Preliminary version

The Effect of Armed Conflict on Social Capital in Colombia

Melissa Rubio*

This version: October, 2014

Abstract

This paper examines the effect of armed conflict on social capital in Colombia. Using the method of instrumental variables, the evidence indicates that the conflict has a negative and significant effect on social capital. A one standard deviation increase in the rate of violence decreases the participation in community organizations by 13.5 percentage points. The effect is greater for selective violence (murders) than for the general violence (terrorist attacks). The mechanisms underlying this effect are fear, loss of trust within the community and targeted killing of community leaders. This suggests that in conflict, civilians reduce their participation in community organizations to avoid becoming visible to the non-state groups. I establish that the impact persists over time and, that there are different effects for men and women. The results are robust for different specifications. This paper contributes to the existing literature because it sets the direction in which the effect operates for Colombia since contrary evidence has been found for other countries. So this article generates inputs to design policies that include dimensions of poverty that have been overlooked in post-conflict periods, because the communities play an important role in the collective management of risk.

JEL Classification: C26, D71, D74

Keywords: Social capital, Armed Conflict, Instrumental variables, Colombia.

*PhD Student (first year). Gothenburg University. Contact: melissa.rubio@economics.gu.se. I would particularly like to thank Leopoldo Fergusson for his suggestions and for his patient guiance during the process of this research. This work was presented to obtain the Master on Economics at Los Andes University, Colombia.

I Introduction

Civil conflicts are phenomena that have affected various countries around the world and at different points in time. In particular, Colombia has a long history of non-state armed actors. Currently is the scenario of a complex conflict boosted by drug trafficking, the difficult geography and weak institutional presence. Attacks on civilians are a strategy to expand territorial control, avoid civil resistance movements and seize valuable assets to finance the war. As a result, civilians have faced costs associated with internal conflict.

Studies in the economic literature concentrate on the direct and most tangible effects of the conflict, which are brutal in terms of the lives lost, destruction of economic infraestructure, increases in transaction costs and deterioration on human capital (Abadie et al. 2003; Collier & Hoeffler 2002 , Miguel et al. 2004; Ibáñez & Velez 2005). However, the economic literature has paid little attention to the less tangible effects of the conflict, which arise from the uncertainty generated by the actions of armed groups (Arias & Ibáñez 2012), and also reinforce the poverty. The limited empirical evidence of the all conflict effects has led to underestimate the costs faced by the civilian population. This paper contributes to the existing literature that analyzes the impact of armed conflict on social capital, that may be for be one of the less visible conflict effects has not been sufficiently studied.

Social capital is desirable for a country, it includes the features of social organization, such as social networks and norms of trust that facilitate coordination and cooperation to achieve common goals and mutual benefits (Putman et at. 1993; Dasgrupta 2002). Social capital could potentially be an asset in overcoming poverty. Evidence has showed that poor communities with higher levels of social capital are more efficient in the provision of public goods, or by "lobbying" in governments to obtain additional services (Veenstra 2001, Woolcock & Narayan 1999, World Bank 2000). On the other hand, in some poor countries, social capital has allowed the spillover of knowledge and a more rapid adoption of technologies (Whiteley 2000).

The present study measures social capital as participation in community organizations. This measure is an indicator of collaboration within communities and collective ability to respond to adverse situations (Darluf & Fafchamps 2005, Coleman 1990; Colletta & Cullen 2002; Narayan & Princhett 1997). It is particularly relevant because most of the conflicts take place in poor countries, where –in the absence of formal insurance mechanisms– social networks provide support such as informal loans and transfers to mitigate various negative shocks (Foster & Rosenzweig 2001, Fafchamps & Lund 2002; Rosensweig 1998; Carter & Castillo 2003). Therefore, this article is related to the literature that studies social networks such as adverse coping mechanisms, and it provides an understanding of the role they play in the management of violent socks.

In areas of absence or weakness of state institutions, the armed actors take the role of the state, and they seek to impose a new social and economic order to achieve their war aims (Vlassenroot & Raeymaekers 2004). Selective violence and the imposition of governance systems generate changes in the behavior of the civilian population in conflict areas. In this sense, the conflict can help to create new institutions, can impair trust within communities, destroy social networks or weaken the existing institutions (Skaperdas 2001; Arjona 2009).

For Colombia, there could be negative effects. This is because the armed actors target deliberately certain groups of society, such as informal land owners and community leaders. For this reason, the civilian population may decide not to participate in community organizations to avoid becoming visible to the armed groups [1]. However, internal conflicts do not necessarily have negative effects on social capital. Social cohesion may be a strategy to increase the chances of survival in the adversity[2]. When communities are better organized is more difficult for armed groups impose their rules of behavior. Communities can seek collective solutions to conflict, dialogue with armed groups, seek help NGOs and publicly denounce the attacks (Keck & Sikkink 1998). In conflicts with indiscriminate violence, participation in community organizations is a

[1]The literature has identified other strategies that people employ to avoid becoming visible to the armed groups. In the civil war in Burundi and Rwanda households owning assets such as livestock were attacked by armed groups, and therefore the sale of cattle became a strategy to decrease the likelihood of being attacked (Bundervoet 2006).

[2]Kaplan (2011) identifies in Colombia peasant communities " declared" communities in resistance. They prevented the armed groups exert violent actions in their territories. Meanwhile, in the Philippines, during the armed conflict, 91 communities were organized with the help of the Catholic Church to stand apart from the fighting between the military and armed groups (Sousa & Villegas 2004).

way of coping injuries of violence.

In African conflicts as in Burundi, Sierra Leone and Uganda, exposure to violence has contributed to enhance social capital through increased attendance at community meetings, greater political participation, leadership, and the adoption of more altruistic behaviors among civil war victims (Bellows & Miguel 2009; Blattman 2009; Voors, Nillesen, Verwimp, Lensink, & Soest 2010). Similarly, during the conflicts in Rwanda and Bosnia Herzegovina increased women's participation in charitable organizations, hospitals, and foundations for orphaned (Kumar 2000; Rehn & Sirleaf 2002). Although these studies are valuable in understanding the dynamics that generates the conflict on the civilian population, it might be the case that exits endogenity problems in the colombian case for two reasons. First, double causality since a war strategy of armed groups is to attack the areas without social organizations in order to avoid civil resistance movements, or conversely areas with higher community organization may be more likely to be attaked if the non-state groups have special interest in destroy social organizations. In the other hand, places with higher levels of organizations could be less likely to be attacked because the communities develop collective strategies to avoid the presence of armed groups. Second, by omitted relevant variable because armed groups are present in areas considered strategic for political reasons or for the possibility of extracting valuable resources.

In general, the relevant literature presents evidence of opposite effects of conflict on social capital. The evidence for some countries suggests that internal conflicts weak institutions, undermine the trust and the social networks. In other countries, however, conflict can help create new institutions, strengthen existing institutions, and promote collective action. The effect seem to depend on the dynamics of conflict. For instance, conflicts with selective violence towards certain groups of the population may have a negative impact on social capital, while conflicts with indiscriminate violence against the civilian population does not necessarily have a negative effect.

This paper enriches the literature estimating the effect of armed conflict on social capital in Colombia and providing the mechanisms by which this effect could reinforce the poverty. To achieve this goal I use instrumental variables, which address the problem of endogeneity. Colombia for its long history of conflict is an interesting country for this study. Attacks by armed groups vary in intensity and geographical distribution, and thus provide enough variation to capture the effect on social capital.

The data used to conduct this study come from the Latin American Public Opinion Project (LAPOP). This is a survey that collects information on perceptions and political attitudes in 88 Colombian municipalities, during the period 2004 to 2009. Information for armed conflict is obtained from the CEDE (Center for Economic Studies, University of the Andes), which contains the type of attacks by armed groups operating in Colombia, –FARC, ELN and AUC–. This study further to include a measure of violence, considers two measures of conflict: on one hand, general violence, which includes all terrorist attacks carried out in a municipality, and secondly selective violence, which included massacres and killings by armed groups against the civilian population. The literature on the impact of the conflict on the civilian population has been limited to reducing internal conflict notion of military actions. However, this approach can not distinguish the effects of the conflict according to the way it is used and ignores the different war strategies of the armed groups.

The results indicate a significant negative effect of conflict on social capital. However, this effect is marginally decreasing, that means that the effect becomes less strong with increasing violence. In particular, an increase in one standard deviation above the median decreases participation in community organizations in 13.3% percentage points. This represents a reduction of 0.34 standard deviations on participation, on an average share of 15.3%. When analyzing the effect of both generalized violence and targeted violence, I find that much of the effect is explained by selective violence. This suggests that social capital is affected by the conflict, but especially by targeted attacks, that includes massacres and murders.

The negative effect of conflict on social capital is generated through three mechanisms: i) fear of participating in social organizations, ii) loss of trust within communities, and iii) targeted killings of community leaders. This indicates that the civilian population decreases their participation in community organizations to avoid becoming visible to the armed groups. In this sense, this article contributes to the literature relating armed conflict and social capital, because it can not be assumed that the populations affected

by the conflict will always find ways to associate after a violent shock. Colombia does not seem the case and this article shows a convincing empirical strategy to demostrate it. Further, the effects are persistent over time. After four years away the effect of general violence, and after eight years the effect of selective violence the effects disappear.

The findings can be explained largely by the type of armed group who commits violence. Although the FARC attacks have a significant negative effect, AUC attacks exacerbate the effect. This effect appears to be related with war strategies of the armed groups. The AUC selectively attack the leaders of civil society organizations to instil fear in the civilian population. Meanwhile, the FARC promotes some peasant organizations. Overall, the results in this paper show that the behavior changes in civil population seem to depend of the conflict dynamics.

