting attractive, and the resulting fighting may destroy the local, natural, environment, further lowering the opportunity costs for a new group of recruits. In the context in which the environment, in particular a common pool resource has been severely degraded as a result of the conflict, it is unlikely that a CPR will provide sufficient income to deter potential recruits from participating, at least not immediately. As a consequence, if this economic

opportunity cost mechanism provides a sufficient link between CPRs and security, it should only hold when the environment has not been irreparably damaged by conflict.

***H1:** Successful CPRs should make local regions more stable by limiting the attractiveness of fighting or facilitating a wartime economy for CPR participants, if the CPR has not already been significantly depleted.*

Informal Institutional Spillover Hypotheses

I propose two institutional spillover mechanisms linking CPRs to local stability: prosocial norm spillover, and paired institutional complexity.

On Norms

As local institutional arrangements, CPRs can instill norms of behavior. I define norms as Bowles and Gintis (1998) do: cultural traits governing actions that affect the well being of others but that cannot be regulated by costlessly enforcing contracts. Norms that enhance the average level of well being (if they are frequent within a population) may be labeled as pro-social norms (Bowles and Gintis (1998)). Operationally, prosocial norms lead individuals to behave in a way that may be personally costly, but good for the collective outcome (i.e. cooperation), even in the absence of enforceable punishment (Boyd and Richerson (2002)).

Gintis and Bowles (1998) argue that communities (as a particular form of social arrangement) have the capacity to lead to pro-social norms because of the nature and structure of social interaction in a community. Norms may exist or persist in the absence of formal institutional arrangements. Gintis and Bowles (1998) find that communities influence evolution of norms because they structure interactions in ways that affect the benefits and costs of norm governed actions. However, norms may also be the result of institutional arrangements. Formal institutional arrangements can lead to norms which spillover into other institutional contexts. In a recent study by Stagnaro et al. (2016), the authors demonstrate that formal institutions can shape individual's tendency toward pro-sociality. Building on earlier work⁴ that suggests that "prior experience with situations where cooperation *is* in one's long-run self-interest may lead one to sometimes cooperate even in the context of pure cooperation - the incentives to cooperate that exist in many settings may 'spillover' into settings where such incentives are lacking" (Stagnaro, Arechar and Rand (2016), pp. 3), the authors find that "high institutional quality"⁵ led to significantly more pro-sociality on the part of participants in the dictator game (though no effect on punishment in a Third Party Punishment game).

It is plausible that less formal institutions may yield spillover of prosocial norms as well.

⁴Including Bear and Rand (2016), Chudek and Henrich (2011), Kiyonari, Tanida and Yamagishi (2000), Van Lange et al. (1997), Yamagishi and Mifune (2008)

⁵Institutional quality is characterized in their study as participants perceptions of six formal institutions with which they come into daily contact (police, courts, government, political parties, civil services, and the banking industry)

As “socially shared rules, usually unwritten, that are created, communicated, and enforced outside of officially sanctioned channels” (Helmke and Levitsky 2004, pp.727)⁶ CPRs may fall under this category. I consider CPRs to be (somewhat formal) informal institutional arrangements, as they need not be sanctioned or enforced by the state, though they may be formally written down. I differentiate such informal institutions from norms (though norms have often been considered to be a type of informal institution), in that norms do not require enforceable rules which structure incentives, though they may result from or shape the effectiveness of such rules.

Thus, as informal institutional arrangements, CPRs may create prosocial norms through the punishment and rewards specified by the CPR. If “good” CPRs yield norms of prosociality in other spheres of behavior, then participants in such CPRs might extend this tendency to their decision about (voluntary) participation in violent conflict. However, defining “good” CPRs requires some consideration. A CPR may be considered “good” successful if it leads to the long term viability of the natural resource. In order for pro-sociality to be the driving force, this should also characterize CPRs in this context. However, a “good” CPR may also be an institution that is predictably enforced and self-sustaining. In order for prosocial norms to emerge, and then to spillover, the CPR must be “good” in both of these senses.

