Rebel Governance and Development: The Long-Term Effects of Guerrillas in El Salvador *

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Abstract

How does territorial control by armed non-state actors affect long-term development? We investigate the economic, social, and political consequences of territorial control by guerrillas during the Salvadoran Civil War. During their territorial control, guerrillas displaced state authorities and large landowners, and promoted the creation of self-governing institutions. Using a regression discontinuity design, we show that areas exposed to guerrilla control have experienced worse economic outcomes over the last 20 years relative to areas outside these locations that were under the control of the formal state. Our results reveal that informal participatory institutions in guerrilla controlled areas led to a fragmentation of the economy and high distrust towards the state and agriculture elites that persists today.

Keywords: Armed non-state actors, economic development, El Salvador
JEL Classification: O10, N3

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"Mayors, judges, security posts, everything disappears, (...), practically the whole state disappears, and the state was us "

(FMLN Military Commander, March 2022)

I INTRODUCTION

Civil wars are common and persistent events: at least 100 countries have experienced episodes of internal armed conflict since 1946 (Pettersson and Öberg, 2020). Seminal literature in this field has documented the large negative effects of these wars on economic development (Blattman and Miguel, 2010). This early work shows that such conflicts directly depress economic growth because violence depletes production factors.[1] Yet, war undermines economic growth in indirect ways as well. Armed non-state actors may also affect long-term development during civil conflicts by seizing territory and extracting resources, appropriating land, mobilizing local populations, and imposing their own governance and economic structures to shape the futures of regions under their control (Arjona, 2016; Stewart, 2018; Breslawski, 2021).[2] Although the occupation and control of territory are two key strategies of rebel groups, little is known about their implications for development and whether any effects persist once these groups relinquish control. This paper is the first to explore this mechanism.

Whether territorial control by non-state armed actors affects long-term development is not obvious. Rebels can promote the security of local residents, protect civilians from external armed actors, establish economic and judicial institutions, and provide basic public goods (e.g., Grasse, Sexton and Wright, 2021; Sánchez De La Sierra, 2020). Nonetheless, rebel governance may displace economic actors and induce norms of distrust towards the state with negative consequences, which can last for decades. The interactions of these effects determine if the overall impact of territorial control by non-state armed actors is positive or negative in the long term.

In this paper, we focus on the long-term development impacts of territorial control by the Farabundo Martí National Liberation Front (*Frente Farabundo Marti para Liberación Nacional*, FMLN) in El Salvador. The FMLN was an armed organization formed in October 1980 that united the five largest leftist guerrilla organizations in El Salvador.[3] Starting in 1985, the FMLN (herein FMLN, guerril-

[1] Blattman and Miguel (2010) provide a comprehensive literature review on this topic.

[2] Territorial control is a key aspect of guerrilla warfare. In such areas, insurgents generate a support base through the provision of basic public goods and the establishment of their own institutions. For example, in Colombia, the FARC (*Fuerzas Armadas Revolucionarias de Colombia*) controlled many remote areas before the Peace Agreement was signed in 2016, much as Peru's Shining Path (*Sendero Luminoso*) controlled the Andes Valley in the 1980s.

[3] These include *Fuerzas Populares de Liberación Farabundo Martí*, *Ejercito Revolucionario del Pueblo*, *Resistencia Nacional*, *Partido Comunista Salvadoreño*, and *Partido Revolucionario de los Trabajadores Centroamericanos*.

las, rebels, insurgents) established full territorial, economic, social, and political control in multiple areas, effectively replacing the Salvadoran state.

We examine the effects of this control by comparing areas around and near the boundaries of the FMLN's territories between 1985 and 1992, as documented in the United Nations archive map used during the peace talks between the Salvadoran government and the FMLN. Figure 1 illustrates these areas and boundaries. The Salvadoran government and the FMLN jointly approved the map and submitted it to the United Nations during the peace talks between 1990 and 1992.

