

# Armed Conflict and Individual-Level Social Preferences: Evidence from Colombia

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## 1 Introduction

From the weakening of the economy, to the erosion of civil liberties and the destruction of physical and human capital, civil conflicts pose a great threat to the political, social and economic stability of countries. The combination of adverse effects on pivotal elements for long-term economic development explains why warfare is often described as “development in reverse” (Collier et al., 2003). Whilst the consequences of war on infrastructure, human capital, and economic resources have been well-documented (Abadie and Gardeazabal, 2003; Collier, 1999; Collier et al., 2003, 2008), more is beginning to be understood about its consequences on the fabrics of society. On the one hand, war-related violence may severely erode trust levels, thereby disrupting social cohesion and weakening individuals’ collective action capacity (Posen 1993). On the other hand, conflicts may result in greater cooperation, the strengthening of communities’ social ties and a better mobilisation of collective action, all of which emerge as a form of survival mechanism in the face of continuous violence and threats (Lyons et al., 1998; Pennebaker and Harber, 1993). Consequently, understanding these divergences in the effects of violence is key for the formulation of efficient post-conflict policies that elicit a strong recovery and that foster the emergence of new social dynamics that can change a nation’s socio-political structures.

Using data from the Colombian Longitudinal Study (ELCA), the first large-scale panel study in the country, this chapter examines the role of civil conflict exposure in shaping individual-level social preferences. In particular, we focus on outcomes that are paramount for the social and economic wellbeing of violence-afflicted communities, namely political polarisation and attitudes towards the use of violence, vigilante justice, and *mano dura* or “iron-fist” policies.<sup>1</sup> Notably, evidence indicates polarisation may impede the effective provision of public goods (Alesina et al., 1999; Easterly and Levin, 1997), whilst also hindering the post-conflict economic recovery of violence-afflicted communities (Rohner et al., 2013). Likewise, lower social cohesion may undermine individuals’ collective action capacity and may contribute to further conflict and underdevelopment traps (Collier et al., 2004; Walter 2004). Meanwhile, severe, punitive tactics, such as vigilantism and iron-fist policies imply an erosion of civil liberties and democratic institutions which may, in turn, perpetuate violence (Visconti, 2020). As such, understanding the impact of victimisation on the aforementioned outcomes remains key for understanding the socio-economic trajectories of afflicted communities.

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<sup>1</sup> Iron-fist policies are characterised by repressive, militarised crime control measures that undermine procedural rights whilst incentivising informal police abuse (Holland, 2013). Examples of these policies include unlawful detentions, extrajudicial killings, and arbitrary punishments.

To isolate the causal impact of civil conflict on individual-level social preferences, the paper relies on a difference-in-differences (DiD) estimation method that exploits variation in the geographical and temporal distribution of conflict-related violence during the period 2013-2016. Additionally, across all specifications, we include municipality- and individual-level controls and fixed effects to further control for confounding factors that may bias the estimates. The baseline findings indicate that municipality-level violence exposure is a significant determinant of individual-level social preferences and attitudes. In particular, respondents living in areas highly exposed to homicides, kidnappings, terrorist attacks, and forced displacement exhibit a significant fall in their favourable attitudes towards the use of violence, relative to lower exposure municipalities. Likewise, relative to low-exposure areas, municipalities with a high exposure to threats and forced displacement experience a significant fall in the likelihood of supporting iron-fist policies. Interestingly, however, a high exposure to threats is also associated with a significant increase in the likelihood of political polarisation. Thus, whilst exposure to the conflict reduces support for policies that perpetuate conflict and violence itself, it also increases individual-level political polarisation.

The estimation results have important political and economic implications. First, lower preferences for the use of violence signifies the possibility of a strong post-conflict recovery which may be further encouraged by effective conflict resolution policies. Furthermore, the potential for an effective and peaceful resolution to the conflict may be further strengthened insofar as victimisation lowers support for the implementation of authoritarian policies that erode civil liberties and perpetuate violence. Nonetheless, an increase in political polarisation may also result in the disruption of communities' social cohesion and collective action capacity, thus potentially exacerbating violence, whilst also hindering the economic development of violence-afflicted communities.

The chapter contributes to the existing literature in three ways. First, it expands our understanding of the social legacies of violence by focusing on a set of outcomes that remain largely unexplored in the civil conflict literature. In particular, rather than focusing on outcomes related to trust, cooperation or altruism, we focus on attitudes towards the use of violence, vigilantism and iron-first policies, as well as political polarisation. Indeed, understanding how victimisation impacts preferences for such outcomes is particularly relevant in the Colombian context, where violence continues to be pervasive, vigilante groups have morphed into key paramilitary actors, and where past governments have led justice policies linked to the erosion of human rights and civil liberties.<sup>2</sup> Likewise, whilst the impact of political polarisation on violence onset has been well documented, far less is known about the impact of civil conflict on the former.

Second, even though an increasing number of papers have sought to analyse the social consequences of civil conflict, most studies rely exclusively on post-conflict data, thus limiting our

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<sup>2</sup>During 2006-2009, the Colombian Army was involved in the so-called "False Positives" scandal for carrying out the extra-legal and unlawful killings of at least 6000 civilians. According to official reports, the killings were ultimately incentivised by the government's 'iron-fist' strategies which prioritised and rewarded body counts above other metrics of success.

understanding of victimisation effects under different settings. Thus, the chapter addresses this gap by analysing victimisation effects in a context of active conflict and following the announcement of the peace deal between the Colombian government and the Revolutionary Armed Forces of Colombia (FARC) – the country's oldest rebel group. Third, and lastly, whilst most studies rely on repeated cross-sectional surveys, the chapter follows recent developments in the related literature (see, e.g., De Luca and Verpoorten, 2015a, 2015b) and employs a DiD estimation strategy to get as close as possible to a causal interpretation of the relationship between victimisation and social outcomes.

The remainder of the chapter is structured as follows. Section 2 provides a historical overview of Colombia's civil conflict. Section 3 presents the theoretical framework and reviews the literature on the social legacies of civil conflict. Section 4 describes the data and introduces the empirical model used throughout the analysis. Section 5 provides a discussion of the estimation results for individual-level social preferences. Section 6 discusses a set of robustness tests to assess the validity of the results. Finally, section 7 presents some concluding remarks.

## **2. Overview of Colombia's Armed Conflict**

Since its independence in 1810, Colombia has experienced at least three distinct periods of violence which have shaped its various social, economic and political institutions. These include: the *1000 Days War* (1899-1902); the Conservative-Liberal conflict known as *La Violencia* (1948-1958); and, finally, the ongoing armed conflict between insurgent left-wing groups, including FARC and National Liberation Army (ELN), as well as right-wing paramilitary groups such as the United Self-Defence Forces of Colombia (AUC) (Trejos, 2013).

To understand the current conflict, however, it is necessary to first highlight the critical role of *La Violencia*. Whilst the violence in this period was rooted in continuous years of political grievances and acute social polarisation, the assassination of the Liberal leader, Jorge Eliecer Gaitán, in 1948 was the ultimate catalyst of the following 10-year civil war between Conservative and Liberal farmers who joined the conflict either as guerrilla combatants, bandits, or *grupos de autodefensa* – self-defence groups (Sierra, 2017). Although the conflict ended with the bipartisan coalition reached by both political parties in 1958, several left-wing insurgent groups remained active in various rural regions of the country (Sierra, 2017). The resulting series of confrontations between the state and the newly-organised rebellious groups led to the establishment of several left-wing guerrilla groups across the country – most notably, FARC in 1965 and the ELN in 1967 (Sierra, 2017).

Whilst both FARC and ELN remained relatively small until the 1970s, these groups expanded rapidly during the 1980s, particularly across Colombia's rural departments (Echandía, 2000). Throughout this period, both groups became notorious for relying on violent techniques, such as massacres and kidnappings to maintain territorial control and to finance their activity (Sierra, 2017). Furthermore, despite their initial opposition to the cultivation of coca leaf in the late 1970s, guerrilla groups soon

became involved in its production process. In particular, they went from imposing a ‘tax’ on both coca cultivation and cocaine-producing laboratories to forcefully regulating the activity of drug cartels and its members (Treichos, 2013). Consequently, by the early 2000s, groups such as FARC had achieved almost complete control over the production and commercialisation of coca paste.

The increasing use of violence by guerrilla movements also sparked the emergence of new *grupos de autodefensa* – ‘self-defence’ groups. Unfortunately, the subsequent expansion of these groups coincided with the rising importance of drug cartels, which were increasingly monitored, kidnapped and subjected to extortion by both FARC and ELN. Expectedly, the need to protect their rising wealth led drug cartels to join rural elites in forming their own self-defence groups. Following the 1997 Constitutional Court’s decision to ban the use of weapons by civilian groups, these transformed into right-wing paramilitary groups – most of which later coalesced into the AUC (Acemoglu et al., 2013).

The coexistence of left and right-wing armed group forces, in conjunction with a weakening of the Colombian state and the increasing role of drug trafficking in the war, led to the most violent phase of the conflict between 1996 and 2005 (Grupo de Memoria Histórica, 2013). On the one hand, groups such as FARC saw their greatest military and territorial expansion in the history of the conflict, expanding from 5,800 members in 1991 to a total of 28,000 combatants in 2002 across roughly 60% of all municipalities in the country (Grupo de Memoria Histórica, 2013). On the other hand, violence against local communities escalated sharply, with an increase in the levels of intimidation, aggression, murder and forced displacement of the civilian population. According to official estimates, more than 2 million individuals were forcefully displaced during this period of the conflict, whilst a person was kidnapped every 8 hours and a civilian or an army soldier fell in a landmine daily (Grupo de Memoria Histórica, 2013).

Such escalation of violence can be observed in Figure 1 which depicts the evolution of the country’s armed conflict since 1995. With the exception of terrorist attacks and threats - both of which peaked in 2012 and decreased thereafter- the number of homicides, kidnappings and forcefully displaced individuals rose significantly in 1996 before reaching their highest level in 2002. Importantly, whilst the peak of threats and terrorist attacks occurred nearly a decade after that of our other violence exposure measures, the evidence presented in section 5 suggests no differences in the effects of our conflict variables on individual-level social preferences.

The long-lasting nature of the conflict has translated into acute human costs. In particular, combined estimates by the Unique Register of Victims (RUVC) and the Historical Memory Group (GMH) suggest that during 1985-2013, roughly 200,000 people lost their lives, a further 52,000 were abducted or kidnapped, and approximately 4,700,000 individuals were forcefully displaced across the country (Centro Nacional de Memoria Histórica, 2013). At the same time, these human costs have been accompanied by large welfare losses. Ibáñez and Vélez (2008) find that displacement has costed rural households 37% of their lifetime aggregate consumption, whilst Rodríguez and Sánchez (2012)

show that violence has lowered education levels in high-conflict areas by roughly half a year. Likewise, Camacho and Rodríguez (2013) find that conflict-related violence has increased the likelihood of firm exit, thus worsening unemployment and poverty levels in afflicted municipalities.

We believe the unique nature of Colombia's armed conflict makes the country an ideal case study. Notably, with 57 years of active violence, it remains one of the longest ongoing conflicts in today's world and one of the key determinants of the social, economic and political reality of the country. Unfortunately, as mentioned earlier, the consequences of violence have mostly been reflected in severe welfare losses which pose an additional threat not only to the livelihood of millions of Colombians, but also to the stability and development of the country. Furthermore, the coexistence of various ideological rebel groups and their specific geostrategic considerations (e.g. coca production) have caused violence to be experienced in differentiated ways both across the country and over the years. In turn, such characteristic of the conflict ensures enough variation in the distribution of the conflict, and thus, allow us to capture the impact of violence on social preferences.