Observably, CPR prosocial norm spillover would lead CPR participants to be more likely to resist recruitment attempts (particularly non-coercive recruitment attempts) on the part of rebel groups. Membership in “good” CPRs should also lead participants to be less willing to participate in economic activities related to the war time economy, given that the contribution to ongoing conflict and the support of a wartime economy. In the long run, violent conflict is destructive both to the community, and the natural environment on which it relies. As such, violent conflict or participation activities that indirectly sustain it is antithetical to the concept of pro-sociality, which entails individuals making decisions in the interest of the community, even if doing so imposes costs on them. Thus, even if it is individually beneficial for individuals to join a rebel group, or to receive payoffs for allowing the removal and sale of timber to support rebel groups, strong pro-social norms would ensure against this behavior.⁷

However, it is unlikely that such pro-social norms should emerge and spill over immediately. First, the participants must observe pro-social outcomes of the CPR, in order to develop associated prosocial norms. As Agrawal and Gibson (1999) note, norms may evolve that do not facilitate the long term collective survival of a community, given a shift in environment. Second, participants, must participate long enough to internalize the norms, in order for them to spill over.

In sum, “good” CPRs can generate norms of pro-sociality. Participation in war economy is anti-social behavior, and thus the development of pro-social norms through CPRs may

⁶For them, organizational rules that govern non-state entities fall in the category of “formal institutions”.

⁷Communities that experience conflict are, on average, expected to demonstrate higher levels of community participation and pro-sociality (Bauer et al 2016), but I would expect this to be even higher for those villages that also have CPRs, if H2 is not to be rejected.

lead participants to resist participation in the wartime economy, even if it is individually beneficial to do so.

***H2:** Participants in “good” (successfully and evenly enforced) CPRs, should be less likely to be susceptible to non-coercive rebel recruiting efforts, or to participate in a wartime economy. This effect is likely to be observable only after the CPR has been in place for long enough for pro-social norms to be generated and internalized.*

On paired institutions and complexity

In addition to the possibility of prosocial norms spillover, CPRs could also affect local stability through behavioral spillovers related to participation in multiple strategic contexts (unrelated to the development of prosocial norms). Local communities do not constitute institutional blank slates - even if the rules structuring incentives are merely informal. While conflict disrupts social institutions, it does not remove behavioral tendencies and informal institutional history. Individuals are likely to have existing repertoires of behavior (Bednar et al. (2012)), which may shape how effective CPRs are (especially if externally supplied). Furthermore, conflict itself presents a strategic context, in which individuals may respond to incentives, and their pay offs may be contingent on other community members' behavior.

As a consequence, in understanding whether CPRs are likely to lead to stability it is important to take into consideration three characteristics of the local institutional context that compels consideration: the community's informal institutional history, the institutional characteristics of the CPR, and the strategic context presented by the conflict or post conflict context. For now, I assume a successful CPR, and thus a CPR that takes into account the community's informal institutional history, and focus here on the latter potential paired strategic contexts of CPRs and post conflict contexts.

Institutionalists and behavioral economists have long recognized that the effect of institutions on behavior is not the result of the single institution of interest, but instead may be the result of a sequence of institutional experiences, or multiple simultaneous strategic contexts yielding specific incentives for behavior (similar to institutions). In fact, Bednar and Page (2007) suggest that culture may be the result of the fact that people do not treat strategic situations in isolation, but are often participating in multiple strategic situations simultaneously (which may lead to suboptimal outcomes, consistent with a definition of culture which paints it, as Axelrod (1997) does, as a collection of shared traits which may be suboptimal). As a consequence of individual participation in multiple strategic contexts simultaneously, individuals develop behavioral rules, shorthands, which they may employ across multiple strategic contexts. Bednar et al. (2012) find that strategies that maximize individual payoffs in easier (low entropy) games are applied to more complex games. Savikhin and Sheremete (2013) find that cooperation in public goods game reduces over-bidding in competitive lottery, but contributions to public good game are not affected by participation in the lottery - they argue that this difference is the result of differences in uncertainty across the games, as well as the order in which the games are played (path dependence). Savikhin and Sheremete (2013) rely on the assumption that games are considered particularly complex (a priori) if individuals have to consider the probability of their payoff,

given their beliefs about other actors (Camerer (2003)) - making actors uncertain about the best strategy. In both studies, the results suggest that behavior spillovers occur from the less complex to more complex games, finding little evidence that actors spillover from more complex to less complex contexts.