Non-state actors territorial control is associated with several factors that could affect long-run development, but the Salvadoran context suggests that one feature is particularly relevant: the creation of alternative governing authorities that rely on community self-governance initiatives (Binford, 1997; Wood, 2003, 2008). In areas controlled by the FMLN, the guerrillas eliminated the state's local authorities and promoted the creation of local village councils. These participatory institutions were democratically elected by locals and their ideology was mostly based on community values, altruistic solidarity, and distrust towards the state and elites. These community-based organizations flourished as an alternative to state institutions, which insulated local communities from politicians and further reduced trust in the state. In contrast, nearby areas continued during the same period under the control of the state and did not experience any change in governance.[4] Moreover, most large landowners and elites in FMLN-controlled areas were displaced, and large properties were segmented and appropriated by local peasants. The guerrillas substituted large-scale agricultural production for subsistence crops to foster the economic self-sufficiency of peasants to increase equality among locals.

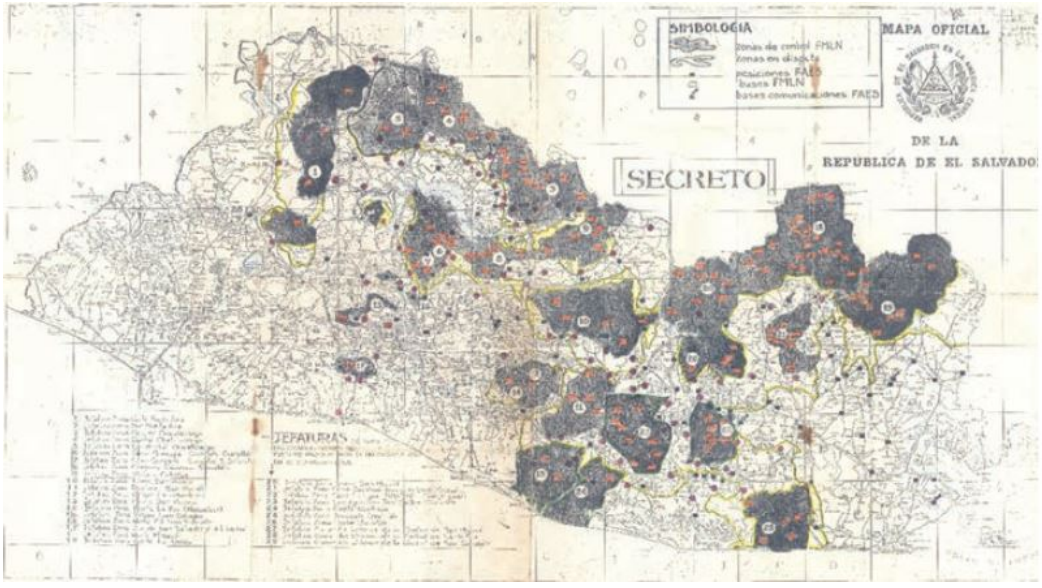
We assess the effects of FMLN's territorial control on development today by examining changes in economic activity (using night light luminosity), human capital (measured as years of education), and a wealth index that approximates average household living standards. Our empirical strategy employs a spatial regression discontinuity design and uses geospatial data on night light luminosity for 2013 and census tract data on education and wealth for 2007. Moreover, to disentangle the mechanisms, we combine geocoded information from multiple sources with data collected through our own geocoded household survey on measures of social capital, land mar-

[4]The only counter-insurgency strategy promoted by the Salvadoran government was the CONARA (Commission for the Restoration of Areas), an initiative implemented in two departments (San Vicente and Usulután) in 1983. It was similar to the Strategic Hamlet Program implemented in South Vietnam. The objective was to halt the influence of communism. However the plan failed to produce the expected results and was quickly discontinued.

kets, and trust. We designed and conducted the survey in June 2022 for a representative sample of households located in the regions included in our main analysis.

A review of the validity of the empirical design shows that all geospatial and economic variables observed prior to the Salvadoran Civil War evolved continuously around the boundaries of rebel-controlled areas. In particular, the use of geocoded data from multiple sources including covariates that proxy state capacity, demographics, agricultural production, and land concentration confirm there were no differences in these dimensions before guerrillas seized state control in 1985. The only significant difference we find between the areas around the boundary is a small discontinuity in altitude, of approximately 17 meters. This is consistent with qualitative evidence (Castañeda, 2016) and findings from our interviews with former combatants, and it highlights that the FMLN's territorial boundaries were primarily defined in response to war strategies and were independent of preexisting economic conditions.[5] In particular, guerrilla-controlled territories included strategic locations that offered a topographic advantage against the enemy.

