



# Political Dynamics and Selective Violence: Evidence from Colombia

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## Abstract

The recent rise in social leader killings in Colombia, midst a general decline in violence levels, raises doubts regarding the effectiveness of 2016's peace treaty with the main guerrilla group in reducing violence and crime. This thesis presents evidence that selective violence against social leaders is a complementary method of political competition and a mechanism of population control employed by armed groups. Using a regression discontinuity design, this work estimates the impact of electing a right-wing candidate in a close election on social leader killing rates. A significant positive effect of 1.8 at the 10% confidence level is found for communal leader killings, approximately 2.5 times the municipality average of 0.73. When focusing on municipalities with paramilitary presence, larger and significant positive effects on killing rates are observed. Outlier-robust estimates indicate that electing a right-wing candidate in a close race increases communal and political leader killing rates by 98% and 71%. The results suggest, consistent with theoretical predictions, that information transmission is a key mechanism driving these effects. Particularly, right-wing incumbent political groups decrease armed-groups' relative cost of employing selective violence with respect to indiscriminate violence by increasing availability of information about social leaders. These findings have important implications for understanding the strategic interaction between armed groups, local elites, and democratic institutions in the context of irregular wars, and particularly in explaining the rise in social leader killings in Colombia. The relative importance of these finding is supported by a "back-of-the-envelope" calculation indicating that the estimated effects account for 18% and 14% of the observed national communal and political leader killing rates between 2015 and 2023.

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# 1 Introduction

Colombia has recently observed a dramatic increase in social-leader killings, with devastating effects on its population and democratic institutions. According to Ávila-Martínez (2020, p. 35-50) social leaders are individuals recognized by their communities, often rural and small-scaled, for their role in articulating collective action, protecting human rights, developing community-based productive endeavors, protecting the environment, and serving as brokers between communities and state agencies (Lobo et al., 2016; Prem et al., 2022). After the signature of a peace treaty with the main guerrilla group, FARC-EP, this phenomenon has been paradoxically accompanied by a general decline in homicides and violent actions from armed groups (Correal & Restrepo, 2023). According to INDEPAZ (2023), an independent research center, an increase of 251% in social-leader killings was observed between 2014 and 2020, rising to a yearly level of 252 leaders during 2020, and remaining at similar levels since. According to Defenders (2024), between 2023 and 2024, Colombia was the country with most human rights defender killings in the world, accounting for 47% of the world level. This phenomenon casts doubt on the supposed peace in post-conflict Colombia and questions whether the observed decrease in overall violence is a result of successful peace efforts or can be partially explained as a structural rearrangement of armed groups strategic use of violence.

The causes of social leader killings have been explored by different authors using both quantitative and qualitative methods. For instance, Prem et al. (2022) suggests that killings are a symptom of a process of territorial consolidation of armed groups excluded from 2016’s peace treaty. On the other hand, Llanes (2022) argues that they can be partly explained as an unintended consequence of post-conflict policies like illegal crop substitution. Finally, Ávila-Martínez (2020) argues, based on descriptive statistics and qualitative accounts, that social leader killings are highly related to electoral processes and interests of economic and political groups.

Ávila-Martínez (2020)’s explanation has not, however, been empirically tested using quasi-experimental techniques. This thesis aims to do just this by suggesting answers to questions like: How do political dynamics affect social leader killings? What is the causal effect of mayors’ political ideology on social leader killings? How does the interaction between political actors and armed groups determine selective violence patterns? To do so, a regression discontinuity design (RDD) is employed to estimate the causal effect of electing a right-wing mayor on social-leader killings. This strategy uses close elections, exploiting the electoral threshold as a mechanism emulating a random assignment of right and non-right-wing candidates to office. The econometric method used greatly draws from Eslava (2020) and Prem et al. (2022), who apply RDD to estimate the effect of political outcomes (left-wing election and female mayors) on different violence variables.

A positive effect of 1.8, significant at the 10% confidence level, is found on the communal leader killings rate<sup>1</sup>, corresponding to around 2.5 times the municipality average (0.73). When restricting the sample to municipalities with paramilitary presence,

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<sup>1</sup>Killing rate refers to the number of killings for every 100.000 municipality inhabitants.

larger and positive significant effects on communal and political leader killing rates are found. Outlier-robust estimates suggest an increase of 85% and 64% in communal and political leader municipality killing rates. Findings suggest that increased access to social leaders' information by armed groups ideologically aligned with right-wing mayors drives these effects by reducing the cost of using selective violence relative to indiscriminate violence. Particularly, the effects are concentrated on left-wing and independent political leaders, and are present during electoral years. Thus, these results support that selective violence is used as a complementary strategy to democratic competition by political actors and a method of population and territorial control by armed groups.

The terms selective violence against social leaders and social leader killings are used interchangeably. Selective violence, according to Kalyvas (2006), refers to the personalized use of violence, requiring fine-grained information on the targeted individuals. This type of violence is correlated with targeted individuals' acts, making it an effective mechanism to deter individuals to act in ways that oppose armed groups' interests. The latter is contrasted by indiscriminate violence, which is not correlated with people's actions and is often perpetrated towards larger groups of people. According to the author, even though the latter is not considered an effective mechanism of population control, due to its inability to alter individuals' incentives, it is used by armed groups under information and military capacity constraints.

This work contributes to four main strands of literature. First, it adds to the political science, sociological, and political economics literature on the determinants of selective violence within contexts of irregular war (Ávila-Martínez, 2020; Balcells, 2011; Balcells & Justino, 2014; Gallego, 2018; Kalyvas, 2006; Stanton, 2016; Wimmer & Miner, 2019). Additionally, it contributes to the more extensive political economics literature on the interaction and equilibrium between inclusive institutions and armed groups (Acemoglu et al., 2011, 2013; Ávila-Martínez, 2020; Bandiera, 2021; Besley & Persson, 2011; Llanes, 2022; Prem et al., 2022; Robinson, 2016; Steele, 2017; Steele & Schubiger, 2018). Finally, this thesis adds to the smaller set of studies aiming to explain the determinants of the rise in the use of selective violence in Colombia after Havana's peace treaty (Albarracín et al., 2022; Ávila-Martínez, 2020; Llanes, 2022; Llanes et al., 2022; Prem et al., 2022).

This thesis is composed of eight sections, including the present. Section 2 aims to describe the institutional context within which the analysis is framed. A brief description of Colombia's armed conflict history is provided, as well as an account of the country's electoral system. Section 3 reviews the main three strands of literature previously mentioned and formulates four testable hypotheses. Section 4 describes the data sources used and presents descriptive statistics. Section 5 focuses on the identification strategy and econometric methods employed. Section 6 presents the main results and robustness checks. Section 7 argues in favor of plausible mechanisms, discusses the results in light of relevant literature and posits limitations and potential research avenues. Section 8 concludes.

## 2 Institutional Context

This section provides a concise overview of Colombia's armed-conflict history. This account is not a comprehensive nor precise exposition of the conflict's historical events and causes, but rather a general context in which the results are framed. Furthermore, a description of Colombia's electoral system at the municipality level will be presented, focusing on electoral design, timing and party typology.

## 2.1 Armed Conflict and Social Leaders

Following Gutiérrez-Sanín (2020), the history of Colombian armed conflict can be divided into three stages: (1) bipartisan conflict era known as *La Violencia* (1946-1966), (2) insurgent warfare (1960s-2016) and (3) post-peace treaty era (2016 onwards). From 1946 to 1966, the two main political groups, Conservatives and Liberals, waged a war for power, known as *La Violencia*. After twenty years, the war ceased when both groups agreed to alternate power every four years; a period known as the *Frente Nacional* (1958-1974).

The second stage of conflict started during this period, when historically excluded groups formed guerrillas, supported by communist uprisings around the world and leveraging on leftover military structures from previous conflicts. The birth of insurgent groups inaugurates the second stage of the conflict, which, in contrast with *La Violencia*, took the form of an asymmetric<sup>2</sup> instead of a civil war. Following the *Frente Nacional*, during the 1980s and early 1990s, the rise of drug trafficking, as well as the influence of the United States and the Soviet Union, escalated the conflict and increased military power of armed actors. Complex webs of alliances and rivalries, both across and within guerrilla groups, drug traffickers, state forces, paramilitary groups, economic elites, and politicians, were formed, leading to a generalized increase in violence all around the country.

During the 2000s, the rise and centralized consolidation of paramilitary groups into a single organization- United Self-defense Forces of Colombia (AUC by its spanish acronym)- together with a strong security and anti-subversive policy led by ex-president Álvaro Uribe Velez, led to an intensification of the conflict mainly across guerrilla strongholds, located in rural and peripheral places. During this period, the country experienced a historic peak in collective and indiscriminate violent events such as forced displacement and massacres. Later in 2016, Juan Manuel Santos's government negotiated a peace treaty with the main guerrilla group FARC-EP, which presented an opportunity for Colombian society to overcome conflict and build peace. According to Gutiérrez-Sanín (2020), this promise of peace has not been achieved, as the country dives into a third phase of conflict, characterized by a multi-actor warfare, where multiple small and fragmented armed groups wage local wars, and have narrow interests.

A lot has been written about the structural causes of Colombia's armed conflict. Three main structural drivers of the conflict are identified in the literature. First, historical political exclusion and the accumulation of political power by elites has been proposed as one the main causes for the creation of guerrilla groups. Another usually stated cause are persisting levels of poverty and high inequality in land tenure. This explanation suggests that the surge of armed groups can be explained by the historical exclusion of *campesinos* (small-scale farmers) from the country's economic development model, as well as the historical accumulation of land and natural resources by a small elite through violent means. Finally, the lack of state presence in peripheral and rural areas of the country has been posed as key driver of the surge of armed-groups aiming to extract rents from illegal economies by establishing full control over territories and

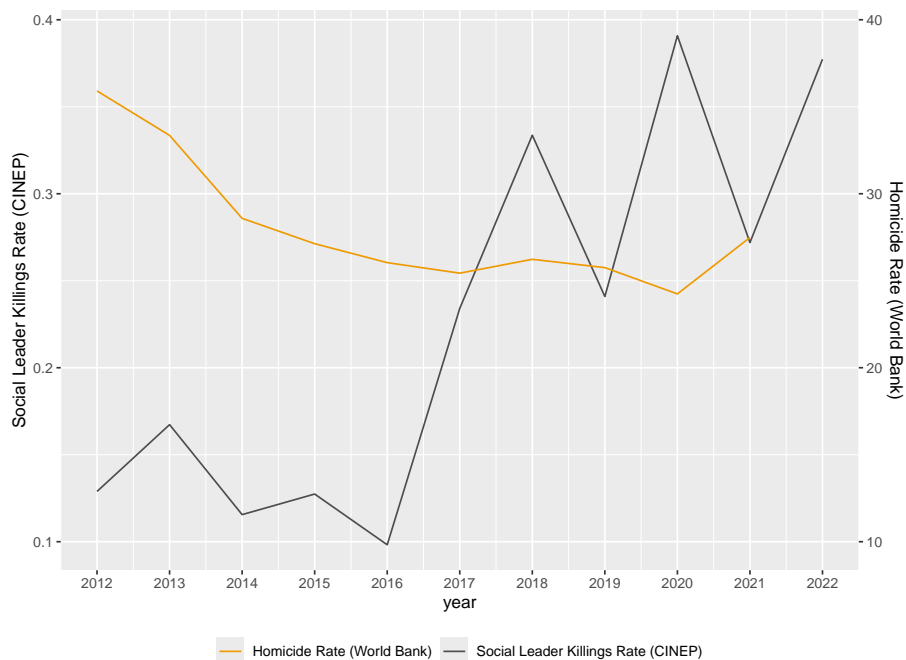
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<sup>2</sup>According to Kalyvas (2006) asymmetrical wars are characterized by being waged between two sides with unequal levels of military power and sovereignty. The weaker side, usually guerrillas, lacks sovereignty and compensates the power imbalance by employing irregular war tactics and forming small, scattered and mobile military units. The stronger side, usually that state forces, holds sovereignty and wages wars with traditional tactics by holding fixed and static territorial positions.

populations. On the other hand, the conflict has had terrible consequences for the Colombian society. According to the Victims' Unit<sup>3</sup>, the public entity in charge of reporting armed conflict official statistics, by the 30th of April 2024 the conflict had left 9.702.896 armed conflict victims, from which 8.649.955 were forcibly displaced and 1.105.610 killed.

One key characteristic of the third phase of the conflict is the increase in social leader killings; reaching a peak of 298 killings in 2018 according to INDEPAZ (see figure 4). Figure 1 plots the yearly evolution of this phenomenon between 2012 and 2023 compared with the national homicide rate. Following the signature of the peace treaty in 2016, social leader killings spiked while national homicide rates decreased. This phenomenon warns against an overly optimistic interpretation of the general decline violence, and might be a signal of a re-composition of armed-groups strategies, rather than an a generalized decrease in their activities. Understanding this phenomenon implies first grasping who social leaders are and why would they be targeted by armed-groups.

Figure 1: Social leader killing rate vs homicides rates, Colombia 2016-2023



Source: Generated by the author. Homicide rate data comes from the World Bank, while social leader killing rate comes from CINEP. The figure shows two opposed tendencies between general and selective violence in Colombia after Havana's peace treaty with the main guerrilla group FARC-EP.