Finally, this study provides evidence that the effect is less strong for women than for men. This is of particular interest if one considers that the conflict literature find mostly a more negative effect on women. By analyzing the relationship between armed conflict and social capital, this article provides valuable evidence for the design of public policy in post-conflict period, where it is essential to understand the levels of trust that exist within communities. The design of public policies should not only focus on the most tangible effects but also eliminate indirect and invisible effects of armed conflict in order to fight the poverty that a conflict perpetuates.

The paper proceeds as follows. The next section provides a description of the data used. Section three describes the empirical strategy used to estimate the relationship between armed conflict and social capital. The fourth section presents the estimation results and some robustness checks. Finally, the conclusions are presented.

II Data

2.1 Social Capital

The data for conducting the analysis comes from the survey LAPOP[3]. This survey is nationally representative for individuals older than 18 years in rural and urban areas.

[3]The information was obtained with the support of the Observatory of Democracy at the University de los Andes.

It has information available to approximately 12,500 individuals in 88 municipalities of Colombia, for the period 2004-2009 as a repeated cross-sectional.

Although the literature does not specify a concept of social capital, the definition encompasses further the notion is established by Putman et al. (1993), which indicates that social capital includes the features of social organization, such as social networks, norms and trust that facilitate coordination and cooperation for mutual benefit. From the above, the social capital measure presented in this study is the participation of the individuals in social or community organizations. This measure has been used in previous studies. Bellows and Miguel (2008) use it as a *proxy* variable of social capital. Maluccio and Haddad (2000) measure social capital using a variable for membership in social groups[4]. I constructed an indicator that takes the value of 1 if the individual attends to meetings of at least one of the following organizations: i) religious, ii) parents of the school or college, iii) committee or board improvement community, iv) association of merchants or producers, v) political party or movement, vi) or women's associations or housewives, and viii) Afro associations or groups.

The LAPOP survey collects detailed information on socioeconomic characteristics such as age, sex, household income, subsidies of *Familias en Acción*[5], years of education, education of the parents, number of children, marital status, occupation, information media at home (TV, landline phone, computer, internet). Moreover, explores other aspects as if the person voted in the last election for mayor, if he reads newspapers, if he listens to the radio, if he knows how long is the presidential term in Colombia, if he has participated in peaceful marches, if he employs defense mechanisms of their rights in the town, and if he has attended to community councils. Table 1 presents the descriptive statistics. As shown in Panel A, approximately 15.3% of the surveyed population participates in community organizations with a standard deviation of 0.39. Panel B presents the socioeconomic characteristics. In general, the proportion of men and women is quite similar, the 24% of the population lives in rural areas, the average age of individuals surveyed is 36.5 years[6].

[4]This research does not take into account other aspects that could capture the social capital. The link between participation and social capital is quite narrow. On the one hand, participation is one of the components of social capital and on the other, participation encourage collective action because it establishes certain rules that facilitate decision-making, (Polania, 2005). Therefore, this research captures only one dimension of social capital.

[5]A conditional cash transfer program in Colombia.

[6]The descriptive statistics are consistent with the presented by the DANE, which is the National Statistics Department. So the sample is comparable to the average in their characteristics with the

2.2 Armed Conflict

The Colombian conflict is one of the longest ongoing domestic confrontations in the world surpassed in length only by the Israeli-Palestinian and the Indian-Pakistani conflicts. There are three main irregular armed groups that have competed for the control of villages, natural resources and strategic corridors of ilegal markets. The first two, Revolutionary Armed Forces of Colombia (FARC) and the National Liberation Army (ELN) both of which originated in communist ideas in the early 1960s are now also involved in drug producting and trafficking operations. The third group is a rightwing paramilitary group known as the United Self-Defesense of Colombia (AUC) founded almost 25 years ago (Romero, 2003). These various non-state armed groups ranged over most of the territory of Colombia and though estimates vary, may have had around 50,000 men and women under arms at the start of the 21st Century (Acemoglu, Robisnon & Santos 2009). All three groups, besides engaging in direct fight with the national army, also perpetrate crimes against the civil population.

The database of conflict is from Centro de Estudios sobre Desarrollo Económico (CEDE) in the Economics Faculty at the Universidad de Los Andes in Bogotá. CEDE collects data from the Observatory of Human Rights of the Vice-presidency and the National Department of Planning, and it aggregates variables in several categories by armed actor and type of action. The original data are a compilation of news from newspapers and from reports of the national police. For this study I construct a measuare of violence that includes all attacks perpetrated by all non-state armed groups. Further, I construct two measures of conflict according how they affect the civil population. The first variable is called *general violence*. It is constructed by aggregating over different attacks. For each armed conflict I simply add the following variables: explosive terrorist acts, incendiary terrorist acts, other terrorist acts, assaults to private property, attacks on civil organizations, road blockades, armed contact between state and non-state armed forces initiated by the latter, ambushes of civilians, harassing (mainly threats to civilians), incursion into villages, overland piracy, illegal checkpoints, and armed forces wounded by the non-state armed group. The former variable is called *selective violence*. This variable captures attacks that affects directily the civil population as mass murders and homicides perpetrated by irregular groups. We have these variables for each year in the period 2005 to 2009.

---

rest of Colombia.

Additionally, I use these data to construct various measures of violencia according to violent group that perpetrated violent actions –FARC, AUC, or ELN–. Finally I construct a variable called *La Violencia* that takes the value of one if the village faced violent attacks during the period 1948 to 1953. This variable is a proxy of the village propensity to face violence historically[7].

To get an idea of the variation in the intensity of the civil conflict inside Colombian borders, Panel C in Table 1 presents the average rates of different attacks in each municipality between the years 2004-2009. From this table it is clear that most of attacks are related with selective violence (0.15 attacks per 1,000 inhabitants) followed by general violence (0.08 attacks per 1,000 inhabitants). An interesting fact emerges analyzing the data, the group of FARC is responsible of most portion of general violence (0.051 attacks per 1,000 inhabitants), meanwhile AUC explains most of the selective violence (0.025 attacks). Moreover they vary in intensity across villages. In particular, the standard deviation is greater than the mean value and it is this source of variation that will allow us the identification of the effects of armed conflict on social capital.

The Figure 1 compares the general rate of violence for the villages included in this study with the colombian average. The villages in analysis present lower average rates of violence than the national average. This suggests that the results must be interpreted with caution because I am excluding the villages with greater levels of violence. In the same way, it could be happen that in the villages with lower level of violence, a violent shock affects more the behaviour of their population, whereas a violent shock in populations that have faced high levels of violence may learn to "'live"' amidst conflict and adapt their behaviour to prevent aggressions from non-state armed actors. Below I present direct evidence of each of these hypotheses.

A preliminary analysis of the data is presented in the Figure 2. The y axis shows the percentage of participation on community organizations, and the x axis indicates the rate of violence. This pattern give a preview of my regression evidence that will be presented in the next section. Furthermore the Figure 3 displays the level of participation along the period of analysis. It is evident that there are lower levels of participation in periods with higher levels of violence, which is not surprising since the

[7]During this period the traditional parties, "'Conservadores"' y "'Liberales"' confronted in a violent actions. (Sánchez Meertens, 2001).

decrease in participation coincides with the intesification of violence before the AUC's peace process with the government.

On the other hand, data for killing of community leaders come from the Bank of Political Violence and Human Rights collected by CINEP (Centro de Investigación y Educación Popular-Programa por la Paz) that allows me the identification of possible mechanisms between conflict and social capital.

Finally, the panel D in Table 1 presents the village characteristics. Amog them I include geographic variables as average distance of 108.33 km to the largest city in the municipality. Others variables include presence of state institutions, poverty index, land concentration, presence of illegal crops, etc. Additional descriptive statistics of these variables are presented in Table 1.

III Empirical strategy

The main goal is to estimate the causal impact of armed conflict on social capital. In order to do so, I estimate an econometric model that relates the probability of participate in social organizations, such as *proxy* of social capital against the rate of violence in the village. Empirical specification is as follows:

$$SC_{imt} = \beta_0 + \beta_1 V_{m,t} + \beta_2 {V_{m,t}}^2 + \beta_3 X_{im} + Z_{m,t} + \gamma_m + \delta_t + e_{ivt} \tag{1}$$

where $SocialCapital_{imt}$ represents the participation decision into community organizations for the individual i located in municipality m and at time t. The variable V_{mt} represents the violence or armed conflict that took place in the municipality m and at time t. This variable captures the rate of attacks perpetrated by all armed groups active inside Colombian borders in the period of study. In addition, I construct a variable for the general violence and for selective violence, because I consider that the different types of violence could have different effects on social capital. Although the LAPOP questionnaire collects information for violence events individually (e.g. if the person lose a family member due to conflict or if a family was displaced by the conflict), there is a high probability of underreporting by fear. For this reason I use information for covarietes shocks at municipality level (Rockmore 2011). I include the

violence rate squared ${V_{m,t}}^2$ to capture nonlinear effects of violence, and it allows for different degrees of victimization.

The vector X_{im} represents individual characteristics, such as gender, years of education, age, number of children, race[8], income[9], ideological trend, and a dichotomous variable that takes the value of 1 if the person lives in a rural area. The vector $Z_{m,t}$ represents constant and time varying municipal characteristics. These include geographic and demographic characteristics such as distance to urban centers and population density, which may explain the cohesion within a community (Peterson, 2001). The most remote regions tend to have higher levels of collaboration (Humphreys & Weinstein, 2006) compared to areas that are closer to the big citie[10]. On the other hand, variables for school attendance and land Gini are included to capture socioeconomic conditions of the municipality. The estimatations also include municipality fixed effects γ_m, which control for variables that do not vary over time. They also includes year fixed effects δ_t. Finally, e_{imt} corresponds to a random error term.