Figure 1. Guerrilla-Controlled Areas



Source: Castañeda (2016).
Notes: This map shows the location of guerrilla-controlled areas. The map was submitted to the United Nations for the Chapultepec Peace Accords and approved jointly by the Salvadoran Government and the FMLN as part of the cease-fire negotiation process between 1990 and 1992.

[5] In our analysis, we show that this difference in altitude is not correlated with any economic outcomes at baseline, which is consistent with the fact that these locations were chosen solely on the fact that they were advantageous to their military strategy.

Results reveal that FMLN control in the mid-1980s had large negative effects on development outcomes in the long run. After almost 20 years, areas inside FMLN-controlled territories had less night light luminosity, lower human capital, and worse wealth outcomes relative to lands just outside the borders of these areas. The magnitudes of the estimated effects are important. By 2013, areas once controlled by the guerrillas experienced nearly 18.6 percent lower night light luminosity than places never under rebel control (approximately 5.2 percent lower GDP than in areas the guerrillas did not control).[6] We also show that areas previously controlled by guerrillas had a wealth index that was 0.125 standard deviations (sd) lower than other areas. Finally, by 2007, people living in formerly rebel-held areas had 0.28 fewer years of education. The effects on education are concentrated on individuals that had not finished their education by the time guerrilla gained territorial control. In contrast, we find no differences in education across the boundary for individuals that were old enough to have finished their education by 1980, providing evidence that effects are not driven by selective migration across the boundary.[7]

What are the channels of persistence behind these effects? Although the entire region under study has been subject to the same formal institutions since the end of the civil war, we hypothesize that the informal norms developed through the participatory institutions promoted by the FMLN between 1985 and 1992—combined with its view that citizens should guarantee their needs independent of elites and the state (Wood, 2008; Pearce, 1986)—could have induced persistent changes in social cohesion and economic structures. Participatory institutions can influence local living standards through effects on attitudes such as "political disenchantment" towards government.[8] Although local cooperation could foster social capital (Bauer et al., 2016), it could also breed resentment towards the state and the elites if cooperation was a strategy developed to avoid dependence on those out-groups. At the same time, it can further reinforce the economy of subsistence associated to the fragmentation of the land that was implemented during the guerrilla period if citizens from these areas still distrust the state, investors, and large landowners today, resulting in persistent changes in the economic structure.

In line with these arguments, our quantitative results show that individuals living in areas once controlled by the FMLN were less likely to engage with politicians and distrusted the state more.

[6] De Groot et al. (2021) estimate that the absence of conflicts around the world between 1960 and 2007 would have resulted in a gain of 15.7 percent in global GDP. Hence, an effect of five percent is sizable.

[7] We also show that results do not change when we keep individuals that have lived their whole life in the same location. Moreover, results are robust to trimming the sample by excluding from the treated and control group potential selected individuals.

[8] The term was first nested by Moodie (2011) as "democratic disenchantment."

Trust has a central role in the effective functioning of state institutions (Banfield, 1967, Almond and Verba, 2015, and Coleman (1990)). On the one hand, politicians may have less information about the needs of local populations and also less willingness to improve public services where constituents distrust them. For instance, citizens may fail to communicate their needs if they do not trust that politicians will respond; this disengagement consequently prevents the government from providing public goods effectively (Jablonski and Seim, 2022; Buntaine, Nielson and Skaggs, 2021). This channel is supported by our results as we document low access/utilization of public services and low presence of public workers in areas with past territorial control of the FMLN despite the fact that we also observe more public investment in infrastructure in these areas. On the other hand, trust links citizens to the institutions that are created to represent them. As such, it increases the legitimacy and the effectiveness of governments by facilitating cooperation and responsiveness from citizens to state recommendations and increases the demand for public services (Mishler and Rose, 2001, Alsan and Wanamaker, 2018, Lowes and Montero, 2021, Martinez-Bravo and Stegmann, 2022).