### **3. Literature Review**

For years, understanding the key determinants of individual-level preferences has been at the heart of social science disciplines. Whilst standard economic theory traditionally assumed preferences to be exogenously determined and fixed, increasing evidence from behavioural and experimental economics indicate preferences are malleable and often shaped by factors, such as cultural transmission (Akerlof and Kranton, 2000; Alesina et al., 2013), peer relationships (Kremer and Levy, 2008; Herbst and Mas, 2015), historical events (Nunn and Wantchekon, 2011), and media exposure (Jensen and Oster, 2009; La Ferrara et al., 2012). In line with these studies, a growing body of research suggests victimisation experiences may be key shapers of individual-level social preferences, such as trust, altruism, and political behaviour, amongst others (Cassar et al., 2013; Voors et al., 2012; Bellows and Miguel, 2006; Blattman, 2009).

As reported by Cardenas and Carpenter (2006), these individual-level preferences are associated with key developmental indicators, including market development, economic growth rates, public goods provision, and poverty. Consequently, analysing how violence exposure may alter individuals' intrinsic preferences remains pivotal for understanding the social, economic and political trajectories of violence-afflicted communities. Equally, examining the channels through which such impacts arise remains key for the design of post-conflict policies that guarantee an effective and enduring end to violence. In what follows, we start by discussing the key theoretical frameworks that explain how conflict-related violence may impact individual-level preferences and attitudes. Then, we proceed to review the existing empirical literature on the effects of violence exposure.

#### **3.1. Theories on victimisation and individual-level preferences**

Whilst the social legacies of violence continue to be a growing area of research in the field of economics, there exists a well-established literature both in evolutionary science and psychology that provides insights into how victimisation may alter individuals' intrinsic attitudes and preferences.

According to the evolutionary theory, intergroup competition may have favoured the emergence of adaptive altruistic and social preferences that promote the success of one's own group, relative to opposing out-groups (Boyd et al., 2003; Henrich, 2004; Choi and Bowles, 2007; Bowles, 2008; 2009). To explain this shift in preferences, two key theoretical variants have emerged in the evolutionary literature, namely a purely genetic version and a culture-gene strand.

According to the purely genetic variant, intense forms of intergroup competition – i.e. war – can cause a direct shift in prosocial preferences, such as trust, altruism and cooperation. However, given our species' innate drive to guarantee intergroup success, such pro-sociality is directed exclusively towards in-group members and at the expense of excluding those deemed as outsiders or antagonists (Choi and Bowles, 2007; Bowles, 2008, 2009).

Similarly, the culture-gene coevolutionary version posits between-group conflict shifts in-group social preferences, but it does so by first fostering the emergence of social norms and institutions that supports one's own group success relative to others (Henrich and Boyd, 2001; Henrich, 2004). To guarantee such intergroup dominance, evolutionary adaptation is believed to simultaneously create psychological responses that increase adherence to these norms and institutions in favour of socially delineated in-groups (Bauer et al., 2016). Thus, insofar as these social norms foster altruistic and cooperative behaviour and are internalised as individual motivations, intergroup competition could promote in-group prosocial preferences (*ibid.*). However, the parochial nature of such prosocial preferences could result in both a polarisation and exclusion process that are indicative of severe social withdrawal, rather than of socially vibrant and cohesive communities (Calvo et al., 2020).

Similar to evolutionary theory, research in psychology suggests exposure to violence may lead to changes in social preferences. However, rather than shifting preferences towards or against a particular group, such pro-sociality changes may occur in more general terms. For example, conflict-related trauma has been shown to result in post-traumatic stress disorder, thus making war victims prone to depression, anguish and isolation, whilst also leaving them with negative feelings about those around them (Ehlers and Clark, 2000; Galovski and Lyons, 2004). Consequently, such effects may result in weakened social ties and community cooperation, and thus, in political and social instability in war-torn communities. Similarly, the resulting feelings of fear, resentment and hatred often experienced by victims may lead to increased preferences for retribution and further violence against their perpetrators (Petersen, 2002; Bayer et al., 2007). By contrast, evidence from case studies shows conflict experiences may also result in “post-traumatic growth” (Tedeschi and Calhoun, 1996, 2004; Powell et al., 2003). In particular, conflict victims may exhibit greater spirituality and appreciation of life, as well as undergo positive changes in their political views and their valuing of social ties.

Overall, existing theories from the fields of evolutionary science and psychology suggest violence exposure results in various behavioural changes which, in turn, elicit key shifts in individuals' social

preferences. However, whilst the former is predominantly rooted in inter-group conflict, and thus, in inter-group social attitudes, theories from psychology account for a broader exposure of violence that may lead to more general changes in individual-level social preferences. Given the particular context of Colombia, where the conflict is rooted in ideological differences, rather than racial or ethnic divisions, it is less clear whether social changes would be parochially motivated. Instead, we expect changes in individual-level preferences to occur in broader terms as suggested by the post-traumatic growth theory or as evidenced by post-traumatic stress disorder.

### **3.2. The Effect Victimisation on Political Attitudes and Preferences**

Some of the earliest victimisation analyses can be traced back to Bellows and Miguel (2006; 2009). Using post-conflict data, the authors examine the legacies of Sierra Leone's civil war on political participation and social capital 3 to 5 years after the war. Their results indicate individuals whose households faced violence directly are more likely to be active members of social and political groups, as well as more likely to have voted in post-war elections. Likewise, violence-afflicted areas display higher voter registration levels, higher community-meetings attendance, and greater community-group memberships per-household than other chiefdoms. This is supported by Cassar et al. (2013) who find that exposure to the Tajikistan civil war increased both community-group participation and community-meetings attendance almost a decade after the cessation of violence.

Using data from the Ugandan conflict, Blattman (2009) shows that violence exposure is positively and significantly associated with post-war political participation, particularly voting and community leadership. In line with these findings, Gáfaro et al. (2014) shows community-level exposure to Colombia's conflict significantly increases individual-level local collective action, particularly leadership roles in community organisations and attendance at political meetings. However, rather than reflecting greater social and civic engagement, the increase in participation appears to stem from armed groups' forceful control over communities and their local institutions.

Focusing on crime, rather than conflict-related experiences, Bateson (2012) uses micro-level data to examine the effect of past victimisation on individuals' political participation and policy preferences. The results indicate that, relative to their peers, crime victims exhibit greater political engagement and participation, defined by expressed political interest, participation in protests, and attendance to political, town and community-group meetings. Moreover, and of greater relevance to the present paper, the evidence also indicates that crime victims exhibit a greater support for vigilante groups, authoritarian policies, and repressive policing strategies, relative to non-victims.

Using data from Brazil, Visconti (2020) analyse the effect of crime exposure on individuals' preferences for strong-arm policies, such as illegal detentions, state repression and arbitrary punishments. The results suggest that, relative to non-victims, individuals exposed to crime are more likely to support iron-fist policies which weaken civil rights and the rule of law. Moreover, echoing the results by Bateson (2012), crime exposure appears to make respondents less likely to view

democracy as the best form of government, whilst more willing to accept repressive and authoritarian practices. According to Visconti (2020), such negative impact of victimisation on the perceived legitimacy of the political and judiciary system may, in turn, explain victims' increased support for strong-arm policies.

The impact of victimisation on support for severe, punitive justice policies appears to be robust across different settings and measures of violence exposure. Using data from Guatemala, Krause (2014) finds that both victims of violent crimes and individuals who live in areas with a high gang presence exhibit greater support for extra-legal forms of policing, relative to their peers. Likewise, in Mexico, García-Ponce et al (2019) find that exposure to violence, particularly from drug-gangs, increases individuals' support for vigilante justice and harsh punitive policing tactics, both of which erode the rule of law and weaken democratic institutions. Moreover, the increased support for severe punishments appears to increase with both the severity of the violent act, as well as with the innocence of the victim.

Overall, a growing body of evidence indicates violence exposure is a key determinant of individual-level social preferences. On the one hand, victimisation experiences appear to promote attitudes that could imply a strong post-conflict recovery, including greater political participation and social engagement. On the other hand, exposure to violent events may also result in social attitudes that erode the rule of law and perpetuate conflict, including a greater support for vigilante justice and iron-fist policies.

Whilst these studies are indicative of the social legacies of violence, important gaps remain in the literature. First, analyses on attitudes towards vigilante groups and iron-fist policies focus predominantly on one dimension of violence, particularly crime. Consequently, this study contributes to the literature by examining whether conflict-related violence induces similar effects on individual-level policy preferences. Notably, even though conflict- and crime-related violence may share certain similarities (e.g. the use of force against an individual), experiences of crime tend to be one-off occurrences. By contrast, armed conflicts are often characterised by their long duration and the frequency of violence which imply a cumulative exposure to violent events through time. Therefore, such differences in the intensity and frequency of exposure may imply victimisation effects that differ from those found by the crime-related literature. Finally, whilst studies have analysed the impact of violence on both policy preferences and political participation, less is known about its impact on political polarisation, which is one of the outcome variables explored in this paper.

**3.3. The Effect of Victimisation on Attitudes towards Violence and other Social Outcomes**  
Whilst early analyses on violence exposure focused predominantly on political preferences, more recent studies have shifted their focus to individual-level preferences for conciliation and violence use. Focusing on the Colombian conflict, Tellez (2019) examines the impact of violence on individuals' attitudes towards peace and reconciliation. Notably, the findings suggest that individuals who live in highly violent areas in Colombia are more likely to support a peaceful resolution to the

conflict and more inclined to grant concessions to combatants, relative to respondents in low-conflict areas. This is supported by Meernik (2019) who shows that individuals from highly afflicted communities in Colombia are more likely to seek peace and hold pro-reconciliatory beliefs, relative to their peers.

Similar evidence is also found outside the Colombian context. Using data from the conflict in Darfur, Hazlett (2020) shows that respondents who experienced violence directly are more likely to support peace, whilst also less likely to support the use of violence against their enemies. Similarly, in the North Caucasus region of Russia, Bakke et al. (2009) find individuals who live in close proximity to violent areas are more likely to hold pro-reconciliatory attitudes, relative to respondents living in more peaceful zones.

Turning away from the impact of violence on preferences for peace, Gutierrez and Gallego (2016) examine the impact of Peru's conflict on spousal violence. Their findings suggest that early exposure to violent events significantly increases the likelihood of physical violence between spousal partners, with the effect intensifying amongst individuals exposed to the highest levels of conflict intensity. Interestingly, the results appear to be driven by a normalisation of violence, with individuals exposed to a higher conflict intensity being more likely to justify the use of violence against women.

Exploiting the uneven geographic distribution of violence in Colombia, Noe and Rieckmann (2013) find exposure to high district-level incidence of combat to increase the probability of women reporting physical violence by their partners. Similar to Gutierrez and Gallego (2016), the authors suggest the effects may be driven by key behavioural changes which result in a greater acceptance of violence amongst those exposed to the conflict. Consequently, the paper contributes to this line of research by examining the impact of conflict-related violence on preferences towards the use of violence in general, rather than towards spouses exclusively.

Other key studies have found an impact of conflict-related violence exposure on trust (Cassar et al., 2013), altruism, risk preferences and impatience (Voors et al., 2012), in-group egalitarianism (Cecchi et al., 2016; Bauer et al., 2014), public-good contributions (Gilligan et al., 2014; Hopfensitz and Miquel-Florensa, 2014), family comfort and lack of conflict (Annan et al., 2013), and trustworthiness and cooperation (Bauer et al., 2018; Gneezy et al., 2012; Becchetti et al., 2014).