Under specification (1), β_1 is the coefficient of interest, which indicates the effect of armed conflict on the probability of an individual to participate in social organizations. However, endogeneity problems may exist and they could bias the estimation. The first one is related to double causality. It is possible that armed groups attack municipalities with few community organizations. Organizations can develop collective strategies to reduce civilian support for armed groups. Through the creation of territories for peace, civilian populations are declared communities in resistance, and even they come to international agencies to avoid the violent actions of armed groups. Kaplan (2011) suggests that after controlling for attacks by armed groups, the presence of community action boards in a municipality has a negative effect on the incidence of violence[11].

On the other hand, may be of special interest to the armed groups destroy social

[8]Minority groups have greater community cohesion. One example is the community councils and indigenous councils, which have been important tools in obtaining territory and legal autonomy. These organizations seek to preserve the order in the communities ("local justice") (Wirpsa Garzon, 2009).

[9]The income variable was calculated using principal component index, which includes for this case: own TV, fridge, telephone, computer, flat screen TV, phone, car, washing machine, microwave, water inside the house and bathrooms inside the house.

[10]In Colombia, the settlers of brownfield developed community networks (LeGrand, 1986).

[11]For the FARC was easier to make presence in remote areas of country, where there was no kind of social cohesion, and much of the basic needs were not being met either by the state or by community organizations (Giraldo, Lozada & Muñoz, 2001)

organizations. For example, paramilitary groups declared the peasant organizations as military target. The top leader of this group –Carlos Castaño– considered that two out of three farmers collaborating with leftist guerrillas of the FARC, and therefore all peasant organization was attacked by paramilitary groups (Aranguren 2001).

The second problem of endogeneity is omitted relevant variables. Armed groups are present in areas considered strategic for political reasons or for the possibility of extracting valuable resources[12]. In areas with no state institutions or weak institutions is less expensive to establish a social and economic order by the armed groups. In this sense, the attacks against civilians are not random, but respond to particular strategies of armed groups. Generally, municipalities with higher rates of violence have less state presence, measured as the provision of social services and infrastructure (see Table 2).

For the above reasons I use instrumental variable to correct the endogenity problem. The first two instruments correspond to the lags of the desmantles of coca laboratories $z_{1m,t-2}$ and counternarcotics operations[13] $z_{2m,t-2}$ in the town m in the period *t-2* [14].

These two instruments are highly correlated with the violence because they are associated with the presence of armed groups and the Colombian state's effectiveness against criminal activity. These instruments are exogenous in the sense that it is difficult to think that the decision to participate in organizations is related to counter-drug operations since they are secret operations commanded at central government level, and so difficult to perceive by civilians. There would however, a violation of the exclusion hypothesis if in areas where there is greater cooperation between local authorities and the civilian population is more likely to bring complaints of the presence of cocaine laboratories. Although it is not possible to fully test the hypothesis of exclusion, the trust in the Armed Forces and the National Police is used as *proxy* of cooperation with these institutions. Table 3 presents evidence that there are no statistically significant differences in participation in community organizations among those individuals who report trusting the Armed Forces and the National Police.

[12]For example, households with livestock during the civil war in Rwanda and Burundi were targets of armed groups (Bundervoet 2006). In Colombia households with land without property formal titles were attacked by armed groups (Ibáñez & Moya 2006).

[13]This instrument was initially presented by (Camacho & Rodriguez 2010).

[14]I did the same estimates for the lags 1,3,4 and the results remain significative. The magnitude of the coefficients do not vary significantly.

A third instrument used is the one that takes into account the exogenous variation in the eradication of hectares of coca in Peru and Bolivia as a proportion of total hectares growed in these countries[15]. Since these eradications only potentially could affect coca growers municipalities, this variable is interacted with characteristics associated with the aptitude of soils to coca cultivation. These features are the water availability index, the rate of erosion and the height of the municipality. It guarantees municipality level variation and over time. The logic of the instrument is that an increase in the operations of coca eradication in Bolivia and Peru as a proportion of the number of hectares cultivated, leads to decrease aggregate supply. The latter may increase incentives for armed groups to "protect" their territories for illegal crops or flight for new ones. This instrument is exogenous since is difficult to think that participation in community organizations may be related to actions to combat drug trafficking in Bolivia and Peru. I argue that the only mechanism by which this instrument affects social capital is through changes in the level of municipality violence where the individual lives.

IV Results

As described in previous studies for African countries, the conflict strengthened the social capital. Nevertheless, the expected results for Colombia are not clear, so this section examines the effect of armed conflict on social capital. In adittion I present the analysis disaggregating the effect between general violence and selective violence, and among the armed groups.

4.1 Effect of violence on social capital

I first investigate the impact of violence on the social capital. More specifically, I estimate equation (1). Our basic results using the *general violence* measure are reported in Table 4. In this and all subsequent tables, all standard errors are fully robust (allowing for arbitrary serial correlation at the municipality level).

Table 4 presents the estimation by Ordinary Least Squares (OLS) and by Instrumental Variables (IV)[16], the dependent variable is the likehood of participate in community

[15]The information for hectares of coca was obtained from United Nations Office on Drugs and Crime, UNODC.

[16]The estimations are made by OLS and IV. Probit is not used because OLS does not assume a functional form, as it is does a probit model. Further, OLS is the best linear unbiased estimator. In this sense I guarantee that the specification bias is the least possible. However, I run the probit

organizations. The column 1 includes as explanatory variables the violence rate and its quadratic term. The column 2 add individual controls, and finally column 2 gradually includes municipaly controls, fixed village effects and year fixed effects into the regression. As shown in all specifications presented in Table 4, the conflict appears to have a negative effect on social capital. In particular, a rise in one standard deviation of the violence rate reduces the likehood of participation by 4,7 percentage points over an average participation of 15,3%. However, due to endogenity problem the coefficient of interest could suffer from a significant bias problem. Hence, I decided to implement an instrumental variable approach. Specifically, I evaluate the effect that armed conflict, instrumented by lagged laboratories dismantle and antinarcotics operations at the municipality leves, as well the share of coca crops erradiccation over the total coca crops cultivated in Peru and Bolivia has on social capital[17].

Regarding to validity of instrumental variables, the –F test– shows that under these specifications we will not suffer from any weak instrumental problem given that in each case the statistic is significantly higher than ten. Moreover there are many reasons to be confident about the exogenity of the instruments constructed from the desmantles in Peru and Bolivia. It is very plausible that the only way to affect social capital is generating incentives to grow coca in the municipalities. Taking this instrumented as valid, the Sargan test for the validity of the rest instruments is not rejected in any case.

The last columns of Table 4 present the coefficient associated with the instruments including the different control variables and fixed effects. With the IV correction the conflict has a negative and significant effect on the participation in community organizations. The results are robust to the inclusion of different controls. In particular, the column 6 shows that the likehood of participate in community organizations decreases by 13,5 percentage points with an increase of one standard deviation in the violence rate. The above result is equivalent to 0.34 standard deviations in the participation. The difference between the OLS and IV estimation is that the former is correcting by the omitted relevant variables.

Analyzing the quadratic term of violence I find non linear effects. In particular, the violence has decreasing marginally negative effects on social capital. Thus, the attacks

estimations and the results are still robusts. The estimations are available for revision.

[17]The quadratic rate of violence is instrumented with the quadratic instrumental variables.

perpetrated by the illegal groups decrease the participation but increasingly less. The Figure 4 displays the marginal effects of violence on the social capital. Taking literally the coefficient, places with high levels of violence are predicted with the nonlinear term that more violence increases social capital, but these effects are not statistically significant and corresponds to a fit of regression to the mean. Therefore, we can not take that as evidence of positive effects.

Although the effect found might seem counterintuitive: for lower levels of violence the effect is greater than for high levels of violence. I suggest that it can be explained by three reasons. First, the 25% of the municipalities that have lower rates of violence now, have historically high rates of violence, which is consistent with the theory presented by Kalyvas (2006). When non-state actors control a region and are hegemonic, attacks against the civil population and armed confrontations are infrequent. In adition, non-state actors assume many times the role of the state and impose their own rules of governance. In this sense inhabitants adapt their behaviour to prevent being the victim of attacks. I argue that in this context of "bad peace", changing the rules of the game by civilians would be visible them to the armed groups. Second, the remaining 75% of the municipalities with low levels of contemporary violence are traditionally peaceful areas. I argue that in this context of "good peace", an increase in violence has a strong impact on the behavior of the civilian population (Arias & Ibáñez 2012). Finally , the municipalities in the sample that have a higher level of current violence are municipalities that have been traditionally violent. This explains the lower effect of conflict on social capital, which may be due to individuals in conflict networks "learn" to live with non-state armed groups[18]. It must be noticed that some armed groups promote the community organizations as a strateggy to impose their rules. An analysis of the effects according to the distribution of violence, confirms these results. For levels below the 30percentile of violence, an increase by one standard deviation reduces the participation by 15 percentage points. While for levels above the 80th percentile of violence is reduced much less[19].

Overall, the fact that the greatest effect of the conflict on social capital come from areas with a low level of attacks, indicates that for a conflict as the Colombian conflict

[18]When we estimate for the sample restricted to the municipality of "good peace" " and "bad peace" the results are similar. For municipalities of peace " good peace" traumatic shock affects the behavior of individuals , while the municipalities of " bad peace ", changing the game rules may be visible to involve armed groups.

[19]Although not presented in this article, these results are available for review.

–of long duration and low intensity– the violent actions have effects even when the civilian population is not direct victims of violent attacks. Probably the fear of being victims of violence explain this effect, later we explore in detail the possible mechanisms.

4.2 Comparing general and selective violence effects

In order to determine whether the type of attack by armed groups have differential effects on social capital, I estimate separately for each of the types of violence, both general violence, including war and terrorist attacks, and selective violence, which includes massacres and mass murders against civilians. The estimation results for the general violence are presented in Table 5. After controlling for municipaly and year fixed effects, a one standard deviation increase in the rate of general violence, reduces the probability of participating in community organizations by 4.7 percentage points, equivalent to a change in 0.12 standard deviations above the capital.