Concerning the transformation of economic structures, our results largely show that inside guerrilla-held territories, commercial plots that were historically associated to economic elites are smaller. These results provide evidence that the fragmentation of commercial plots held by elites during guerrilla control is still in place today potentially affecting long-term economic outcomes. While these results provide evidence of a reduction in land inequality, we also find evidence that all plots are less productive. In fact, by 2007 these areas showed smaller crop yield, fewer harvested plots, and were less likely to produce sugar, which is one of the main export crops suitable for production. There is no evidence, however, that rebel-controlled areas changed income equality after the redistribution of land from large commercial landowners to peasants. This could be explained by the fact that we also find that the share of individuals working in services and industry have declined in these areas relative to the control group. Finally, results from our focus groups suggest that regardless of whether agriculture landowners would be willing to invest in guerrilla areas today, individuals are less willing to let these actors or the state enter these areas since there is still high distrust towards individuals outside the community.

We rule out alternative mechanisms. First, an increase in violence during and after the armed conflict does not explain the documented results. The results hold when we exclude areas close to the rebel border, suggesting that violence at the border was not the main driver. Moreover,

there was no increase in the number of deaths, battles, and victims during the conflict in guerrilla-controlled areas relative to nearby areas outside rebel control. Second, these results do not seem to stem from selective international migration of individuals living in FMLN-controlled areas. They also hold when we consider only individuals who have lived all their lives in the same location. Third, the results are not driven by differences in the supply and quality of public education in FMLN-controlled areas relative to nearby areas. Fourth, it is unlikely that the effects are driven by child forced recruitment into guerrilla groups. In fact, qualitative evidence suggests that the forced recruitment of children was extensive on the side of the Salvadoran Army, but not in guerrilla controlled areas.[9] Fifth, we show that results are not driven by lack of connectivity in guerrilla areas today as we find that effects are homogeneous across distance to the main city and road. Finally, we show that the results are not driven by differential patterns of public or private investment between treated and control areas today.

Overall, this paper provides evidence that historical territorial control by non-state actors and its ways of local governance can play an important role in explaining long-term development paths.[10] The findings are consistent with seminal studies showing the role of historical institutions on long-run development (e.g., Acemoglu, Johnson and Robinson, 2001; Acemoglu and Robinson, 2012; Acemoglu et al., 2019; Dell, 2010; Dell, Lane and Querubin, 2018; Dell and Olken, 2020; Lowes and Montero, 2021). This paper not only documents persistence but also sheds light on specific mechanisms. The evidence on persistence is closely related to Dell, Lane and Querubin (2018) showing how village governance in Vietnam may increase social capital and development by crowding in cooperation with government. We complement this work by documenting how local rebel governance (developed in parallel and as an alternative to the state) can hinder long-term development by reducing economic production and cooperation with formal government. In particular, we show that when self-governing institutions are developed as an alternative to the state they may induce persistent changes in trust towards out-groups affecting economic outcomes.

This paper also provides new insights to the literature on the development consequences of con-

[9] It is estimated that of the 60,000 combatants of the Salvadoran Army, about 48,000 (or 80%) were under eighteen years of age, while only 2,000 of the 9,000 FMLN guerrilla members were under the age of eighteen years old (or 20%) (Courtney, 2010). Moreover, a survey conducted with child soldiers by UNICEF at the end of the war shows that while 91.7% of the recruits of the FMLN had joined voluntarily, close to 53% of the under-aged Salvadoran Army soldiers were forcibly recruited (Courtney, 2010).

[10] In particular, in Latin America, local governance by non-state actors has been a prominent feature of the way of living of several communities at least since the colonization: from indigenous communities like the Mayan States in the Yucatán península in Mexico who had their own army and institutions, to rebel groups in the 80s, to criminal groups today.

flict (e.g., Collier, 2008; Blattman and Miguel, 2010; Bauer et al., 2016; Leon, 2012; Fergusson, Ibáñez and Riano, 2020; Riaño and Valencia Caicedo, 2020)). We complement this work by showing that the economic legacies of war are not merely side effects of violence or the destruction of factors of production but also the by-products of institutions left by armed rebels. Furthermore, we provide evidence that the effects of conflict can be unequally distributed over territory because they arise from changes in economic and local governance structures, and not exclusively from higher levels of violence. This distinction is relevant to understand the persistent effects of conflict.[11] If all the effects were explained by the destruction of physical capital or temporary reduction of human capital due to violence, the negative effects on development could be potentially mitigated in the short to medium term (Miguel and Roland, 2011). However, if effects on development emerge from structural changes in the economy and norms, they will be more persistent and difficult to change.