### **3.4. Estimating the causal effect of violence on social attitudes and preferences**

Whilst the growing literature on the social legacies of violence indicates the existence of key victimisation effects, these analyses face various econometric issues that pose significant challenges for the identification of causal effects. First, omitted variables may drive the observed relationship between violence exposure and social outcomes. For example, if individuals who display greater levels of cooperation and leadership are more likely to participate in collective action, whilst simultaneously more likely to experience violence, then failing to account for such traits would bias

the victimisation estimates upwards. Second, reverse causality may also bias conflict analyses. As noted by Calvo et al. (2020), rebel forces could systematically target areas that exhibit greater levels of social capital and collective action to amplify both the reach of their attacks and their disruption of socially cohesive communities. Alternatively, they could attack less unified areas as means to ignite resentment and divisions that could, in turn, strengthen their dominance over such communities. Third, and lastly, selection bias could also limit one's ability to identify causal victimisation effects if the war systematically changes the composition of sampled communities, for example, by inducing the less socially motivated individuals to migrate and not return.

To bypass such endogeneity issues, recent papers have implemented various econometric techniques which seek to tackle the causality nexus directly. This includes Instrumental Variables (IVs), Difference-in-Difference (DiD), as well as matching techniques.

Using an IV estimation strategy, Voors et al. (2012) examine the effect of civil conflict on altruism, and risk and time preferences four years after Burundi's conflict. To circumvent potential sources of endogeneity, they use two geographical variables as instruments for conflict-exposure. In particular, given the conflict was most intense near the country's capital, they use distance to Bujumbura and geographical remoteness - as proxied by altitude. Their IV-2SLS results indicate conflict-exposure leads to greater prosocial behaviour, as well as greater time and risk preferences.

Gilligan et al. (2014) analyse the effect of district-level violence on social cohesion 3 years after the cessation of the Nepalese civil war. To identify the causal effects of conflict-related violence, their paper matches areas with above-median fatality levels to those with no intense violence and controls for various potential confounders, e.g. ethnic and caste composition, employment, population size, and socioeconomic development, amongst others. Their results indicate that community-level victimisation increases public-good contributions and trust-based transactions by 16 and 7 percentage points, respectively. Moreover, whilst no effect of conflict exposure was found on risk preferences, violence-afflicted communities appear to exhibit greater voter turnout rates and community-group activity than matched non-violence areas.

De Juan and Pierskalla (2016) use an IV approach to assess the effects of civil war on trust in Nepal. Unlike most other studies that analyse victimisation effects years after the cessation of war, their paper employs data collected immediately after a ceasefire and focuses on a specific dimension of trust, namely trust in the national government. To capture exogenous variation in violence exposure, they use the minimum distance from the respondents' district to the closest districts in which Nepal's civil war initially started. In particular, distance acts as a proxy for the length of time local areas were exposed to violence, thus predicting the total number of killings in the region. Moreover, they also use the respondents' district's level of elevation as areas at lower levels were more accessible to troops, and thus, more likely to experience a higher casualty count. Their findings suggest civil war related violence leads to a negative and significant decrease in political trust. These results differ

from the positive inter-personal trust effects found by Gilligan et al. (2014) 3 years after the cessation of war in Nepal, and thus, highlight the conditionality of victimisation effects on both the time frame and social behaviour dimension being analysed.

Rohner et al. (2014) examine the effect of civil conflict on interpersonal trust and ethnic identity 3 years after the 2002-2005 outburst of violence in Uganda. To account for potential endogeneity, they rely on an IV estimation strategy that exploits a key political shock. Namely, the United States' declaration of the LRA as a terrorist organisation and the subsequent withdrawal of the Sudanese government's support for the armed group. Whilst having no direct impact on trust levels, these events led to a military crackdown on the LRA which intensified violence, particularly in areas near Sudanese territory. Their IV-2SLS results indicate district-level victimisation induces a significant fall in trust towards other Ugandans, whilst increasing ethnic identity. Interestingly, both trust in known people and relatives are unaffected, thus providing support for the evolutionary theory's hypothesis that violence undermines social attitudes towards out-group members.

Calvo et al. (2020) examine the effect of Mali's armed conflict on social capital, particularly membership of community associations. To isolate the causal impact of local-level violence on social capital, they employ both a DiD model and an IV estimation strategy. Given variations in the weather have often led to increased violence, mainly in areas with pre-existing tensions, they use an interaction between precipitation and local historical tensions to instrument their victimisation measure. Their results indicate local-level exposure to violent events significantly increases participation in kinship-based associations and this effect is stronger in polarised communities. Thus, rather than reflecting increased social participation, the war appears to have resulted in the exacerbation of community boundaries which threaten to worsen social and ethnic divisions further. This is confirmed by their analysis on trust, which suggests individuals in violence-afflicted areas exhibit greater distrust towards those with different political opinions and those with a different nationality.

Focusing on local collective action, De Luca and Verpoorten (2015a) estimate the effect of conflict-related violence on civic and political participation in Uganda. Their estimation strategy relies on a DiD model in which the treatment variable measures the number of district-level conflict event days. As such, their analysis estimates individual-level differences in political participation across areas with different levels of violence exposure through time. Their analysis suggests that, relative to low-violence intensity areas, high-violence-afflicted districts exhibited greater political discussions during the conflict and this effect remained in the post-violence period, including 2 and 6 years after the war. Likewise, violence exposure led to greater community group attendance, but the effect emerged only after the war ended. Moreover, whilst no differential effect of violence was found on voter turnout during the period of conflict, their results suggest violence-afflicted areas experienced a significant decline in participation in post-conflict elections, relative to other areas.

To further uncover the social effects of war in Uganda, De Luca and Verpoorten (2015b) estimate the effect of violence on trust and associational membership. Similar to their previous analysis, they employ a DiD estimation method and analyse the logged number of violent events at the district-level. Their results indicate victimisation lowered both inter-personal trust and associational membership in high-intensity violence areas when the conflict was still ongoing. In particular, doubling the number of LRA battle events caused a 0.03 and 0.08 decrease in interpersonal trust and community group participation, respectively. Moreover, 5 years after the cessation of war, individuals in high-violence-afflicted districts exhibited no differential trends in generalised trust, whilst their participation in civil organisations was higher than in low-violence districts.

Overall, the empirical evidence highlights key causal effects of violence on social preferences and attitudes. Notably, individuals exposed to violence exhibit greater socio-political behaviour, than their less affected counterparts. This includes greater participation in civic organisations, higher community-group meetings attendance, and greater political participation, amongst others. Importantly, however, some of these studies also reveal the parochial nature of these social motivations. Thus, rather than reflecting social cohesion and vibrancy, such effects may mask important divisions which may threaten the social stability of violence-afflicted communities.

To contribute to this line of research, we examine the impact of Colombia's ongoing conflict on individual-level social preferences. However, unlike most of the previously discussed analyses which rely on an IV strategy, our empirical approach is largely motivated by the DiD analyses of De Luca and Verpoorten (2015a, 2015b) on Uganda. Indeed, such an estimation technique would allow us to exploit a key characteristic of the Colombian conflict, namely its uneven geographic distribution of violence. As explained by Salas-Salazar (2016), specific geostrategic considerations, such as coca production have shaped the interplay between the various rebel groups and the Colombian army and, in turn, caused violence to be distributed in a differentiated way. Thus, while the conflict has had detrimental consequences at the national-level, particular departments, such as Antioquia, Meta, Caquetá, and Norte de Santander continue to face disproportionate levels of conflict-related violence, relative to the rest of the country. Consequently, our estimation strategy exploits such variation and compares the change in individual-level social preferences between high-violence municipalities (treatment group) and low-violence municipalities (control group).

Additionally, as explained in the Methodology section, a DiD strategy would allow us to mitigate the risk of potential unobserved heterogeneity between the treatment and control groups which could, in turn, bias our estimates. However, given the lack of pre-conflict data on individual-level social preferences, we are unable to completely rule out violations of the common trend assumption which DiD estimates rest upon. Instead, we carry out various robustness checks (e.g. sample restrictions) and endogeneity tests to mitigate concerns that our estimates are driven by unobserved factors related to the characteristics of our treatment and control groups, as well as by characteristics of the

municipalities in the sample. A more detailed discussion of our empirical strategy and its limitations is presented in the following section.

## 4. Data and Methodology

### 4.1. Data

This chapter employs two sources of data to examine the plausibly causal impact of civil conflict on social preferences and attitudes. Individual-level data were obtained from the first large-scale panel study in the country, the Colombian Longitudinal Survey (ELCA) of the University of Los Andes. During 2010, 2013, and 2016, ELCA followed about 10,800 households across both urban and rural areas of the country, with the purpose of identifying socioeconomic changes faced by individuals and households over the years. The survey employs a probabilistic, stratified, multi-stage, clustered sampling framework, with municipalities as the primary sampling units<sup>3</sup>. The rural sample is representative of small agricultural producers from 4 microregions, including the Middle-Atlantic, Central-East, Cundi-Boyacense, and the coffee-growing regions and cover 8 out of the 32 departments in the country. Meanwhile, the urban sample is representative at the national level of social strata 1-4 in 5 geographical regions<sup>4</sup>, including Bogotá, the Atlantic, Oriental, Central, and Pacific regions and cover a total of 20 departments<sup>5</sup>. Moreover, although the highest strata (5-6) are excluded from ELCA, the data remains representative of the population as the majority of it continues to be distributed across the lower-middle strata, particularly levels 1-3. Notably, whilst strata 1-3 accounted for roughly 89% of the population in 2010, recent estimations by the National Department of Statistics (DANE) indicate 80% of Colombians continued to be distributed across the lower 3 strata nearly 10 years later (DANE, 2019).

For the baseline wave, households were interviewed during the first semester of 2010. The same households were then re-interviewed in 2013 and 2016. Across the 3 waves, ELCA compiles detailed information of a core group of individuals, including the head of the household, their spouse and children who were under the age of 10 when the baseline survey took place. Information on the sociodemographic characteristics of other household members is also collected. Additionally, the core group of respondents are tracked in the follow-up surveys if the original household splits or migrates to a municipality located no more than 90 minutes away from any other municipality sampled by ELCA (Tibavisco and Castaño, 2017). Such tracking of migratory movements has increased the geographical scope of ELCA. In particular, whilst the 2010 baseline wave covered 80

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<sup>3</sup> Colombia is politically and administratively divided into 33 divisions, including 32 departments and the capital district, Bogotá. The departments, which are highest administrative-level units, are principally composed by municipalities of which there are currently 1123. Other special divisions include provinces and indigenous territories.

<sup>4</sup> Colombia's stratification system classifies residential areas into 6 distinct strata (*estratos*), with level 1 capturing the lowest income areas and 6 the richest zones. The system is applied according to housing characteristics and it is used to subsidise the public utilities and services of households in the poorest strata (1, 2, and 3) through the contributions of households in the richest strata (5, and 6).

<sup>5</sup> The combined urban and rural samples cover 23 out of the 32 departments in Colombia. These include La Guajira, Magdalena, Cesar, Casanare, Arauca, Bolívar, Atlántico, Huila, Córdoba, Sucre, Santander, Norte de Santander, Meta, Cundinamarca, Boyacá, Antioquia, Caldas, Quindío, Risaralda, Valle del Cauca, Cauca, Nariño, and Tolima

municipalities, the 2016 survey covered 235 municipalities to follow the same respondents from the baseline wave<sup>6</sup>.