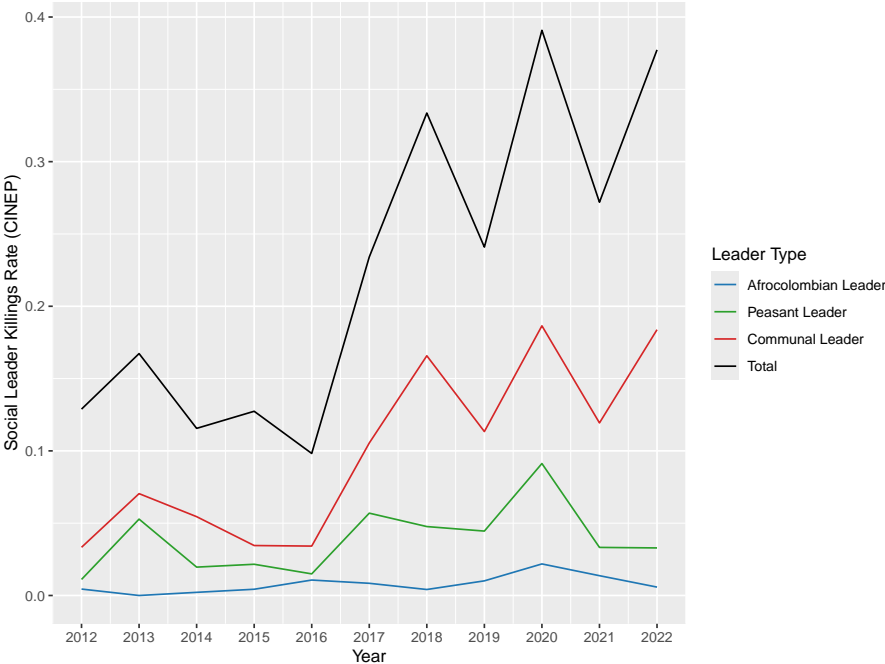
According to (Ávila-Martínez, 2020, p. 35-50), social leaders are individuals characterized by being recognized by their communities for promoting and representing their interests. Among other things, they protect human rights, promote collective endeavors, and represent communities before legal and illegal actors. According to the author, they can be categorized depending on their roles in their communities and the sub-populations they represent. Four main categories are used in this work: communal, political, peasant and indigenous<sup>4</sup>. Particularly, communal leaders usually hold local-level administrative

<sup>3</sup>See <https://cifras.unidadvictimas.gov.co> for a continuous update of armed-conflict statistics.

<sup>4</sup>Note that none of these subsets are disjoint as one leader can fit in two categories. Additionally, they do not jointly constitute the totality of social leaders as other types of leaders are excluded (i.e. union,

positions at community action boards (see section 2.2), through which they promote endeavors of different kinds by articulating collective actions and legal procedures. Figure 2, presents the time trend of social leader homicides disaggregated across these sub-populations. Communal leaders are the most affected types of leaders by this phenomenon. Moreover, Figure 3, shows the geographic distribution of the rate of social leaders' homicides. High-killing density municipalities are located in peripheral areas, isolated from the main economic and urban centers, and mainly concentrated in the north and southwest parts of the country.

Figure 2: Social leader killings rate by leader type 2012-2022

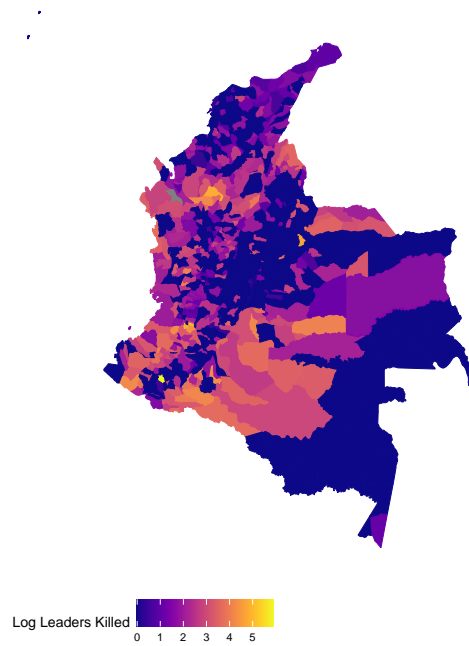


Source: Generated by the author. Social leader killing rate comes from CINEP data. These categories do not correspond to a total desegregation of social leaders, there are minor categories not presented.

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student or women’s leaders).

Figure 3: Geographic distribution of social leader killings, Colombia, 2016-2022



Source: Generated by the author. Social leader killing rate comes from CINEP data.

## 2.2 Electoral System

Colombia is a unitary decentralized republic, divided into two main political-administrative entities: departments and municipalities. Even though departments contain municipalities, each government is elected independently and simultaneously. As of 2003, mayors (municipality) and governors (department) have four-year terms, and elections are held on October's last Sunday of the last year of the term<sup>5</sup>. Only political parties with legal status or independent candidates who have sufficient popular support<sup>6</sup> can participate in the elections. The elected mayor/governor is the candidate with the most votes in the corresponding municipality/department. Additionally, communal action boards (JACs by their Spanish acronym) are the smaller-scale types of civil organizations in Colombia. They are regulated by Law 743 from 2002, and are run by sub-municipal community leaders.

Regarding political parties, according to MOE (2023), by 2023 there were 33 with legal status. Such status is obtained when a political party demonstrates that it obtained more than 3% of the national valid votes during Congress elections. Following Cabra-Ruiz et al. (2023)'s ideology categorization, political parties can be categorized as following a right or left-wing ideology or neither, from now on called "center". According to the authors' classification, excluding coalition parties, there were 8 left-wing, 15 right-wing, and 34 center parties participating during the 2015 and 2019 mayoral elections.

<sup>5</sup>These elections do not coincide with general elections (Presidential and Congress), which are held on the second year of the mayoral term.

<sup>6</sup>Sufficient support refers to independent mayor/governor candidates presenting a list of valid signatures supporting their candidacy representing at least 20% of the municipality/department voter-turnout

### 3 Literature review and hypotheses

The causes of selective violence are diverse and complex. Different explanations have been provided from a growing set of studies in the political science, economics and sociological literature, related to armed groups' organization structure, strategic decision-making, commitment problems and strategic use of violence (Blattman & Miguel, 2010). The present section will start by reviewing theoretical literature on the determinants of selective violence within contexts of irregular warfare. Next, within such contexts, a review of studies analyzing the relationship between armed conflict violence and democratic institutions, specifically elections, will be presented. Finally, it concludes with a review of studies exploring the proximate and structural determinants of social-leader killings in Colombia, and poses four testable hypotheses.

A key theoretical and empirical characterization of selective violence is presented on Kalyvas (2006). The author develops a theoretical framework highlighting the role of territorial control, civilian incentives and information asymmetries in determining its occurrence. In this view, armed groups engage in selective violence to deter the defection of civilians to other armed groups. According to this explanation, selective violence is jointly determined by armed groups and civilians; the former aim to identify defectors and increase control, while the latter can decide to comply or defect as well as denounce other defectors (see Balcells (2011) for a similar argument). The model predicts that selective violence is more likely to happen in areas where control is partially distributed, meaning that one group has more control than the other but not all of it. Within such contexts, some individuals have incentives to defect to the other group, while others effectively rely on armed groups' protection to denounce defectors and avoid retaliation. Given such individual incentives, the controlling armed group can thus obtain trustworthy information to effectively employ selective violence leveraging on their control advantage.

The interaction between formal and inclusive institutions with non-state armed group actors can additionally explain the use of selective violence within irregular war contexts. Irregular warfare's asymmetric distribution of sovereignty does not imply that the state/incumbent holds the monopoly of violence. Rather, as it has been observed across multiple irregular wars, sovereignty can be *de facto* fragmented and contested by non-state groups within rural and peripheral territories, while a centralized state holds *de jure* sovereignty. The coexistence of these two sources of sovereignty can lead, as suggested by Robinson (2016) in the Colombian context, to the paradoxical sustained interaction of inclusive and extractive institutions<sup>7</sup>. One such example, is the existence of democratic elections within contexts of fragmented sovereignty and armed conflict. Different studies have explained the mechanisms through which paradoxical situations like this arise, highlighting the role of perverse incentives and political equilibria between politicians and illegal actors sustained by an strategic use of violence to alter economic outcomes (Acemoglu et al., 2011, 2013; Besley & Persson, 2011).

Political violence, thus, arises as a key mechanism to understand the persistence of "bad" equilibria between state and non-state actors. Dunning (2011) characterizes political violence according to the level of strategic complementarity or substitutability

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<sup>7</sup>The terms inclusive and extractive institutions are coined from the institutional explanation of democratization and long-run development developed by Acemoglu, Johnson and Robinson. See Acemoglu et al. (2001, 2005) for instance.

between violence and democratic competition. That is, the level to which armed groups use violence to achieve their goals through democratic means, and the extent to which they use violent instead of democratic competition. The first alternative is highly related to studies explaining political violence as a mechanism employed by local groups to deter democratic competition and achieve political hegemony (Ávila-Martínez, 2020; Bandiera, 2021; Llanes, 2022; Prem et al., 2022; Steele, 2017; Steele & Schubiger, 2018). On the other hand, the second alternative is concerned with why some political groups choose violent over democratic competition. This question has been more extensively studied within the political economy literature, suggesting mechanisms such as commitment problems, incomplete contracting, and bounded rationality, among others<sup>8</sup>.

The latter characterization of political violence provides a good theoretical framework to understand the phenomenon of social leader killings in Colombia. Although closely related to Kalyvas (2006)'s theory, the Colombian context is additionally characterized, as suggested by Robinson, 2016, by the coexistence and interaction of formal and inclusive institutions stemming from a centralized sovereign government, and fragmented de facto sovereignty contested by non-state armed groups. These two characteristics call for studies at the subnational level, exploring not only the strategic incentives of armed groups to use selective violence but also the interactions of such incentives with local and national political dynamics.

A group of studies, mainly coming from the political economy literature, have explored such topics in the Colombian context. Some conclusions echo Kalyvas (2006)' hypothesis, others, however, depart from the general implications of armed groups' strategic equilibrium and present other contexts-specific considerations. For instance, Fergusson et al. (2020) present evidence, for the pre-peace period (1998-2014), supporting the hypothesis that local elites respond with violence to the ascent to power of historically excluded political groups by colluding with paramilitary groups. On the other hand Galindo-Silva (2021), presents evidence indicating that the increase in political openness decreases conflict-related violence. However, this is not achieved through mitigating conflict dynamics, but rather by dominant armed groups gaining political control by cooping local councils, and deterring other groups' violent actions. This study is a good example of how Kalyvas (2006)'s theory of violence interacts with political dynamics. In a similar spirit, Gallego (2018), argues that how armed conflict and electoral processes depend on each other, relates to the military and structural characteristics of the armed groups in question. In this sense, the author presents evidence, for the Colombian context during the 2000s, supporting the hypothesis that guerrillas use violence as a substitute of democratic competition because they fail to collude with established elites due to their irregular warfare practices. On the other hand, paramilitary groups have stable and long-lasting control over territories, where they naturally collude with local politicians, incentivizing them to use violence as a complement of political competition.

A smaller collection of studies focuses on the recent rise in social-leader killings, as a particular form of selective and political violence. For instance, in line with the view of violence and elections as complements, Albarracín et al. (2022) and Ávila-Martínez (2020) point out that the increase in social-leader killings is a way for local economic and political groups to achieve political hegemony, while Prem et al. (2022)'s results show that killings have been related to the occupation of previously FARC-EP strongholds by

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<sup>8</sup>See Blattman and Miguel (2010) for a recent literature review, and Garfinkel and Skaperdas (2007) for a review of conflict models.

remaining armed actors. Others have presented empirical evidence of proximate causes of social-leaders killings, such as unintended consequences of post-treaty peace-related policies such as land restitution and illegal crop substitution (Llanes, 2022; Llanes et al., 2022). To the author’s knowledge, among this set of studies there haven’t been any estimating the causal effect of political outcomes on social-leader killings.

One way of empirically exploring such a relationship is to exploit mayoral races as a mechanism allocating mayors belonging to different political parties. Mayoral races are likely related to political violence, as mayors can (dis)favor different socioeconomic groups and armed actors based on their beliefs, political affiliation and representation of particular interests; for example, by increasing armed groups’ control, either through direct collusion or omission. Additionally, and most relevant to understanding selective violence patterns, they have access to information of high value to political and armed actors, which can be instrumental in determining the effectiveness of using selective over indiscriminate violence. In this sense, mayors can alter armed groups’ absolute and relative cost of using selective violence and indirectly affect violence patterns.

Empirical predictions can be constructed by adapting Kalyvas (2006)’ theory of selective violence to democratic contexts. Particularly, the theory predicts that a shift from contested to partial armed group control increases the use of selective violence against civilians. Close electoral races between candidates with different party affiliations provide a good proxy for politically contested settings. In such a context, Kalyvas (2006)’ theory would suggest that the victory of a candidate aligned with an armed group’s ideology would likely shift the balance of control towards that armed group, consequently leading to an escalation in the use of selective violence. Particularly, hypothesis 1 presents this prediction for the case of right-wing candidates in the Colombian context.