Meanwhile, Table 6 presents the results for selective violence. An increase in one standard deviation in selective violence leads to a decrease in the probability of participation by 16.8 percentage points. This effect is about three times higher than the one found for the general violence. This can be interpreted because of armed groups attack members of the civilian population with particular characteristics to generate fear in the community (Azam & Hoeffler 2002). Thus, civilians could seek to become less visible to the armed groups, and therefore less involved in community organizations.

The results presented above are merely suggestive as it is not possible to obtain an instrumental variable for each of the measures of violence. Thus exogeneity can not completely guarantee as instrumental variable could be correlated with other measures of violence that are in the error term[20]. Additionally I estimate by OLS including the two measures of simultaneously. The Table 7 presents the results. The effect of selective violence remains higherAlthough in terms of the coefficient the effect of general violence seems to be greater, once analyzed in terms of standard deviations the effect is greater for selective violence.

[20]Now I am start working with isntrumental variables for each one of the armed groups. For AUC I am using the number of stock of cattle in municipalities in 1968, when the AUC emerges in order to protect the rancher. Meanwhile for FARC I am using the distance to distance to Venezuela in the period of Hugo Chávez. The logic of this instrument is that Venezuela approved the FARC's actions.

4.3 Analysis by armed group

Previously we described the effect of conflict on participation in social organizations, without asking whether the particular effect that would have certain armed groups. However, it is interesting to analyze whether there are different effects according to the armed group that uses violence. For example, paramilitary groups declared a military target the peasant organizations, for the top leader of this group, Carlos Castaño –two out of three farmers collaborate with leftist guerrillas of the FARC– (Aranguren, 2001). Moreover, in some regions of the country were the armed groups who imposed rules of behavior. The leftist guerrilla promoted organizations to facilitate their war aims (Giraldo, Lozada, & Muñoz, 2001). As a result, participation in social organizations may vary according to the type of actor who commits violent attacks.

The estimations in Table 8 indicate that general violence perpetrated by the FARC, has a greater effect on social capital, compared with the other armed groups. In particular, one standard deviation increase in the violence perpetrated by the FARC dropped the participation by 7.08 percentage points, while for the AUC is decreased by 4.11 percentage points. This result can be explained because the FARC is the group with the largest presence in the country, and the main FARC's strategy are the terrorist attacks. The constant attacks can generate fear and uncertainty in the civilian population.

On the other hand, when analyzing selective violence, violence perpetrated by the AUC has an effect of 11.6 percentage points on participation in community organizations, which corresponds to about three times the effect caused by selective violence FARC (see table 9). This may be due to the type of violence used by paramilitary groups. Selective violence is a war strategy of this armed group, especially when it is towards organizations that acquire a political character and may be associated with left-wing ideologies. A community can be attacked if it is seen as a rival to achieve war aims (e.g. the selective attack by armed groups from right armed groups to organizations that advocate for land reform). This may also be a reflection of that when the survival and the success of armed groups depend on territorial control, civilian cooperation is crucial in that it provides information, shelter, supplies and labor. In which case, guerrillas seek to gain affinity between the civilian population and thus need to find "balance" between exercising violence and gain popular support (Arjona 2008).

4.4 Identifying possible mechanisms

We have found that the armed conflict has a negative and significant effect on social capital in Colombia. The purpose of this section is to explore the possible mechanisms through which the conflict can deteriorates social capital. This allows us to understand not only the factors which impose costs and distortions on the civilian population, but also understand why despite evidence found that conflict can strengthen social capital in other countries, it has a negative effect in Colombia.

The armed groups deliberately target the leaders of populations, and therefore individuals may decide not to participate in community organizations to avoid becoming visible. To test this hypothesis, I specified a model that relates the probability of feeling fear to participate in a community on a function of the rate of violence. The estimation also includes individual controls and municipality fixed effects. A similar exercise is performed for variables that report: be afraid to run for office in the community, be afraid to vote in elections and be afraid to participate in a peaceful manifestation.

Table 10 shows that for all specifications I found a negative and significant effect, except for the fear to vote in elections and for the participation in peaceful manifestations. It is possible that these results are reflecting the fear that generate targeted attacks by armed groups to the community leaders. A greater effect on the fear of participating in community organizations suggests that civilians choose not to participate to avoid becoming visible to the armed groups.

To confirm this hypothesis, from a database collected by the Data Bank on Human Rights and Political Violence [21]. The effect of a community leader killed on social capital is estimated. The results indicate that the fact that a community has been killed reduces the participation of civilians (see Table 11).

In addition of generating fear in the civilian population, armed conflict has effect on the levels of trust within communities. To test this hypothesis we estimated a regression that includes as dependent variable perceptions of trust of a person over the other members of the community. The results are reported in column 5 of Table 10. The negative relationship between the probability of trust in the other members of

[21]This database collects information on violations of human rights and international humanitarian law. The information is available to all municipalities in the study period (2004-2009).

the community and violence rate indicates that confidence is deteriorated due to the actions of armed groups. This explanation is even stronger if one takes into account that one of the strategies of armed groups is to have informants within the same civilians.

Overall, the above exercises not only provide robust evidence consistent with our basic results, but also they identify the mechanisms that can be explaining the direction of effect of the armed conflict in Colombia. Unlike the African conflicts, the Colombian conflict has been characterized by presenting targeted attacks on civilians as murders. Therefore, individuals adopt strategies to avoid becoming visible to the armed groups. In African conflicts seem not to exist particular characteristics targeted whitin the same community, armed groups attacked all population and for this reason these actions were called genocites. But in Colombia, the non-state groups target some civilians to generate fear and impose their rules and norms in a specifici territory. In this sense with the support of evidence founded in Colombia the violent actions leads to civil population to avoid be visible for armed groups, and decrease its participation in social organizations is one way.

The negative effect of conflict in Colombia reduces the posibilities for cooperation, reducing in this way the ability of the communities and social networks to serve as mechanisms to face different risk. Results in Table 12 indicates that the conflict discourage the cooperation and the collaboration among the members of a community. In particular, the probability of not collaborate to solve a problem of the community decreases by XXX with an increase in one standard deviation in the rate of violence.

4.5 Are conflict effects persistent over time?

Internal conflicts not only impose costs that are reflected at the time of the destruction of infrastructure, the appropriation of valuable assets, interruption in the accumulation of human capital, or the uncertainty and fear generated by armed groups, but also could have consequences that persist over time, even in post-conflict stages.

To establish whether the effects of armed conflict persist over time, we analyzed the effect of past violence on social capital. Table 13 investigates this issue by estimating a similar regression to (1) with different lags of the violence measure. The effect varies from 7.6 to 3.1 percentage points in three years. Equivalent to a change in the standard deviations from 0.19 to 0.07 in participation. After the fourth year we lost the significance of the lagged variable. In the other hand, analyzing the selective

violence, the effect goes from 17.4 to 6.4 percentage points in eight years, equivalent to a change in 0.4 and 0.16 standard deviations in participation (see Table 14). This result indicates that the effects of conflict persist on the social capital, especially when individuals face targeted violence in the municipality. Again, this result confirms that selective violence has a greater effect on social capital.

The above exercise was develop disaggrating by type of armed group and the results are still the same, but most importantly, paramilitary attacks generate effects that are more persistent over the time compared with the other groups. This is because AUC have used their power to intimidate the civil population through mass murder, violent executions, forced dissapeatance and acts of torture in front of all community.

4.6 Heterogeneity of the effect

Armed conflict may have heterogeneous effects for different groups of the population. In particular, women may be affected differently than men. Women can take on new roles within the home, increase their participation in the labor market (Calderon, Gafaro & Ibáñez 2011, of Walque 2006), or act as agents of peace in rebuilding communities (Bouta, Frerks, & Bannon 2005).

Following the above ideas I estimate a model that includes an interaction term between the rate of violence and sex. Table 15 presents the results, an increase in a standard deviation in the rate of violence leads to a decrease in the participation by 9.4 percentage points for women. For men the decrease is 15.6 percentage points. This result can be explained in principle because of men participate more than women, and therefore they are more affected by the conflict than women, 65% participants on community organizations corresponds to men[22]. However, when analyzing the coefficient on the participation of both men and women I find that the effect for men is still higher.

The literature presents qualitative evidence indicating that the potential mechanisms by which this effect occurs are related to changes in gender roles within the household. The conflict increases the time women spend on productive activities outside the home, reducing the time spent on household activities. This promotes women's social network, and therefore alter their preferences and behaviors. Similarly, women can

[22]This result is consistent with the data obtained from the Bank of Human Rights and Political Violence, about 93% of leaders killed are men

take leadership roles in their communities, in response to the absence of men. Bouta et al.(2005) find that in Angola, Bosnia Herzegovina, Kosovo, Mozambique and Somalia, the widows represented over 50% of adult women, and this partly explained the increased participation of women in political activities. However, due to available data, this study has limitations in establishing the mechanisms that explain this phenomenon [23].

Thus, the results suggest that although most studies find that the armed conflict has a negative effect on women –perhaps because of their vulnerability (León 2010), or because they have been used as weapons of war–, for Colombia in the case of participation in community organizations is a minor effect. This could be a factor exploited emerging from conflict.

4.7 Robustness tests

4.7.1 Effects of other shocks on social capital

One possible concern when analyzing the results is that there are other covariate shocks, different than conflict that migth be explaining the participation of civilians in community organizations, and although I include as many possible municipal controls in estimations they are not being captured. For instance it is plausible that unanticipated climate changes could trigger the civilian participation in community organizations as a mechanism mitigate the shock. Castillo and Carter (2004) find evidence that the population affected by Hurricane Mitch tends to further assist community meetings and have higher levels of cooperation within their community. This suggests that traumatic experiences could have a positive impact on social capital.