Amongst its key variables, ELCA contains detailed socio-economic information for individuals, such as employment, education, income and consumption, and land ownership. The survey also compiles detailed information at the household-level, including experiences of adverse shocks and access to financial services and social benefits programs. Moreover, the 2013 and 2016 follow-up surveys contain a politics module designed to capture various key socio-political outcomes, including political ideology, electoral behaviour, social capital and cultural values and norms. The politics module was administered to a single member of the household, namely the head of the household or their spouse, with random assignment whenever both members were available. Consequently, the analysis is restricted to heads of households and spouses who completed the politics module in the 2013 and 2016 waves. The sample was further restricted to individuals who did not migrate in between waves, reason for this is explained in the methodology section below. This results in an unbalanced panel of 15188 observations distributed across 186 municipalities and consisting of 7938 and 7250 respondents in the 2013 and 2016 waves, respectively.

To understand the effect of violence on social attitudes and preferences, this chapter relies on four particular questions from the politics module which capture key outcomes, including political polarisation and attitudes towards the use of violence, vigilante justice, and iron-fist policies. These questions are worded as follows:

1. Would you say you...? (**Political Polarisation**)
  - a. Always vote for the same political party
  - b. Vote for the same political party in most elections
  - c. Vote for different political parties in different elections
  - d. Always vote blank
2. Now I am going to read you some statements and ask you to tell me if you *totally agree*, *agree*, *disagree*, or *totally disagree*:
  - a. In order to capture criminals, it is advisable that authorities break the law sometimes. (**Iron-fist Policies**).
  - b. When the state does not punish criminals, it is acceptable for people to do justice on their own. (**Vigilante Justice**).
  - c. Sometimes the use of violence is justified. (**Use of Violence**).

The outcomes of interest were all coded as binary variables. The variable on political polarisation is equal to 1 if the individual reports always voting for the same political party and takes value 0 if the respondent reports voting for the same party in *most* elections or voting for different parties in different elections. Moreover, the variable iron-fist policies takes value 1 for individuals who *totally*

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<sup>6</sup> The overall attrition rate was 6.0% and 4.8% for the 2010-2013 and 2013-2016 periods, respectively.

agree or agree with the statement that state authorities should be allowed to break the law in order to capture criminals and is equal to 0 for individuals who disagree or totally disagree with the same statement. Likewise, vigilante justice is a dummy that takes the value of 1 if a respondent totally agrees or agrees that citizens should make justice on their own whenever the state fails to punish criminals and takes the value of 0 if an individual disagrees or totally disagrees with such statement. Lastly, the use of violence is a binary variable that is equal to 1 if an individual totally agrees or agrees that the use of violence is sometimes justified and takes the value 0 if the respondent indicates they disagree or totally disagree with the use of violence.

Table 1a provides summary statistics of the dependent variables across the waves that these are available in. 20% of individuals agree with the use of violence in the 2013 round, whilst roughly 23% agree with the same statement in the 2016 wave. Moreover, approximately 29% and 32% of respondents show support for vigilante justice in the 2013 and 2016 waves, respectively. Similarly, in 2013, 34% of the sample holds favourable attitudes towards iron-fist policies, whilst 33% agree with such repressive policies in 2016. Finally, roughly 31% of respondents report always voting for the same political party in the 2013 wave, whilst only 26% of the 2016 sample reports such polarised voting patterns.

Table 1b provides summary statistics for the set of household and individual-level controls included throughout the analysis. Roughly 41% and 39% of respondents are male in the 2013 and 2016 waves, respectively. Moreover, across both waves, roughly 69% of individuals are employed, approximately 9% report being single, and 4% have higher education. Furthermore, the average age is 46 in the 2013 wave and 49 in the 2016 round. Likewise, there is a high level of religiosity<sup>7</sup> in the sample, with nearly 97% and 96% of households reporting being religious in the 2013 and 2016 waves, respectively. Meanwhile, across both waves, roughly 53% of individuals live in urban areas, whilst the average household size across is 4.

The individual-level data from ELCA were complemented with municipality-level data obtained from the Centre for Economic Development Studies (CEDE). By consolidating information from various Colombian organisations and governmental entities, CEDE has compiled a unique panel dataset which contains an extensive array of municipality-level measures, including fiscal, demographic and civil conflict variables for the period 1993-2019. Given this chapter relies on the last two available waves of ELCA, the analysis employs municipality-level variables measured across the period 2013-2016. In terms of municipality-level characteristics, the analysis controls for population size, municipality-level GDP, the total number educational institutions, and indices of electric and sewage coverage. Panel A of Table 1c shows the summary statistics for the full set of municipality-level characteristics used throughout the analysis.

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<sup>7</sup> The measure on religion is captured by a binary variable which is equal to 1 for households who acknowledge to profess a particular religion – e.g. Catholicism, Protestantism, Mormonism, etc. – and 0 otherwise.

In terms of our key explanatory variables, we employ 5 measures of exposure to conflict-related violence, including the total number of homicides, total number of kidnappings, total number of terrorist attacks and threats, and the total number of forcefully displaced individuals in each municipality. The summary statistics of these variables are reported in Panel B of Table 1c. Across the period 2013-2016, the average municipality-level occurrence of homicides and kidnappings were 50 and 1.60, respectively. Moreover, an average of 2315 individuals were forcefully displaced from the municipalities sampled in the ELCA. Lastly, on average, these areas experienced 697 threats and 36 terrorist attacks during 2013-2016.

To understand how our conflict-exposure variables are distributed in the sample, Figure 2 depicts the histogram of each violent event used in the analysis. Rather than being normally distributed, our key independent variables appear to be skewed right, with a high occurrence of zeros. Moreover, with the exception of kidnappings, all our violence measures exhibit important outliers; that is, municipalities which experience extreme levels of conflict-related violence, relative to the rest of the sample. To account for the distribution of the data depicted in Figure 2, we categorise each continuous violence measure into quintiles and define the treatment groups as individuals living in municipalities in the top quintile of each violence measure<sup>8</sup>.

Finally, to provide a visual representation of how the conflict is geographically distributed across our sample, Figures 3-7 map the municipalities included in the study and their exposure to each violent event considered throughout the analysis.<sup>9</sup> In terms of geographic coverage, the sample covers 186 municipalities located across the Caribbean, the Andean, the Pacific and the Orinoco regions. Moreover, and in line with reports by the National Centre for Historical Memory (CNMH), the incidence of violence appears to be densely distributed across municipalities in the northern, western, and central departments of the country, such as Antioquia, Huila, Nariño, and Valle del Cauca. Interestingly, although the levels of exposure tend to change with respect to the violence measure under consideration, the highest levels of conflict-exposure are usually observed across the same regions. Moreover, from these affected departments, 21 municipalities fall in the top quintile of all conflict-exposure measures we consider.<sup>10</sup> This relationship is further supported by the strong, positive correlation between our violence exposure measures shown in Table 2.

## 4.2. Methodology

To explore the effect of Colombia's ongoing conflict on social preferences and attitudes, this chapter relies on a DiD model that exploits variation in the intensity of violence across municipalities over time. Given the key outcomes of interest are available only in the last two waves of ELCA, the

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<sup>8</sup> We also experimented with the top decile of each exposure measure and obtained robust effects on preferences for the use of violence and political polarisation. However, unlike the main estimates we obtained in section 5, we found a positive differential effect both terrorist attacks and homicides on preferences for vigilantism, as well as a positive differential effect of threats on preferences for iron-fist policies.

<sup>9</sup> Municipalities the top quintile of each violence measure are highlighted in dark red.

<sup>10</sup> These municipalities include Apartadó, Bogotá, Cajibao, Cali, Chaparral, Cúcuta, Ibagué, Ipiales, Jamundi, Medellín, Montelíbano, Neiva, Ocana, Palmira, Pasto, Popayán, Riohacha, Turbo, Valledupar, Villavicencio, and Vistahermosa.

treatment variable captures variation in the occurrence of violent events at the municipality-level from 2013 to 2016. In particular, the treatment group is composed of individuals living in municipalities where high intensity violence took place, defined by areas in the top quintile of each respective violence measure. Meanwhile, the control group includes respondents in areas of low conflict exposure in the same time period, i.e. municipalities in the bottom 4 quintiles. As such, the DiD model compares the change in social preferences and attitudes during 2013-2016 across municipalities with low violence exposure and areas with high violence exposure. Given the DiD estimation strategy compares the differences in social preferences between individuals living in high and low-intensity municipalities during 2013-2016, the sample was ultimately restricted to respondents who did not migrate in between these waves.

Following De Luca and Verpoorten (2015a), we employ a DiD specification that takes the following form:

$$y_{i,t,m} = \alpha_1 year_{2016} + \alpha_2 (V_{2013-2016,m} * year_{2016}) + X'_{i,t,m} \gamma \\ + (D'_m * year_{2016}) \delta + \mu_i + \varepsilon_{i,t,m} \quad (1)$$

where  $i$  denotes individuals,  $m$  municipalities, and  $t$  survey years – i.e. 2013 and 2016. The variable  $y_{i,t,m}$  is a binary variable that captures the different outcomes of interest, including political polarisation and attitudes towards the use of violence, vigilante justice, and iron-fist policies;  $year_{2016}$  is a dummy equal to 1 for respondents in the 2016 survey, and  $V_{2013-2016,m}$  is a binary measure that captures high values of municipality-level violence exposure over the period 2013-2016, as captured by the top quintile. As mentioned earlier, we focus on 5 measures of conflict-related violence, including homicides, kidnappings, terrorist attacks, threats, and forced displacement. Consequently, the main parameter of interest is  $\alpha_2$ , which is given by the interaction between the latter two variables. The vector  $X'_{i,t,m}$  denotes a set of individual-level controls, for which there remains enough variation across the two waves, including age, employment, marital status, household income and household size;  $\gamma$  is the vector of associated parameters.  $D'_m$  is a vector that captures municipality-level characteristics, including population size, GDP, number of schools, and indices of electrical and sewage coverage;  $\delta$  denotes the associated parameters.  $\mu_i$  represents an individual-specific fixed effect which is included to control for time-invariant differences between respondents which may, in turn, affect social preferences and attitudes. Finally,  $\varepsilon_{i,t,m}$  is the standard error which has been clustered at the municipality level.

A key feature of the model given by equation (1) is that it allows us to mitigate the risk of potential unobserved heterogeneity between the treatment group, i.e. individuals living in municipalities exposed to high levels of violence, and the control group, i.e. respondents living in low-violence intensity areas between 2013 and 2016. Moreover, unlike a simple fixed-effects estimator, the DiD

model additionally removes any common period effects which affect both the treatment and control group in a similar manner.

However, the ultimate validity of the DiD estimator relies upon the common-trend assumption. Under this assumption, differences in social preferences and attitudes between high and low-violence intensity municipalities should follow a parallel trend if the civil conflict were not observed. As such, testing for pre-existing trends ensures that the estimates are not exclusively driven by unobserved, heterogeneous trends in omitted factors which may be more prevalent in high-exposure areas, and thus, which may cause a faster change in social preferences that is then falsely attributed to violence exposure.

Unfortunately, testing this assumption is particularly difficult not only because the ELCA was implemented during periods of active rebel group activity, but also because Colombia's long history of armed conflict limits the availability of pre-conflict data, particularly on individual-level socio-political attitudes. Similarly, the outcomes of interest are available in two waves only, thus implying a lack of sufficient data to adequately test for parallel trends. Whilst the impossibility to rule out violations of the common trend assumption may mask important differences between the treatment and control groups, our empirical model controls for all the key factors commonly employed in the literature and ensures that the treated and controlled groups are relatively balanced with respect to all observed characteristics. Consequently, we proceed to estimate equation (1) in the following section.