**Hypothesis 1** *The election of a right-wing candidate in a close election, in municipalities with paramilitary groups presence, increases the use of selective violence against **civilians** in the following years.*

Additionally, two competing hypotheses can be tested based on Gallego (2018) and Dunning (2011), regarding the substitutability and complementarity of violence with democracy. While Kalyvas (2006) theory posits selective violence as a means to dissuade defection to rival groups, Dunning (2011) interprets it as a tool to alter democratic outcomes. According to the complementarity hypothesis, political groups resort to violence to increase their chances of electoral success. Consequently, the election of a right-wing candidate is expected to increase targeted violence against opposing political figures, particularly during electoral years. Conversely, if violence and democracy are substitutes, then armed groups, empowered by increased influence stemming from the election of an ideologically sympathetic mayor, are expected to reduce their use of all forms of violence. Hypotheses 2 and 3 set forth verifiable statements tailored to the Colombian scenario and the methodological tools employed.

**Hypothesis 2** *The election of a right-wing candidate in a close election increases selective violence against **political leaders** in municipalities with paramilitary presence.*

**Hypothesis 3** *The election of a right-wing candidate in a close election reduces selective violence against **political leaders** in municipalities with paramilitary presence.*

Finally, it is possible that violent patterns are not related to electoral outcomes, but rather respond exclusively to armed groups' particular interests and ideological objectives. In this sense, it could be expected that even when incumbent political groups and mayors can access ideologically sympathetic armed groups, the increase in control derived from elections has a null effect on violent outcomes.

**Hypothesis 4** *The election of a right-wing candidate in a close election does not affect patterns of violence by armed groups.*

## 4 Data

This section presents summary statistics of the main variables and describes the data sources used. The latter is done across three variable sets: violence, electoral and municipality characteristics. A table describing the the data sources and variables used for the analysis can be found in appendix A.

The identification strategy employed uses the pooled sample of mayoral races during 2019 and 2015 elections, where only one of the top two candidates is affiliated with a right-wing party (see section 5 for a more detailed account of sample selection). Additionally, following Eslava (2020) and Fergusson et al. (2020) municipalities with an average population (between 2020-2023) above 300,000 persons were dropped to avoid including the main economic and urban centers in the analysis. As shown in table 1, this procedure leaves 1153 races across 819 municipalities, of which 885 have a center contender and 139 a left-wing contender. Additionally, Table 1 presents the summary statistics of municipality characteristics, violence outcomes, and electoral characteristics. Conflict variables detail the total number of victims between 2020 and 2023, normalized by every 100,000 municipality inhabitants to account for inherent municipality differences. The poverty index dates from 2005, and the population variable consists of the average population between 2020-2023. In the average municipality in the sample, 69.3% of the population lives in multidimensional poverty, 57% lives in rural areas, has a population of 22610 inhabitants and 2.4 social leaders were killed according to INDEPAZ measurements.

### 4.1 Violence outcomes

Multiple data sources have been used in the literature to analyze the Colombian armed conflict. According to Restrepo et al. (2004), which source to use is not a trivial matter due to differential characteristics related to coverage, violent act categorization, and disaggregation level (victims or events), as well as biasing conflicting incentives of data collectors<sup>9</sup>. Considering this, the authors suggest using data collected by local NGOs, who do not have conflicting interests and can double-check data due to their closeness to local communities. Because of this, the data on violent events used in this thesis comes mainly from INDEPAZ<sup>10</sup> and CINEP<sup>11</sup>; two independent research centers that have pooled data on political violence collected by local NGOs, as well as designed and

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<sup>9</sup>This is particularly the case of data collection carried out by public entities. Such institutions might be biased towards recording data on insurgent groups' actions over paramilitary or state forces.

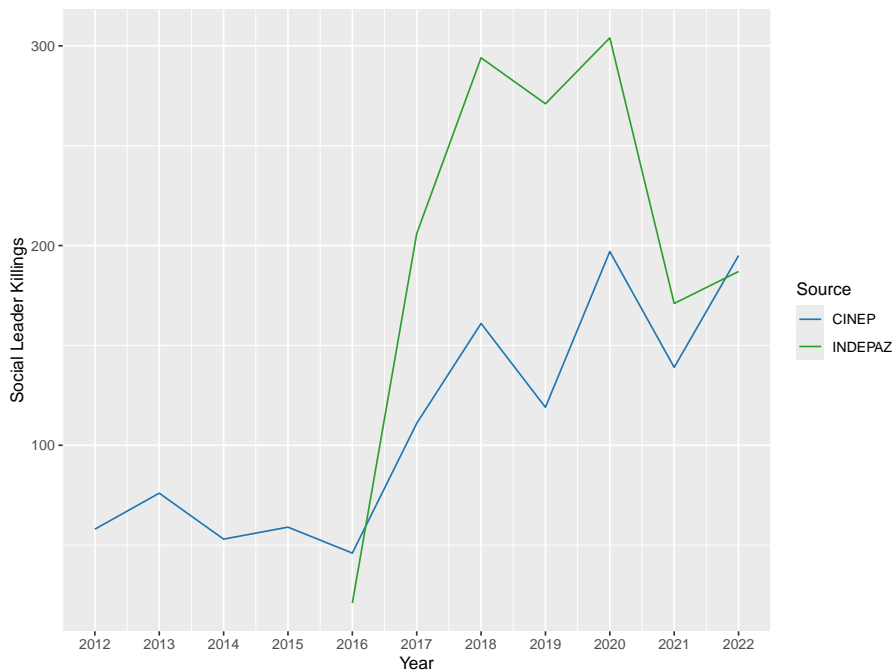
<sup>10</sup>INDEPAZ focuses mainly on reporting data on social leaders' and human rights defenders' killings. Periodic reports beginning in 2016 can be found on their website <https://indepaz.org.co/>

<sup>11</sup>CINEP has developed an information system (SIADDHH) that continuously updates and cross validates a historic political violence dataset since the 1990s until the present. This dataset can be accessed in the following webpage <https://defensor.info/somosdefensores/siaddhhpub/casos/mapaasm>

implemented cross-validation and monitoring mechanisms. These datasets allow the identification of violent events and victims across time, municipalities, responsible actors, violence type and victim characteristics.

Figure 4 plots evolution of such of social leader killings across the two data sources. It shows, like table 1, that social leader killings are differently measured across the two sources. As suggested by Restrepo et al. (2004), the latter is likely due to differences in the definition of social leaders, as well as geographic and temporal coverage differentials. For this reason, measurement robustness checks are performed.

Figure 4: Social leader killings by data source 2012-2022



Source: Generated by the author. Social leader killings data from INDEPAZ and CINEP.

Additional sources are used to identify more specific types of violence. For instance, the MOE (Electoral Observatory Mission) records data on electoral violence, while the National Center of Historical Memory, an institution created after the peace treaty to research the history of Colombia’s armed conflict, records data on armed groups’ warlike actions and indiscriminate violent events. On the other hand, Osorio et al. (2019) use an LLM model to categorize CINEP’s data on violent events across responsible groups, and construct a municipality panel of armed groups presence<sup>12</sup>.

Due to the unstructured nature of the datasets (PDF format or multiple Excel files), a multistep data-cleaning process was performed before obtaining the final dataset used. Among other things, difficulties like multivalued cells, string identifiers and hidden missing values, were resolved through different algorithms designed for those specific purposes. The final result was a panel of armed conflict in Colombia, at the municipality-year level, containing information on violent events and victims, across dimensions like victim type,

<sup>12</sup>See <https://www.colombiaarmedactors.org/> for a description of the methodology and access to the dataset.

responsible group and type of violence<sup>13</sup>.

## 4.2 Electoral variables

Data on local electoral outcomes comes from CEDAE (2024), an independent research center that, in collaboration with the National Registry Office, publishes historical electoral results. Additionally, political party ideology classification was taken from Cabra-Ruiz et al. (2023), who classify historical political parties and coalitions into three categories: left-wing, right-wing, and neither<sup>14</sup>. This classification is done through an eight-step procedure constructed from recent literature on ideological classification and using party statutes, names, government plans, predecessor parties, and secondary sources.

## 4.3 Municipality Characteristics

Municipality characteristics come from Acevedo and Bornacelly (2014), who have compiled and made publicly available, a panel dataset at the municipality level, containing information about municipalities' socio-economic, demographic, geographic, conflict, and agricultural characteristics over time. Additionally, sources like the World Bank and Colombia's National Office of Statistics (DANE) were used to get data on homicide rates and municipal population respectively.

# 5 Methodology

This section describes the empirical strategy employed and presents evidence in favor of the necessary assumptions for the correct identification of treatment effects. Equation (1) models the effect of right-wing political control on violence outcomes  $Y_{mt}$  at municipality  $m$  and time  $t$ .  $T_m$  is a dummy indicating whether the winning mayor belongs to a right-wing party,  $Z_{mt}$  is a matrix of municipality observable covariates, and  $\epsilon_{mt}$  is the idiosyncratic error term.

$$Y_{mt} = \beta_0 + \beta_1 T_m + \gamma' Z_{mt} + \epsilon_{mt} \quad (1)$$

Estimating  $\beta_1$  faces multiple issues. Firstly, the election of a right-wing candidate is likely correlated with unobservable municipality-level outcomes, affecting territorial control of armed conflict groups. Additionally, as mentioned in the literature review, voters' political preferences are also potentially correlated with past armed group presence and violence. These characteristics imply that a simple comparison in means between right and left-wing mayor municipalities' violence outcomes will yield biased estimates due to omitted variables and suffer from reverse causality issues. To address such issues, this thesis uses a regression discontinuity design to try to emulate a random assignment of  $T_m$  conditional on observable  $Z_{mt}$ .

## 5.1 Regression Discontinuity Design

The identification strategy exploits the majority threshold of municipality mayor elections to estimate the effect of a right-wing candidate being elected on armed conflict outcomes. This method focuses on electoral races where only one of the two most-voted candidates

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<sup>13</sup>For further details on the data cleaning, see the following GitHub repository <https://github.com/miguelgonzalez9/Thesis.git>

<sup>14</sup>In some cases when dealing with parties without much available information they refrain from assigning a category.

is associated with a right-wing party: let  $V_{im} \in [0, 1]$  be the vote share of the right-wing candidate at municipality  $m$ , and  $V_{jm} \in [0, 1]$  for the non-right-wing candidate. Then let  $\Delta_m = V_{im} - V_{jm}$ , from which the treatment variable  $T_m$  can be constructed indicating whether municipality  $m$  elected a right-wing candidate in such cases.

$$T_m = \begin{cases} 1 & \text{if } \Delta_m \geq 0 \\ 0 & \text{if } \Delta_m < 0 \end{cases}$$

In such a setting, sharp RDD can be applied using  $\Delta_m$  as the forcing variable, to estimate the ATE on outcome variables at the threshold (Imbens & Lemieux, 2008). The latter is achieved under the assumption that potential outcomes are continuous around the threshold:

**Assumption 1. Local Continuity**

$$\begin{aligned} \lim_{x^+ \rightarrow 0} \mathbb{E}[Y_m(1)|\Delta_m = x] &= \mathbb{E}[Y_m(1)|\Delta_m = 0] \\ \lim_{x^- \rightarrow 0} \mathbb{E}[Y_m(0)|\Delta_m = x] &= \mathbb{E}[Y_m(0)|\Delta_m = 0] \end{aligned} \quad (2)$$

Under this assumption, the discontinuity in average outcomes at the threshold yields the average treatment effect at the threshold:

$$\begin{aligned} \tau_{RD} &= \lim_{x^+ \rightarrow 0} \mathbb{E}[Y_m|\Delta_m = x] - \lim_{x^- \rightarrow 0} \mathbb{E}[Y_m|\Delta_m = x] \\ &= \mathbb{E}[Y_m(1)|\Delta_m = 0] - \mathbb{E}[Y_m(0)|\Delta_m = 0] \\ &= \mathbb{E}[Y_m(1) - Y_m(0)|\Delta_m = 0] \end{aligned}$$

The empirical results of this strategy are based on the following population local linear regression:

$$Y_m = \beta_0 + \beta_1 T_m + \beta_2 f(\Delta_m) + \beta_3 T_m f(\Delta_m) + \gamma' Z_m + \epsilon_m \quad \text{if } \Delta_m \in [-h, h] \quad (3)$$

where  $f$  is a polynomial function of degree  $p$  with  $f(0) = 0$ ,  $Z_m$  is a matrix of municipality-level covariates<sup>15</sup> and  $\gamma$  the vector of corresponding coefficients,  $h$  is the bandwidth, and  $\epsilon_m$  is the idiosyncratic municipality error term. The parameter of interest is  $\beta_1$  which corresponds, after some algebraic manipulation, to  $\tau_{RD}$ . To derive a consistent estimate of  $\beta_1$  and its corresponding confidence intervals, the selection of bandwidth and estimation method are crucial. The main results follow Calonico et al. (2014)'s non-parametric robust inference approach and data-driven bandwidth selection, in line with the literature exploring the validity of applying RD to close electoral races (de la Cuesta & Imai, 2016). Additionally, specifications differing in polynomial degree and control variables are estimated to avoid false inferences based on misspecifications, and increase precision.

