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Local Institutions and Armed Group Presence in Colombia[1]

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Abstract: This paper investigates the causal impact of non-state armed groups on local institutions during the armed conflict in Colombia, and tests competing theoretical mechanisms that may shape such effect. Our identification strategy is based on the construction of contiguous-pairs of rural communities that share common socio-economic characteristics but differ in armed group presence. The results show that the presence of armed groups is associated with increases in overall participation in local organizations, with a particularly strong effect on political organizations. This strengthening of local institutions during wartime appears to be driven by coercion exercised by armed groups that capture local organizations for strategic war purposes, rather than a reflection of a vibrant civil society.

Keywords: armed conflict, violence, institutions, Colombia

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The analysis of the onset, duration and termination of civil wars has to date taken place without much consideration for the institutional settings that underpin the decisions of state actors, rebels and civilians during wartime. However, throughout human history, armed violence has been used strategically by political actors to transform or appropriate the institutions that shape the allocation of power (Acemoglu and Robinson 2006; Cramer 2006; Justino 2013; Kalyvas 2006; North, Wallis and Weingast 2009). These forms of institutional change are likely to have profound implications for the survival and security of civilians, and for post-conflict recovery. Yet the relationship between civil wars and institutional change is largely under-researched, largely because armed conflict is generally theorized as a departure from political order, rather than intrinsic to the creation and change of institutions (Kalyvas, Shapiro and Masoud 2008). As a result, a large literature has focused on studying civil wars as symptoms of 'state collapse' (Milliken 2003; Zartman 1995) or 'state failure' (Ghani and Lockhart 2008), without much acknowledgement for the fact that the 'collapse' of state institutions is not always associated with the collapse of social and political order (Kalyvas, Shapiro and Masoud 2008; Justino 2013). In reality, different political actors attempt to occupy the space left by weak or absent state institutions, by building new institutions that advance their war objectives, or capturing and controlling existing institutions. Control over the civilian population by non-state armed groups is often exercised through violent means, but not at all times, nor everywhere (Arjona 2010; Kalyvas, Shapiro and Masoud 2008; Mampilly 2011). This is in particular the case of insurgencies where rebel groups, unable to directly confront larger and better-equipped state forces through military means, must resort to co-opting and organizing civilians in order to gain the necessary strength to effectively contest the state or control key territories (Kalyvas 2006; Lichbach 1995; Weinstein 2007).

We take advantage of a unique dataset on the armed conflict in Colombia to analyze how armed groups affect local institutions during wartime. Specifically, we analyze the

causal effect of armed group presence on individual participation in local collective organizations across 222 communities in Colombia, and test empirically competing theoretical mechanisms that may plausibly shape the relationship between non-state armed groups and institutional change during wartime. We focus on local collective organizations because these are key institutions in areas where public goods provision is limited. In these settings, local collective action may solve coordination problems (Ostrom 1990), and provide networks of support (Foster and Rosenzweig 2001; Fafchamps and Lund 2003). Local collective organizations are also important institutions that can be mobilized for political and economic purposes during and after armed conflicts (Riley 2005).

Institutional change during wartime takes place when different actors contest and sometimes win the control of territories and populations, transforming social, economic and political structures, organizations and norms. Institutional change results from the interaction between non-state armed groups and local populations. On the one hand, armed actors may form alliances with local organizations or particular groups of the population in order to advance their strategic objectives. Alliance formation may be voluntary when communities share the ideological views of armed groups, or coercive as armed groups appropriate local institutions for their own purposes, or replace community leaders with their own supporters (Acemoglu, Reed and Robinson 2014; Kaplan 2010). On the other hand, local institutions may be used and transformed by civilians themselves to oppose and resist armed groups (Arjona 2010; Petersen 2001). We make use of important regional differences in terms of presence of armed groups in Colombia to evaluate the causal institutional impact of armed group presence and arbitrate between these competing mechanisms.

The empirical analysis is based on data provided in the *Encuesta Longitudinal Colombiana de la Universidad de los Andes* (ELCA), a unique dataset with specific modules designed to understand how institutions and social norms emerge and evolve during conflict.

Our main identification strategy relies on comparing contiguous pairs of rural communities that share common socio-economic characteristics but differ in terms of armed group presence. This strategy allows us to control for unobservable variables, such as other local institutions, cultural traits and other characteristics that vary smoothly across communities and may be potential sources of bias. This is an important contribution of the paper because it enables us to control for potential endogeneity in the relationship between armed conflict and local institutions. In many contexts of armed conflict, violence is not random as specific individuals and localities may be targeted as part of the strategic objectives of armed groups (Kalyvas 2006), or due to geographic characteristics that facilitate their movements (Fearon and Laitin 2003). The non-random nature of violence and armed group presence may result in an omitted variable problem as unobservable variables may determine jointly exposure to conflict and the organization of local institutions. Results may also be affected by reverse causality when armed groups choose to take over communities with weak institutions because capture is easier, or choose to target communities with strong institutions for deliberate destruction (if they resist their presence and objectives) or to establish control (if they are sympathetic to their cause and may help advancing their political goals once the war is over). We are able to address these endogeneity concerns by taking advantage of within-community pair variation in armed group presence across Colombia.

We find that the presence of armed groups in any given community is positively associated with an increase in overall individual participation in local organizations. This effect is driven by an increase in individual attendance of meetings of political organizations, and is accompanied by reduced individual participation in political decision-making processes. We explore whether increased participation in local collective organizations may be the result of communities organizing themselves to resist non-state armed groups, or driven by the capture of local institutions by armed groups. This theoretical distinction is

important because each mechanism will have different implications for the dynamics of conflict locally, as well as for post-conflict recovery. Institutional change that results from resistance may sow the seeds for stronger organizational capacity among affected communities. The capture of institutions by armed groups may in contrast lead to lower social cohesion. Our results support the latter mechanism. The results suggest that locals are deliberately excluded from political organizations when armed groups arrive in the community, indicating that armed groups may capture local institutions by imposing new leaders and bringing in new community members that support their political objectives. The results are stronger in communities where armed groups stay longer as this allows them the time to consolidate their institutional control.

These results provide an important contribution to how we understand the emergence of order and governance in conflict areas, by providing detailed evidence on strategies employed by non-state armed groups beyond the use of violence, including interventions in the design and operation of key local institutions in areas they attempt to control. This is an interesting result because it suggests that institutional change is endogenous to conflict processes. This observation may provide important micro-foundations to understand the duration and re-ignition of armed conflicts given the impact that local institutions will have on the strength and level of authority exercised by non-state groups, on the level of support armed groups can expect from local populations, and on the ability of the state to operate and intervene in areas they control.

The paper adds also interesting insights to recent work on the effect of war victimization on social capital. A number of studies have shown that individual exposure to violence during armed conflict may be associated with increases in pro-social behavior and engagement in collective action once conflicts are over (Bellows and Miguel 2009; Blattman

2009; Gilligan et al. 2014; Voors et al. 2012).[5] Although other studies have shown more nuanced effects of conflict on pro-social behavior (Bauer et al. 2011; Cassar et al. 2011, Nunn and Wantchekon 2011; Rohner, Thoenig and Zilibotti 2011), these results have led several authors to suggest that conflict may be associated with positive social transformation in the long-term, by providing "new evidence against pessimistic views on the destructive legacies of civil war" (Voors et al. 2012: 962). The mechanisms that may explain these results have remained untested. The results in this paper indicate that institutional change may be a plausible mechanism, but suggest caution about the prevalent positive interpretation. This is because we may observe an increase in what appears to be pro-social behavior when institutions are captured by armed groups. This is unlikely to result in inclusive development or democratic outcomes in the aftermath of conflict.