In order to investigate whether participation in community organizations may be motivated by different shocks to the conflict, I include an additional explanatory variable for climatic shocks. This variable is constructed from a database that includes historical rainfall records in municipalities. One standard deviation above or below the historical average is considered a rainy season or drought, respectively. Thus, the variable takes the value of one if the municipality faced a climate shock, and zero otherwise. The results of this estimation are reported in Table 16 and indicate

[23] I develop an excersice to assess whether widowed women participate more, but no statistically significant results were found.

that face a climate shock has a positive and significant effect on participation in community organizations. However, the effect of the armed conflict remains negative and significant.

This exercise presents evidence that at least for the social capital, armed conflict differs from other shocks that may face a community. The conflict because is an event that generates fear of being victimized, makes the population decrease their participation in social organizations to avoid being visible to the armed groups, even when other shocks could trigger the participation of individuals. Thus the conflict, as well as affecting the social capital of a community, potentially could affect insurance mechanisms against risk. This is particularly important in rural areas where given the absence of the state, social networks play an important role in mitigating risks.

In general, the main results of this paper, presented in Table 4 show no bias concern, and since the case is explained the direction of bias.

v Conclusions

This article presents evidence of the effect of armed conflict on social capital in Colombia. Some recent careful micro level studies suggest that exposure to conflict is not necessarily detrimental for development and may contribute to social capital (see Bellows & Miguel 2009; Blattman 2009). However, the empirical evidence presented here contrasts with this previous studies. I quantify a negative effect of armed conflict on social capital. The effect is particularly higher for selective violence – which includes murders and killings– than for general violence which includes terrorist attacks–. Among the potential casual channels through which this effect is working are: fear of the civilian population to be visible to the armed groups, the lost of trust within a community, and the targeted killing of community leaders. These mechanisms explain the negative effect of armed conflict on social capital in Colombia.

An interesting result of this paper, which is not surprising is that AUCs violent actions have greater effects on social capital compared with others groups. I argue that this result might be explained due to the different strategies employed by armed groups. The AUC use massacres in order to generate terror in the villages. Whereas FARC is characterized by the terrorist attacks which the targeting strategy to specific civilians is less notable as AUC does. This results reinforce the idea that conflict shocks in

Colombia, particularly those related with murders and selective massacres perpetrated by non-state actors exacerbate the participation in community organizations.

The findings in this article provide policy inputs to a conflict that has been in place for over 50 years. The effectiveness of the peace process is highly correlated with the local changes in institutions during the conflict (Justino, 2012). The limited understanding of the dynamics caused by the conflict has led to underestimate the costs faced by the civilian population. This study is a first step in understanding the effect of conflict on local institutions. Therefore, post-conflict public policies must take into account not only the reparation in terms of lost assets, but also promote the reestablishment of intangible assets as the capital of a community. For being a very young research question further research is needed to expolore the conflict effect over behaviors individuals. For instance, the effect of conflict on other dimenssion of social capital, and in gender roles.

References

[1] Acemoglu, Robinson and Santos (2009) *The Monopoly of violence: evidence from Colombia.*

[6] Arjona, A. (2009). *The economic costs of conflict: a case study of the Basque country.* PhD Dissertation,Yale University, Department of Political Science.

[3] Angrist, Joshua and Adriana D. Kugler. (2008) *Rural windfall or a new resource curse? Coca, income, and civil conflict in Colombia.* The Review of Economics and Statistics 90 (2): 191215.

[4] Aranguren, M. (2001). *Mi Confesión: Carlos Castaño Revela sus Secretos.* Bogotá: Oveja Negra.

[6] Arjona, A. (2009). *Variants of Social Order in Civil War.* Unpublished PhD Dissertation,Yale University, Department of Political Science.

[6] Arias, M & Ibáñez, A. (2012). *Conflicto armado en Colombia y producción agrícola: ¿aprenden los pequeños productores a vivir en medio del conflicto?.* Documento

CEDE No 44. Universidad de los Andes, Facultad de Economía

[7] Azam, J.-P., Hoeffler, A. (2002). *Violence against Civilians in Civil Wars: Looting or Terror?* (Vol. 39). Journal of Peace Research.

[8] Bellows, J., Miguel, E. (2006). *War and Institutions: New Evidence from Sierra Leone*. American Economic Review. Vol. 96, No. 2, pp. 394-399.

[9] Blattman, C. (2009). *From Violence to Voting: War and Political Participation in Uganda*. American Political Science Review.Vol.103, No. 2, pp. 231-247.

[10] Brück, T. (2004). *Coping Strategies Post-War Rural Mozambique*. HiCN Working Paper no. 02, Households in Conflict Network.

[11] Bundervoet. (2006). *Livestock, Activity Choices and Conflict: Evidence from Burundi*. HiCN Working Papers.

[12] Camacho, A., Rodriguez, C. (2010). *Firm Exit and Armed Conflict in Colombia*. World Institute for Development Economics Research.

[13] Collier, P., Hoeffler A. (2002). . *On the incidence of civil war in Africa*. . Journal of Conflict Resolution 46 (1): 13.

[14] Collier, P., Havard Hegre, A. H., Reynal-Querol, M., Sambanis, N. (2003). *Breaking the Conflict Trap: Civil War and Development*. Washington, DC: A copublication of the World Bank and Oxford University Press.

[15] Collier, P. (2007). *The Bottom Billion: Why the Poorest Countries Are Failing and What Can Be*. Oxford University Press.

[16] Deininger, K. (2003). *Causes and Consequences of Civil Strife: Micro-Level Evidence from Uganda*. Oxford Economic Papers. Vol. 55, No. 4. pp. 579-606.

[17] De Walque (2006). *The Socio -Demographic Legacy of the KhmerRouge Period in Cambodia* . Population Studies, 60(2), pp. 223-231.

[18] Fearon, J., Latin, D. (2003). *Ethnicity, Insurgency, and Civil War* (Vol. 90). American Political Science Review.

[19] Fafchamps, Lund. (2002). *Risk-Sharing Networks in Rural Philippines*. Journal Development Economics. Vol. 71, No. 2, pp. 261-287.

[20] Foster, Rosenzweig. (2001). *Imperfect Commitment, Altruism and the Family:Evidence from Transfer Behavior in Low-Income Rural Areas*. Review of Economics and Statistics. Vol. 83, No. 3, pp. 389-407.

[21] Fumerton, M. (s.f.). *Rondas Campesinas in the Peruvian Civil War: Peasant Self-Defense Organizations in Ayacucho* (Vol. 20). Bulletin of Latin American Research.

[22] Giraldo, F., Lozada, R., Muñoz, P. (2001). *Elecciones 2000*. Bogotá: Universidad Javeriana.

[23] Humpreys, M., Weistein, J. (2006). *Handling and Manhandling Civilians in Civil War* (Vol. 100). Stanford University: American Political Science Review.

[24] Ibáñez, A. M. (2008). *El desplazamiento forzoso en Colombia: un camino sin retorno hacia la pobreza*. Bogotá: Ediciones Uniandes.

[25] Justino P. , Verwimp. (2006). *Poverty Dynamics, Conflict and Convergence in Rwanda*. Working Paper no. 16, Households in Conflict Network.

[26] Justino P.(2006). *War and Poverty*. Oxford Handbook of the Economics of Peace and Conflict.

[27] Kalyvas, S. (2006). *The Logic of Violence in Civil War*. Cambridge: Cambridge University Press.

[28] Kaplan, O. R. (2010). *Civilian Autonomy in Civil War*. Stanford University.

[29] Keck, M., Sikkink, K. (1998). *Activists Beyond Borders*. Ithaca, N.Y: Cornell University Press.

[30] Kumar, K. (2000). *Women and Women's Organizations in Post-Conflic Societies: The Role of International Assistance*. Washington, DC: USAID.

[31] LeGrand, C. (1986). *Fronter Expansion and Peasant Protest in Colombia, 1850-1936*. University of New Mexico Press.

[32] León, G. (2010). *Conflict and Human Accumulation: The Long Term Effects of Political Violencia in Perú*. University of California, Berkeley-

[33] Lubkemann, S. (2008). *Culture in Chaos: An Anthropology of the Social Condition in War*. Chicago: University of Chicago Press.

[34] Miguel, E.; Shanker S.; Ernest Sergenti. (2004). . *Economic shocks and civil conflict: an instrumental variables approach* . Journal of Political Economy 112 (4): 72553.

[35] Peterson, R. (2001). *Resistance and Rebellion: Lessons from Eastern Europe*. Cambridge: Cambridge University Press.

[36] Pinchotti, S., Verwimp, P. (2007). *Social Capital and the Rwandan Genocide: A Micro-Level Analysis*. HiCN Working Paper no. 30, Households in Conflict Network.

[37] Putman, R., Leonardi, R., Nanetti, R. (1993). *Making Democracy Work: Civic Traditions in Modern Italy*. Princenton University Press.

[38] Rehn, E., Sirleaf, E. (2002). *Women, War and Peace: The Independente Expert's Assessment of the Impact of Armed Conflict on Women and Women's Role in Peace-Building*. New York: UNIFEM.

[39] Richards, P. (1996). *Fighting for the Rainforest: War, Youth and Resources in Sierra Leone*. The International African Institute in association with James Currey Publishers.

[40] Rockmore, M. (2011). *The Cost of Fear: The Welfare Effects of the Risk of Violence in Northern Uganda*. HiCN Working Paper 109. Households in Conflict Network.

[41] Romero, M. (2003). *Paramilitares y Autodefensas*. Bogotá : Universidad Nacional.