As noted in hypothesis **H1**, ongoing insecurity presents community members with opportunities to participate either directly or indirectly in conflict. The decision to do affects and is affected by other individuals' decisions to do so, and the resulting expected payoffs. For example, an individual may decide to allow a rebel to cut trees from a shared forest in exchange for a small fee if the fee is high enough and she expects that other members of her community are unlikely to find out. As such, these environments constitute strategic contexts. The supply of CPRs in a conflict or post conflict environment adds an additional strategic context in which actors must make decisions. The CPR constitutes a local institutional arrangement, incentivizing individual resource users to harvest, monitor, and enforce the rules. Consequently, this constitutes a context of simultaneous games: community members participating in CPRs in a conflict or post conflict environment play two different games simultaneously.

However, the nature (and degree of complexity) of these paired games is contextual - CPRs necessarily vary (as Ostrom's body of work demonstrates), as do conflict and post-conflict environments. However, while CPRs may adapt to "fine tune" the effectiveness of the institutional arrangement for the long term viability of the resource, in general, for them to be successful the following is argued to be true: rules of use are devised and managed by users, compliance is easy to monitor, sanctions are graduated, adjudication is available at low cost, monitors and other officials are accountable to users, and users have the possibility of revising the rules (Ostrom (1990)). As such, CPRs restrict use and incentivize behavior (Ostrom et al. (1999)). By concentrating user rights, managerial rights, monitoring and enforcement in the hands of commons users, the CPR ensures a reduction in uncertainty, both with respect to the resource pool and participants' behavior.

Conflict and post-conflict environments are also likely to vary in their degree of complexity. Complexity here may be the result of uncertainty about the structure of the game, the behavior of the players, or the payoffs, the existence of multiple equilibria. More concretely, in the context of a conflict or immediately post-conflict environment, several characteristics may make the strategic context particularly complex. First, a large number of warring parties makes it difficult for individuals to know what the payoff might be for any conflict oriented behavior, given shifting alliances. Second, the degree of coherence and hierarchy in rebel groups is likely to shape whether their stated goals and behavior is reliable. Members of less hierarchical rebel groups tend to be less disciplined and less predictable (Weinstein 2005). Third, there is likely to be asymmetric information about rebel resources and intent. Civilians are less likely to have accurate information about rebel group capacity and goals than the rebels themselves, especially given incentives for rebels to misrepresent their capacities to the government.

If the CPR constitutes a less complex strategic context for individuals than that of

the conflict environment, participants may develop heuristics that carry over from the CPR to the strategic conflict environment. Observable implications of spillovers related to the pairing of strategic contexts will be contingent on the nature of the CPR and the conflict environment. In general, a greater degree of uncertainty of the conflict environment, should lead to a greater tendency to apply strategies developed in the CPR to the conflict context.

***H3:** If the conflict environment is particularly complex, and the CPR is effective, participants in CPRs should develop behavioral heuristics which they apply (similarly across CPR users) in response to the conflict context. Depending on the heuristics developed, this will lead to either greater or lesser susceptibility to rebel recruitment efforts or participation in wartime economy.*

However, it should also be noted that CPRs are formed, and their success is indeed predicated on the possession of local knowledge by resource users. CPRs often ensure local monitoring of CPR use, and consequently, users are likely to have more knowledge about users of the resource. If wartime economies rely on access to a common pool resource, then such CPR participants are likely to have more information about the strategic context related to the conflict than those not participating in the CPR, thereby reducing the complexity (through reducing the uncertainty) of the conflict context. Consequently, if CPRs reduce uncertainty about the conflict context, they will make behavioral spillovers less likely between the paired strategic contexts, making optimal behaviors in both strategic contexts possible.