Another limitation of this body of work and other recent studies on the micro-level effects of armed conflict has been their focus on violence as a proxy for conflict exposure. This may be problematic because it may leave out general equilibrium effects of conflict caused by the presence of non-state actors and the institutional changes they impose – as shown in this paper. Since direct exposure to violence is low when non-state armed actors are hegemonic (Kalyvas 2006), the coefficient on direct exposure is unlikely to capture fully how armed conflict influences local institutions.

The remainder of the paper is organized as follows. The next section describes how local institutional change has evolved in Colombia as a result of exposure to armed conflict. We then discuss the theoretical relationship between armed groups and local institutional change and identify a set of competing hypotheses that may explain the effects of armed group presence on local collective organizations. After this discussion, we present the empirical strategy, and discuss our main econometric results and their robustness to

[5] Bateson (2012) shows that crime is also associated with increases in pro-social behaviour and in social engagement.

alternative model specifications.

Armed conflict and local institutional change in Colombia

Colombia has been characterized by profound forms of institutional transformation as a result of decades of armed conflict. Two major internal conflicts have affected Colombia since 1940. The first conflict erupted during the first half of the 20th century as a result of a struggle between the two main political parties, the Liberals and the Conservatives. This period, known as *La Violencia*, ended in 1958 with a power sharing agreement between the two parties which excluded leftist movements. Peasant organizations that emerged during the late period of *La Violencia* turned into left-wing guerrilla groups during the early-sixties (Sánchez and Meertens 1983). The emergence of the illegal drug trade intensified the conflict by providing resources to left-wing guerrilla groups, and promoting the creation of private armies for the protection of drug barons, and some large land-owners, from guerrilla attacks (Sánchez and Palau 2006; Gutierrez and Barón 2005). The conflict moved then from isolated areas to areas with abundance of natural resources and economic dynamism, and aggressions against the civil population escalated sharply. The paramilitary demobilization in 2003, along with an increase in public efforts to improve the provision of national security, has resulted in a decrease in the levels of violence. However, violence continues to persist in isolated areas of the country.

Violence against the civil population was intense in both conflicts. The period of *La Violencia* resulted in more than 200,000 deaths in rural areas (Palacio 1995, Sanchez and Meertens 1983). Between 1985 and 2013, approximately 166,000 people died due to the conflict, 4,700,000 people were forcibly displaced, 27,000 people were kidnapped and 25,000 people were abducted (Grupo de Memoria Histórica 2013).

The presence of different armed groups and their strategic objectives influenced strongly social relations and local institutions due to their imposition of social norms and economic regulations. Guerrilla and paramilitary groups regulated daily matters, controlled movements of the population, and assumed the roles of the state in the regions under their control (Arjona 2010; Gutierrez and Barón 2005; Grupo de Memoria Histórica 2011a). These groups enforced economic regulations by defining rules of extraction for natural resources, acting as intermediaries between the communities and private enterprises, and levying taxes (Grupo de Memoria Histórica 2010, 2011a).

Other strategic objectives of armed groups included the capture of state institutions, the weakening of the political system and the elimination of existing power structures to impose a new social order. Non-state armed actors co-opted or joined local authorities to control the population and capture local rents (Arjona 2010). The decentralization process that started in 1988 facilitated a closer relation between local authorities and armed groups, setting the ground for armed groups to control local institutions and gain greater access to political power and local budgets (Sánchez and Palau 2006). Armed actors also sought to directly influence elections (Acemoglu, Robinson and Santos 2012). The purpose was to undermine state presence, weaken the legitimacy of the electoral process and allow them to increase control over the civilian population (Grupo de Memoria Histórica 2010).

These strategies debilitated many social networks and community organizations. Non-state armed actors instilled fear among the population, and deliberately targeted community leaders and some organizations to force collaboration. Paramilitary groups targeted productive and social organizations because they perceived them to be lenient to guerrilla groups. Willingness to participate in community organizations or collective activities decreased in many communities. Fear and the risk of aggressions if being perceived as collaborators of opponent groups generated mistrust among the population. Many households

retreated to private life and restricted social interactions to family and some close friends. The destruction of infrastructure, land mines and compulsory confinement created further physical obstacles to collective activities (Grupo de Memoria Histórica 2011a, 2010).

Armed groups also captured local organizations and created new ones, imposing leaders and new members. In some areas, community organizations became a protection mechanism against violence. In others, armed groups faced civil resistance in communities with strong organizations. In these places, armed groups busted into communities by coercing the actions of the JACs (*Juntas the Acción Comunal*), which are Community Action Boards formed in 1958 for the purpose of counteracting weak state presence in geographically isolated areas and strengthening social networks. Armed groups forced the population to attend JAC sessions and coerced its members to participate in public work. Community members attended meetings and participated in organizations out of fear. In other communities, non-state armed groups captured local organizations, and used them as a vehicle to further their political aims. Armed groups more easily influenced the population in communities with weak social organizations (Grupo de Memoria Histórica 2010).

At the same time, some communities devised creative strategies to avoid total control by non-state armed actors over their organizations and collective life. Communities created new organizations with an apparent non-political purpose, such as sports, religious and cultural organizations, to avoid targeting. Massive protests relying on religious signs were organized after the occurrence of overt human rights violations. Direct negotiations between armed groups and community representatives took place to ease rules of conduct, request mercy for threatened community members, and prevent asset seizure. Women started to play a predominant role in community organizations to reduce the visibility of men or after their death (Grupo de Memoria Historica 2011b, 2013). We explore in subsequent sections these complex interactions between armed groups and local institutions in conflict-affected areas.

Theorizing the links between armed groups and local institutions

The Colombia example illustrates how armed non-state actors may opt for different strategies when attempting to control local populations, from victimizing, displacing and looting, to capturing or creating new institutions for the provision of public goods and security, the organization (and control) of local markets and political structures and the enforcement of social norms. Local populations, on their part, exercise some degree of agency despite the hardship of living under (the threat of) violence. Some endure the presence of armed non-state actors by obeying their rules, others resist (either peacefully or by forming armed defense groups) and others voluntarily participate and support different armed groups.

Recent literature has shown that while some armed non-state groups act in violent and predatory ways towards local populations, others – particularly in the case of insurgencies – concentrate in gaining the support of civilians through the ways in which they organize local institutions, provide goods, services and security and impose social norms and behavior (Arjona 2010; Mampilly 2011; Weinstein 2007). Local populations may in turn resort to armed groups for physical and economic protection, especially when the state is weak, inadequate or abusive (Goodwin 2001; Justino 2009; Kalyvas and Kocher 2007), or may resist (actively or in hidden ways) the influence and presence of armed groups in their communities (Petersen 2001; Wood 2003). The effect of these complex interactions on local institutional change has remained weakly understood at both theoretical and empirical levels.