[42] Sánchez, G., Meertens, D. (2001). *Bandits, Peasants, and Politics: The Case of "La Violencia" in Colombia*. Austin: University of Texas Press, Institute of Latin American Studies.

[43] Sousa, B. d., Villegas, M. G. (2004). *Emancipación Social y Violencia en Colombia*. Bogotá: Grupo Editorial Norma.

[44] Skaperdas, S. (2001). *The Political Economy of Organized Crime: Providing Protection When the State Does Not*. American Economic Review, Vol. 82, No. 4, pp. 720-739.

[45] Tilly, C. (1992). *Coercion, Capital and European States*. Cambridge MA.

[46] Vásquez, A. (2008). *La formalidad en los derechos de propiedad: ¿determinante de la estrategia militar de los actores armados?* Revista Desarrollo y Sociedad. No. 63, pp. 119-164. Universidad de los Andes.

[47] Veenstra, G. (2008). *Social capital and health* Canadian Journal of Policy Research. Vol. 2, No. 1 , pp. 72-81

[48] Verwimp, P. (2005). *An Economic Profile of Peasant Perpetrators of Genocide: Micro-Level Evidence from Rwanda*. Journal of Development Economics. Vol. 72, No. 2, pp. 297-323.

[49] Vlassenroot, R., Raeymaekers, T. (2004). *Conflict and Social Transformation in Eastern Congo*. Ghent, Academia Press.

[50] Voors, M., Nillesen, E., Verwimp, P., Lensink, R., Bulte, E. Soest, D. v. (2010). *Does Conflict Affect Preferences? Results from Field Experiments in Burundi*. Brighton: MICROCON Working Paper no. 21. MICROCON, EU Integrated Project on Micro-Level Analysis of Violent Conflicts,Institute of Development Studies.

[51] Weistein, J. (2007). *Inside Rebellion: The Politics of Insurgent Violence*. Cambridge: Cambridge University Press.

[52] Whiteley P. (2000). *Economic growth and social capital*. Political Studies 48: 443466.

[53] Wirpsa, L., Garzón, C. (2009). *The Power of the Bastón: Indegenpus Resistance and Peace Building in Colombia*. Washington, D.C. : Colombia: Building Peace in a Time of War, ed. Virginia Bouvier.

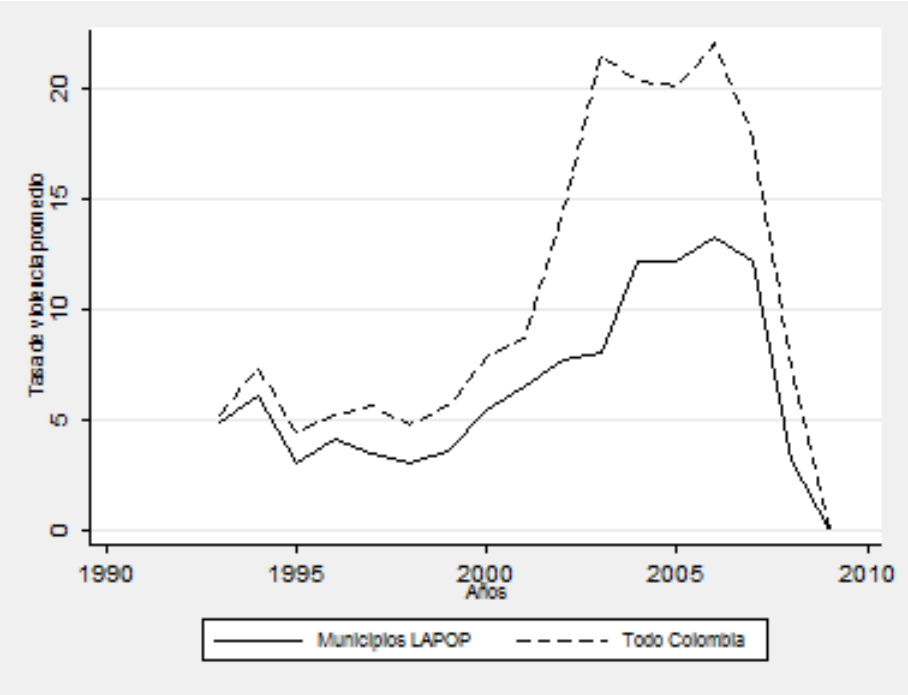
[54] Wood, E. (2003). *Insurgent Collective Action and Civil War*. Cambridge University Press.

[55] Woolcock M, Narayan D. (2000). *Social capital: implications for development theory, research, and policy*. World Bank Research Observer 15: 225249.

[56] Worl Bank (2000). *SWorld Development Report*. World Bank: Washington, DC.

Figures and Tables

Figure 1: Comparison of the rate of violence for municipalities LAPOP survey with the average for Colombia



Source: Author's calculations based on CEDE data of the los Andes University. There are 88 municipalities in LAPOP survey compared with to the total 1,120 municipalities in Colombia. The rate of violence is constructed by aggregating over different variables. For each armed actor I simply add the following variables: explosive terrorist acts, incendiary terrorist acts, other terrorist acts, assaults to private property, attacks on civil organizations, political assassination attempts, road blockades, armed contact between state and non-state armed forces initiated by the latter, ambushes of civilians, harassing (mainly threats to civilians), incursion into villages, overland piracy, illegal checkpoints, armed forces wounded by the non-state armed group, murders of civilians, murders of politicians, massacres, deaths of members of the state armed forces, kidnappings of members of the armed forces, kidnappings of politicians and kidnappings of civilians per 1,000 inhabitants.

Table 1: Descriptive statistics

Variable	No. of individuals	No. of municipalities	Mean	Std. Des.	Min	Max
Panel A: measure of social capital	N					
Participation in community organizations	12301	0,153	0,391	0	1	
Panel B: Individual characteristics						
% of women	12301	0,502	0,5	0	1	
% individuals living in rural areas	12301	0,241	0,428	0	1	
Average years of education	12301	9,24	4,53	0	18	
Age	12301	36,54	14,409	18	99	
Number of children	12301	1.925	2.070	0	15	
% of individuals of black race	12301	0,084	0,394	0	1	
% of individuals living in couple	12301	0,563	0,495	0	1	
Ideological trend						
Right	9972	0,432	0,466	0	1	
Center	9972	0,379	0,45	0	1	
Left	9972	0,182	0,346	0	1	
Panel C: conflict variables		N				
Violence rate (per 1,000 inhabitants)	504	0,200	0,430	0	4,731	
General violence rate						
All groups (per 1,000 inhabitants)	504	0,067	0,165	0	1,486	
FARC (per 1,000 inhabitants)	504	0,051	0,132	0	1.054	
AUC (per 1,000 inhabitants)	504	0,011	0,069	0	0,932	
ELN (per 1,000 inhabitants)	504	0,006	0,040	0	0,549	
Selective violence rate						
All groups (per 1,000 inhabitants)	504	0,132	0,318	0	3.702	
FARC (per 1,000 inhabitants)	504	0,007	0,061	0	0,941	
AUC (per 1,000 inhabitants)	504	0,025	0,142	0	2.057	
ELN (per 1,000 inhabitants)	504	0,003	0,027	0	0,569	
Presence of armed groups	504	0,55	0,49	0	1	
FARC presence	504	0,46	0,49	0	1	
AUC presence	504	0,21	0,41	0	1	
ELN presence	504	0,16	0,37	0	1	
La Violencia	504	0,13	0,33	0	1	
Panel D: Village variables						
Land Gini	504	0,72	0,12	0	0,97	
Distance to the largest city (km)		504	108,33	122,04	0	502
NBI	504	37,87	23,85	9,03	100	
School attendance*	504	31,37	3,93	19,45	42,36	
Ln_population	504	5,89	2,08	0,55	9,01	
Ln_income_royalties	504	5,47	2,68	-2,95	10,91	
Surface km^2	504	1.208,51	1.244,29	67	16.455	
Height	504	760,82	766,82	2	2.782	
Walter availability index	504	3342759	445788	2219746	4204819	
Soil suitability index	504	2,50	1,60	0	7,33	
Soil erosion index	504	1,59	0,97	0	4,75	
Expulsion rate of refugees (per 1,000 inhabitants)	504	10,42	30,95	0	55,11	
Reception rate of refugees (per 1,000 inhabitants)	504	8,52	25,4		473,53	

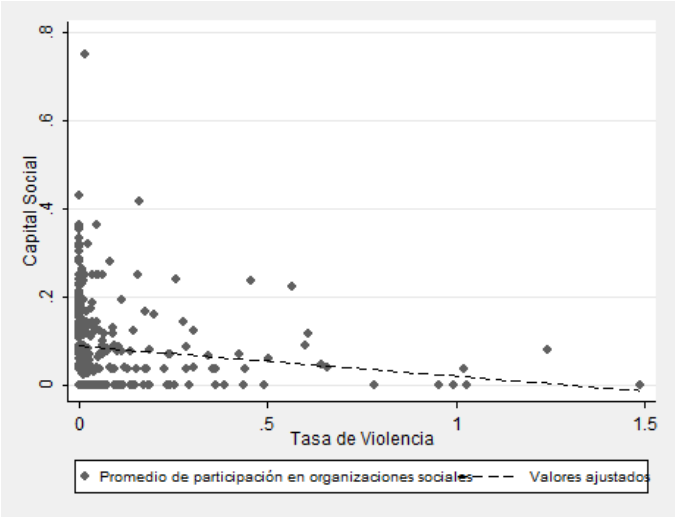
Note: (1) Participation in community organizations take the value of one if the person is envolved in a community organization. (2) The general violence rate is constructed from the sum of the terrorist attacks, attacks on private property, political attacks, armed contact, ambushes and roadblocks, perpetrated by armed groups. The rate of selective violence including massacres, killings and political killings by armed groups. While overall violence rate corresponds to the combination of general violence rate and the rate of selective violence. (4) The variable *La Violencia* takes the value of one if the municipality faced attacks in the period from 1948 to 1953.