In addition, this paper contributes to a growing literature on rebel governance by considering the effects on development in territory that experienced uncontested control by insurgents. Scholars have recently shown that non-state actors can rule over the political, economic, and social lives of residents in an orderly fashion, establishing institutions that regulate civilian behaviors (Arjona, 2016; Breslawski, 2021; Loyle et al., 2021; Stewart, 2018; Sánchez De La Sierra, 2020; Grasse, Sexton and Wright, 2021; Liu, 2022). These studies show that armed groups need to win over local populations, a phenomenon extensively observed in El Salvador (Wood, 2003), where rebels had an incentive to create systems of governance (Arjona, Kasfir and Mampilly, 2015). Most of this work focuses on the factors that produce rebel governance, so little is known about how this system may affect development outcomes, and whether these effects persist after armed groups relinquish control. The design of effective post-conflict policies depends on understanding where we should expect impacts from conflict and the mechanisms that underpin these effects.

Finally, the mechanisms analyzed in this paper also connect to recent evidence highlighting how land fragmentation can hinder economic development (Foster and Rosenzweig, 2022; De Janvry et al., 2015). Our results provide novel evidence that historical factors are key to understand the fragmentation of the land in developing countries, and why this fragmentation can persist even though it limits returns to scale.[12] In particular, we provide evidence that, as a consequence of

[11] While there is agreement on the negative effects of conflict in the short run, there is no consensus on long-term effects (Riaño and Valencia Caicedo, 2020).

[12] This is particularly true for plots that are used for commercial purposes.

rebel governance and land occupation, land is more fragmented. This may make consolidating the plots harder hampering the benefits of scale.

II HISTORICAL BACKGROUND

II.A The origin of Salvadoran guerrillas: The FMLN

El Salvador was a highly unequal society during the twentieth century. Through the middle of the century, its economy was based on labor-repressive models of agriculture as the elites held large parcels of land (Wood, 2003). State-sanctioned repression was widespread during strikes for higher wages and better working conditions that occurred in cities and across haciendas in the early 1950s. Displays of outrage by peasants toward the elites began to rise in response to the political assassinations of rural leaders, peasants, students, and teachers during the 1970s (Wood, 2003). As a consequence, by 1972, peasants who previously had been politically withdrawn began to join left-wing groups. A few years later, the first armed clandestine organizations began to emerge amid rising food prices and decreased agricultural output.

The Salvadoran Civil War ignited with the military coup that took place on October 15, 1979 and it lasted until 1992. The main conflict occurred between the military-led government and the FMLN, the parent organization of the country's major guerrilla groups. At the peak of the war in 1984, the FMLN had an estimated 8,000 to 15,000 combatants (Williams, 1998), ran operations in 30 percent of the country (70 municipalities out of 262), and controlled 80 percent of all strategic territory (FMLN, 1984).

Intense and indiscriminate state violence in disputed areas caused the insurgent ranks to grow rapidly at the war's outset (Wood, 2008). State military actions that targeted rebels and civilians alike prompted outrage against the government and motivated many peasants to fight for the rebels.[13] This bred the development of prosocial transformations such as altruistic solidarity (Wood, 2003), trust towards guerrillas, and distrust towards the state.

FMLN insurgents included the young and elderly, men and women. They recruited insurgents voluntarily through organization in the communities, which constituted the local support bases. These insurgents carried out different activities: either military ones or support operations such as production, cooking, and others.

[13] Violence during El Salvador's civil war was lopsided: state agents were responsible for 85 percent of deaths, most of which were civilians (Green and Ball, 2019).