Three theoretical mechanisms may underlie such effect as illustrated by the case of Colombia. The first is the establishment of (voluntary or coercive) alliances: armed conflicts may lead to new political and social alliances between armed groups and civilian populations (Kalyvas 2006; Wood 2003, 2008) when armed groups attempt to muster local support by

coercive means or otherwise, and populations try to survive (Kalyvas and Kocher 2007). These could reflect patterns of (overt or covert) social and political mobilization prior to the conflict, or new alliances and networks shaped by the conflict itself (Wood 2008), not dissimilar by those observed in contexts where political actors offer patronage advantages in exchange for votes (Scott 1969; Stokes 2005). When confronted with the presence of armed groups, civilians adopt several strategies to minimize the risk of victimization and take advantage of economic opportunities: either forming alliances with political and military power holders, or avoiding political involvement to keep a low profile and restricting networks to the close family (Kalyvas 2006; Korf 2004). Some individuals may join in forms of collective action to either collaborate with or resist armed groups (or other behaviors in between). Others may remove themselves from local organizations for fear of being targeted (or are removed forcibly). These processes of alliance formation will lead to changes in local institutions as behaviors, decisions and norms change in response to (violent or non-violent) incentives. Alliance formation is therefore the result of negotiations and interactions between armed groups and civilians as armed groups attempt to establish themselves in particular communities, and local populations try to survive amidst the conflict.

Armed groups may also attempt control local populations and territory through the outright capture of existing institutions or the establishment of new ones. Evidence for Italy and Germany reveals how the Fascist and Nazi parties captured pre-existing civic organizations to spread their message, recruit members, co-opt leaders, and take advantage of successful organization techniques (Satyanath et al. 2013; Riley 2005). Wood (2008) discusses how the *Sendero Luminoso* in Perú forced people to attend meetings and killed publicly community leaders in order to impose control and fear. Similar accounts are described in Tambiah (1986) for the case of the LTTE in Sri Lanka and in Kaplan (2010) for the case of Colombia.

Institutional change may also result from civilians resisting the presence and control of armed groups. People in areas of conflict are not necessarily peons used in strategic warfare. All suffer greatly from the effects of violence, but many resist armed groups and shape the dynamics of conflict and violence on the ground (Kalyvas 2006; Petersen 2001). Wood (2003) reports how peasants in El Salvador resisted the state army (by sometimes joining the rebel movement). Petersen (2001) discusses similar evidence in the case of Lithuanian resistance against Soviet occupation in the 1940s. Other resistance movements have taken the form of militia groups or civil defense groups, such as the notorious *Kamajor* in Sierra Leone or paramilitary groups in El Salvador, Perú and Colombia (Brockett 1990; Wood 2008). In Colombia, several accounts show that communities took control over their own security by creating self-defense and neighborhood watching groups (Kaplan 2010). Arjona (2010) shows that communities in Colombia with a history of stronger institutions were more likely to resist armed groups. As a response to resistance, armed groups may in turn inhibit the functioning of local organizations to prevent civil resistance movements or alienate support to the opponent group (Azam and Hoefler 2002; Engel and Ibáñez 2007). We explore how processes of alliance formation, control and capture by armed groups and resistance by civilians have shaped the relationship between armed group presence and local institutions in Colombia in the next sections.

Data and empirical strategy

We use several sources of data to investigate the causal impact of armed group presence on local institutions in Colombia. Our main dataset is the *Encuesta Longitudinal Colombiana de la Universidad de los Andes* (ELCA). The sample of this household survey covers 10,800 households: 6,000 in urban areas and 4,800 in rural areas. In this paper, we use the rural

sample (surveyed in 2010) since the conflict in Colombia has mostly taken place in the rural areas. The rural sample is representative of small agricultural producers in four micro-regions: Atlantic, Central, Coffee-Growing and South. Within each region, municipalities and communities were randomly chosen. The sample covers 17 municipalities and 222 rural communities (covering between 500 and 1,000 inhabitants). The household questionnaire collects detailed information on individual participation in social organizations, among a wealth of other socio-economic variables. The exact geographical location of each household was recorded using GPS. The rural community questionnaire elicited information on social and public infrastructure, economic conditions and the conflict history of the community during the 10 years prior to the survey.

We complement the information in ELCA with several other sources of data. We gathered detailed information on geographical variables for the 222 ELCA communities based on sources from the official geographical institute in Colombia (IGAC) and the Global Land Cover Facility at the University of Maryland. We use additional municipal characteristics as controls in the different regressions based on data from a municipal panel collected by the Department of Economics of Universidad de los Andes, which regularly compiles information from several official sources. The data on violence and on armed group presence is partly generated from the ELCA community surveys and partly from official government sources on armed group presence and fronts that were present in each rural community in Colombia between 2000 and 2009. We combine the two sources because we have identified under-reporting in both datasets. In the community questionnaire, we found that some leaders may be afraid of answering truthfully if armed groups are present and/or exerting control, while other may not report armed group presence to avoid future attacks. Government sources seem also to under-report armed group presence. In rural communities where state presence is weak, government sources may not be aware of armed group

presence. Government sources may also not report presence of armed groups for strategic reasons. Reports of armed group presence are slightly higher in the official government data than in the ELCA community questionnaire: 25.1 and 23.6 percent, respectively.[6] Information for a large percentage of rural communities overlaps, but reports do not coincide in nearly 31.7 percent of all cases, justifying the combined use of the two data sources.

Empirical strategy

Our main empirical strategy relies on the construction of pairs of contiguous rural communities with and without presence of non-state armed actors. We define contiguous pairs of rural communities based on two criteria: (i) the two communities share a geographical border within the municipality; and (ii) among the two communities, one has presence of armed groups and the other does not. Any given rural community with presence of armed groups may have multiple pairs of rural communities without armed group presence. We exploit variation within each rural community pair to identify the impact of armed group presence on individual participation in collective organizations. Rural communities share a common history of institutional development, cultural traits, and social norms of collective participation, among others, that may influence participation in organizations and presence of non-state armed actors. By exploiting variation in the presence of armed actors within contiguous communities, we control for unobservable variables that vary smoothly across communities and are potential sources of bias. Acemoglu et al (2012), Naidu (2012), Gilligan et al (2014) and Dube et al (2010) use a similar spatial discontinuity strategy.

[6] These results are shown in Table A1 in the Supporting Information files.

The ELCA data shows that people living in rural communities with and without armed group presence have similar characteristics. Individuals living in rural communities with armed group presence are slightly less educated, poorer, and have younger household heads that are more likely to live in town of birth. The magnitude of these differences is, however, very small and all other characteristics are similar across all communities.[7] There are statistically significant and large geographical differences across rural communities with and without armed group presence. Rural communities with armed group presence are much less populated, are located in drier areas, are less isolated and have significant fewer state institutions (table A2b).[8]

The wide divergence we observe in geographical characteristics, but much less in terms of household characteristics, supports the use of our identification strategy. In addition, we examined the balance of household characteristics for communities with and without presence after creating the contiguous pairs. Matching communities in contiguous pairs reduces the differences across household characteristics.[9] The differences for several geographic characteristics decrease as well, in particular the number of institutions and population, which may be correlated to participation. Other geographic characteristics are not necessarily correlated to participation, but are controlled for in any case in the main regressions. Specifically, we control for the set of geographic, household, land plot, rural community and municipality variables listed in tables A2a-b that potentially may simultaneously determine the presence of non-state armed actors, the incidence of violent shocks and individual participation in local organizations.