Table 2: Correlation between the incidence of violence and municipality characteristics

Dependent variable: Violence rate	*MCO*
School attendance	-0.007***
	(-0.001)
ln(Population)	-0.013***
	(0.003)
Gini	0.390***
	(0.144)
Distance to the largest city	0.000**
	(0.000)
NBI	0.001***
	(0.000)
Presence of coca crops	0.146***
	(0.002)

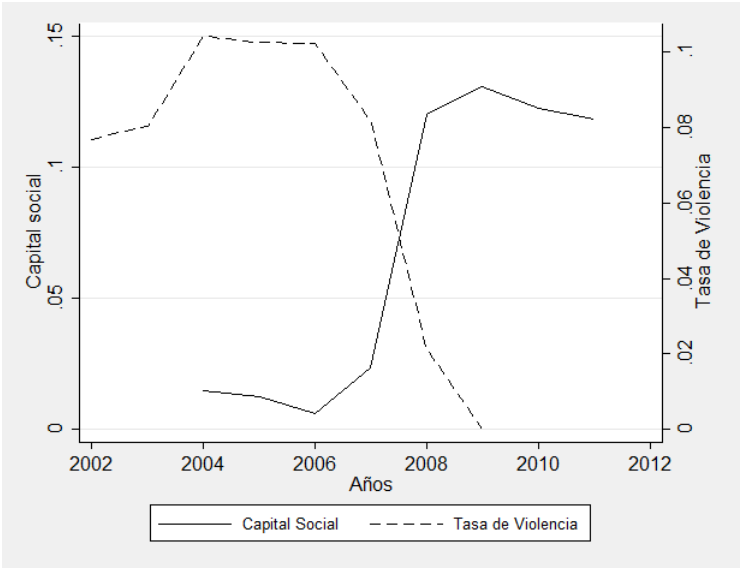
Note: Estimation based on OLS using CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Figure 2: Correlation between participation in community organizations and armed conflict



Source: Author's calculation based on LAPOP survey and CEDE data from los Andes University. The variable for social capital takes the value of one if the person participate in a community organizations, zero in otherwise. The rate of violence is constructed aggregating total attacks per 1,000 inhabitants.

Figure 3: Correlation between participation in community organizations and armed conflict – over time



Source: Author's calculation based on LAPOP survey and CEDE data from los Andes University. The variable for social capital takes the value of one if the person participate in a community organizations, zero in otherwise. The rate of violence is constructed aggregating total attacks per 1,000 inhabitants.

Table 4: Efect of violence on social capital

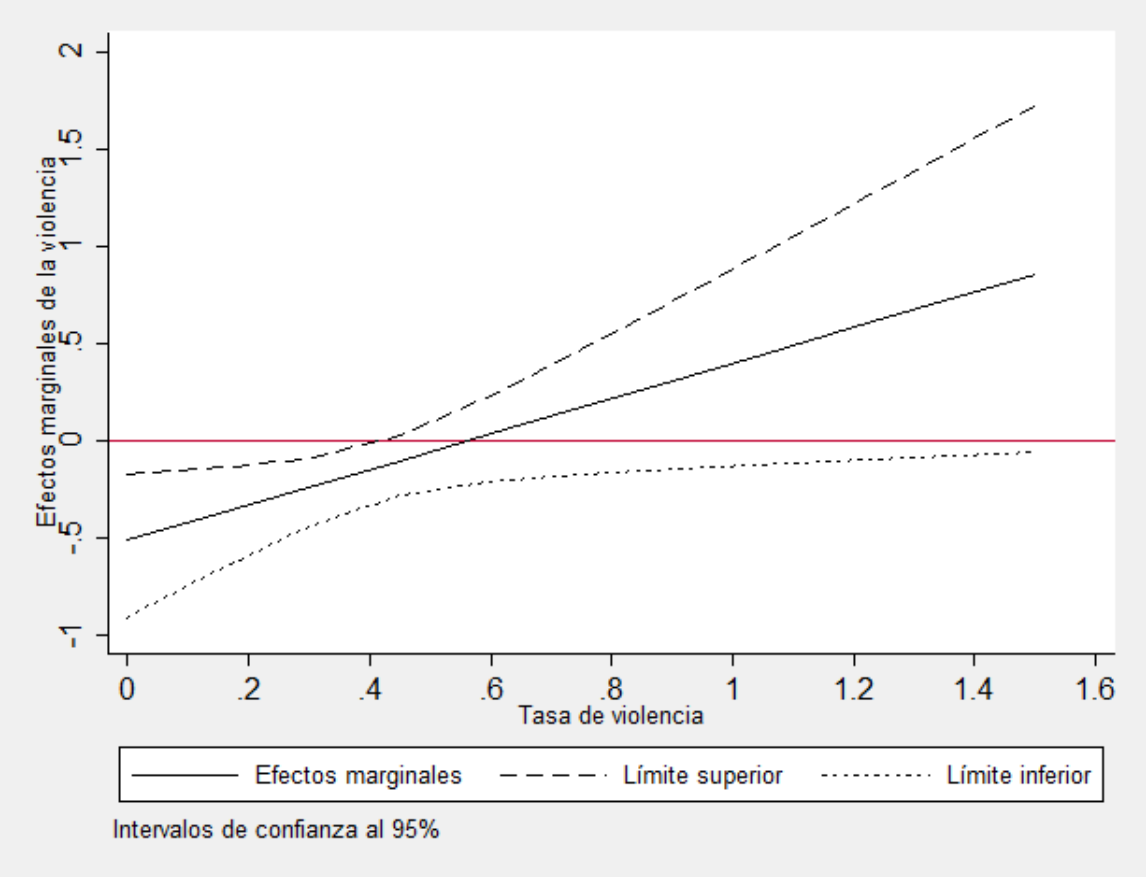
Dependent variable:		OLS			IV	
Social capital	(1)	(2)	(3)	(4)	(5)	(6)
Rate of violence	-0.112***	-0.081***	-0.054***	-0.456**	-0.367***	-0.315***
	(0.013)	(0.008)	(0.013)	(0.228)	(0.126)	(0.095)
Rate of violence^2	0.019***	0.017***	0.012***	0.192**	0.142**	0.124**
	(0.003)	(0.002)	(0.003)	(0.012)	(0.017)	(0.009)
Constant	-0.026	0.062***	-0.015	0.055***	0.039*	0.061
	(0.031)	(0.003)	(0.011)	(0.008)	(0.021)	(0.183)
Individual controls	No	Yes	Yes	No	Yes	Yes
Fixed effect of village and year	No	No	Yes	No	No	Yes
N	8,546	4,799	4,964	6,987	5,648	4,172
R-squared	0.007	0.028	0.031	-0.007	-0.033	0.059
Hansen J stat p-value	.	.	.	0.098	0.087	0.085
Cragg-Donald F	.	.	.	86.66	33.00	29.32

Note: Clustered standard errors at the village level.

Dependent variable		
Social capital	(1)	(2)
Rate of violence	-0.112***	-0.315***
	(0.013)	(0.095)
Rate of violence^2	0.019***	0.124**
	(0.003)	(0.009)
Constant	-0.026	0.061
	(0.031)	(0.183)
N	4,964	4.172
R-squared	0.031	0.059
Hansen J stat p-value	.	0,005
Cragg-Donald F	.	29,32

Note: Clustered at the village level.

Figure 4: Marginal effect of violence on social capital



Fuente: Author's calculation based on LAPOP survey and CEDE data from los Andes University. Confidence intervals of 95%.

Table 5: Effect of general violence on social capital

Dependent variable:		*MCO*			*VI -1*	
Social capital	(1)	(2)	(3)	(4)	(5)	(6)
General violence rate	-0.217***	-0.181***	-0.167***	-0.508***	-0.368***	-0.295***
	(0.021)	(0.034)	(0.036)	(0.168)	(0.122)	(0.079)
General violence rate ^{2}	0.148***	0.120***	0.045	0.321***	0.187**	0.120**
	(0.017)	(0.023)	(0.058)	(0.104)	(0.089)	(0.060)
Constant	0.060***	-0.014	0.093	0.060***	0.009	-0.024
	(0.003)	(0.012)	(0.097)	(0.008)	(0.026)	(0.039)
Individual controls	No	Yes	Yes	No	Yes	Yes
Fixed effects of village and year	No	No	Yes	No	No	Yes
N	8,546	4,799	291	6,987	5,648	3,941
R-squared	0.007	0.029	0.062	-0.024	-0.075	-0.086
Hansen J stat p-value	.	.	.	6,76e-10	0.000	0.006
Cragg-Donald F	.	.	.	55.36	28.62	11.35

Note: Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Table 6: Effect of selective violence on social capital

Dependent variable:		*MCO*			*VI -1*	
Social capital	(1)	(2)	(3)	(4)	(5)	(6)
Selective violence rate	-0.092***	-0.090***	-0.051**	-0.637***	-0.596***	-0.529**
	(0.011)	(0.015)	(0.021)	(0.098)	(0.113)	(0.208)
Selective violence rate^2	0.025***	0.030***	0.015***	0.222*	-0.077	0.144**
	(0.004)	(0.005)	(0.005)	(0.118)	(0.285)	(0.057)
Constant	0.059***	-0.027	-0.019*	0.081**	0.081***	-0.001
	(0.003)	(0.012)	(0.032)	(0.020)	(0.018)	(0.026)
Individual control	No	Yes	Yes	No	Yes	Yes
Fixed effects of village and year	No	No	Yes	No	No	Yes
N	8,546	4,799	4,964	6,987	5,648	4,637
R-squared	0.005	0.027	0.030	-0.288	-0.028	-0.127
Hansen J stat p-value				1.02E-07	0.009	0.000
Cragg-Donald F				22,34	29.69	27.40