RDD has been extensively used in electoral contexts to estimate the effect of winning an election on the candidate's future wealth (Eggers & Hainmueller, 2009) and votes, (Akhtari et al., 2022; Lee, 2008; Lewis et al., 2020) as well as the effect of political characteristics on downstream outcomes (Caughey et al., 2017; Fergusson et al., 2020; Galindo-Silva, 2021). Importantly, RDD estimates an ATE localized at a neighborhood

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<sup>15</sup>This matrix contains municipality-level variables like multidimensional poverty index, population, average height, area, distance variables, region dummies, political incumbent affiliation dummies, historical presences of land conflicts and indigenous population, amount of demobilized paramilitaries and guerrilla soldiers, and right and left-wing vote shares during 1994.

around the threshold. In the context of this work, this implies that the results presented in section 6, correspond to the ATE of a right-wing candidate election on violence, within close mayoral races. Rather than a limitation, the latter provides a useful tool to analyze shifts in political control in municipalities where such control is highly contested. The latter aligns well with the hypothesis formulated in section 3.

The validity of using RDD within such settings has been expressed by de la Cuesta and Imai (2016) and Eggers et al. (2014). However, recently, Marshall (2022) has shown that using RDD to estimate the effect of political characteristics on downstream outcomes (PCRD) can introduce asymptotic bias to the estimates when such characteristics are potentially correlated with the running variable (i.e. related to ability or access to political machinery). For instance, the author argues, that women need to be more competent to reach a close race than men due to voters' stereotypes or differential media coverage. In such a setting, RDD estimates compare competent women with less competent men, thus estimating the addition of the gender and competence effect. To get around this, Marshall (2022) proposes to conceptually redefine the treatment effect to include such compensating effects. In the context of this work, this implies estimating the effect of the election of a candidate from a right-wing party on armed conflict outcomes rather than the effect of political ideology.

## 5.2 Internal Validity

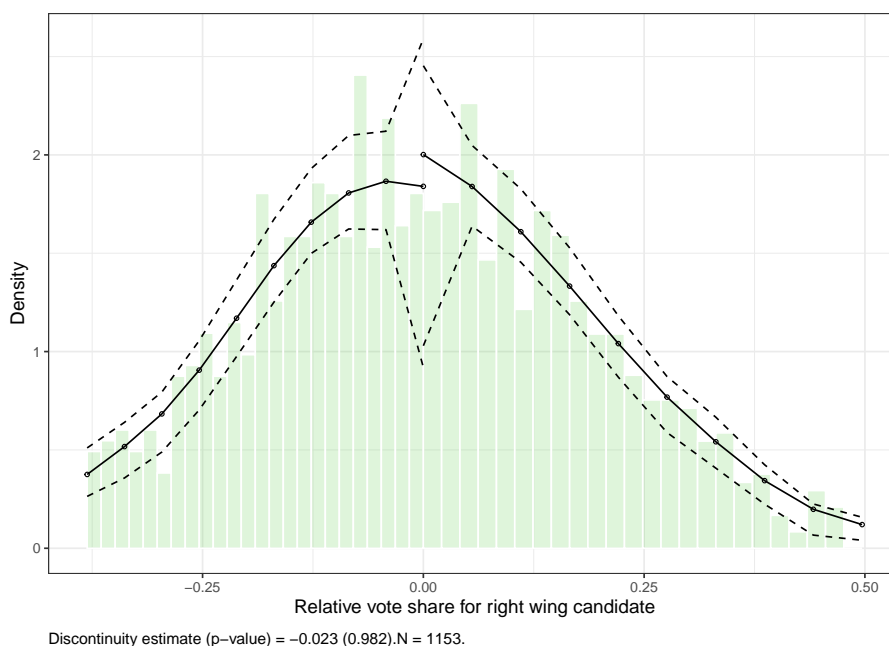
The validity of the results critically depends on the continuity assumption. One way in which this assumption can be violated is if agents can perfectly manipulate the running variable (Imbens & Lemieux, 2008; Lee & Lemieux, 2010; McCrary, 2008). In the present case, this would mean that political agents can precisely influence elections to gain sufficient votes to win (i.e. through clientelistic practices, vote-buying, or coercion). In the Colombian context, this seems a plausible threat given the extensive anecdotal evidence about vote-buying, clientelistic practices, and election fraud<sup>16</sup> as well as studies exploring the extent to which such practices are present in local and national elections (Fergusson et al., 2018, 2021). To test precise manipulation of the running variable, McCrary (2008)'s discontinuity test is performed. Figure 5 shows no statistically significant discontinuity at the threshold, across right-wing candidates' vote share differential. The latter must not be interpreted as evidence against the presence of clientelistic practices during the elections. Rather, together with the previously mentioned studies, it can indicate that agents' manipulation of vote shares is imperfect, and the randomness involved in such a process smooths the running variable around the threshold making RDD a suitable identification strategy (Lee & Lemieux, 2010).

Additionally, following Lee and Lemieux (2010), a balance table across continuous covariates is presented in appendix A. According to the authors, failing to reject the null hypothesis that covariates discontinuously change at the cut-off point is good evidence of the continuity assumption. These results thus reassure the internal validity of the employed identification strategy for right-wing elected candidates, and provide a basis for a causal interpretation of the results.

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<sup>16</sup>For a descriptive account of the electoral risk during 2019's local elections see Vargas-Betancourt (2019)

Figure 5: McCrary Test Right Wing Election



Source: Generated by the author.

## 6 Results

Baseline regression discontinuity results are presented in table 2, estimating parameters of equation 3 for different outcome variables. Panel A presents the estimates of the effect of electing a right-wing candidate during a close election on the killing rates of social and political leaders, in the four years following elections. Columns 1-4 present the results across different groups of control variables and polynomial specifications, below each estimate the bandwidth and effective sample size is presented. Panel B presents heterogeneous effects across different types of leaders. Particularly, social leader killings are disaggregated into communal, indigenous, and peasant leaders. A significant effect at the 10% confidence level is detected on communal leader killings, amounting to 2.5 times the municipality average (0.73 social leaders killed for every 100.000 inhabitants).

One possible reason for the observation of imprecise and null effects is differential politicians' access to ideologically sympathetic armed groups. To test this, table 3 presents results on the same set of variables as table 2, focusing on the subsample of municipalities with paramilitary groups presence<sup>17</sup>, defined as municipalities experiencing at least one violent event perpetrated by paramilitary groups since 2017. Consistent with hypothesis 1 and 2, the estimates are positive and highly significant across community and political leaders' homicides. The most conservative estimates amount to an increase of 5.5 and 1.6 points in homicide rates, amounting to around 3 times the respective municipality average (1.86 and 0.482).

Two robustness checks are performed to alleviate concerns about outliers driving

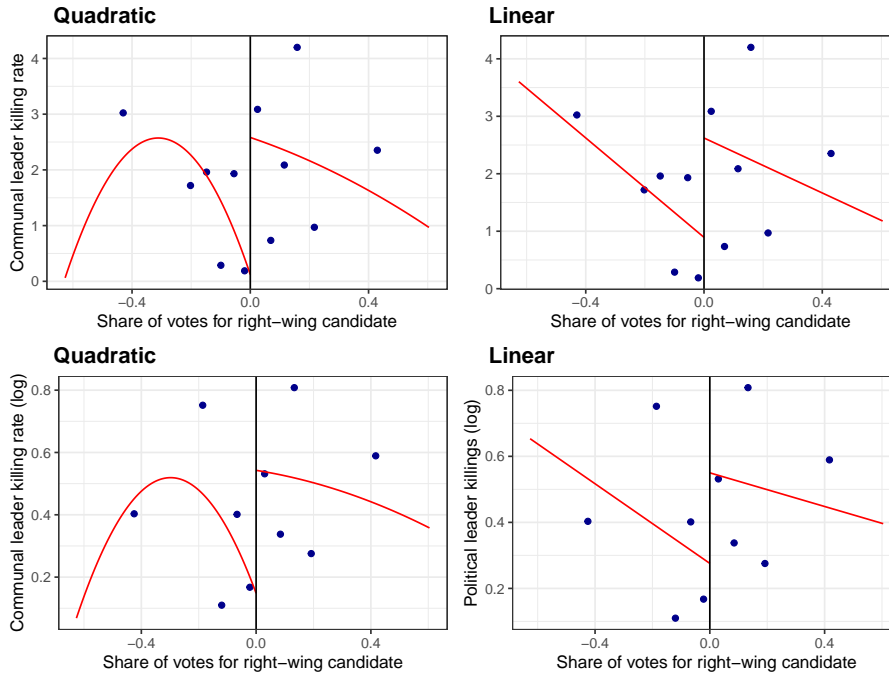
<sup>17</sup>The paramilitary presence variable is constructed using the armed actor events dataset ViPAA, constructed and made publicly available by Osorio et al. (2019).

these large effects. Panel A of table 4 estimates a log-level specification of equation 3 while panel B uses the extensive margin of social leader killings (a dummy of whether a municipality experiences any killing in the four years following the election). The most conservative estimates of the log-level specification with the full set of controls, show that electing a right-wing candidate increases communal and political leader killing rates by 98% and 71%. On the other hand, estimates on the extensive margin, show that the effects amount to an increase of 44 and 53 percentage points in the probability of experiencing a communal and political leader killing in the four years following the election. Baseline and outlier robust results are graphically presented in figures 6 and 7.

It is possible that restricting the sample to paramilitary presence municipalities introduces unobserved discontinuities at the threshold, violating the continuity assumption and yielding the identification strategy invalid. To alleviate this concern, a McCrary test is presented in appendix A1. Even though the discontinuity estimate is larger than in the full-sample scenario, the test fails to reject the no discontinuity null hypothesis. It is surprising that a larger density is accumulated just below the threshold, given that right-wing candidates in paramilitary municipalities are expected to manipulate the running variable more precisely. Some caution of about this test's results might be derived from the large imprecision of estimates at the threshold due to small sample size. To alleviate such weaknesses of the McCrary test, two placebo tests are further presented in appendix A: one across covariates (table A4) and another across outcomes at electoral years (tables A6 and A7). Given the violent nature of electoral years, the second test is particularly encouraging regarding the internal validity of the results.

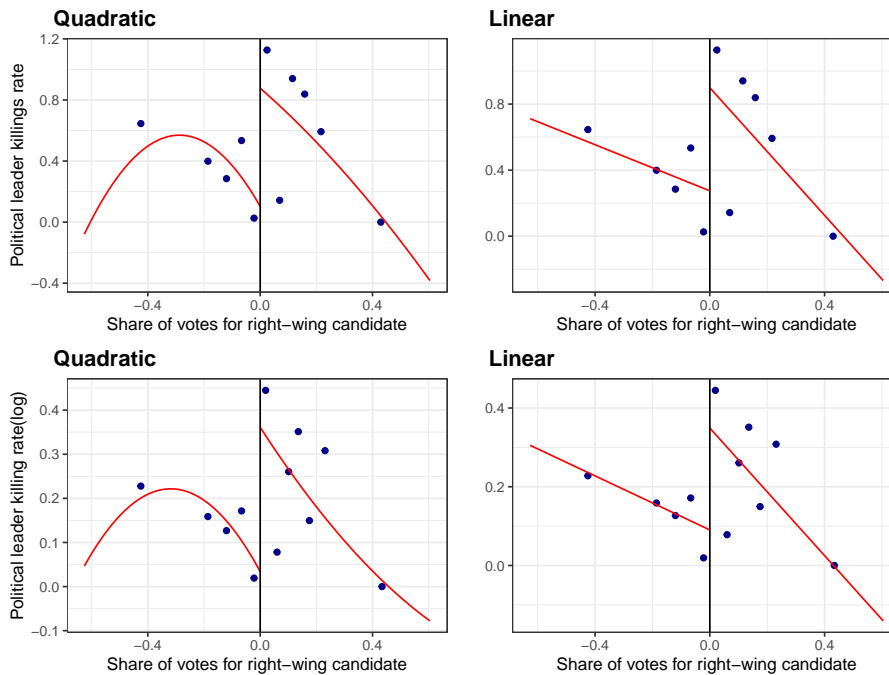
Finally, three more robustness checks are presented in appendix A. First results are replicated using an alternative measurement of social leader killings coming from CINEP, to rule out the possibility that measurement errors are driving the observed effects. In another specification the number of social leader killings instead of killing rate is used. Finally, following Eslava (2020) and Fergusson et al. (2020), robustness tests across different bandwidth sizes are performed to rule out the possibility of large changes in magnitude and significance across close bandwidth neighborhoods.

Figure 6: Baseline results communal leaders



Source: Generated by the author. Visual presentation of regression discontinuity results across linear and quadratic and level-level and log-level specifications. Calculated based on Calonico et al. (2014)'s non-parametric robust inference method. Observations are binned through Calonico et al. (2014)'s MSE-optimal quantile-spaced method using spacing estimators.

Figure 7: Baseline results political leaders

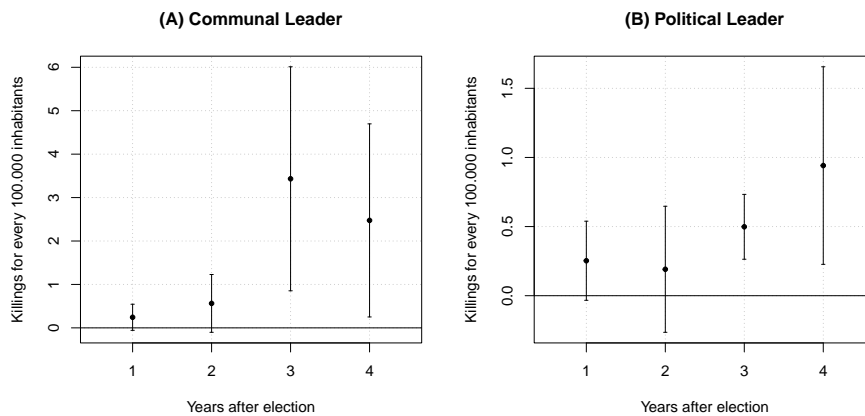


Source: Generated by the author. Visual presentation of regression discontinuity results across linear and quadratic and level-level and log-level specifications. Calculated based on Calonico et al. (2014)'s non-parametric robust inference method. Observations are binned through Calonico et al. (2014)'s MSE-optimal quantile-spaced method using spacing estimators.