## 5. Results

### 5.1. Individual-Specific Fixed Effects

Table 3 shows the baseline results which are estimated as a Linear Probability Model (LPM). Across each column, we exploit the panel nature of our data by including an individual-specific fixed effect that accounts for potential time invariant characteristics which may impact social preferences. Furthermore, we also control for a set of individual-level characteristics for which there remains enough variation across the last two rounds of ELCA. These include age, employment and marital status, household income, and household size. Likewise, we include various municipality-level controls which are commonly employed in the literature, including population size, GDP, number of schools, and indices of electric and sewage coverage. Finally, across each table, the treatment group is defined by the top quintile of the respective violence measure under consideration, i.e. homicides, kidnappings, threats, terrorist attacks and forced displacement.

Focusing on the impact of homicides, kidnappings, and terrorist attacks, column (1) of Table 3 suggests a negative relationship between municipality-level exposure to violence and favourable attitudes towards the use of violence. In particular, individuals living in municipalities with a high homicide exposure are 5.4 percentage points less likely to support the use of violence, relative to individuals living in low-exposure areas, and this is significant at the 5% level. Similarly, compared

to low-exposure municipalities, respondents living in areas exposed to high levels of kidnappings and terrorist attacks are roughly 7 and 5 percentage points less likely to have favourable attitudes towards the use of violence, respectively. Notably, we find no effect of municipality-level exposure to homicides, kidnappings or terrorist attacks on the probability of reporting political polarisation or supporting vigilantism and iron-fist policies.

Turning to the effects of high exposure to forced displacement, Table 3 indicates that individuals living in highly exposed municipalities are roughly 5 percentage points less likely to favour the use of violence, relative to other respondents in lower-exposure areas. Moreover, and contrary to the evidence from violent-crime studies (Bateson, 2012; Visconti, 2020), individuals in these areas are 6 percentage points less likely to support iron-fist policies, and this is significant at all levels. Finally, we find no significant effect of municipality-level exposure to forced displacement on either the likelihood of supporting vigilantism or exhibiting political polarisation.

Finally, looking at the effect of threats, the results indicate that individuals in heavily exposed areas are roughly 7 percentage points less likely to support iron-fist policies, compared to their counterparts in low-exposure areas. Moreover, respondents in these municipalities are 8.1 percentage points more likely to show signs of political polarisation, compared to individuals in low-exposure areas. Interestingly, such results echo the findings by Acemoglu et al. (2013) and Gallegos (2016) who show rebel forces rely on the use of force and threats to influence political behaviour across municipalities in the country. Lastly, we find no significant effect of threats on the likelihood of supporting the use of violence or vigilantism.

These effects have important implications for the socio-political stability of violence-afflicted communities. On the one hand, an increase in political polarisation may imply the erosion of social cohesion across violence-afflicted communities, and thus, perpetuate conflict whilst disrupting societies' socioeconomic development. On the other hand, lower support for the use of violence indicates the possibility of a strong and enduring resolution to the conflict, with no spillover of violence into victims' private lives. Moreover, the likelihood of achieving both an enduring and peaceful resolution to the conflict may be further strengthened insofar as individuals oppose national security policies that rely on the direct use of oppressive and authoritarian tactics, and thus, which fuel the country's cycle of violence.

## 5.2. Municipality-Specific Fixed Effects

To further assess the role of civil conflict exposure on individual-level social preferences, we re-estimated equation (1) using a municipality-specific fixed effect, rather than an individual-specific effect. Consequently, across Table 4, our estimation strategy accounts for time-invariant municipality-level characteristics – e.g. geographic features – which may affect individual-level social preferences, whilst also being correlated with exposure to conflict-related violence. Moreover, similar to our baseline analysis, we continue to control for both individual- and municipality-level characteristics across all specifications.

The results are in line with the analysis in section 5.1. As shown in Table 4, individuals living in municipalities with a high exposure to homicides are 5 percentage points more likely to support the use of violence, relative to respondents in other areas, and this effect is still significant at the 5% level. Similarly, respondents in municipalities heavily exposed to kidnappings and terrorist attacks are roughly 7 and 6 percentage points less likely to have favourable attitudes towards the use of violence, compared to their peers, respectively. However, unlike the individual FEs analysis in section 5.1, we now find a negative and significant effect of terrorist attacks on iron-fist policies. In particular, living in heavily affected communities lowers the probability of supporting these policies by 5.1. percentage points, relative to other lower-exposure areas.

Turning to the effects of municipality-level exposure to threats, individuals living in highly exposed municipalities are 8 percentage points more likely to exhibit signs of political polarisation, relative to other areas, and this is significant at the 1% level. Furthermore, similar to the individual FEs results, we continue to find a negative and significant effect of threats on the likelihood of supporting iron-fist policies, but no significant impact on either violence use or vigilante justice. Finally, in line with the results in section 5.1, we find that individuals in municipalities heavily exposed to forced displacement are roughly 5 and 6 percentage points less likely to support the use of violence and iron-fist policies, respectively. However, unlike the individual FEs analysis, we now find a positive and significant effect of exposure to displacement on political polarisation.

## 6. Robustness Tests

We conduct a series of robustness tests to further assess the validity of our obtained estimates. First, to improve the balance of our treatment and control groups, we exclude from the analysis respondents living in rural areas who differ significantly from the rest of the sample. Second, we use different estimation strategies, particularly conditional logit models to account for the categorical nature of the dependent variables. Third, we test the robustness of the results by using alternative codifications of the outcomes of interest, as well as of our treatment variables. Finally, we perform endogeneity tests to mitigate concerns that our results are exclusively driven by unobserved, heterogeneous effects related to the characteristics of municipalities in the sample. The tables to these analyses are available on request.

### 6.1. Excluding Rural Areas from the Sample

Whilst our analysis highlights the potential role of municipality-level conflict exposure in shaping individual-level social preferences, potential systematic differences between our treatment and control groups may compromise the validity of the results. In particular, significant imbalances in their baseline covariates may imply that the estimates obtained in section 3 are driven by observable characteristics, rather than by the treatment itself.

To explore this potential bias, we perform baseline balancing tests for each treatment variable used throughout the analysis. Across all exposure measures, there are significant imbalances across

three key demographic characteristics, including education, marital status, and rurality. First, treated groups display greater levels of both technical and higher education than the control groups, whilst also having a significantly lower proportion of individuals with only primary education or no education at all. Second, across all violence measures, there are significant differences in the proportion of control and treated individuals who report being married and divorced. Additionally, across our measure of kidnappings, a higher proportion of treated respondents report being single than individuals in the control group. Finally, a significantly higher proportion of treated individuals report living in urban areas than the control group, with differences ranging from 50% to 70%.

Evidently, the balancing tests indicate that the control and treatment groups are not comparable *ex ante*. Consequently, differences in social preferences between the treatment and the control group may be the result of differences in observables, rather than conflict-exposure itself. To tackle such potential bias, we exclude from our analysis respondents living in rural areas who exhibit different characteristics to the rest of the sample, particularly in terms of education and marital status. As expected, balance across all the covariates improve significantly when we restrict the sample to individuals in urban municipalities. Moreover, whilst some statistically significant differences remain between the control and the treatment groups, the size of these differences are greatly reduced.

Given our newly balanced sub-sample, we re-run equation (1) to test whether municipality-level conflict exposure continues to be a significant determinant of social preferences. Notably, across most violence measures, the size and direction of the effects remain similar to our baseline results in section 5.1. For example, focusing on the effects of exposure to homicides and terrorist attacks, the new sub-sample estimates indicate individuals in exposed municipalities are 4 and 5 percentage points less likely to support the use of violence, respectively. Likewise, individuals highly exposed to kidnappings and forced displacement are roughly 6 and 5 percentage points less likely to favour the use of violence, respectively. Such coefficients imply only a marginal difference from the main estimates obtained in section 5.1, thus highlighting the robustness of the main findings.

However, unlike the full sample estimates, we find a negative and significant effect of exposure to homicides and terrorist attacks on political polarisation. In particular individuals in exposed municipalities are roughly 6 and 7 percentage points less likely to exhibit signs of polarisation, respectively. Interestingly, we also find a negative and significant effect of exposure to terrorist attacks on the likelihood of supporting iron-fist policies. Finally, in contrast to the baseline estimates, we no longer find a significant effect of exposure to threats on either the probability of supporting iron-fist policies or political polarisation.

## **6.2. Victimisation Effects using Conditional Logit Models**

Given the outcomes are coded as binary variables, we re-estimate equation (1) using conditional logit models. Whilst the magnitude of these coefficients is not strictly comparable to the LPM estimates, we gauge the robustness of our baseline estimates by comparing both the sign and significance of the effects obtained across both econometric frameworks. Overall, we find ample

support for our baseline estimates in section 5.1. Specifically, with exception of threat exposure, we find a negative and significant impact of all our violence measures on the likelihood of supporting the use of violence. Likewise, we continue to find a positive differential effect of high municipality-level exposure to threats on the probability of political polarisation, as well as a negative and significant effect of both threats and forced displacement on the likelihood of supporting iron-fist policies. Finally, unlike our baseline estimates, we also find a negative and significant differential effect of exposure to terrorist attacks on the probability of favouring iron-fist policies.

### **6.3. Using Alternative Codification of the Outcomes of Interest and the Treatment Variables**

Next, we assess the robustness of the results by using alternative codifications of the outcomes of interest. On the one hand, rather than relying on their broad definition, we employ a narrower classification of favourable attitudes towards the use of violence, vigilantism and iron-fist policies. In particular, these variables are now equal to 1 if the respondent indicates *totally agreeing* with each respective outcome and 0 if they *agree*, *disagree* or *totally disagree* with it. On the other hand, we use a broader definition for political polarisation, whereby the variable is equal to 1 if an individual indicates *always voting for the same party* or *voting for the same party in most elections*, and 0 if they indicate voting for different parties.

Similar to our baseline estimates, we continue to find a negative and significant impact of municipality-level conflict exposure on the likelihood of supporting the use of violence. In particular, individuals living in areas with a high exposure to homicides and forced displacement are roughly 2 percentage points less likely to support our narrow definition of violence use, than their counterparts in low-exposure areas. Likewise, respondents living in areas with high levels of kidnappings and terrorist attacks are roughly 2 and 3 percentage points less likely to support the narrow definition of the use of violence, respectively, and these effects are significant at the 1% level.

Focusing on our broad definition of political polarisation, the results suggest that individuals living in municipalities highly exposed to threats are 7.2 percentage points more likely to exhibit signs of polarisation, relative to respondents in other areas, and this is significant at the 10% level. Interestingly, however, we also find a negative and significant effect of exposure to terrorist attacks on our broad definition of political polarisation. In particular, individuals in heavily exposed municipalities are 8 percentage points less likely to exhibit polarisation, than respondents in low-exposure areas. Finally, unlike section 5.1, we find no significant effect of either threats or forced displacement on individual-level support for iron-fist policies.