Empirical model

[7] Detailed data is provided in Tables A2a and A2b in the Supporting Information files.
[8] The number of state institutions at the rural community level include day care enters, primary schools, secondary schools, and health centres.
[9] Evidence is shown in Table A3 in the Supporting Information files.

We estimate the following model for person *i,* in household *h,* located in rural community *j,* pair *p* and state *k,*

$$P_{hijpk} = \alpha_0 + \gamma_p + \boldsymbol{W'}_{hijk}\alpha_1 + \boldsymbol{X'}_{hjk}\alpha_2 + \boldsymbol{Z'}_{jk}\alpha_3 + \alpha_4 S_{jk} + \alpha_5 A_{jk} + \nu_{hijk} \qquad (1)$$

where γ_p denotes a rural community pair fixed effect. P_{hijpk} is our dependent variable of interest, representing individual participation in different types of organizations. Community organizations are divided into productive (cooperatives, unions and producers' organizations), political (mostly JACs, but also political parties or movements and organizations supported by the state) and non-political (charity, environmental, cultural, sport or security organizations). Thanks to an extensive module on local collective action in ELCA, we are also able to distinguish between different dimensions of participation, including leadership, meeting attendance and engagement in decision-making. This is important because it allows us to assess not only *whether* individuals join collective organizations, but also *how effectively they engage* in them and participate in decision-making processes. For instance, it is possible that armed conflict is associated with increased meeting attendance of community members (e.g. Bellows and Miguel 2009) when armed groups use meetings for indoctrination purposes or to spread fear, as discussed in previous sections. This apparent increase in individual participation in social organizations may, however, be accompanied by reductions in the appointment of certain individuals to leadership positions or their engagement in decision-making processes. Our data allow us to disentangle these important mechanisms that underlie the structure of local collective organizations.

Almost one quarter of people in our sample participate in local collective organizations. Ten percent take up leadership roles, 22.8% attend meetings and 15.5% engage in decision-

making processes.[10] Interestingly, overall participation, leadership, meeting attendance and engagement in decision-making are significantly higher in communities with presence of non-state armed actors, and mostly driven by participation in political organizations.[11] In communities with armed group presence, 18.4% of individuals participate in political organizations, 7% are leaders in political organizations and 16.9% attend political meetings. The percentages for communities with no armed group presence are, respectively, 14.7%, 6% and 13.2%. The differences are statistically significant at conventional levels. However, only 0.07% of individuals in communities with armed group presence participate in decision-making processes within political organizations (versus 0.25% in communities with no armed group presence).

A_{jk} is our main independent variable. It represents the years of presence of non-state armed actors during the 10 years prior to the survey in rural community *j* located in state *k*.

S_{jk} is the number of conflict-induced violent shocks that occurred in the rural community during the previous year. We control for violent shocks because, as discussed in Kalyvas (2006), violence typically intensify when two groups contest the same territory, but is likely to decline when one armed group takes control over a territory and its population. We define violent shocks as those clearly related to conflict such as homicides, illegal land seizure, kidnapping and threats from armed groups. We exclude cattle theft because it is difficult to establish whether it was performed by criminal or non-state armed groups. However, we control for cattle theft in all regressions. Sixteen percent of households suffered a covariate conflict-induced shock,[12] during the year prior to the survey.[13] The most frequent shock is homicides (12%). Threats from armed groups – which are not violent attacks but

[10] Detailed descriptive data is presented in Table A4 in the Supporting Information files.
[11] We define a dummy variable equal to one if during the period between 2000 and 2009 an armed group was present at least one year, according to any of the two sources of information discussed above.
[12] To measure household exposure to violent shocks, we have included a dummy variable equal to one if the household lives in a rural community that faced covariate violent shocks during the year before the survey.
[13] Evidence is provided in Table A5 in the Supporting Information files.

instill fear in the population – affect 4.1 percent of all households.[14] Violent shocks are in general more frequent in communities with presence of armed groups but this effect is dominated by threats from armed groups, and not physical violence per se. In line with the predictions in Kalyvas (2006), if armed groups are present in a given community, homicides against the population are usually lower (albeit not statistically significant) than in communities with no armed group presence. Yet they use strategies, such as threats and kidnappings, to control the population.

W_{hijk}, X_{hjk} and Z_{jk} are vectors of individual, household and rural community controls, respectively, as discussed above. ν_{hijk} is a random error. All standard errors are clustered at the municipality level.

The causal effect of armed group presence on local collective organizations

Our main econometric results are presented in table 1. The regressions show that the longer the presence of armed groups in any given community, the larger the increase in overall participation, and across all dimensions. This impact is particularly strong for political organizations and the magnitude of the effects is large. Participation in political organizations increases by 5.6%, which is equivalent to 35% of total participation. Meeting attendance increases by 5% (34% of total). The impact of years of presence on productive organizations is also positive and significant for all dimensions of participation.

These are striking results that strongly suggest a positive and large association between armed group presence in Colombian communities and the strengthening of local collective institutions. It is, however, interesting to note that, alongside an increase in meeting

[14] The incidence of idiosyncratic shocks is also high: 9.8 percent of households have been individually exposed to violence. However, idiosyncratic violent shocks are related mostly to (cattle) theft, a shock not related to the conflict but rather to other criminal networks (and high in Colombia). The paper focuses therefore only on covariate violent shocks.

attendance, armed group presence is associated with a reduction in individual participation in decision-making within political organizations by 0.3% (which corresponds to 158% of the total), indicating that different mechanisms could be at play. We explore these results further. First, we conduct robustness tests to confirm their validity. We then proceed to test the theoretical mechanisms that may explain them.

Table 1. Participation in local organizations and years of presence of armed groups - Contiguous-pair fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Panel A	**Participation**				**Leader**			
	Any	**Productive**	**Political**	**Other**	**Any**	**Productive**	**Political**	**Other**
Years of presence of armed group	0.056***	0.020***	0.056***	0.016*	0.013	0.005***	0.012	-0.015***
	[0.009]	[0.003]	[0.004]	[0.009]	[0.008]	[0.001]	[0.008]	[0.004]
Violent shocks	-0.251***	-0.098***	-0.152***	-0.257***	0.079*	-0.008	0.168***	-0.031*
	[0.057]	[0.016]	[0.040]	[0.037]	[0.040]	[0.007]	[0.033]	[0.018]
Obs.	7,455	7,455	7,455	7,455	7,455	7,455	7,455	7,455
R-sq	0.158	0.069	0.181	0.081	0.091	0.048	0.084	0.063
Panel B	**Meeting Attendance**				**Decision-Making**			
	Any	**Productive**	**Political**	**Other**	**Any**	**Productive**	**Political**	**Other**
Years of presence of armed group	0.053***	0.019***	0.050***	0.006	0.022**	0.013***	-0.003**	0.003***
	[0.009]	[0.002]	[0.006]	[0.008]	[0.008]	[0.002]	[0.001]	[0.001]
Violent shocks	-0.173***	-0.099***	-0.084**	-0.161***	-0.177***	-0.085***	0.000	-0.049***
	[0.054]	[0.012]	[0.038]	[0.037]	[0.042]	[0.011]	[0.005]	[0.005]
Obs.	7,455	7,455	7,455	7,455	7,455	7,455	7,455	7,455
R-sq	0.152	0.065	0.178	0.079	0.118	0.054	0.027	0.041

Estimations include all geographic, household and individual controls presented in tables A2a and A2b. Standard errors (in brackets) are estimated clustering at the municipality level.