## 7 Discussion

The results reject hypothesis 4 and 3, suggesting that the observed increase in social leader killings can be partly explained by the interrelation between local political dynamics and armed groups. Additionally, evidence in favor of hypothesis 2 is provided by figure 8 by showing that the estimated effects on leader killings are concentrated in electoral years (note that presidential elections take place in the third year of the term). Additionally, table 5 shows that the effect on political leader killings is mainly concentrated on left-wing and other-party leaders<sup>18</sup> which further supports the complementarity hypothesis (2).

Figure 8: Heterogeneous Effects Across Time



Source: Generated by the author.

Additionally, that positive effects are only found in the case communal leader killings, rather than indigenous and peasant leaders, underscores the pivotal role that that the first occupy within local political structures. As posited by Ávila-Martínez (2020, p. 43), the prevalence of communal leader assassinations primarily stems from their historical function as protectors of human rights and administrators of local justice. Typically, they serve as members of local administrative councils (for a description of administrative councils, see section 2.2). According to Ávila-Martínez (2020, p. 43), these civil institutions were formerly shared with FARC-EP across approximately 281 municipalities and have now emerged as central bodies in the implementation of post-conflict initiatives such as land restitution, the substitution of illegal crops, and the provision of monetary and symbolic compensation to armed-conflict victims. The observed results can thus be interpreted as a reaction by colluding political and armed groups, who, equipped with more precise information and control following elections, seek to suppress opposing interests (as in hypothesis 2) and discourage communities from defecting to rival armed or political factions (as hypothesized by Kalyvas (2006)). Moreover, the visibility of communal leaders, owing to their active participation in local councils and collaborative endeavors, may further heighten their susceptibility to targeted violence relative to indigenous and peasant leaders.

Aligned with the theoretical framework proposed by Kalyvas (2006), the findings indicate that information-sharing between incumbent right-wing groups and armed

<sup>18</sup>These candidates are usually independent or affiliated with small local parties.

groups is the most plausible mechanism driving the estimated effects. According to this mechanism, newly incumbent right-wing parties in municipalities with paramilitary presence, diminish these groups' relative cost of engaging in selective violence by furnishing intelligence on communal and opposing political leaders. Such information could be related to the identification of leaders carrying out endeavors contrary to political groups' interests, fine-grained information on their whereabouts, or generally, information that decreases the costs associated with the use of selective violence against social leaders.

A crucial implication of this mechanism is the substitution of indiscriminate violence with selective violence by the controlling armed groups. Table 6 presents corroborating evidence by examining the impact of a winning right-wing candidate on indiscriminate violence. Negative (in all specifications) and statistically significant coefficients on the number of massacre victims (in the linear specifications) are found, suggesting the existence of a substitution effect.

Another implication of the suggested mechanism is that insurgent groups opposing incumbent right-wing groups will have less precise information on right-wing political leaders after the election. In this sense, if information is the main operating mechanism driving the effects, insurgents' ability to effectively use selective violence should decrease after the election of a right-wing candidate, especially against opposing political leaders. Table 7, supports this implication, as it presents positive and statistically significant effects on threats against right-wing political leaders and failed killings against center political leaders.

Finally, it is possible that the results represent a tacit response of armed groups to the election of a right-wing candidate, regardless of the groups' ideological inclination. In this case, no collusion between politicians and groups could be inferred, and the information mechanism would fail to explain the results. Even though I'm unable to test heterogeneity across armed groups presence due to small sample size and high overlap, I replicate the results for the sample of municipalities without paramilitary presence in table 8, and find no statistically significant estimates.

The main limitation from this work is that there are potential drivers that remain untested. For instance, Marshall (2022) notes that PCRD designs, can yield results that are largely driven by politicians' compensating differentials. To test such mechanism, further research could collect candidate-level data and apply Torres (2023)'s sensitivity analysis method, to bound the magnitude of the effect of such compensating differentials. Secondly, the fact that a large proportion of social leader killings are committed by unknown actors, as mentioned by (Ávila-Martínez, 2020), restricts the possibility of further testing the proposed or different mechanisms. Finally, the reader may wonder why only right-wing elections are considered in the analysis. The reason is the lack of close-race left-wing elections, which yields RDD's identification strategy invalid due to low power and the introduction of discontinuities. The growing empirical literature on determinants of selective violence, would greatly benefit from future research using new empirical tools to surpass the mentioned barriers and estimate the effect of a left-wing candidate election on social leader killings in Colombia. Importantly, testing if results are symmetrical to those presented here or if insurgent groups behave differently could provide further evidence in favor/against Gallego (2018)'s findings.

Keeping in mind the mentioned limitations, this work has several implications for Colombia’s security policy and public debate. Firstly, effective political control and supervision has the potential to reduce social-leader killings. Incumbent mayors who are willing to share information with sympathetic armed groups, could be dissuaded to do so if that entails a higher risk getting punished. Secondly, the existence of a substitution effect between selective and indiscriminate violence warns policy-makers to interpret decreasing levels of general armed-conflict related violence as evidence in favor of a reduction in armed groups presence and influence over the territories. Rather, such a phenomenon can be partially explained by a re-composition in armed groups strategic use of violence driven by changes in information transmission mechanisms and political dynamics. The importance of this thesis’ results for the national security policy debate is supported by section B, which estimates, under conservative assumptions, that the election of right wing candidates in close races accounts for 18% and 14% of the observed national killing rates of communal and political leaders. Finally, the results and hypothesised mechanism, pose innovative insights to understand the new phase into which the Colombian armed-conflict is entering, specially highlighting the importance of strategic and complex interactions between armed groups and politicians in determining patterns of violence.

## 8 Conclusion

This thesis presents evidence suggesting that the use of selective violence by Colombian armed groups is partially determined by political outcomes. Particularly, in line with Ávila-Martínez (2020)’s hypothesis, selective violence is used as a complementary method of political competition by armed groups who are ideologically sympathetic with incumbent mayors. Regression discontinuity outlier-robust estimates, exploiting the electoral threshold discontinuity during 2015 and 2019 mayoral elections, show that electing a right-wing mayor at municipalities with paramilitary presence significantly increases municipal communal and political leader killing rates by 98% and 71%. Additionally, an extrapolation exercise, suggests that these effects explain 18% and 14% of the observed respective national rates. The most plausible mechanism driving these effects is information transmission. Particularly, newly incumbent right-wing groups, furnish armed groups with information about social leaders reducing the cost of using selective relative to indiscriminate violence. This work has important implications for the Colombia’s national security policy debate. Particularly, it suggests that political control can be an effective way of reducing selective violence; provides a new evidence in favor of a political explanation of the observed increase in social leader killings; and underscores the relative importance of previously empirically untested mechanisms to understand Colombia’s new armed-conflict phase.

## 9 Tables

Table 1: Summary statistics

Dependent Variables	Min	Max	Mean	SD	N
<b>Municipality characteristics</b>					
Multidimensional Poverty Index	14.272	98.854	69.327	15.104	-
Population	1090	300730	22610.165	32038.017	-
Rural index	0.019	0.966	0.57	0.218	-
<b>Violence variables<sup>1</sup></b>					
Collective violence victims	0	296.15	9.763	26.58	-
Non lethal violence	0	133.008	1.535	6.996	-
<b>INDEPAZ social leaders</b>					
Killed leaders	0	192.396	2.43	10.252	-
Killed communal leaders	0	48.193	0.733	3.478	-
Killed peasant leaders	0	79.365	0.779	4.238	-
Killed indigenous leaders	0	163.118	0.626	6.134	-
<b>CINEP social leaders</b>					
Killed leaders	0	79.365	1.371	5.298	-
Killed communal leaders	0	50.201	0.684	3.521	-
Killed peasant leaders	0	79.365	0.277	2.908	-
Killed indigenous leaders	0	36.948	0.246	1.731	-
<b>Warlike Actions</b>					
Warlike actions	0	115.741	2.837	8.928	-
Warlike actions victims	0	200.591	1.99	10.322	-
<b>Political Violence</b>					
Killed left-wing leaders	0	27.13	0.126	1.288	-
Killed center leaders	0	17.313	0.079	0.897	-
Killed right-wing leaders	0	10.91	0.059	0.55	-
<b>Race Details<sup>2</sup></b>					
Close races	-	-	-	-	1153
Municipalities	-	-	-	-	819
Left wing contender	-	-	-	-	139
Center Contentder	-	-	-	-	885
Other contender	-	-	-	-	129

*Note:*

This table presents summary statistics of the main variables. The sample consists of 1153 right-wing close races at the municipality level, 885 of which have a center contender and 139 a left-wing contender and 129 from non-categorized party.

<sup>1</sup> All violence variables are normalized for every 100.000 municipality inhabitants.

<sup>2</sup> Fergusson et al. (2020)'s party classification was used to code ideological affiliation.

Table 2: Effect of right-wing mayor election on social and political leader killings

Dependent Variable	Linear Polynomial		Quadratic Polynomial	
	(1)	(2)	(3)	(4)
<b>Panel A. Social and political leaders</b>				
Social Leader	0.625 (1.546)	0.63 (1.545)	1.269 (1.953)	1.311 (1.962)
N	495	495	647	647
Bandwidth	0.207	0.207	0.258	0.258
Political Leader	-0.094 (0.293)	-0.07 (0.296)	-0.087 (0.327)	-0.058 (0.331)
N	544	540	763	764
Bandwidth	0.207	0.206	0.284	0.284
<b>Panel B. Disagregation of social leaders</b>				
Communal leader	1.856* (1.012)	1.815* (1)	2.456** (1.23)	2.416** (1.215)
N	531	531	681	676
Bandwidth	0.21	0.21	0.252	0.251
Peasant Leader	0.167 (0.519)	0.199 (0.528)	-0.012 (0.625)	0.011 (0.639)
N	503	500	657	652
Bandwidth	0.252	0.253	0.301	0.295
Indigenous Leader	-0.351 (0.522)	-0.323 (0.524)	-0.571 (0.486)	-0.521 (0.514)
N	558	556	602	580
Bandwidth	0.296	0.299	0.296	0.286
<b>Specification details</b>				
Geo Controls	YES	YES	YES	YES
Socioeconomic Controls	YES	YES	YES	YES
Incumbency controls	NO	YES	NO	YES
Polynomial	1	1	2	2

*Note:*

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Violence outcomes correspond to the number of victims in the four years following electoral year, normalized for every 100.000 municipality inhabitants. Geographical controls include distance variables to main economic centers, region dummies, altitude, and area. Socioeconomic controls contain dummy on historic presence of land conflicts, presence of indigenous population between 1535 and 1540, number of demobilized armed group members before 2015 and multidimensional poverty during 2005. Electoral years correspond to 2019 and 2015. Threat and failed-killing victims are normalized for every 100.000 inhabitants.

Table 3: Effect of right-wing mayor election on social and political leader killings. Paramilitary presence subsample

Dependent Variable	Linear Polynomial		Quadratic Polynomial	
	(1)	(2)	(3)	(4)
<b>Panel A. Social and political leaders</b>				
Social Leader	3.735 (3.506)	3.125 (3.433)	11.971** (4.74)	11.854** (4.776)
N	116	120	104	104
Bandwidth	0.184	0.2	0.18	0.175
Political Leader	1.655*** (0.512)	1.684*** (0.509)	1.601*** (0.524)	1.704*** (0.526)
N	86	97	163	163
Bandwidth	0.142	0.149	0.265	0.265
<b>Panel B. Disagregation of social leaders</b>				
Communal leader	5.523*** (1.955)	5.774*** (1.98)	7.436*** (2.618)	6.729*** (2.495)
N	86	72	112	136
Bandwidth	0.15	0.124	0.2	0.24
Peasant Leader	1.138* (0.621)	1.062* (0.575)	1.463* (0.775)	0.982 (0.77)
N	88	79	104	104
Bandwidth	0.133	0.119	0.191	0.183
Indigenous Leader	-0.226 (1.402)	0.585 (1.694)	0.592 (2.072)	1.446 (2.089)
N	103	82	108	104
Bandwidth	0.152	0.128	0.176	0.169
<b>Specification details</b>				
Geo Controls	YES	YES	YES	YES
Socioeconomic Controls	YES	YES	YES	YES
Incumbency controls	NO	YES	NO	YES
Polynomial	1	1	2	2

*Note:*

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the subsample of municipalities with paramilitary presence after 2016. Violence outcomes correspond to the number of victims in the four years following electoral year, normalized for every 100.000 municipality inhabitants. Geographical controls include distance variables to main economic centers, region dummies, altitude, and area. Socioeconomic controls contain dummy on historic presence of land conflicts, presence of indigenous population between 1535 and 1540, number of demobilized armed group members before 2015 and multidimensional poverty during 2005.