Finally, we re-estimate equation (1) using an alternative definition for our treatment groups. Rather than focusing exclusively on the top quintile of violence, we define the treatment groups as individuals living in municipalities in the top 2 quintiles of each conflict measure. Interestingly, we no longer find any significant effect of homicides, terrorist attacks, kidnappings or forced displacement on the likelihood of supporting violence, thus suggesting victimisation effects may be driven by the

highest levels of exposure to the conflict. However, unlike the baseline estimates, the results indicate a negative and significant effect of threats on support for violence. In particular, individuals living in municipalities in the top 2 quintiles of threats are 4 percentage points less likely to favour the use of violence, relative to their counterparts in low-exposure areas. Furthermore, whilst we find no significant impact of threats on political polarisation, the results indicate individuals in municipalities in the top 2 quintiles of homicides are roughly 7.3 more likely to exhibit signs of political polarisation, than respondents in other areas. Finally, we no longer find a significant differential effect of either forced displacement or threats on the likelihood of supporting iron-fist.

#### **6.4. Endogeneity Tests**

As mentioned earlier, the unavailability of pre-conflict data on individual-level social preferences, as well as the lack of sufficient waves in the ELCA limit our ability to test for the parallel trend assumption. Whilst we employ various methods to ensure that the results are not exclusively driven by unobserved differences between our treatment and control groups, it is possible that unobserved and heterogeneous trends in omitted variables are more prevalent in high-exposure areas, thus causing a faster growth in certain attitudes that are then falsely attributed to violence exposure.

To mitigate these concerns, we test the impact of our exposure variables on various outcomes available in the ELCA that should not be affected by the conflict. In particular, we focus on whether the respondent reports contributing to a pension scheme, whether they voluntarily buy healthcare packages or life insurance, as well as whether the household owns home insurance. Whilst we do not expect these outcomes to be directly affected by violence, evidence suggests they are influenced by characteristics, such as development, culture, and traditions (see, e.g. Hershey et al., 2010; Aggarwal and Goodell, 2013; Chui and Kwok, 2008; Beck and Webb, 2003) which we are unable to account for. Therefore, we expect the results to be significant only if our exposure variables are, in fact, capturing omitted effects related to the characteristics of municipalities in the sample.

The endogeneity tests were run by substituting the aforementioned outcomes in equation (1). Thus, as before, we continue to rely on our DiD estimator and include all relevant individual- and municipality-level controls in the analysis. As expected, the estimated coefficients are statistically insignificant across all specifications, thus mitigating concerns that our main effects are being exclusively driven by unobserved municipality characteristics that are unrelated to the conflict itself.

### **7. Conclusion**

This chapter examines the impact of Colombia's ongoing civil conflict on individual-level social attitudes and preferences during the period 2013-2016. In particular, we focus on outcomes that are crucial for the socio-economic wellbeing and stability of violence-afflicted communities, including political polarisation and attitudes towards the use of violence, vigilante justice, and iron-fist policies. To do so, we focus on five key violent events measured at the municipality-level, including homicides, kidnappings, threats, terrorist attacks, and forced displacement rates.

Our DiD analysis indicates conflict-related violence has a key role in shaping individual-level social preferences and attitudes. Specifically, individuals living in municipalities exposed to the highest levels of homicides and terrorist attacks are roughly 5 percentage points less likely to hold favourable attitudes towards the use of violence, relative to respondents in less affected areas. Likewise, respondents exposed to high levels of municipality-level kidnappings and forced displacement are 7 and 5 percentage points less likely to favour the use of violence, respectively. Furthermore, our results suggest that exposure to threats and forced displacement lower the probability of supporting iron-fist policies by roughly 6 and 7 percentage points, respectively. Interestingly, however, individuals living in municipalities with a high exposure to threats are also 8.1 percentage points more likely to exhibit signs of political polarisation. Finally, we find no significant differential effect of violence exposure on the likelihood of supporting vigilante groups. A possible explanation for this is the country's past experiences with armed civilian self-defence groups. As mentioned earlier in the chapter, the intensity of violence, in conjunction with the increasing clashes between rebel groups and drug cartels, ultimately facilitated the emergence of vigilante groups which later morphed into right-wing paramilitary groups. As a result, it is possible that individuals in Colombia recognise the dangers of vigilantism and its critical role in perpetuating violence<sup>11</sup>.

It is important to highlight that the analysis has various limitations. Most importantly, whilst we aim to control for various confounding factors, as well as to limit systematic imbalances between our treatment and control groups, we are unable to completely rule out potential violations of the common trend assumption. Thus, whilst the estimates suggest that violence is a key driver of individual-level attitudes in Colombia, such effects may be driven by pre-existing differences in social preferences between both groups, rather than the treatment itself. Furthermore, whilst we are able to account for the impact of victimisation experiences at the municipality-level, a lack of data prevents us from examining whether and how victimisation effects may differ amongst individuals who have experienced the conflict first-hand. Lastly, given we restrict our sample to individuals who did not migrate in-between waves, our findings may suffer from selection bias insofar as migration is correlated with our outcomes of interest. For example, if individuals with lower degrees of political polarisation or greater support for iron-fist policies migrated during our period of analysis, then our victimisation effects may be the result of changes in the composition of the population sampled, rather than violence exposure itself. To address these limitations, future work could incorporate additional techniques which allow us to better isolate the causal impact of violence exposure on individuals-level social preferences, including IVs or matching techniques.

The results have important social, political, and economic implications. In line with the evidence from the 'post-traumatic growth' theory, the negative impact of conflict-exposure on attitudes towards the

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<sup>11</sup> Whilst this may be a possible mechanism at play, it is important to highlight that we found a positive differential effect of threats on support for iron-fist policies when focusing on the top decile of exposure. Thus, individuals living in outlier areas, i.e. those exposed to the most extreme levels of violence in the country, may still consider vigilante groups as a viable option to guarantee justice.

use of violence suggests victimisation may foster the emergence of new social dynamics which can facilitate an enduring resolution to violence. Furthermore, as victimisation lowers support for the implementation of authoritarian policies that erode civil liberties and perpetuate violence, we could observe a resolution to the conflict that is both long-lasting and peaceful. However, an increase in political polarisation across afflicted municipalities may result in the disruption of communities' social cohesion and collective action capacity, whilst also hindering the economic development of such areas.

Overall, the evidence suggests victimisation constitutes an important determinant of individual-level social attitudes and preferences. Notably, contrary to the popular notion that violence begets violence, individuals exposed to the highest levels of conflict intensity exhibit a greater aversion towards violent behaviour, as well as lower support for repressive security policies that fuel violence itself. Unfortunately, whilst such effects highlight the potential for a strong post-conflict social recovery, increased levels of political polarisation may disrupt communities' social cohesion and incite violence, thus limiting the possibility of ending Colombia's 57-year-old civil conflict.

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Table 1a. Summary Statistics of Key Outcomes of Interest

	2013 Wave					2016 Wave				
	N	Mean	St Dev	Min	Max	N	Mean	St Dev	Min	Max
Use of Violence	7938	0.20	0.40	0	1.00	7250	0.23	0.42	0	1.00
Vigilante Justice	7938	0.29	0.46	0	1.00	7250	0.32	0.47	0	1.00
Iron-Fist Policies	7938	0.34	0.47	0	1.00	7250	0.33	0.47	0	1.00
Political Polarisation	7374	0.31	0.46	0	1.00	6796	0.26	0.44	0	1.00

Table 1b. Summary Statistics of Control Variables

	2013 Wave				2016 Wave			
	Mean	St Dev	Min	Max	Mean	St Dev	Min	Max
Male	0.41	0.49	0	1.00	0.39	0.49	0	1.00
Age	46.49	12.55	19	97.00	49.09	12.20	19	100.00
<i>Education Level:</i>								
1. None	0.08	0.27	0	1.00	0.07	0.26	0	1.00
2. Primary Education	0.47	0.50	0	1.00	0.47	0.50	0	1.00
3. Secondary Education	0.35	0.48	0	1.00	0.35	0.48	0	1.00
4. Technical Training	0.06	0.23	0	1.00	0.06	0.24	0	1.00
5. University	0.04	0.20	0	1.00	0.04	0.20	0	1.00
<i>Marital Status:</i>								
1. Married/Common Law Relationship	0.70	0.46	0	1.00	0.69	0.46	0	1.00
2. Divorced/Separated	0.14	0.35	0	1.00	0.15	0.36	0	1.00
3. Widowed	0.06	0.24	0	1.00	0.07	0.25	0	1.00
4. Single	0.09	0.28	0	1.00	0.09	0.28	0	1.00
Employed	0.69	0.46	0	1.00	0.68	0.47	0	1.00
Household Income Tercile 1	0.34	0.47	0	1.00	0.33	0.47	0	1.00
Household Income Tercile 2	0.33	0.47	0	1.00	0.34	0.47	0	1.00
Household Income Tercile 3	0.33	0.47	0	1.00	0.33	0.47	0	1.00
Religion	0.97	0.18	0	1.00	0.96	0.20	0	1.00
Household Size	4.29	2.00	1	39.00	4.04	1.95	1	47.00
Urban	0.52	0.50	0	1.00	0.53	0.50	0	1.00
<b>N = 7938</b>					<b>N = 7250</b>			

Table 1c. Summary Statistics of Municipality-Level Variables

	Mean	St Dev	Min	Max
<b>Panel A: Municipality-Level Controls</b>				
Avg. Population Size 2013-2016	944533.1	2152680	2683.25	7827499
Avg. GPD (\$COP) 2013-2016	19078.82	48728.15	30.40	178619.20
Avg. Sewerage Coverage Index 2013-2016	54.80	26.82	0	100
Avg. Number of Schools Index 2013-2016	412.76	750.04	9	2696.75
Avg. Electrical Coverage Index 2013-2016	97.55	4.20	60.26	100
<b>Panel B: Municipality-Level Violence Events</b>				
Homicides 2013-2016	50.16	108.54	0	426
Kidnappings 2013-2016	1.60	2.49	0	8
Forced Displacement 2013-2016	2315.20	5237.53	0	29817
Threats 2013-2016	697.47	1688.53	0	9805
Terrorist Attacks 2013-2016	36.27	102.86	0	929

Table 2. Correlation Matrix of Conflict Exposure Measures

	Homicides	Kidnapping	Threats	Forced Displacement	Terrorist Attacks
Homicides	1.000				
Kidnapping	0.758	1.000			
	0.000				
Threats	0.726	0.609	1.000		
	0.000	0.000			
Forced Displacement	0.747	0.649	0.910	1.000	
	0.000	0.000	0.000		
Terrorist Attacks	0.956	0.770	0.709	0.744	1.000
	0.000	0.000	0.000	0.000	

Table 3. Regressions Results for Top Quintile of Violence Measures

	(1) Violence Use	(2) Vigilante Justice	(3) Iron-Fist Policies	(4) Political Polarisation
Top Homicides x 2016 Dummy	-0.054** (0.023)	0.013 (0.032)	-0.042 (0.033)	-0.016 (0.036)
2016 Dummy	-0.206 (0.280)	-0.349 (0.281)	-0.157 (0.347)	0.026 (0.309)
R-squared	0.008	0.005	0.004	0.019
Top Kidnapping x 2016 Dummy	-0.070** (0.028)	0.030 (0.028)	-0.008 (0.033)	-0.017 (0.040)
2016 Dummy	-0.126 (0.296)	-0.386 (0.274)	-0.156 (0.358)	0.044 (0.329)
R-squared	0.009	0.005	0.003	0.019
Top Forced Displacement x 2016 Dummy	-0.048* (0.027)	0.009 (0.032)	-0.062** (0.030)	0.060 (0.042)
2016 Dummy	-0.078 (0.245)	-0.371 (0.290)	0.013 (0.298)	-0.155 (0.339)
R-squared	0.008	0.005	0.005	0.020
Top Threats x 2016 Dummy	-0.035 (0.027)	0.026 (0.028)	-0.067** (0.029)	0.081** (0.037)
2016 Dummy	-0.150 (0.250)	-0.398 (0.284)	-0.034 (0.278)	-0.145 (0.294)
R-squared	0.008	0.005	0.005	0.022
Top Terrorist Attacks x 2016 Dummy	-0.061*** (0.023)	0.004 (0.034)	-0.051 (0.033)	-0.025 (0.039)
2016 Dummy	-0.205 (0.284)	-0.347 (0.285)	-0.155 (0.352)	0.028 (0.306)
R-squared	0.009	0.005	0.004	0.019
Individual FE	Yes	Yes	Yes	Yes
Individual-level Controls	Yes	Yes	Yes	Yes
Municipality-level Controls	Yes	Yes	Yes	Yes
Municipality FE	No	No	No	No
Observations	15188	15188	15188	14170