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

Validity of results

The validity of the causal results discussed above is dependent on our ability to identify the presence of armed groups as a 'treatment' effect. The main challenge to this identification strategy is the occurrence of spillover effects across the boundaries of the rural communities. These spillover effects may arise because the presence of non-state armed actors may have an impact beyond the borders of the rural community, or because households may migrate to neighboring communities to avoid the impacts of conflict. If this is the case, we would expect individual participation in collective organizations to also increase in neighboring communities indicating that our results may underestimate the true effect of armed group presence on local collective organizations. This will not threaten our estimations in a substantial way given that we have obtained coefficients that are large in magnitude and statistically significant. However, our empirical strategy may not be appropriate if results are shown to be overestimated. This may be the case if fear or other reasons related to the presence of armed groups reduced participation in neighboring communities.

In order to test for potential spillover effects, we conducted a placebo test. For each rural community without presence of non-state armed actors, we assigned the average number of years of presence of the bordering communities with presence of armed groups. We estimated then the regressions using only the sample of the communities without armed group presence. A statistically significant coefficient for years of presence would be indicative of spillover effects. A statistically significant and positive coefficient would indicate that the control communities (without armed group presence) are communities that may be strongly resisting armed groups. In that case, armed groups do not choose to go into those communities because they would rather avoid resistance and may rather choose communities that are easier to control. If this is the case, our results in the previous section

underestimate the true relationship between armed group presence and participation in collective action. In contrast, a statistically significant but negative coefficient would indicate an overestimation of the results. We find that the coefficients are not statistically significant and their magnitude is very small (tables 2 and 3). These results strongly suggest that spillover effects are unlikely to affect our results.[15]

Mechanisms underlying the impact of armed groups on local institutions in Colombia

It is not easy to analyze the mechanisms that may explain stronger individual participation in local collective organizations in regions with armed group presence. The discussion in previous sections suggested that competing mechanisms may be at play. On the one hand, we may argue that local populations make use of existing collective organizations to better establish alliances with armed groups, or organize themselves to counteract their presence. A less rosy outlook would interpret higher participation in local organizations as a result of the control exercised by armed groups upon local institutions. We test these hypotheses below.

Alliance formation is not easy to observe empirically because people may try to hide their social interactions and networks in areas where insecurity is high. One solution would be to look at patterns of voting behavior in communities with armed group presence (Acemoglu, Robinson and Santos 2010). Unfortunately, the ELCA 2010 survey does not include this information. Another solution would be to examine patterns of unequal membership of different local collective organizations. This is because the formation of strategic alliances in conflict-affected areas is likely to create certain clubs that may include

[15] As an alternative robustness check we estimated propensity scores for the probability of armed groups' presence in a community and created fictitious regions matching each community with presence of non-state armed actors to five rural communities without presence and the closest propensity score to the former. We performed the same estimations as in table 1 within these fictitious regions. The results are qualitatively similar to those of table 1. Most of the coefficient estimates for years of presence have the same sign but some are not statistically significant. This is to be expected because matching via PSM is likely to be less efficient than our matching strategy (Hirano, Imbens et al. 2003). Results are available from the authors upon request.

some community members (or other individuals brought into the community) that will advance the objectives of the armed group, and exclude those that oppose those objectives (see, for instance, Korf 2004). We are able to test for these potential distributional effects of organizational membership by looking at patterns of individual wealth and education status across individuals that participate in local collective organizations. The underlying hypothesis is the following: if our results reflect a genuine increase in the strength of civil society then we would not expect much of a difference across socio-economic groups because there would be no barriers to entry. The communities in our sample are all poor rural communities where socio-economic differences are almost negligent (as reported in table A2a). Significant differences across socio-economic groups would indicate some preference for who leads, particularly if the interests of that group are aligned to those of the armed group.

Tables 2 and 3 show the results across education levels and wealth terciles. We divided households into educated (at least one household member with more than primary education) and less educated (no household members with more than primary education). We also divided households into low wealth (first tercile), medium wealth (second tercile) and high wealth (third tercile). The results are very striking, showing that increases in individual participation in political organizations are driven mostly by the wealthier and better educated. The results show, in addition, an increase in leadership in political organizations by wealthier individuals, but no change in their engagement in decision-making processes. In contrast, poorer and less educated individuals increase their participation, meeting attendance, leadership and decision-making engagement in productive organizations. The fact that we see an increase in participation – in particular political participation across wealthier individuals – may indicate some alliance formation between armed groups and more powerful individuals, similarly to the Sri Lanka case documented by Korf (2004). These findings are only indicative but suggest that alliance formation may potentially explain the positive effect

of armed group presence on individual participation in local collective organizations in Colombia.

Testing competing hypotheses about the capture of local institutions by armed groups or resistance by communities is even more challenging because it is very difficult to obtain reliable data on these types of strategic objectives. We have been able, however, to gather two pieces of evidence that substantiate the 'capture' hypothesis. As discussed previously in the paper, increases in participation may indicate the capture of local institutions by armed groups if certain groups (such a community natives) stop being appointed as leaders or engaging in decision-making processes. These may be chased out of the community, killed or simply replaced by allies of the armed group as discussed in Wood (2008), who reports several instances of institutional capture by armed groups across recent civil wars. In order to partially test this hypothesis, we were able to construct a measure of 'native inhabitant' of the community by looking at whether the individual has always lived in the same house since the formation of the household. The results, presented in tables 2 and 3, show that the increase in participation in political organizations in communities with strong armed group presence are not being driven by individuals that have always lived in the community. In fact, these individuals reduce their participation (not statistically significant), leadership positions and meeting attendance in political organizations. Native inhabitants of the community do, however, increase their participation, leadership and decision-making in productive organizations. These results are remarkably similar to those obtained for the poorer individuals in the sample suggesting that perhaps the increase in participation in political organizations we observe in the previous section may be being driven by wealthier individuals from outside communities (rather than by local processes of alliance formation).[16] Indeed, some anecdotic evidence reports that non-state armed actors in Colombia have

[16] In order to identify whether this is the case, we regress the probability of being non-native on household characteristics. The results show non-natives are wealthier than natives.

strategically displaced some groups of the population in order to bring non-natives supportive of their ideology to communities they attempt to control.[17] Armed actors provided also these non-natives with land and other productive assets.[18]

[17] http://moe.org.co/home/doc/moe_mre/CD/PDF/arauca.pdf retrieved on the 5th of July.
[18] For some examples see: http://www.centrodememoriahistorica.gov.co/documentos/informes/informes2013/guerrilla-poblacion-civil.pdf and http://www.verdadabierta.com/tierras/despojo-de-tierras/5015-el-fantasma-de-sor-teresa-gomez-en-territorio-chocoano retrieved on the 5th of July.