Table 4: Outlier robustness

Dependent Variable	Linear Polynomial		Quadratic Polynomial	
	(1)	(2)	(3)	(4)
<b>Panel A. Extensive margin</b>				
Communal Leader	0.29263** (0.13165)	0.44255*** (0.12726)	0.55276*** (0.14943)	0.49105*** (0.14447)
N	133	101	112	116
Bandwidth	0.19981	0.16025	0.18399	0.18976
Political Leader	0.64684*** (0.14642)	0.61518*** (0.14042)	0.5356*** (0.15953)	0.53034*** (0.15364)
N	82	99	174	180
Bandwidth	0.13858	0.14689	0.25437	0.26709
<b>Panel B. Logarithmic</b>				
Communal Leader	0.85961*** (0.28601)	0.98651*** (0.27099)	1.22166*** (0.35435)	1.07509*** (0.33912)
N	105	79	110	111
Bandwidth	0.17578	0.14353	0.19461	0.20464
Political Leader	0.7046*** (0.18153)	0.71111*** (0.18291)	0.64063*** (0.19516)	0.72355*** (0.19811)
N	91	102	173	162
Bandwidth	0.14551	0.15579	0.26601	0.2381
<b>Specification Details</b>				
Geo Controls	YES	YES	YES	YES
Socioeconomic Controls	YES	YES	YES	YES
Incumbency controls	NO	YES	NO	YES
Polynomial	1	1	2	2

*Note:*

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the subsample of municipalities with paramilitary presence after 2016. Violence outcomes correspond to the number of victims in the four years following electoral year, normalized for every 100.000 municipality inhabitants. Geographical controls include distance variables to main economic centers, region dummies, altitude, and area. Socioeconomic controls contain dummy on historic presence of land conflicts, presence of indigenous population between 1535 and 1540, number of demobilized armed group members before 2015 and multidimensional poverty during 2005.

Table 5: Heterogeneous effects across political leaders partisanship

Dependent Variable	(1)	(2)	(3)	(4)
Left-Wing Leader	1.20292*** (0.35639)	1.25243*** (0.34101)	1.03415*** (0.34369)	1.04321*** (0.33753)
N	92	96	161	162
Bandwidth	0.13215	0.13452	0.23452	0.22842
Center Leader	-0.07008 (0.15442)	0.08567 (0.17664)	0.47525 (0.32953)	0.46944 (0.32355)
N	111	99	100	96
Bandwidth	0.19104	0.16875	0.18343	0.18173
Right-wing Leader	0.2619 (0.27282)	0.30855 (0.2759)	0.24485 (0.28894)	0.267 (0.28172)
N	134	161	176	167
Bandwidth	0.18544	0.22775	0.26218	0.22783
Other Party Leader	2.65575** (1.34302)	4.39159*** (1.23469)	3.21037** (1.61014)	3.88365** (1.55478)
N	104	82	176	144
Bandwidth	0.2002	0.147	0.30785	0.24224
Geo Controls	YES	YES	YES	YES
Socioeconomic Controls	YES	YES	YES	YES
Incumbency controls	NO	YES	NO	YES
Polynomial	1	1	2	2

*Note:*

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the subsample of municipalities with paramilitary presence after 2016. Violence outcomes correspond to the number of victims in the four years following electoral year, normalized for every 100.000 municipality inhabitants. Geographical controls include distance variables to main economic centers, region dummies, altitude, and area. Socioeconomic controls contain dummy on historic presence of land conflicts, presence of indigenous population between 1535 and 1540, number of demobilized armed group members before 2015 and multidimensional poverty during 2005.

Table 6: Effect of right-wing mayor election on indiscriminate violence

Dependent Variable	(1)	(2)	(3)	(4)
War actions	3.354 (6.20348)	4.21736 (6.27041)	9.00129 (8.71717)	9.69884 (8.67794)
N	105	104	124	123
Massacre victims	-5.04122** (2.54149)	-5.20507** (2.28915)	-4.38129 (2.89567)	-4.26453 (2.85399)
N	104	123	173	163
Bandwidth	0.16195	0.22943	0.23771	0.22586
Geo Controls	YES	YES	YES	YES
Socioeconomic Controls	YES	YES	YES	YES
Incumbency controls	NO	YES	NO	YES
Polynomial	1	1	2	2

*Note:*

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the subsample of municipalities with paramilitary presence after 2016. Violence outcomes correspond to the number of victims in the four years following electoral year, normalized for every 100.000 municipality inhabitants. Geographical controls include distance variables to main economic centers, region dummies, altitude, and area. Socioeconomic controls contain dummy on historic presence of land conflicts, presence of indigenous population between 1535 and 1540, number of demobilized armed group members before 2015 and multidimensional poverty during 2005. Electoral years correspond to 2019 and 2015. Threat and failed-killing victims are normalized for every 100.000 inhabitants.

Table 7: Effect of right-wing mayor election on non-lethal violence against social leaders

Dependent Variable	(1)	(2)	(3)	(4)
<b>Panel A. Leaders</b>				
Non-lethal violence against leaders	1.40109 (1.2039)	1.12693 (1.18801)	3.57274** (1.66643)	3.7953** (1.66501)
N	93	95	101	101
Bandwidth	0.13676	0.14107	0.1517	0.14882
Leader threat	-0.43903 (2.34658)	-1.09039 (2.40296)	-0.36088 (2.39735)	0.26666 (2.37502)
N	107	120	133	125
Bandwidth	0.13948	0.15307	0.17879	0.17012
Leader failed killing	1.24219 (1.04576)	1.28361 (1.0056)	0.91345 (0.93732)	1.23303 (1.01543)

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Table 7 – Continued from previous page

Dependent Variable	(1)	(2)	(3)	(4)
N	163	144	104	102
Bandwidth	0.2015	0.18284	0.15948	0.15279
<b>Panel B. Political leaders</b>				
Political leader failed killing	1.42807**	1.62112***	1.64689**	2.01719***
	(0.6109)	(0.60021)	(0.71732)	(0.73242)
N	77	74	104	100
Bandwidth	0.13232	0.13117	0.16616	0.15629
Political leader threat	1.49592	1.28432	3.17109	2.29757
	(1.75181)	(1.76203)	(1.99102)	(1.99442)
N	102	102	118	123
Bandwidth	0.1429	0.14139	0.17414	0.17225
<b>Panel C. Political leaders by partisanship</b>				
Left-wing leader threat	0.14122	0.32088	0.45937*	0.24611
	(0.21108)	(0.20616)	(0.25663)	(0.24407)
N	105	102	118	158
Bandwidth	0.19639	0.16336	0.21013	0.23481
Center leader threat	-0.11361	-0.36519	0.12102	-0.00203
	(0.43804)	(0.43285)	(0.43618)	(0.44348)
N	81	84	107	110
Bandwidth	0.1153	0.1194	0.15637	0.15566
Right-wing threat	3.22795**	2.81931**	2.86608**	2.57688**
	(1.30503)	(1.22805)	(1.30523)	(1.25446)
N	95	100	133	136
Bandwidth	0.13273	0.13498	0.18468	0.1834
Left-wing leader failed killing	0.06019	0.17444	0.09468	0.28871
	(0.21669)	(0.22213)	(0.21976)	(0.23258)
N	72	71	112	104
Bandwidth	0.1194	0.11594	0.19309	0.18385
Center leader failed killing	0.17791**	0.22661***	0.22645***	0.34669***
	(0.08571)	(0.08669)	(0.07994)	(0.10556)
N	74	67	91	88
Bandwidth	0.13866	0.13252	0.14132	0.1467
Right-wing failed killing	-0.20876	-0.23538	-0.0932	-0.17633
	(0.22253)	(0.21318)	(0.4203)	(0.37217)
N	86	86	128	120
Bandwidth	0.12549	0.12613	0.17546	0.1737
<b>Specification Details</b>				
Geo Controls	YES	YES	YES	YES

Continued on next page

Table 7 – Continued from previous page

Dependent Variable	(1)	(2)	(3)	(4)
Socioeconomic Controls	YES	YES	YES	YES
Incumbency controls Polynomial	NO 1	YES 1	NO 2	YES 2

*Note:*

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the subsample of municipalities with paramilitary presence after 2016. Violence outcomes correspond to the number of victims in the four years following electoral year, normalized for every 100,000 municipality inhabitants. Geographical controls include distance variables to main economic centers, region dummies, altitude, and area. Socioeconomic controls contain dummy on historic presence of land conflicts, presence of indigenous population between 1535 and 1540, number of demobilized armed group members before 2015, and multidimensional poverty during 2005.

Table 8: Effect of right-wing mayor election on social and political leader killings. Municipalities without paramilitary presence

Dependent Variable	Linear Polynomial		Quadratic Polynomial	
	(1)	(2)	(3)	(4)
<b>Panel A. Social and political leaders</b>				
Social Leader	-0.60324 (1.20038)	-0.58729 (1.20429)	-1.23744 (1.30243)	-1.2364 (1.32065)
N	281	282	439	439
Bandwidth	0.19082	0.19079	0.27719	0.27377
Political Leader	-0.5553 (0.34812)	-0.55476 (0.35223)	-0.63432 (0.38839)	-0.63304 (0.38946)
N	381	376	581	583
Bandwidth	0.19816	0.19666	0.30958	0.31354
<b>Panel B. Disagregation of social leaders</b>				
Communal leader	0.94499 (0.75232)	0.94111 (0.75306)	1.00325 (0.74543)	0.99374 (0.74693)
N	414	420	564	563
Bandwidth	0.19299	0.19536	0.33878	0.3385
Peasant Leader	0.92372 (0.61436)	0.94899 (0.60845)	-0.51541 (0.7891)	-0.51105 (0.79106)
N	548	530	470	470
Bandwidth	0.33876	0.32701	0.27258	0.27295
Indigenous Leader	-0.24471 (0.36486)	-0.2551 (0.36489)	-0.86138 (0.65333)	-0.87483 (0.64968)
N	175	174	255	251
Bandwidth	0.18131	0.18138	0.17432	0.17405
<b>Specification details</b>				
Geo Controls	YES	YES	YES	YES
Socioeconomic Controls	YES	YES	YES	YES
Incumbency controls	NO	YES	NO	YES
Polynomial	1	1	2	2

*Note:*

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the subsample of municipalities without paramilitary presence after 2016. Violence outcomes correspond to the number of victims in the four years following electoral year, normalized for every 100.000 municipality inhabitants. Geographical controls include distance variables to main economic centers, region dummies, altitude, and area. Socioeconomic controls contain dummy on historic presence of land conflicts, presence of indigenous population between 1535 and 1540, number of demobilized armed group members before 2015 and multidimensional poverty during 2005.

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## A Data and robustnes checks

Table A1: Variable sources

Variable	Description	Time Span	R name	Source
<b>Municipality characteristics</b>				
Multidimensional poverty index		2005	IPM	Acevedo and Bor-nacelly (2014)
Population	Annual population	2012-2023	population	
Rurality Index	Annual rural population / annual total population	2012-2023	ind_rural	
<b>Violence variables</b>				
Collective violence victims	Number of victims of violent acts against collectives	2012-2023	collective_violence	CINEP
Non lethal violence	Number of victims of non-lethal violent acts	2012-2023	non_leth_vio	
Killed leaders	Number of killed social leaders	2016-2023	lid_assas	INDEPAZ
Killed communal leaders	Number of killed communal leaders		lid_comunal_sector	
Killed peasant leaders	Number of killed peasant leaders		lid_campesino_sector	
Killed indigenous leaders	Number of killed indigenous leaders		lid_indigenas_sector	
Killed leaders	Number of killed social leaders	2012-2023	killing_sd	CINEP
Killed communal leaders	Number of killed communal leaders		comunal_sector_sd	
Killed peasant leaders	Number of killed peasant leaders		campesino_sector_sd	
Killed indigenous leaders	Number of killed indigenous leaders		indig_sector_sd	
War actions	Number of confrontations between armed groups (both illegal and state forces).	1958-2023	belic_action	National Center of Historical Memory
War actions victims	Number of victims caused by confrontations between armed groups (both illegal and state forces).		tot_victims	

Variable	Description	Time Span	R name	Source
Massacre victims	Number of victims from massacres.		mas_kill	
Killed political leaders	Number of political leaders killed. Here political leaders refer to individuals holding public offices, political candidates, or members of political parties.	2016-2023	moe_pol_kill	Electoral Observatory Mission
Killed left-wing leaders	Number of political left-wing leaders killed. Ideological categorization follows Cabra-Ruiz et al. (2023) party classification.		moe_left_kill	
Killed center-wing leaders	Number of political center-wing leaders killed. Ideological categorization follows Cabra-Ruiz et al. (2023) party classification.		moe_center_kill	
Killed political right-wing leaders	Number of political right-wing leaders killed. Ideological categorization follows Cabra-Ruiz et al. (2023) party classification.		moe_right_kill	
<b>Armed groups presence</b>				
Paramilitary acts	Number of violent events by paramilitary groups between 2016 and 2019	2016-2019	param_acts	
Paramilitary presence	Dummy for paramilitary acts larger than zero.		param_pres	
Insurgent acts	Number of violent events by insurgent groups between 2016 and 2019	2016-2019	insurg_acts	
Insurgent presence	Dummy for insurgent acts larger than zero.		insurg_pres	
State acts	Number of violent events by state forces between 2016 and 2019	2016-2019	gov_acts	
State presence	Dummy for state forces acts larger than zero.		gov_pres	
<b>Electoral variables</b>				
Right-wing vote share	Within races where only one of the first two candidates is right-wing. Equals the percentage of right-wing candidate votes from the total votes cast to the first two candidates.	2015 and 2019	share_diff2_r	Cabra-Ruiz et al. (2023) and CEDAE (2024)