Standard errors in parentheses. \*\*\* p<0.01, \*\*p<0.05, \*p<0.1. Notes: Standard errors clustered at the municipality-level

Table 4. Regressions Results for Top Quintile of Violence Measures using Municipality FEs

	(1) Violence Use	(2) Vigilante Justice	(3) Iron-Fist Policies	(4) Political Polarisation
Top Homicides x 2016 Dummy	-0.048** (0.024)	0.007 (0.029)	-0.042 (0.028)	-0.008 (0.033)
2016 Dummy	-0.163 (0.226)	-0.310 (0.269)	0.013 (0.289)	0.051 (0.273)
R-squared	0.021	0.031	0.023	0.107
Top Kidnapping x 2016 Dummy	-0.068** (0.027)	0.029 (0.026)	-0.022 (0.028)	-0.009 (0.033)
2016 Dummy	-0.078 (0.244)	-0.352 (0.262)	0.030 (0.302)	0.061 (0.290)
R-squared	0.021	0.031	0.023	0.107
Top Forced Displacement x 2016 Dummy	-0.045* (0.025)	0.006 (0.026)	-0.062** (0.026)	0.062* (0.037)
2016 Dummy	-0.047 (0.216)	-0.325 (0.283)	0.180 (0.233)	-0.137 (0.272)
R-squared	0.021	0.031	0.023	0.108
Top Threats x 2016 Dummy	-0.028 (0.024)	0.023 (0.024)	-0.066*** (0.025)	0.082*** (0.031)
2016 Dummy	-0.127 (0.213)	-0.350 (0.275)	0.123 (0.207)	-0.111 (0.222)
	0.023	0.037	0.028	0.111
Top Terrorist Attacks x 2016 Dummy	-0.050** (0.025)	-0.003 (0.031)	-0.051* (0.028)	-0.019 (0.035)
2016 Dummy	-0.160 (0.230)	-0.306 (0.274)	0.018 (0.296)	0.056 (0.271)
R-squared	0.021	0.031	0.023	0.107
Individual FEs	No	No	No	No
Individual-level Controls	Yes	Yes	Yes	Yes
Municipality-level Controls	Yes	Yes	Yes	Yes
Municipality FEs	Yes	Yes	Yes	Yes
Observations	15188	15188	15188	14170

Standard errors in parentheses. \*\*\* p<0.01, \*\*p<0.05, \*p<0.1. Notes: Standard errors clustered at the municipality-level

Figure 1. Incidence of Violence during 1995-2016

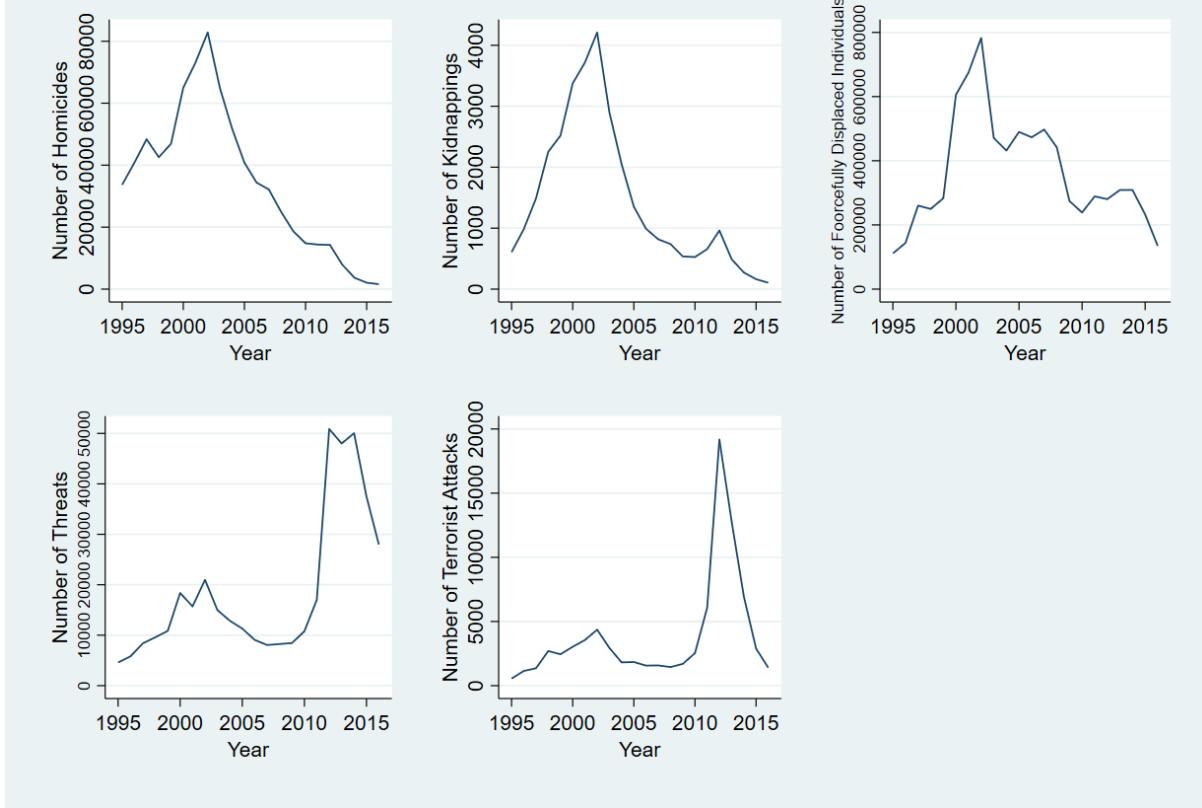
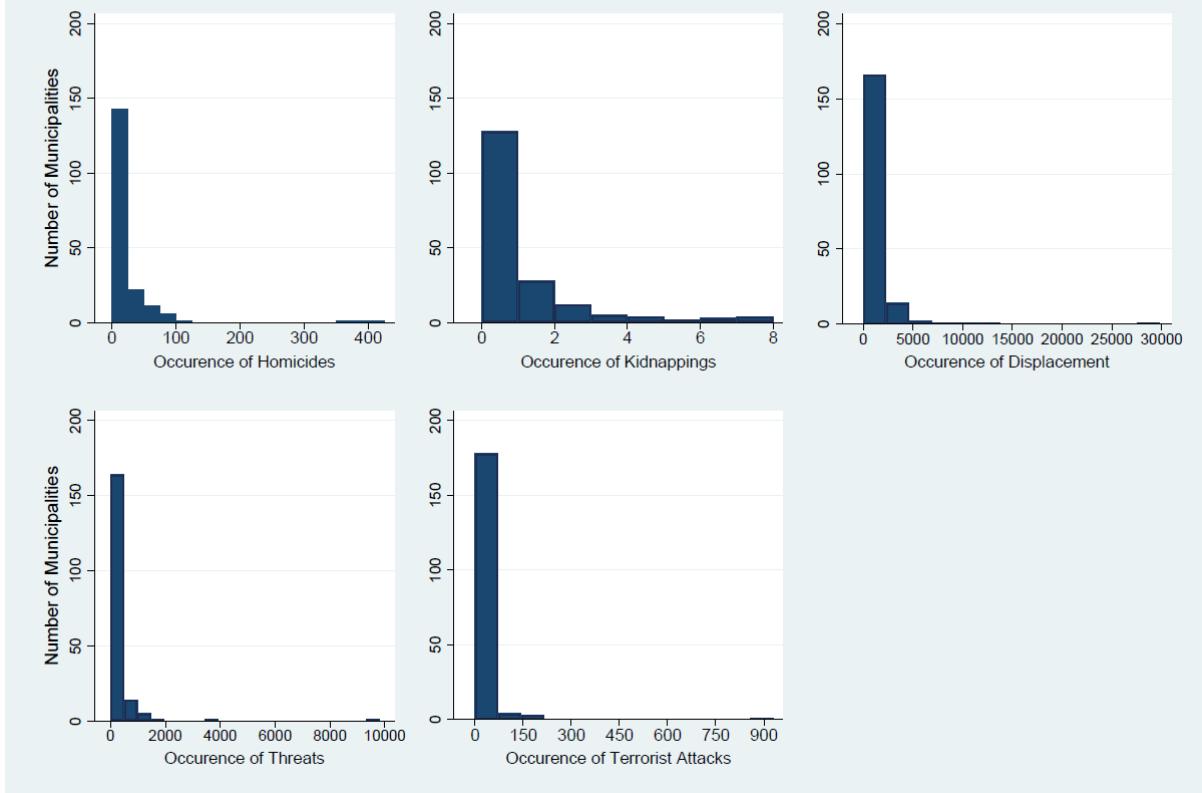
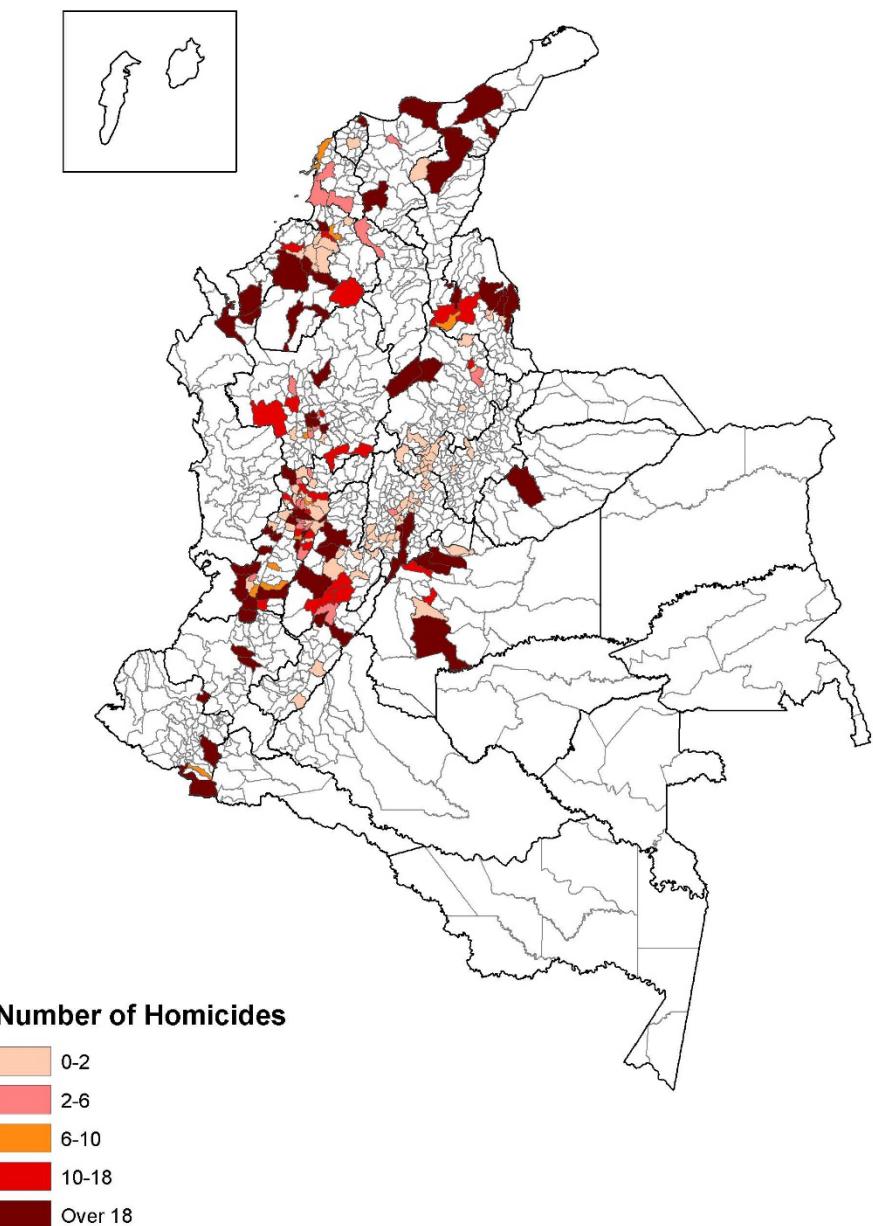