Table 2. Participation and assuming leadership positions: robustness checks and heterogeneous impact

	Participation				Leader			
	Any (1)	Prod. (2)	Political (3)	Other (4)	Any (5)	Prod. (6)	Political (7)	Other (8)
Panel A								
Baseline	0.056***	0.020***	0.056***	0.016*	0.013	0.005***	0.012	-0.015***
	[0.009]	[0.003]	[0.004]	[0.009]	[0.008]	[0.001]	[0.008]	[0.004]
Placebo	-0.009	0.000	-0.007	-0.000	0.004	0.000	0.001	0.005
	[0.008]	[0.002]	[0.010]	[0.007]	[0.006]	[0.001]	[0.006]	[0.004]
Educated	0.010	-0.005	0.010	0.006	-0.038***	-0.008***	0.005	-0.038**
	[0.020]	[0.007]	[0.016]	[0.023]	[0.012]	[0.002]	[0.011]	[0.017]
Not Educated	0.001	0.017***	-0.002	0.024**	-0.028***	0.005***	-0.001	-0.028***
	[0.023]	[0.002]	[0.017]	[0.011]	[0.009]	[0.001]	[0.008]	[0.004]
High income	0.036*	-0.002***	0.053***	0.010	0.018**	-0.002***	0.028***	0.001
	[0.019]	[0.001]	[0.015]	[0.010]	[0.008]	[0.000]	[0.008]	[0.007]
Medium income	-0.077***	-0.028***	-0.040***	-0.054***	-0.028**	-0.006	0.020*	-0.046***
	[0.016]	[0.005]	[0.012]	[0.015]	[0.012]	[0.003]	[0.009]	[0.010]
Low income	-0.055***	0.044***	-0.032**	-0.001	-0.033**	0.005	-0.013	-0.048***
	[0.017]	[0.008]	[0.015]	[0.011]	[0.015]	[0.003]	[0.010]	[0.011]
Native	-0.013	0.016***	-0.012	0.040**	-0.068***	-0.005**	-0.056***	0.000
	[0.018]	[0.004]	[0.017]	[0.015]	[0.011]	[0.002]	[0.011]	[0.012]
Panel B								
Years of Presence of any armed group	0.040***	0.014***	0.041***	0.014***	-0.001	0.004***	0.008	-0.019***
	[0.006]	[0.002]	[0.005]	[0.004]	[0.005]	[0.001]	[0.006]	[0.002]
Recent Arrival Armed Groups	-1.397**	-0.222***	-1.242***	-0.105	-1.239***	-0.097***	-0.662***	-0.267
	[0.491]	[0.074]	[0.185]	[0.379]	[0.214]	[0.031]	[0.185]	[0.165]
Recent Arrival x Years of presence	0.818*	0.288***	0.711***	0.102	0.688***	0.090***	0.210	0.169
Observations	7,455	7,455	7,455	7,455	7,455	7,455	7,455	7,455
R-squared	0.158	0.069	0.181	0.081	0.091	0.048	0.084	0.063

Each entry in panel A presents the coefficient estimate for the years of presence of armed groups in a regression using as dependent variable the outcome indicated in each column and restricting the sample as indicated in each row. Each column in panel B presents the estimation results for the corresponding outcome variable using the whole sample. All estimations include the geographic, household and individual controls presented in tables A2a and A2b. Standard errors (in brackets) are estimated clustering at the municipality level. *** p<0.01,** p<0.05,* p<0.1

Table 3. Meeting attendance and participation in decision-making: robustness checks and heterogeneous impact

	Meeting Attendance				Decision-Making			
	Any (1)	Prod. (2)	Political (3)	Other (4)	Any (5)	Prod. (6)	Political (7)	Other (8)
Panel A								
Baseline	0.053***	0.019***	0.050***	0.006	0.022**	0.013***	-0.003**	0.003***
	[0.009]	[0.002]	[0.006]	[0.008]	[0.008]	[0.002]	[0.001]	[0.001]
Placebo	-0.009	0.000	-0.007	0.000	0.001	-0.001	0.000	-0.000
	[0.008]	[0.002]	[0.011]	[0.007]	[0.008]	[0.001]	[0.001]	[0.001]
Educated	0.014	-0.008	0.009	0.006	-0.026**	-0.008	-0.000	-0.002
	[0.017]	[0.008]	[0.016]	[0.026]	[0.009]	[0.006]	[0.003]	[0.004]
Not Educated	-0.010	0.016***	-0.011	0.010	-0.017	0.019***	-0.001	0.009***
	[0.022]	[0.002]	[0.016]	[0.010]	[0.017]	[0.001]	[0.004]	[0.000]
High income	0.040**	-0.002***	0.056***	0.011	0.019	-0.003***	0.002	0.001
	[0.018]	[0.001]	[0.015]	[0.009]	[0.012]	[0.000]	[0.003]	[0.003]
Medium income	-0.071***	-0.024***	-0.031**	-0.052***	-0.039**	-0.008**	-0.004**	-0.008***
	[0.015]	[0.005]	[0.012]	[0.015]	[0.017]	[0.004]	[0.002]	[0.001]
Low income	-0.051***	0.042***	-0.031**	0.001	0.011	0.021***	-0.001	-0.004*
	[0.016]	[0.006]	[0.015]	[0.011]	[0.017]	[0.006]	[0.003]	[0.002]
Native	-0.044**	0.009*	-0.034**	0.008	-0.037**	0.015***	-0.000	-0.007**
	[0.020]	[0.004]	[0.016]	[0.017]	[0.014]	[0.002]	[0.008]	[0.003]
Panel B								
Years of Presence of any armed group	0.037***	0.014***	0.037***	0.005	0.011	0.011***	-0.003***	0.003***
	[0.006]	[0.001]	[0.006]	[0.004]	[0.006]	[0.001]	[0.001]	[0.001]
Recent Arrival Armed Groups	-1.454***	-0.199***	-1.242***	-0.076	-1.000***	-0.066	0.049	0.025**
	[0.449]	[0.066]	[0.174]	[0.337]	[0.293]	[0.054]	[0.076]	[0.011]
Recent Arrival x Years of presence	0.788*	0.263***	0.651***	0.037	0.559*	0.124***	-0.026	0.007
Observations	7,455	7,455	7,455	7,455	7,455	7,455	7,455	7,455
R-squared	0.152	0.065	0.178	0.079	0.118	0.054	0.027	0.041

Each entry in panel A presents the coefficient estimate for the years of presence of armed groups in a regression using as dependent variable the outcome indicated in each column and restricting the sample as indicated in each row. Each column in panel B presents the estimation results for the corresponding outcome variable using the whole sample. All estimations include the geographic, household and individual controls presented in tables A2a and A2b. Standard errors (in brackets) are estimated clustering at the municipality level. *** p<0.01,** p<0.05,* p<0.1

We are able to add a second piece of evidence to these results by exploring further the differentiated effect of the length of armed group presence. In tables 2 and 3 (panel B), we explore whether the effect of years of presence of armed groups on participation is stronger in regions with a recent arrival of armed groups. The idea here is that we expect control of armed groups to increase across time. Therefore, if individual participation in collective organizations is driven by armed groups capturing local institutions then we expect this to increase as armed groups consolidate their presence in the community. Conversely, if participation is being driven by resistance, we would expect households to strongly adjust their behavior in regions with a recent arrival of armed groups and therefore increase participation in the short-term. Once they adjust beliefs about the behavior of armed groups and learn to live amid conflict, reactions towards armed group presence might be weaker and participation may reduce. In order to identify this potentially important effect, we create a dummy variable equal to one when armed groups have been present less than two years in a given community and interact this variable with armed group presence.[19]

Panels B in tables 2 and 3 show the heterogeneous impact of armed group presence according to whether presence is recent (less than 2 years) or more prolonged (2 to 10 years). The results for the interaction term between years of armed presence and a dichotomous variable for recent presence indicates that households adjust sharply during the first two years. Recent presence of non-state armed actors reduces significantly participation in all dimensions, yet each additional year of presence increases participation. In other words, as the presence of armed groups prolongs, individuals increase participation in all dimensions. Although it is possible that this indicates that people become better at devising collective strategies to reduce the impact of armed groups and negotiate with them via collective organizations, we believe that these results, in conjunction with the evidence discussed

[19] We tested using one year or less of presence and the results are robust. The results are available upon request to the authors.

above, suggest that armed groups strengthen their control over the population over time, coercing communities members to participate more in organizations that advance their objectives.