Table A2: Summary statistics paramilitary presence subsample

Dependent Variables	Min	Max	Mean	SD	N
<b>Municipality characteristics</b>					
Multidimensional Poverty Index	14.272	98.854	73.185	15.881	-
Population	1381	286635	38257.561	41116.739	-
Rural index	0.031	0.962	0.55	0.232	-
<b>Violence variables<sup>1</sup></b>					
Collective violence victims	0	296.15	23.966	39.038	-
Non lethal violence	0	133.008	4.409	11.713	-
<b>INDEPAZ social leaders</b>					
Killed leaders	0	89.963	5.192	10.501	-
Killed communal leaders	0	39.114	1.86	5.326	-
Killed peasant leaders	0	62.583	1.84	5.621	-
Killed indigenous leaders	0	49.264	1.2	5.146	-
<b>CINEP social leaders</b>					
Killed leaders	0	47.125	3.235	7.162	-
Killed communal leaders	0	46.937	1.749	5.051	-
Killed peasant leaders	0	39.101	0.657	3.331	-
Killed indigenous leaders	0	36.948	0.755	3.181	-
<b>Belic Actions</b>					
Warlike actions	0	73.141	7.281	13.524	-
Warlike actions' victims	0	200.591	4.946	15.972	-
<b>Political Violence</b>					
Killed political leaders	0	13.763	0.482	1.668	-
Killed left-wing leaders	0	13.763	0.241	1.344	-
Killed center leaders	0	10.176	0.112	0.823	-
Killed right-wing leaders	0	5.227	0.128	0.664	-
<b>Armed group presence<sup>2</sup></b>					
Paramilitary acts	1	183	5.616	13.297	-
Insurgent acts	0	82	4.734	8.837	-
State forces acts	0	178	6.284	14.568	-
Criminal organizations acts	0	15	1.841	2.895	-
<b>Race Details<sup>3</sup></b>					
Close races	-	-	-	-	271
Municipalities	-	-	-	-	194
Left wing contender	-	-	-	-	198

Continued on next page

Table A2 – Continued from previous page

Dependent Variables	Min	Max	Mean	SD	N
Center Contender	-	-	-	-	41
Other contender	-	-	-	-	32

*Note:*

This table presents summary statistics of the main variables. The sample consists of 1153 right-wing close races at the municipality level, 885 of which have a center contender and 139 a left-wing contender and 129 from non-categorized party.

<sup>1</sup> All violence variables are normalized for every 100.000 municipality inhabitants.

<sup>2</sup> Number of acts by violent acts between between 2016 and 2019 across armed groups.

<sup>3</sup> Fergusson et al. (2020)'s party classification was used to code ideological affiliation.

Table A3: Covariate balance. Full sample

Dependent Variable	(1)	(2)
Height	-270 (262)	-326 (338)
Area (km <sup>2</sup> )	-550* (317)	36 (437)
Distance dpto capital	13 (19)	25 (27)
Distance market	-23 (20)	1 (27)
Distance Bogotá	-34 (55)	-43 (76)
Carebean region	0.046 (0.116)	0.070 (0.151)
Pacific region	-0.076 (0.105)	-0.033 (0.141)
Orinoquia region	-0.050 (0.066)	0.066 (0.097)
Amazon region	-0.031 (0.044)	-0.061 (0.070)
Indigenous population (1535-1540)	-0.039 (0.136)	-0.075 (0.178)
Demobilized paramilitaries	0.713 (1.065)	1.703 (1.783)
Demobilized guerrillas	4.151 (6.155)	6.229 (7.368)
Demobilized combatants	5.388 (6.597)	9.606 (8.520)
MPI	0.518	2.243

Continued on next page

Table A3 – continued from previous page

Dependent Variable	(1)	(2)
	(4.546)	(5.982)
UBN	0.233	6.065
	(4.736)	(6.303)
Population	-5075	-7867
	(8136)	(11055)
Right-Wing incumbent	0.067	0.116
	(0.140)	(0.181)
Non-right-wing incumbent	-0.067	-0.116
	(0.140)	(0.181)
Geo Controls	NO	NO
Socioeconomic Controls	NO	NO
Incumbency controls	NO	NO
Polynomial	1	2

*Note:*

Robust standard errors in parenthesis. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the full sample of municipalities with close races.

Table A4: Covariate balance. Paramilitary presence subsample

Dependent Variable	(1)	(2)
Height	-269.82726	-326.48316
	(261.74989)	(338.2715)
Area (km2)	-550.06804*	36.29752
	(316.76013)	(437.40434)
Distance dpto capital	13.133	25.13599
	(19.47145)	(27.07088)
Distance market	-23.35407	1.34298
	(19.9576)	(27.2842)
Distance Bogotá	-34.08632	-42.86366
	(55.18572)	(75.76751)
Carebean region	0.04598	0.06974
	(0.11572)	(0.15053)
Pacific region	-0.07602	-0.03349
	(0.10505)	(0.14095)
Orinoquia region	-0.05016	0.06576
	(0.06609)	(0.09693)
Amazon region	-0.03137	-0.06109
	(0.04448)	(0.06962)

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Table A4 – Continued from previous page

Dependent Variable	(1)	(2)
Indigenous population (1535-1540)	-0.03924 (0.13588)	-0.07532 (0.17797)
Demobilized paramilitaries	0.7128 (1.06482)	1.70274 (1.78339)
Demobilized guerrillas	4.15059 (6.15549)	6.22906 (7.36847)
Demobilized combatants	5.38829 (6.59655)	9.60625 (8.52019)
MPI	0.51786 (4.54573)	2.24278 (5.98214)
UBN	0.23261 (4.73617)	6.06535 (6.30285)
Population	-5074.89772 (8135.94629)	-7867.22342 (11055.14133)
Right-Wing incumbent	0.06699 (0.1399)	0.1163 (0.18068)
Non-right-wing incumbent	-0.06699 (0.1399)	-0.1163 (0.18068)
Bandwidth Polynomial	0.124 1	0.124 2

*Note:*

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the subsample of municipalities with paramilitary presence after 2016.

Table A5: Measurement robustness

Dependent Variable	Linear Polynomial		Quadratic Polynomial	
	(1)	(2)	(3)	(4)
<b>Alternative Measurement</b>				
Communal Leader (CINEP)	4.46861*	4.87736**	8.10689**	8.00818**
	(2.45311)	(2.44441)	(3.64113)	(3.69108)
N	112	101	117	111
Bandwidth	0.18528	0.17713	0.20241	0.18997
<b>Raw Outcomes</b>				
Political Leader	0.60769***	0.56847***	0.5195***	0.55281***
	(0.15077)	(0.15056)	(0.16822)	(0.16581)
N	100	110	178	173
Bandwidth	0.14817	0.15834	0.26485	0.25064
Communal Leader (INDEPAZ)	1.60247***	1.59451***	1.66335***	1.67781***
	(0.32866)	(0.32643)	(0.4459)	(0.41125)
N	74	72	136	123
Bandwidth	0.1204	0.11017	0.24192	0.22777
Communal Leader (CINEP)	1.44001***	1.94329***	1.86868***	1.82996***
	(0.38083)	(0.36503)	(0.51205)	(0.50266)
N	96	72	122	120
Bandwidth	0.16734	0.12184	0.1905	0.18692
<b>Specification Details</b>				
Geo Controls	YES	YES	YES	YES
Socioeconomic Controls	YES	YES	YES	YES
Incumbency controls	NO	YES	NO	YES
Polynomial	1	1	2	2

*Note:*

Robust standard errors in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the subsample of municipalities with paramilitary presence after 2016. Violence outcomes correspond to the number of victims in the four years following electoral year, normalized for every 100.000 municipality inhabitants. Geographical controls include distance variables to main economic centers, region dummies, altitude, and area. Socioeconomic controls contain dummy on historic presence of land conflicts, presence of indigenous population between 1535 and 1540, number of demobilized armed group members before 2015 and multidimensional poverty during 2005.

Table A6: Placebo test outcomes at electoral years. Log-level specification

Dependent Variable	(1)	(2)	(3)	(4)
Communal Leader (CINEP)	0.14805 (0.10989)	0.07364 (0.09751)	0.15868 (0.15024)	0.16833 (0.15063)
N	120	97	111	111
Bandwidth	0.20643	0.15751	0.17105	0.16238
Communal Leader (INDEPAZ)	0.11509 (0.10555)	0.14172 (0.10084)	0.2293 (0.15893)	0.1794 (0.14466)
N	104	111	113	112
Bandwidth	0.18207	0.18875	0.17033	0.16745
Political Leader	-0.00319 (0.01443)	0.00369 (0.0132)	0.03827* (0.02236)	0.04693** (0.02231)
N	101	102	97	99
Bandwidth	0.19154	0.14687	0.14135	0.14805
Geo Controls	YES	YES	YES	YES
Socioeconomic Controls	YES	YES	YES	YES
Incumbency controls	NO	YES	NO	YES
Polynomial	1	1	2	2

*Note:*

Robust standard errors in parenthesis. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the subsample of municipalities with paramilitary presence after 2016. Violence outcomes correspond to the number of victims in the four years following electoral year, normalized for every 100,000 municipality inhabitants. Geographical controls include distance variables to main economic centers, region dummies, altitude, and area. Socioeconomic controls contain dummy on historic presence of land conflicts, presence of indigenous population between 1535 and 1540, number of demobilized armed group members before 2015 and multidimensional poverty during 2005. Electoral years correspond to 2019 and 2015.

Table A7: Placebo test outcomes at electoral years. Extensive margin

Dependent Variable	(1)	(2)	(3)	(4)
Communal Leader (CINEP)	-0.04193 (0.06254)	-0.05339 (0.0647)	0.00263 (0.08811)	0.01034 (0.09003)
N	97	77	110	108
Bandwidth	0.14764	0.11977	0.16323	0.15354
Communal Leader (INDEPAZ)	0.00407 (0.05659)	0.01482 (0.05419)	0.05495 (0.07696)	0.0266 (0.06976)
N	109	113	116	113
Bandwidth	0.1776	0.18526	0.17002	0.1667
Political Leader	0.0059 (0.02119)	0.00712 (0.02089)	0.04957 (0.03293)	0.06281* (0.03299)
N	97	99	102	102
Bandwidth	0.15264	0.15419	0.15405	0.15322
Geo Controls	YES	YES	YES	YES
Socioeconomic Controls	YES	YES	YES	YES
Incumbency controls	NO	YES	NO	YES
Polynomial	1	1	2	2

*Note:*

Robust standard errors in parenthesis. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ . Calonico et al. (2014) data-driven bandwidth selection used in all regressions. Each coefficient corresponds to a different regression. Estimates are based on the subsample of municipalities with paramilitary presence after 2016. Violence outcomes correspond to the number of victims in the four years following electoral year, normalized for every 100,000 municipality inhabitants. Geographical controls include distance variables to main economic centers, region dummies, altitude, and area. Socioeconomic controls contain dummy on historic presence of land conflicts, presence of indigenous population between 1535 and 1540, number of demobilized armed group members before 2015 and multidimensional poverty during 2005. Electoral years correspond to 2019 and 2015.

Figure A1: McCrary test right wing election. Paramilitary subsample

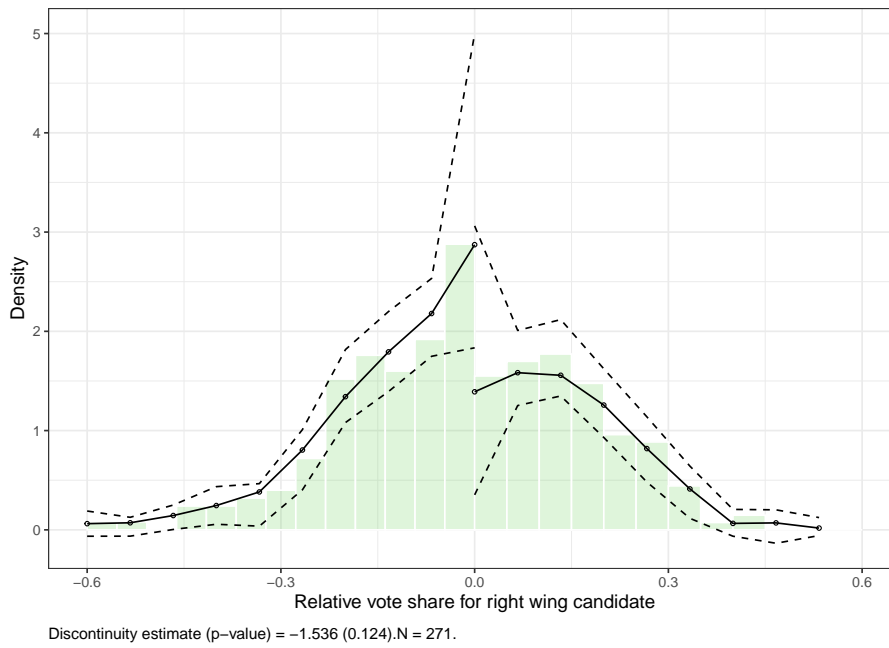
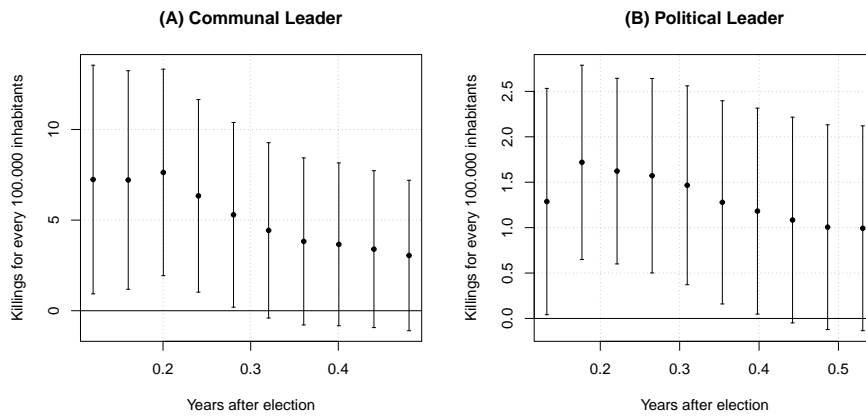


Figure A2: Bandwidth robustness



## B Extrapolation

This section presents the results on an extrapolation exercise providing "back-of-the-envelope" calculations, under different assumptions, on the effect of the election of a right-wing candidate on the national communal/political leader killing rates. This exercise can be seen as a partial equilibrium analysis, as it disregards the possible general equilibrium dynamics that could further alter the aggregate effect on the national rate of communal/political leader killings.