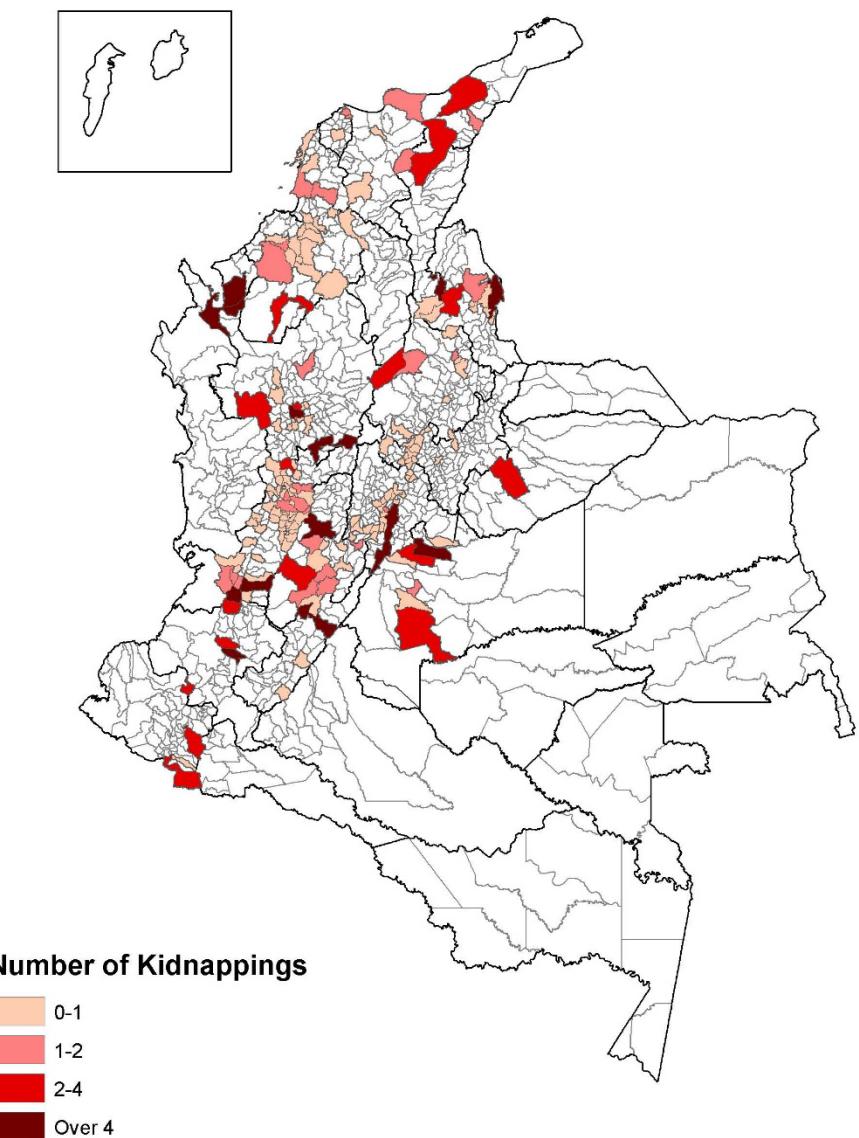
Figure 2. Municipality-Level Violence during 2013-2016



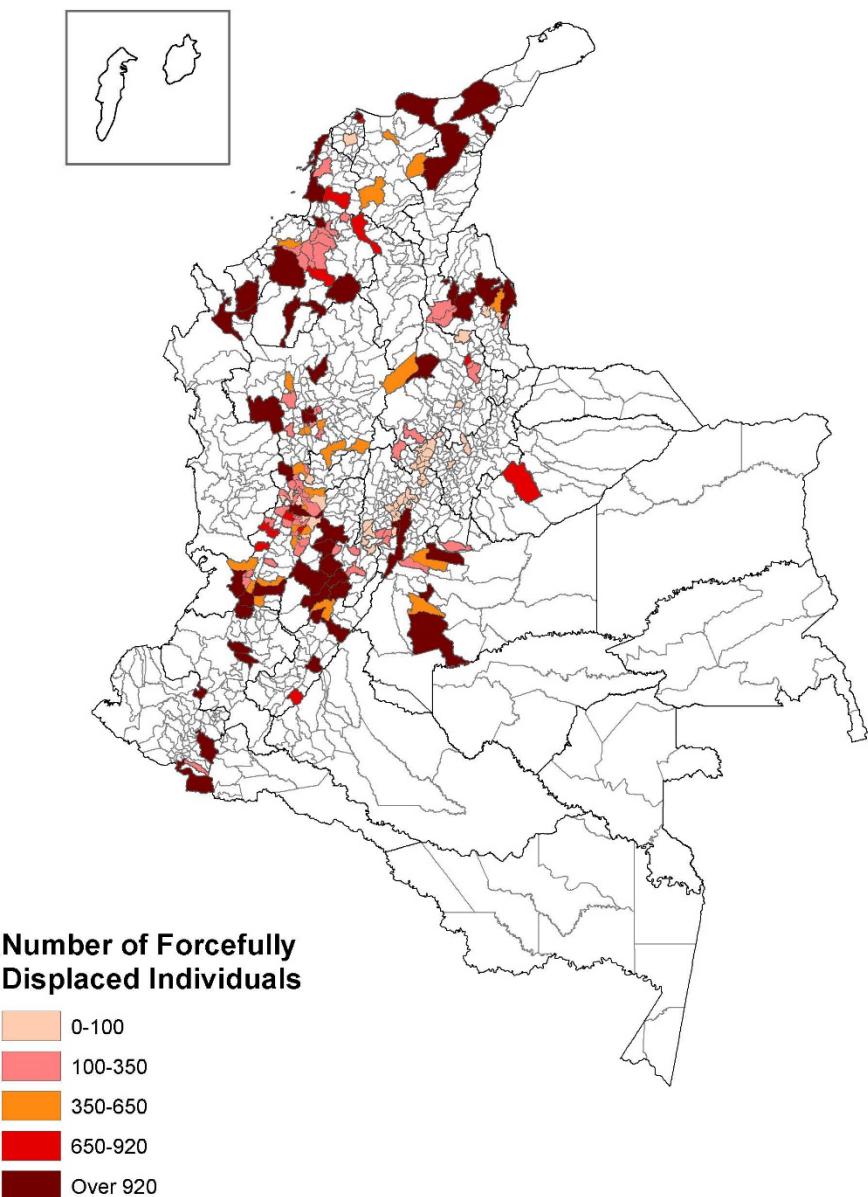
**Figure 3. Distribution of Homicides  
across Sampled Municipalities**



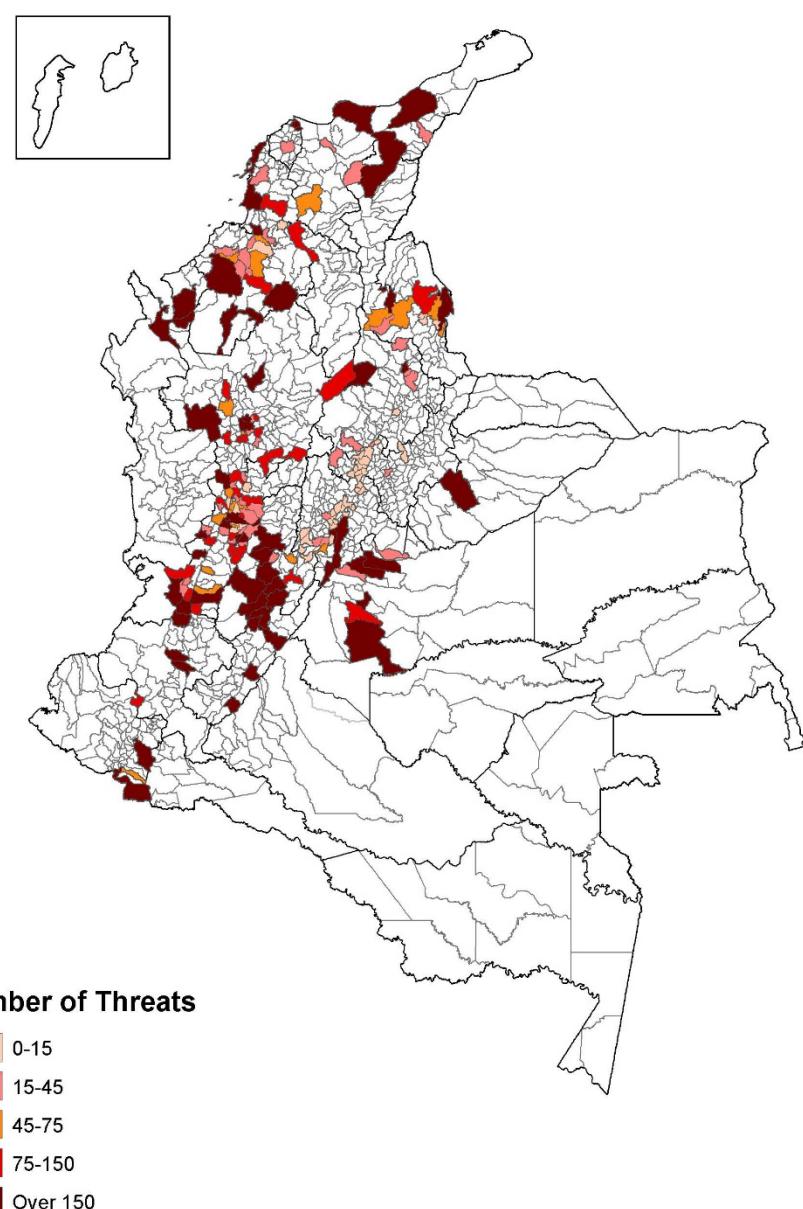
**Figure 4. Distribution of Kidnapping  
across Sampled Municipalities**



**Figure 5. Distribution of Forced Displacement across Sampled Municipalities**



**Figure 6. Distribution of Threats across Sampled Municipalities**



**Figure 7. Distribution of Terrorist Attacks  
across Sampled Municipalities**