Conclusion

The paper analyzed how armed conflict affects local institutions by examining the causal effect of armed group presence on individual participation in local forms of collective organization in Colombia. We made use of a unique dataset with specific modules designed to understand how institutions emerge and evolve during conflict. We derived causal effects of armed group presence on individual participation in local collective organizations by comparing contiguous pairs of rural communities that share common socio-economic characteristics but differ in terms of armed group presence.

We found that non-state armed groups have a significant impact on the ability of communities to organize themselves collectively. The results showed that in communities where the armed groups stayed longer people participate more in local collective organizations. But larger individual participation does not necessarily translate into more democratic outcomes: although participation increases with armed group presence, the result is mostly driven by increases in the attendance of political meetings, while effective participation in decision-making processes is reduced.

We explored whether increased participation is driven by communities organizing themselves to resist or counteract the influence of non-state armed actors or by non-state armed actors capturing organizations to impose a stronger control over the population. Our results support the latter mechanism. The results show that wealthier and better educated individuals participate more in local collective organizations (particularly in political

organizations) in communities with armed group presence. Evidence indicates further that locals are excluded from political organizations when armed groups impose leaders and other organization members that support their political cause. All results are stronger when armed groups stay longer in the community as this provides them time to consolidate their control.

These results contribute significantly to better understanding of the links between armed conflict and institutional change. The absence of theorization and empirical evidence on channels linking variation in behavior of local populations, non-state armed groups and state actors with changing institutional environments has been one of the main gaps identified in the emerging research on local conflict dynamics (Blattman and Miguel 2010; Justino 2013; Kalyvas 2008). This paper has shown how local institutions may be manipulated by armed groups to advance and cement their war strategies and political objectives. This is an important contribution to the literature because the impact of these processes of institutional transformation can be significant, affecting the ability of people to rely on and participate in community networks and organizations, as well as how countries will rebuild and resources will be accessed and distributed in the aftermath of armed conflict. In particular, the results point to some caution in current policy agendas on targeting aid to communities in the hope of strengthening local institutions and sustaining social cohesion. If the type of institutional capture we observe in Colombia is also present in other countries, post-conflict community-level interventions may well reinforce war dynamics and the power of armed groups and their allies, thereby sowing the seeds for conflict re-ignition.

The results have also important significance for the ongoing peace process in Colombia, where the role of local institutions will be central to the economic and social recovery of communities affected by several decades of violent conflict. It is very possible that after demobilization armed groups in Colombia may attempt to make use of the networks and institutions they have created and controlled over the last decades to gain political

leverage. However, as the evidence discussed in the paper shows, these institutions and networks may not necessarily represent the interests and needs of local populations. Real democratic outcomes will require serious investment by the Colombian national government to create strong and independent local institutions that will ensure the interests of all citizens – and not just those part of ongoing patronage networks – are represented in the political arena. This will not be an easy task.

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Supporting Information

Table A1. Armed group presence

% of rural communities (ELCA)		Armed group presence (Government)		
		No	Yes	Total
Armed group presence (self-reported)	No	59.8%	16.6%	76.4%
	Yes	15.1%	8.5%	23.6%
	Total	74.9%	25.1%	100.0%

Source: Author's calculations based on ELCA (2010) and Government of Colombia (2010).

Table A2a. Descriptive statistics of main control variables

Mean (S.D.)	Whole Sample	Covariate Shock		+	Armed Groups Presence		++
		No	Yes		No	Yes	
	(1)	(2)	(3)		(4)	(5)	
Violent shocks (number of types)	1.00						
	(1.84)						
Years of presence	0.18						
	(0.44)						
=1 if male headed	0.489	0.487	0.494		0.487	0.491	
	(0.50)	(0.50)	(0.50)		(0.50)	(0.50)	
Age	44.43	44.43	44.45		44.67	44.02	**
	(13.46)	(13.41)	(13.72)		(13.74)	(12.95)	
Years of completed education	4.41	4.41	4.40		4.46	3.48	*
	(3.37)	(3.37)	(3.41)		(4.32)	(3.18)	
=1 if lives in town of birth	0.09	0.09	0.09		0.06	0.13	***
	(0.28)	(0.28)	(0.28)		(0.24)	(0.34)	
Number of household members	4.61	4.58	4.74	***	4.63	4.57	
	(1.94)	(1.93)	(1.99)		(1.97)	(1.89)	
Children under 5 years	0.54	0.53	0.62	***	0.53	0.55	
	(0.79)	(0.77)	(0.86)		(0.79)	(0.77)	
Wealth Index	-0.01	-0.04	0.15	**	0.10	-0.19	***
	(2.51)	(2.45)	(2.77)		(2.68)	(2.17)	
Observations	7,455	6,239	1,216		4,708	2,747	

Source: Author's calculations based in ELCA (2010) and Government Data (2010)
+ Difference between samples with and without covariate shocks. ++ Difference between samples with and without presence of armed groups. Test for mean differences *** p<0.01, ** p<0.05, * p<0.1

Table A2b. Descriptive statistics of municipality and community control variables across shock exposure and armed group presence