Observably, this implies that participants in CPRs may simultaneously optimize their behavior with respect to the CPR (and long term resource viability), as well as maximize their payoffs with respect to the strategic context of conflict, with little overlap in strategic behavior. As a consequence, participants in CPRs could simultaneously monitor and enforce the rules of the CPR, and extract additional payoffs from strategically facilitating illicit trade in the resource for the support of rebel activities, particularly if these strategies do not interact to lessen the payoffs of either.

***H4:** If CPRs reduce uncertainty about the conflict context, they will make spillovers less likely, making optimal behaviors in both strategic contexts possible. As a consequence, we may be unlikely to see any positive benefit of CPRs, and in some cases, we may see CPRs leading to increased instability.*

On its surface, the paired strategic contexts framework overlaps significantly with the norms spillover framework - merely making explicit the existence of multiple simultaneous strategic contexts. However, institutional complementarities/pairings suggest a spillover in strategy, not in norm - these are spillovers that result from entropy and cognitive load and result from the nature of the paired strategic contexts, not adherence to a set of normatively “good” or generous practices. In other words, institutional pairings need not lead to the spillover of normatively “good” behaviors - they are spillovers in strategy, not in norm.

Research Design

I propose to test these hypotheses in the post-conflict context of Casamance, Senegal, in which a 30 year separatist civil war is simmering, and in which international aid organizations have arrived to facilitate the development of CPRs of community forests with the stated goal of building peace. First I provide relevant background on Casamance based on relevant literature and field work in the region during the summer of 2016, and then outline the proposed empirical strategy.

The Conflict

Much has been written about the 30 year Casamance conflict, so I will outline only a brief background of relevant actors and processes here. The Movement of Democratic Forces of Casamance (MFDC) is a separatist rebellion that arose out of protests in the southern city of Ziguinchor in 1982 (Evans (2000)). Grievances regarding the underdevelopment of Casamance relative to northern Senegal led to mobilization around the goal of an independent Casamance, where the country's natural resources (including timber and agriculture) were concentrated. While there are claims of mobilization along ethnic lines, these do not hold much weight given the level of diversity and integration of a large variety of ethnicities. The MFDC first splintered into the Front Sud and the Front Nord early in the conflict, according to tactical and ideological differences that corresponded to geographical locale of operation. The Front Nord has since splintered into multiple factions, with rebel groups operating in different locales throughout Casamance. The extremely porous border between Casamance and Gambia to the north ensures fluid population movement, including members of rebel factions of the Front Nord.

At the height of the conflict, it is reported that over 40,000 people fled their homes. If villagers were not directly involved in the conflict, allegations of rebel or government support led to inter village conflict. Low level conflicts between individuals became significant violent incidents, as village members would suggest that members of other villages supported the military, leading the rebels to attack or kill the suspected government supporter. These reports often led to additional arrests, beatings and killings. There has been a lull in rebel activity in the last two years. Currently, activities two main rebel groups in the northern Casamance region are limited in intensity and scope. Much of this activity consists of banditry, and targeting members of the military that enter into rebel territory just south of the Gambian border. There are two groups that continue to operate (both of them ethnic Diola): a) the Diakaye and b) a group led by an early member of the rebellion, Salef Sadio, both of which are splinter groups from the Front Nord. Estimates of the numbers of each group are difficult to obtain. Salef Sadio has been part of the Front Nord since its beginning, and has been a leader since the mid 1990s. His forces are rumored to have more than 1000 troops. The other main rebel group, the Diakaye, are estimated to be perhaps 200-300 soldiers (though multiple independent estimates are difficult to obtain). Named for the base camp they occupy in Bignona department, the Diakaye occupies the region west of the village of Kouram, with approximately four rebel encampments.