II.B Boundaries of FMLN territorial control

The treatment of interest is full territorial control by insurgents between 1985 and 1992. The boundaries that define assignment to treatment are shown in Figure 1.[14] Areas inside these boundaries were under guerrilla control, while areas outside were either controlled by the Salvadoran Armed Forces or disputed by both parties. Existing evidence suggests that military and geographic considerations, such as protection offered by mountains and hills—as opposed to economic differences at the boundaries of interest—explain the formation of these areas of control (Álvarez, 2011). Indeed, as shown below, the rebels did not select areas based on pre-existing economic conditions. As a commander of the FMLN (1984, p. 2) writes in his memories: *"the domain of most of the strategic elevations and the northern mountain range gives the FMLN a total topographical advantage over the army."*

Initially, the regions under analysis were entirely controlled by the Salvadoran state. In 1981, the guerrillas executed a country-wide offensive against 12 of the main military bases with the objective of promoting an insurrection (MINED, 2009). Although this offensive failed, it led to a change in their military strategy and, consequently, to the group's geographic dispersion across the country with the goal of establishing a presence in all fronts through *zonas liberadas* (liberated zones) establishing the first areas as early as 1982 (Castañeda, 2016). Liberated zones are a key aspect of guerrilla warfare and consist of areas where the insurgency can generate a support base through the provision of basic public goods and the establishment of their own institutions. The concept originates in Mao Zedong's military strategy where 'base areas' were conceived as a key strategy to win a war against conventional army, and consisted of local strongholds situated preferably in mountainous areas to develop popular support (Zedong, 1938). This idea evolved retaining the importance of establishing these zones in mountainous areas, and was adopted by several non-state armed actors, from communist guerrillas in Guatemala in the 80s to ethnic armed organizations in Burma in 2021.

Importantly, historical evidence and FMLN documents suggest that after 1984, the boundaries of FMLN-controlled areas were extremely stable for at least two reasons. First, by 1984, the FMLN controlled approximately 80 percent of the militarily strategic territory (FMLN, 1984). Second, by the same year, more than 80 percent of the Salvadoran Army's offensive capacity was in per-

[14] As mentioned in the introduction, this map was used in the peace accord meetings between the Salvadoran government and the FMLN between April 1990 and January 1992. It is typically viewed as recognition by the state of the magnitude of the insurgent territorial presence (Chávez, 2011).

manent use; therefore, they could not reconquer areas under FMLN occupation but instead had to strengthen the defense of areas the state still controlled (FMLN, 1984). In this sense, by 1985, the civil conflict had entered a virtual stalemate (Castañeda, 2016; FMLN, 1984). Therefore, our analysis focuses on guerrilla-controlled areas that were stable between 1985 and 1992. The map in Figure 1 shows the three stripes of the country where the FMLN had established full control by 1985: the northern, central, and coastal areas.[15]

II.C Rebel governance in FMLN-controlled areas

The rebel groups invested costly efforts to eliminate the state's local and judicial administration inside the areas under their control (Martín Alvarez, 2010) and reconfigured institutions in several ways. During the 1980s, the FMLN and its supporters established new institutions in these areas, which drastically changed the economic and political environment there (Binford, 1997).

First, the FMLN promoted the formation of semiautonomous local councils, the "dual powers" (*Poderes de Doble Cara*) and the *Poderes Populares Locales* (PPL), as alternatives to formal state authorities (FMLN, 1984; Pearce, 1986; Binford, 1997). These new governing structures administered and organized the local population, and it's main purpose was to procure public goods and attend issues affecting the community (Pearce, 1986). Each was democratically elected by residents of the local community. Peasants participated in their own government and largely viewed these local powers as legitimate (Pearce, 1986). The highest powers were the "popular assemblies," general assemblies of the whole population, but they also elected a president, vice president, and secretaries of social affairs, production, defense, political education, and legal affairs.[16] These bodies of government addressed all issues, ranging from water provision to the establishment of community legal codes (Pearce, 1986; FMLN, 1983). The FMLN supported the proliferation of the local popular powers and saw them as a way to organize the population independent both from the state and the guerrilla (FMLN, 1984). These local powers flourished as autonomous organs of the peasants; collaboration with the FMLN was necessary only to coordinate defense needs (Pearce, 1986).