### B.1 Close races and paramilitary presence

This first section focuses on the sample of municipalities used for the regression discontinuity design. Firstly, it is assumed, based on results from table 8, that the treatment has no effect on the outcome variables across municipalities without paramilitary presence. Additionally, the estimated treatment effect (in table 3) is assumed to be uniformly distributed across paramilitary municipalities. Moreover, only close race municipalities where the right-wing vote-margin is within Calonico et al. (2014)'s optimal bandwidth are considered.

Let  $NR$  be the national killing rate of communal leaders within close-race municipalities. Furthermore let  $P$  and  $NP$  be the sets of paramilitary and non-paramilitary municipalities, such that  $P \cup NP = M$  where  $M$  is the set of all municipalities with right-wing close-race vote shares within Calonico et al. (2014)'s optimal bandwidth. Additionally, let  $y_m$  be the number of communal leaders killed at municipality  $m$  between the election and the end of the term and  $p_m$  be the population in hundreds of thousands. Finally let  $KR_m^T$  be the potential killing rate of municipality  $m$ , where  $T = 0, 1$  indicates the treatment status. Then:

$$\begin{aligned}
 NR &= \frac{\sum_{m \in M} y_m}{\sum_{m \in M} p_m} = \frac{\sum_{m \in P} y_m + \sum_{m \in NP} y_m}{\sum_{m \in M} p_m} \\
 &= \frac{\sum_{m \in P} y_m}{\sum_{m \in M} p_m} + \frac{\sum_{m \in NP} y_m}{\sum_{m \in M} p_m}; \text{ let } \mu = \frac{\sum_{m \in NP} y_m}{\sum_{m \in M} p_m} \\
 &= \frac{\sum_{m \in P} p_m \frac{y_m}{p_m}}{\sum_{m \in M} p_m} + \mu = \frac{\sum_{m \in P} p_m KR_m^T}{\sum_{m \in M} p_m} + \mu \\
 &= \frac{\sum_{m \in P} p_m (I(T=1)KR_m^1 + I(T=0)KR_m^0)}{\sum_{m \in M} p_m} + \mu
 \end{aligned} \tag{4}$$

The first assumption implies that  $\mu$  does not change with the treatment status. Additionally, the homogeneity assumption implies that  $KR_m^1 - KR_m^0 = \alpha \forall m$ . Then a counterfactual national killing rate can be constructed by subtracting the estimated treatment effect from treated municipalities. Note that  $KR_m^1 - \alpha = KR_m^0$ .

$$\begin{aligned}
 NR_{counterfactual} &= \frac{\sum_{m \in P} p_m (I(T=1)(KR_m^1 - \alpha) + I(T=0)KR_m^0)}{\sum_{m \in M} p_m} + \mu \\
 &= \frac{\sum_{m \in P} p_m (I(T=1)KR_m^0 + I(T=0)KR_m^0)}{\sum_{m \in M} p_m} + \mu \\
 &= \frac{\sum_{m \in P} p_m KR_m^0}{\sum_{m \in M} p_m} + \mu \\
 NR - NR_{counterfactual} &= \frac{\sum_{m \in P} p_m (I(T=1)(\alpha))}{\sum_{m \in M} p_m}
 \end{aligned} \tag{5}$$

The difference between the observed and the counterfactual rates is the effect of the treatment on the national killing rate of communal leaders within close-race municipalities. Estimating this counterfactual using municipality-level population and letting  $\alpha = 5.523$  (the most conservative estimate in table 3) yields an effect on the national rate of 1.18 . However, this estimate accounts for more than a 100% of the national killings rate, which warns some caution regarding the assumptions. It is possible that the homogeneity assumption is too strong if municipalities with wider vote margins have lower treatment effects, and  $\alpha = 5.523$  is an upper bound.

To address this issue the homogeneity assumption is relaxed. Following Kalyvas (2006), it is likely that in less contested settings (wider vote margins) an increase in political control causes a smaller effect on the use of selective violence by armed-groups. In this spirit, a decreasing exponential functional relationship between right-wing candidate vote margin and treatment effect is assumed. Particularly, let  $\sigma_m = f(x) = \alpha e^{-kx_m}$  where  $\sigma_m$  is the treatment effect,  $x_m \in [0, 1]$  is the vote margin of a right-wing candidate at municipality  $m$ , and  $\alpha = f(0) = 5.523$  is the treatment effect at the voting threshold corresponding to estimates in table 3. I impose that  $f(1) = 0.0001$ , to ensure that the function converges quick enough towards zero as it reaches 1, yielding  $k = \ln(10000\alpha)$ . The latter implies that the homogeneity assumption is relaxed into  $KR_m^1 - KR_m^0 = \sigma_m = \alpha e^{-\ln(10^4\alpha)x_m} = \frac{\alpha}{(\alpha 10^4)^{x_m}}$ . In this setting the effect on the national killing rate within the RDD sample can be calculated by:

$$NR - NR_{counterfactual} = \frac{\sum_{m \in P} p_m (I(T = 1) (\frac{\alpha}{(\alpha 10^4)^{x_m}}))}{\sum_{m \in M} p_m} \quad (6)$$

An effect of 0.139 and 0.44 is found on national political and communal killing rates, amounting to 38% and 48% of the observed rates (0.36 and 0.9).

## B.2 National rates

By making additional assumptions it is possible to estimate the effect on the national homicide rate of communal and political leaders, including all municipalities. I make the additional assumption that municipalities where either none of the first two candidates are affiliated with a right-wing party, or where both of them are, are unaffected by the treatment. The latter implies, that there are no spillover effects over RDD out-of-sample municipalities. Although this assumption might not hold, its violation is likely to introduce a downward bias<sup>19</sup> making our estimates a lower-bound of the true effect. Additionally, let  $C$  be the set of close-race municipalities, defined as municipalities where only one of the first two candidates is affiliated with a right-wing party,  $NC$  its complement,  $M$  the set of all municipalities and  $P$  and  $NP$  the sets of paramilitary and non-paramilitary municipalities. The national communal leader killing rate can be decomposed in the

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<sup>19</sup>It is likely that there are spatial spillover effects over neighboring municipalities. In this sense, the election of right-wing candidate is expected to increase social leader killings in neighboring municipalities. Under such a mechanism, the results of this chapter would underestimate the true effect on the national leader homicide rate.

following way:

$$\begin{aligned}
NR &= \frac{\sum_{m \in M} y_m}{\sum_{m \in M} p_m} = \frac{\sum_{m \in P \cap C} y_m + \sum_{m \in NP \cup NC} y_m}{\sum_{m \in M} p_m} \\
&= \frac{\sum_{m \in P \cap C} y_m}{\sum_{m \in M} p_m} + \frac{\sum_{m \in NP \cup NC} y_m}{\sum_{m \in M} p_m}; \text{ let } \mu = \frac{\sum_{m \in NP \cup NC} y_m}{\sum_{m \in M} p_m} \\
&= \frac{\sum_{m \in P \cap C} p_m \frac{y_m}{p_m}}{\sum_{m \in M} p_m} + \mu = \frac{\sum_{m \in P \cap C} p_m K R_m^T}{\sum_{m \in M} p_m} + \mu
\end{aligned} \tag{7}$$

Under the augmented set of assumptions  $\mu$  does not depend on the treatment status and the counterfactual rate can be calculated in the same way as in the previous section:

$$\begin{aligned}
NR_{counterfactual} &= \frac{\sum_{m \in P \cap C} p_m (I(T=1)(K R_m^1 - \sigma_m) + I(T=0)K R_m^0)}{\sum_{m \in M} p_m} + \mu \\
&= \frac{\sum_{m \in P \cap C} p_m (I(T=1)K R_m^0 + I(T=0)K R_m^0)}{\sum_{m \in M} p_m} + \mu \\
&= \frac{\sum_{m \in P \cap C} p_m K R_m^0}{\sum_{m \in M} p_m} + \mu \tag{8} \\
NR - NR_{counterfactual} &= \frac{\sum_{m \in P \cap C} p_m (I(T=1)(\sigma_m))}{\sum_{m \in M} p_m} \\
NR - NR_{counterfactual} &= \frac{\sum_{m \in P \cap C} p_m (I(T=1)(\alpha e^{\ln(10000\alpha)x_m}))}{\sum_{m \in M} p_m}
\end{aligned}$$

Under this new set of assumptions, the estimated effects of right-wing elections on national communal and political leader homicides rates are 0.1627 and 0.051, explaining 18% and 14% of the respective observed rates. Results are replicated for convergence rates between half and twice  $10^{-4}$ . Figure B1 presents the results for national rates while figure B2 for the subset of RDD municipalities, across election years. In general the estimates magnitudes don't vary greatly across convergence rates nor election years.

These results highlight that this thesis' results are highly relevant in explaining the recent increase in social leader killings in Colombia. The relative magnitude of the estimated effects on national killing rates, implies that the interaction between political and armed actors has played a predominant role in determining social leader killings in the past eight years in Colombia.

Figure B1: Sensitivity analysis national killing rates

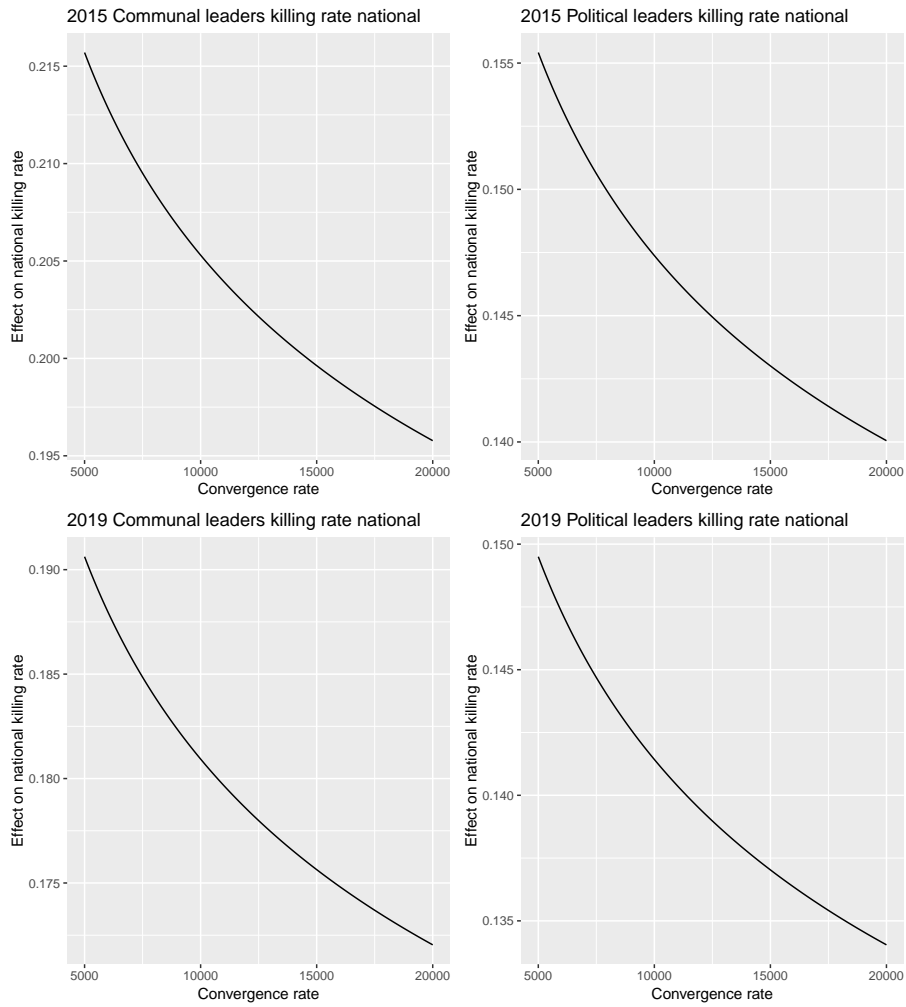


Figure B2: Sensitivity analysis RDD sample killing rates