Note: Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Table 7: Effect of violence on social capital - disaggregating by the two types of violence

Dependent variable:	*MCO*		
Social capital	(1)	(2)	(3)
General violence rate	-0.177***	-0.155***	-0.117***
	(0.020)	(0.032)	(0.037)
Selective violence rate	-0.056***	-0.038**	-0.088***
	(0.011)	(0.016)	(0.014)
General violence rate^2	0.124***	0.104***	0.137***
	(0.016)	(0.021)	(0.023)
Selective violence rate^2	0.018***	0.012***	0.025***
	(0.003)	(0.005)	(0.004)
Constant	0.063***	-0.012	-0.025
	(0.003)	(0.012)	(0.032)
Individual controls	No	Yes	Yes
Fixed effects of village and year	No	Yes	Yes
N	8,546	4,799	4,964
R-squared	0.008	0.029	0.032

Note: Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Table 8: Effect of general violence on social capital, disaggregating by armed groups

Variable dependiente: Capital social (9)	(1)	(2)	(3)	(4)	(5)	(6)	(6)	(7)	(8)
General violence rate FARC	-0.641*	-0.593**	-0.537**						
	(0.330)	(0.293)	(0.259)						
General violence rate FARC^2	0.547*	0.480*	0.412**						
	(0.311)	(0.190)	(0.207)						
General violence AUC				-0.789*	-0.664*	-0.597**			
				(0.440)	(0.368)	(0.294)			
General violence AUC^2				0.898*	0.786*	0.578*			
				(0.471)	(0.421)	(0.251)			
General violence ELN							-0.587	-0.534	-0.394*
							(0.366)	(0.333)	(0.262)
General violence ELN^2							0.452	0.409	0.315*
							(0.289)	(0.292)	(0.190)
Constant	0.056***	0.016	0.035*	0.052***	0.034	0.030	0.052***	0.024	0.020
	(0.003)	(0.013)	(0.021)	(0.002)	(0.025)	(0.027)	(0.002)	(0.016)	(0.024)
Individual controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Fixed effects of village and year	No	No	Yes	No	No	Yes	No	No	Yes
N	8,546	5,925	4,095	8,546	4,250	4,095	8,546	5,925	4,095
R-squared	0.004	0.002	0.021	0.001	-0.006	-0.013	-0.001	-0.006	-0.007
Hansen J stat p-value	0.010	0.018	0.013	0.094	0.041	0.067	0.097	0.102	0.127
Cragg-Donald F	39.65	41.22	30.43	14.54	69.51	42.39	11.34	43.57	41.99

Note: Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Table 9: Effect of selective violence on social capital, disaggregating by armed groups

Variable dependiente: Capital Social (9)	(1)	(2)	(3)	(4)	(5)	(6)	(6)	(7)	(8)
Selective violence FARC	-0.756*	-0.709*	-0.644**						
	(0.458)	(0.393)	(0.316)						
Selective violence^2	0.619	0.591	0.271**						
	(0.513)	(0.471)	(0.135)						
Selective violence AUC				-0.893*	-0.823*	-0.818**			
				(0.496)	(0.433)	(0.395)			
Selective violence AUC^2				0.525*	0.497**	0.395**			
				(0.291)	(0.276)	(0.190)			
Selective violence ELN							-0.636	-0.345	-0.259
							(0.584)	(0.287)	(0.179)
Selective violence ELN^2							0.569	0,289	0.269
							(0.381)	(0.198)	(0.179)
Constant	0.052***	0.016	0.032	0.051***	-0.342	0.035*	0.051***	0.015	0.017
	(0.002)	(0.013)	(0.021)	(0.002)	(0.283)	(0.021)	(0.002)	(0.013)	(0.044)
Individual controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Fixed effects of village and year	No	No	Yes	No	No	Yes	No	Yes	Yes
N	8,546	5,925	4,095	8,546	4,250	4,095	8,546	5,925	4,095
R-squared	-0.002	-0.060	-0.021	-0.001	-0.003	-0.024	-0.000	-0.043	-0.012
Hansen J stat p-value	0.010	0.030	0.090	0.080	0.015	0.011	0.011	0.012	0.018
Cragg-Donald F	21.34	25.53	30.71	35.41	34.13	12.03	10.54	9.90	4.21

Note: Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Table 10: Mechanisms that explain the negative effect of armed conflict on social capital

Dependent variable:	Fear of participation (1)	Fear of nominate (2)	Fear of voting (3)	Fear to protest (4)	Lost of Trust (5)
Violence rate	-0.957***	-0.593**	-0.600	-0.585	-0.557***
	(0.231)	(0.297)	(0.409)	(0.365)	(0.214)
Violence rate^2	0.118*	0.453	0.459	0.526*	0.477***
	(0.060)	(0.213)	(0.341)	(0.292)	(0.006)
Constant	0.590***	0.034*	0.035**	0.062***	0.064***
	(0.034)	(0.018)	(0.018)	(0.008)	(0.008)
Individual controls	Yes	Yes	Yes	Yes	Yes
Fixed effect of village and year	Yes	Yes	Yes	Yes	Yes
N	5,480	5,648	5,648	6,987	6,987
R-squared	-0.009	-0.025	-0.025	-0.036	-0.031
Hansen J stat p-value	0.031	0.051	0.023	0.050	0.081
Cragg-Donald F	28.58	10.82	10.68	16.57	14.25

Note: Clustered standard errors at the village level.

Table 11: Effect of conflict on cooperation

Variable dependiente: Cooperation	MCO
Violence rate	-0.197**
	(0.083)
Violence rate^2	-0.043*
	(0.022)
Constant	0.279***
	(0.010)
Observations	6,509
R-squared	0.001

Note: Note: Cooperation comes from the question: *Do you help to solve problems in your commmunity?*. Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Table 12: Effect of murder of community leaders on social capital

Dependent variable: Social capital	*MCO*
Murder of a community leader=1	-0.098***
	(0.024)
Constant	0.020***
	(0.004)
Individual controls	Yes
Fixed effects of village and year	Yes
N	8,546
R-squared	0.009

Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Table 13: Persistence of the general violence effects over the time

Variable dependiente:			
Social capital	*n=1*	*n=2*	*n=3*
General violence rate: Lag n	-0.407***	-0.295**	-0.166**
	(0.150)	(0.150)	(0.080)
General violence rate: Lag n^2	0.223**	0.320*	0.476
	(0.007)	(0.220)	(0.396)
Constant	-0.016	-0.013	-0.014
	(0.032)	(0.033)	(0.034)
Individual controls	Yes	Yes	Yes
Fixed effects of village and year	Yes	Yes	Yes
N	3,941	3,941	3,941
R-squared	0.003	-0.009	-0.014
Hansen J stat p-value	0.021	0.035	0.050
Cragg-Donald F	18.26	13.60	13.31

Note: Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Table 14: Persistence of the selective violence effects over the time

Dependent variable:								
Social capital	*n=1*	*n=2*	*n=3*	*n=4*	*n=5*	*n=6*	*n=7*	*n=8*
Selective violence rate: Lag n	-0.526***	-0.486***	-0,456**	-0.415**	-0.381**	-0.331*	-0.286*	-0.216*
	(0.102)	(0.033)	(0.207)	(0.207)	(0.176)	(0.169)	(0.146)	(0.110)
Selective violence rate: Lagn^2	0.115**	-0.486***	0.061*	0.054	0.049	0.040	0.024	0.043
	(0.057)	(0.033)	(0.038)	(0.036)	(0.032)	(0.031)	(0.017)	(0.029)
Constant	0.098	0.113	-0.166	0.177	0.181	0.395	0.070	0.016
	(0.116)	(0.160)	(0.339)	(0.166)	(0.185)	(0.530)	(0.126)	(0.013)
N	3,941	3,941	3,941	3,941	3,941	3,941	3,940	3,940
R-squared	-0.025.	-0.008	-0.006	-0.015	-0.032	-0.010	-0.016	0.015
Hansen J stat p-value	0.021	0.033	0.024	0.032	0.029	0.021	0.013	0.015
Cragg-Donald F	21.12	19.65	15.65	12.54	13.76	16.89	10.87	9.98

Note: Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Table 15: Heterogenity effects of the armed conflict, gender

Depedent variable:	VI
Social capital	(1)
Violence rate	-0.365***
	(0.121)
Violence rate^2	0.142**
	(0.071)
Woman	-0.021**
	(0.010)
Woman*Violence rate	-0.214**
	(0.107)
Woman*Violence rate^2	0.016*
	(0.009)
Constant	0.034**
	(0.017)
Individual controls	Yes
Fixed effects of village and year	Yes
N	5,648
R-squared	-0.022
Hansen J stat p-value	0.024
Cragg-Donald F	27.28

Note: The variable *Woman* takes the value of one if the person in woman. Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.

Table 16: Robustness test

Dependent variable:	
Social capital	(1)
Violence rate	-0.456***
	(0.164)
Violence rate ^{2}	0.312***
	(0.107)
Climatic shock	0.007***
	(0.001)
Constant	-0.073***
	(0.016)
Individual controls	Yes
Fixed effects of village and year	Yes
N	3,935
R-squared	0.019
Hansen J stat p-value	0.014
Cragg-Donald F	12.58

Note: Among the individual controls are: gender, age, years of education, income, main activity, ideological trend, race, if the person live in rural or urban area. The village controls include: distance to the largest city in the department, population density, school attendance, land gini, height (m.a.s.l). Estimations using the LAPOP survey for individuales older than 18 years, and the CEDE data from los Andes University. Robust standard errors in brackets *p<0.1, **p<0.05,***p<0.01.