On forests and the conflict economy in Casamance

Forested areas in Senegal may be classified in several ways: private, non-classified forested lands, state managed forests, or community forests. State managed forests are the purview of the Direction des Eaux, Forêts, Chasses, et Conservation de Sols (DEFCCS), while the management of the community forests are formally and legally abdicated to local communities which may consist of one or more villages sharing a forested area (though technically, ownership over the forested land still resides with the state). Before the onset of hostilities in the early 1980s, there is no evidence that formal community forests or committees for their management existed in Casamance. However, community forests had existed in Gambia, and provided an example for the Senegalese government, who began experimenting with devolving forest tenure and management to communities beginning in 1998 (when Senegal's forestry code provided for a portion of state owned forests to be available for local communities to manage). As of 2005, the FAO noted that local communities held management rights over approximately 3,500 hectares of forest, which increased to 18,600 (out of 8,673,000 hectares) by 2005 (FAO 2010). In order for a forest to become a community forest, the boundaries must be delineated (if the forest is not yet classified), and the community must, with the support of the mayor of the *communaute rurale*, approach the DEFCCS to change the official classification of the forest. Upon designation of land for community management, a community forest committee is selected from among the village(s) that share(s) the forest. Since the conflict however, the official, legal classification of forested areas carries little weight given the limited capacity for monitoring and enforcement in the region and the targeting of members of the DEFCCS, which is a branch of the Senegalese military.

The rebels have been based largely in and around the forested areas of rural Casamance. Rebel bases are primarily located in the forests of Casamance, on which villages have relied for livelihoods. For much of the conflict, rebel groups in Casamance relied on the cutting and sale of timber from Casamance's forests across the border into Gambia and Guinea Bissau for revenue. The network of actors who benefit from the illicit extraction and movement of timber from northern Casamance is vast and dynamic. The network includes rebel groups, saw mill owners (primarily in Gambia), chainsaw owners (primarily in Casamance), the Gambian government, local power brokers (village chiefs and influential families), and foreign investors based in Gambia. For the moment, it is alleged that a timber exporter in Gambia or a sawmill owner (allegedly Senegalese, Gambian, or Chinese) will send a scout to a forested region to evaluate the potential for timber extraction. Relying on a local fixer who can speak the relevant languages (Diola, Mandinka, Fula, Wolof or Manjago) a middle man travels to a border region of the forest to conduct a 'feasibility study' to check the availability and accessibility of desirable species at in the area. These species include venn, linke, teak, and mahogany, most of which is used for the construction and sale of furniture and headboards (if it is not exported as raw logs). If the feasibility study reveals a region of sufficient value, the middle man will contact villagers nearby to see whether the village chief is willing to sell it. If village chiefs are willing to cut the timber, a local team of chainsaw owners (often with the help of a few additional villagers) start cutting. Once they fell enough

logs to fill a truck (30 cited) a Gambian based export enterprise or a sawmill owner sends a truck down from Gambia to the region to collect the logs. Because access to these forests often requires movement through territory still controlled by rebel groups, the middle men purchase a movement permit from a rebel group in order to be able to actually move around the area and remove the logs from Casamance.

Of the two larger rebel groups, only one is willing to sell permits to be able to move the logs. The other faction refuses to sell these permits as of a rebel decree stated in 2015, although there are rumblings of fracturing/divisions within the group, as some of the group members value the additional income (informant) and access and use of the logs themselves for rebel patrol posts.

On the NGO context in post-conflict Casamance

The NGO context in Casamance parallels many post-conflict contexts. In the immediate 5 years after intense hostilities die down, inflows of aid money in support of reconstruction and peace building activities fund local and international NGOs. In the context of Casamance, there is a complex, and often redundant network of local, national and international NGOs, smaller less formal community organizations (CBOs), and governmental aid agencies. In fact, local consultants have emerged to coordinate efforts among these actors (and researchers as well). Larger donors such as USAID, will allocate grants to international NGOs (like Concern Universal) in cooperation with local partners to distribute grants for community projects, livelihoods programs, gender and development, and the environment. In the area of livelihoods and the environment in post conflict Casamance, several NGOs have received money from USAID to implement projects aimed at managing natural resource use with the dual purposes of ensuring longterm viability of the resource for livelihoods and economic gain, as well as facilitating stability and mitigating the possibility of renewed conflict. These organizations include ASAPID, CADP, Kabonkador, Amunkulen, COPI. Each of these organizations receive support from USAID, which has allocated a small grants program to Concern Universal, for which these organizations compete for funds. Each of these five organizations have focused on the interaction between the environment, livelihoods, and peacebuilding. Of these, ASAPID has been operating in the area of community forestry the longest.