The organization of production also changed in FMLN-controlled areas. The group targeted export crops for sabotage, which eroded haciendas and massive agricultural production. The FMLN

[15]The absence of an FMLN presence in the western region is usually attributed to the legacies of the massacres of indigenous peasants by state and paramilitary forces in the 1930s (Lauria-Santiago and Gould, 2008).

[16]Each of the PPL, for example, was democratically elected, and the president governed 400–500 people (Pearce, 1986).

promoted subsistence farming and fostered the invasion of abandoned land, resulting in the fragmentation of large properties in smaller plots of land mainly used for cultivation by local peasants(Wood, 2008). These new models of production and labor contracts led to the "peasantization" of formerly commercial agriculture and the fragmentation of rural markets. As such, most private large entrepreneurs and large-scale agriculture were eliminated and replaced by cooperatives and local peasants (Wood, 2010; Binford, 1997).

III DATA

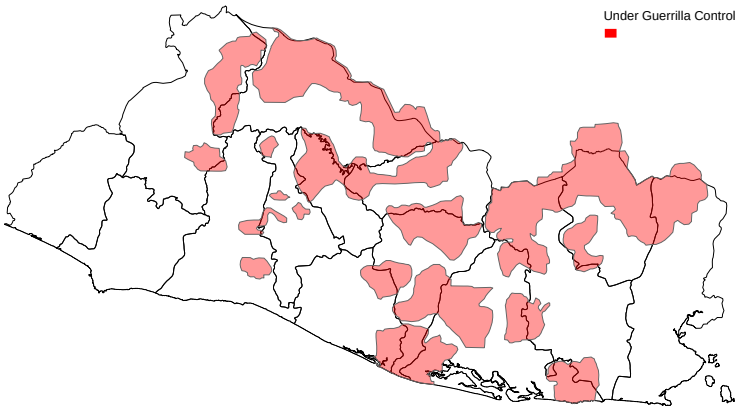
This section describes the primary sources of data used in the study. Appendix A presents a detailed account of the database construction and Appendix B.1 presents summary statistics of all variables employed in the analysis.

III.A Guerrilla-controlled territories

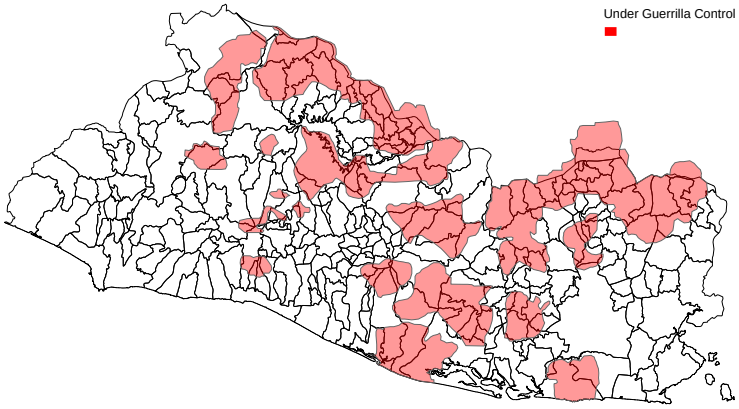
To analyze the role of guerrilla territorial control in long-term development, we geocoded the map that depicts FMLN-controlled areas (see Figure 1). It shows areas that the FMLN controlled during the conflict, areas that the state controlled, and disputed ones. As Figure 2 illustrates, no boundaries of the guerrilla-controlled territories coincide with the administrative departments and municipal boundaries of El Salvador today.

Figure 2. Guerrilla-Controlled Territories and Administrative Boundaries

(a) Departmental Boundaries



(b) Municipal Boundaries



Notes: The figure presents in red the areas under guerrilla control and shows that these areas do not coincide with the administrative departments and municipal boundaries of El Salvador today.

III.B Geospatial variables

We use geospatial data to test the validity of the local continuity assumption around the boundaries of guerrilla-controlled areas. The data was obtained from different sources. Elevation was obtained from NASA's Shuttle Radar Topography Mission (SRTM). Information on surface water bodies comes from the MERIT Hydro dataset. Agro-climatic yield rasters with a spatial resolution of five arc minutes (nine kilometers) come from the Global Agro-Ecological Zones (GAEZ) project. For all yields, we are using the 30-year average beginning in 1961.