Mean (S.D.)	Whole Sample	Covariate Shock		+	Armed Groups Presence		++
		No	Yes		No	Yes	
	(1)	(2)	(3)		(4)	(5)	
Number of households on community	107.34	109.70	95.25	***	124.94	77.18	***
	(120.70)	(127.56)	(75.17)		(138.38)	(72.65)	
Monthly rainfall average 1980-2008 (mm)	144.54	144.06	147.04	***	145.83	142.33	***
	(31.45)	(31.56)	(30.74)		(29.44)	(34.51)	
Months rainfall one S. D. below the mean	1.41	1.35	1.75	***	1.27	1.65	***
	(1.10)	(1.07)	(1.17)		(1.11)	(1.02)	
Months rainfall one S. D. above the mean	0.79	0.81	0.72	***	0.76	0.84	**
	(0.90)	(0.91)	(0.90)		(0.95)	(0.82)	
Time to reach urban center (hrs.)	0.78	0.77	0.84	***	0.75	0.82	***
	(0.70)	(0.69)	0.71		(0.72)	(0.66)	
Number of institutions in rural community	3.45	3.41	3.65	***	3.78	2.89	***
	(2.23)	(2.24)	2.18		(2.30)	(1.98)	
Lack of water in rural community	0.48	0.48	0.46		0.44	0.54	***
	(0.50)	(0.50)	(0.50)		(0.50)	(0.50)	
Municipal homicide rate (1993-2000)	60.40	61.93	52.53	***	54.63	70.28	***
	(47.54)	(49.32)	(36.07)		(44.56)	(50.76)	
Municipal homicide rate (2000-2008)	40.04	40.36	38.38	**	36.36281	46.34	***
	(29.70)	(30.68)	(24.03)		(26.93)	(33.00)	
Distance to capital of state (km)	64.52	65.49	59.52	***	62.95	67.21	***
	(41.47)	(40.34)	(46.53)		(43.33)	(37.91)	
Distance to primary road (km)	7.53	7.04	10.02	***	5.99	10.16	***
	(8.67)	(7.73)	(12.12)		(6.84)	(10.63)	
Distance to non-primary road (km)	3.46	3.50	3.22	**	3.82	2.83	***
	(2.53)	(2.62)	(1.94)		(2.65)	(2.15)	
Distance to rivers (km)	15.09	15.34	13.81	***	16.09	13.36	***
	(12.70)	(13.04)	(10.67)		(13.63)	(10.68)	
Distance to sea (km)	162.18	164.94	148.03	***	157.43	170.33	***
	(113.91)	(114.87)	(107.84)		(122.95)	(95.98)	
Distance to river routes (km)	79.75	79.15	82.81	***	83.13	73.94	***
	(23.24)	(23.70)	(20.41)		(18.48)	(28.76)	
Soil erosion index	3.27	3.29	3.16	*	3.11	3.53	***
	(2.06)	(2.04)	(2.14)		(2.09)	(1.97)	
Observations	7,455	6,239	1,216		4,708	2,747	

Source: Author's calculations based in ELCA (2010) and Government Data (2010)
Distance variables calculated from communities' centroids. Municipal homicide rates are averages of annual per 100,000 inhabitants' rates. + Difference between samples with and without covariate shocks. ++ Difference between samples with and without presence of armed groups. Test for mean differences *** p<0.01, ** p<0.05, * p<0.1

Table A3. Differences in sample means in communities with and without armed group presence

	Without FE	With Community FE
	(1)	(2)
=1 if male headed	0.005	0.000
	(0.012)	(0.025)
Age	-0.652**	-1.274**
	(0.323)	(0.650)
Years of completed education	-0.144*	-0.053
	(0.081)	(0.163)
=1 if lives in town of birth	0.070***	0.068***
	(0.007)	(0.013)
Number of household members	-0.061	0.120
	(0.047)	(0.093)
Children under 5	0.020	0.0821**
	(0.019)	(0.038)
Wealth Index	-0.288***	-0.205*
	(0.060)	(0.116)
Number of households on community	-47.76***	-21.80***
	(2.845)	(1.502)
Monthly rainfall mean 1980-2008 (mm)	-3.501***	8.753***
	(0.754)	(0.340)
Months rainfall one S. D. below the mean	0.378***	0.0740***
	(0.026)	(0.016)
Months rainfall one S. D. above the mean	0.0741***	0.101***
	(0.022)	(0.012)
Time to reach urban center (hrs.)	0.0658***	0.131***
	(0.017)	(0.005)
Number of institutions in rural community	-0.883***	-0.0410**
	(0.053)	(0.018)
Lack of water in rural community	0.101***	0.128***
	(0.012)	(0.004)
Municipal homicide rate (1993-2000)	14.10***	32.07***
	(1.064)	(0.420)
Municipal homicide rate (2000-2008)	8.449***	18.33***
	(0.691)	(0.289)
Distance to capital of state (km)	4.265***	-4.238***
	(0.994)	(0.407)
Distance to primary road (km)	4.170***	1.786***
	(0.203)	(0.034)
Distance to non-primary road (km)	-0.997***	-0.465***
	(0.060)	(0.019)
Distance to rivers (km)	-2.735***	3.605***
	(0.303)	(0.069)
Distance to sea (km)	12.90***	-21.69***
	(2.731)	(1.365)
Distance to river routes (km)	-9.186***	-5.087***
	(0.548)	(0.163)
Soil erosion index	0.420***	0.329***
	(0.049)	(0.038)
Observations	7,455	7,455

Source: Author's calculations based in ELCA (2010) and Government Data (2010)

Table A4. Participation outcomes across shock exposure and armed group presence

	Whole Sample	Covariate Shock			Armed Groups Presence		
		No	Yes		No	Yes	
	(1)	(2)	(3)	+	(4)	(5)	++
Participation in organizations	24.45%	24.44%	24.51%		23.70%	25.74%	**
Leadership	10.10%	10.00%	10.61%		9.77%	10.67%	
Meeting attendance	22.76%	22.68%	23.19%		21.96%	24.14%	**
Decision-making	15.52%	15.36%	16.37%		15.36%	15.80%	
Participation in productive associations	1.26%	1.12%	1.97%	**	1.42%	0.98%	
Participation in political organizations	16.08%	16.20%	15.46%		14.74%	18.38%	***
Participation in other organizations	10.03%	9.75%	11.51%	*	10.49%	9.25%	*
Leader in productive associations	0.52%	0.46%	0.82%		0.47%	0.62%	
Leader in political organizations	6.37%	6.30%	6.74%		5.99%	7.03%	*
Leader in other organizations	4.23%	4.18%	4.44%		4.25%	4.19%	
Meeting attendance productive associations	1.17%	1.03%	1.89%	**	1.30%	0.95%	
Meeting attendance political organizations	14.55%	14.59%	14.39%		13.17%	16.93%	***
Meeting attendance other organizations	9.58%	9.33%	10.86%	*	10.00%	8.85%	
Decision-making productive associations	0.91%	0.83%	1.32%		0.98%	0.80%	
Decision-making political organizations	0.19%	0.18%	0.25%		0.25%	0.07%	*
Decision-making other organizations	0.35%	0.32%	0.49%		0.45%	0.18%	*
Observations	7,455	6,239	1,216		4,708	2,747	

Source: Author's calculations based in ELCA (2010) and Government Data (2010)
+ Difference between samples with and without covariate shocks. ++ Difference between samples with and without presence of armed groups. Test for mean differences *** p<0.01, ** p<0.05, * p<0.1

Table A5. Incidence of violent shocks – Whole sample and by armed group presence

		Armed Groups Presence		
Covariate Shocks	% of households	No	Yes	
=1 at least one shock during last year	16.3%	15.0%	18.5%	***
=1 if shock: homicides	12.2%	12.7%	11.4%	
=1 if shock: land eviction	1.0%	0.8%	1.2%	*
=1 if shock: kidnapping	1.2%	0.8%	1.8%	***
=1 if shock: threats from armed groups	4.1%	2.3%	7.0%	***
Observations	7,455	4,708	2,747	
		Armed Groups Presence		
Idiosyncratic Shocks	% of households	No	Yes	
=1 if at least one shock during last year	9.8%	9.3%	10.8%	***
=1 if assets/property destruction	1.2%	1.0%	1.6%	**
=1 if victims of violence	0.4%	0.4%	0.4%	
=1 if property theft	7.0%	6.7%	7.5%	
=1 if robberies	1.9%	1.7%	2.2%	*
=1 if extortion	0.2%	0.1%	0.3%	*
Observations	7,455	4,708	2,747	

Source: Author's calculations based on ELCA (2010)
Test for differences in sample means between communities with and without armed group presence *** p<0.01, ** p<0.05, * p<0.1