Based in the town of Diouloulou (only 12 km south of the Gambian border), ASAPID is an organization of approximately five staff members that began work in 2006. It aids in capacity building for the formation and implementation of community forest institutions throughout Casamance. In practicality, this means providing informal assessments of the forest inventory, training community members in forestry and land management, facilitating cultural festivals which serve as opportunities to educate and celebrate the forests, and securing access to resources and seedlings for reforestation. In 2011 the group began providing support for the development of community forests as well as community forest committees for the management of these shared forests. The first effort was funded through a one year grant from FAO's program on forest governance. Currently receives funding from USAID to continue its efforts to define and provide capacity for 14 community forests.

Since 2011, ASAPID, with the support of several donors, has facilitated the formation of community forests and the committees for their management. They conducted meetings at an initial sample of villages in and around Diouloulou to inform villages about the possibility of obtaining support from the NGO. Village leaders decided whether they want to form a community forest and a committee for its management. They then approach the NGO, providing a proposal for the formation of a community forest and a committee for its management. The NGO then conducts a needs assessment of the villages that requested support. Given the NGO's limited resources, it cannot usually provide the support to all of the villages that request it. The needs assessment allows the NGO to select villages that have been most affected by the conflict so as to target their community building efforts in these areas. The villagers themselves elect forest community committee members, who then develop the rules of use for the shared forest. In some cases larger forested areas are divided into forested zones, each of which are shared by one more villages. Each zone has a forest committee, which is elected from among the village(s) that share the zone. From this committee, two members are chosen to to serve on a forest wide committee, which serves to coordinate the activities across the village level committees.

Proposed Methods

I elaborate four mechanisms in the hypotheses above (which I label: economic, normative, heuristic and monitoring). Unfortunately, these are difficult to test in the same empirical strategy, since villagers are unlikely to respond honestly to direct questions about rebel recruitment and participation in the wartime, illicit, economy. Thus, a combination of survey instruments and economic games are potentially useful to evaluate the relationship between CPRs and direct or indirect participation in conflict related behavior. Currently, a pilot survey has been administered, to gain better understanding and context of the relevant questions, response rates, and possible applicability of economic games.

During the months of August, September and October 2016, ASAPID conducted a baseline, pilot survey that I designed, after conducting several focus groups with community members in nearby villages. The goal of the pilot was three fold. First, I aimed to test out possible survey questions to see if they were clear and well understood and to get a sense of the kinds of questions respondents might be willing and interested in answering. Second, I aimed to establish the range and type of responses to questions related to the nature and effectiveness of the CPR, village exposure to violence, and ongoing beliefs about rebel activity in the forest. Finally, several survey questions attempt to try out different operationalizations of measures for the hypotheses described above. Evaluation of the economic hypothesis relies on survey questions related to reliance on the forest for income and level of degradation. Evaluation of the pro-social norms hypothesis relies on survey questions about participation in non-forest committees. To assess the heuristics hypothesis, I include questions about the identifiability of rebel actor and willingness to enforce forest rules. Finally, to assess the monitoring hypothesis, I include questions about the degree and organization of monitoring of the forest.

I planned a study of ten villages in the Dioloulou arrondissement in which ASAPID operates. I planned a stratified sample, in which villages' experience with community forest committees ranged from none, to 15 years of experience with a forest committee in place. Specifically, the survey provides a baseline and descriptive understanding of the development of community forests, and variance in their rules and the degree of adoption of these rules, as well as the variation in exposure to violence which might also affect the likelihood of cooperation and prosocial behavior (Bauer et al 2016). In this context, rebel recruitment is not openly ongoing, however, allowance of illegal cutting in the area supports the existence of rebel groups, and Sadio's group and the Diakaye remain in operation in and around the forests. As a result, I operationalize participation in a wartime, illicit economy as willingness to allow individuals to cut timber illegally in the community forest, as it is commonly known in the region this is the primary revenue source for the Diakaye. Of the 109 potential respondents, 106 were willing to participate in the survey (97%). A total of eleven villages were surveyed. Some preliminary cross-tabulations are presented and a brief summary is below.

The Table 1 demonstrates that approximately 94% of the respondents knew someone that was killed in the conflict, demonstrating the extent to which violence was widespread in the area. Table 2 conveys the extent to which respondents considered the forest to be degraded - all of the respondents who indicated the forest was in good condition had experience with forest committees for greater than three years. Of the 84 respondents that answered the question of whether their was illegal cutting in their forest during the conflict, an overwhelming majority (82) responded in the affirmative. For those 78 respondents that indicated having seen individuals cutting illegally in the forest, 56 informed the forest committee or a government official. Only seven stated that they did nothing, and of those, four were from villages with no forest committee.

These pilot data suggest widespread exposure to violence and variance in experience with CPRs. Additionally, they provide evidence of variance related to the economic hypothesis (reliance on the forest for income, and level of degradation), pro-social norms (participation in non-forest committees), heuristics (identifiability of rebel actor and willingness to enforce forest rules), and monitoring (degree and organization of monitoring of the forest). As such this preliminary responses lend validity to a larger study.

These pilot data have just arrived in the last few days. The proposed next steps are to build on the initial survey, to include more villages across the Casamance region and to implement a series of public goods and common pool resource games across these villages.

Years of CPR	No	Yes	TOTAL
0	0 (0%)	11 (14%)	11
1-3	4 (69%)	37 (46%)	41
> 3	2 (37%)	24 (38%)	26
Total:	6 (100%)	78 (100%)	84 (100%)

Table 1: **Do you know someone who was killed in the conflict?**

Years of CPR	Not degraded	Somewhat degraded	Very degraded	TOTAL
0	0 (0%)	0 (0%)	11 (12%)	11
1-3	0 (0%)	0 (0%)	48 (54%)	48
> 3	6 (100%)	3 (100%)	30 (34%)	39
Total:	6 (100%)	3 (100%)	89 (100%)	98

Table 2: **Perception of degree of forest degradation**

Years of CPR	Sanctions Unclear	Sanctions Somewhat clear	Sanctions very clear	TOTAL
0	0 (0%)	0 (0%)	0 (0%)	0
1-3	1 (100%)	16 (73%)	13 (52%)	30
> 3	0 (0%)	6 (27%)	12 (48%)	18
Total:	1 (100%)	22 (100%)	25 (100%)	48

Table 3: **Clarity of sanctions for cutting timber without regulation**

Years of CPR	Difficult to Tell	Easy to Tell	Pass	TOTAL
0	10 (0%)	0 (16%)	1 (0%)	11
1-3	18 (51%)	30 (45%)	2 (29%)	50
> 3	11 (31%)	24 (29%)	4 (14%)	39
Total:	29 (100%)	62 (100%)	7 (100%)	98

Table 4: **How easy is it to tell if someone is cutting timber without authorization?**

Years of CPR	Difficult to Tell	Easy to Tell	It depends	TOTAL
0	4 (10%)	1 (6%)	6 (25%)	11
1-3	36 (63%)	5 (27%)	9 (37.5%)	50
> 3	11 (27%)	12 (67%)	9 (37.5%)	32
Total:	51 (100%)	18 (100%)	24 (100%)	83

Table 5: **Is it easy is it to which rebel group or military faction a person is from by looking at them?**

Years of CPR	Not Still Cutting	Still Cutting	Pass	TOTAL
0	9 (13%)	0 (0%)	2 (15%)	11
1-3	35 (50%)	3 (37%)	1 (25%)	39
> 3	26 (37%)	7 (63%)	1 (25%)	34
Total:	1 (100%)	22 (100%)	25 (100%)	48

Table 6: **Is unauthorized timber cutting still ongoing?**

Years of CPR	None	One other	Several others	TOTAL
0	5 (11%)	4 (9%)	2 (20%)	11
1-3	21 (48%)	21 (47%)	6 (60%)	48
> 3	18 (41%)	19 (43%)	2 (20%)	39
Total:	44 (100%)	44 (100%)	10 (100%)	98

Table 7: **Participation in non-forest village committee (pro-sociality)**

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