Figure C.1 maps guerrilla-controlled territories, altitude, and main rivers in El Salvador. It il-

lustrates that the rebels located disproportionately in high altitudes as part of their war strategy (FMLN, 1984), and that rivers often marked the boundaries of their territories.

III.C Development outcomes

The long-term development impacts of guerrilla territorial control are measured using 2013 night light luminosity (as a proxy for local economic activity) and 2007 population and household census data.

Night light luminosity. Data on night light luminosity comes from the Defense Meteorological Satellite Program Operational Linescan System. This data was obtained from the US National Oceanic and Atmospheric Administration (NOAA) web page. It has a resolution of 30 arc seconds $\times$ 30 arc seconds (i.e., approximately 1 km $\times$ 1 km) and spans 1992 to 2013. The main results use data for 2013 as it is the last year available. To study the persistence of effects, we also used individual years between 1992 and 2013.

2007 Population and Household Census. The General Directorate of Statistics and Censuses (*Dirección General de Estadísticas y Censos*, DIGESTYC) provided anonymous microdata from the 2007 census for this study. The data includes the socioeconomic characteristics of all households and individuals, including but not limited to labor market outcomes; educational attainment; material ownership (e.g., having a car, a TV, etc.); use of public services (electricity, sewerage, and others); migration; and other characteristics of all dwellings in El Salvador.

2007 Census Cartography. DIGESTYC also provided maps of the tracts for the 2007 census. Each tract represents a small area with a fixed geographic perimeter. In 2007, the average tract in our sample included 131 households and 473 individuals. Small tract units facilitate the accurate identification of the guerrillas' territorial control, which is approximated using the geographic coordinates of the tract centroids.

In sum, we explore the effects of control by the FMLN via night light luminosity, [17] human capital (measured as years of education and literacy rates), and a wealth index (constructed as suggested by the Demographic and Health Surveys (DHS) program).[18] The wealth index is the first factor

[17] The challenge of night light luminosity data is the significant fraction of observations that take the value of zero and also the existence of extreme values in the right tail of the distribution (Michalopoulos and Papaioannou, 2013; Pinkovskiy and Sala-i Martin, 2016). To account for this concern, the outcome is transformed using the inverse hyperbolic sine transformation, defined as $log(y_i + (y_i^2 + 1)^{1/2})$, and it can be interpreted as a logarithmic dependent variable (Pence, 2006).

[18] Step-by-step instructions for constructing the index are available at: https://dhsprogram.com/topics/wealth-index/Wealth-Index-Construction.cfm

from the principal component analysis of a household's cumulative living standard. The estimates use the average index of all households in each census tract. The index includes household characteristics such as asset ownership (e.g., bicycles and television); materials used for housing construction; types of water access; and sanitation facilities.

IV EMPIRICAL STRATEGY

IV.A Spatial regression discontinuity design

We estimate the long-term development impacts of rebel territorial control between 1985 and 1992 using a spatial regression discontinuity design around the boundaries illustrated in Figure 3. The specification is:

$$y_s = \beta_1 T_s + \beta_2 f(\overline{d_s}) + \beta_3 T_s \times f(\overline{d_s}) + \sum_{i=1}^{400} \alpha_s^i + \varepsilon_s \tag{1}$$

where y_s represents the contemporaneous economic and social development outcomes of interest observed at the census tract unit s. T_s is a treatment indicator equal to one if the tract intersects a guerrilla-controlled zone. $\overline{d_s}$ is the normalized perpendicular distance from each tract's centroid to the guerrilla-controlled boundary.[19] $f(\overline{d_s})$ is a polynomial function of the distance to the boundary which, interacted with T_s, controls for smoothness in the geographic location at each side of the boundary. Finally, since we want to compare treatment and control census tracts that are geographically proximate, the indicator α_s^i splits the boundary in four-km segments and equals one if census tract s is closest to segment i, and zero otherwise. We include 400 fixed effects for the minimum distance from the centroid of each tract to each of 400 segments of the guerrilla-controlled boundary.[20] Standard errors are adjusted for heteroskedasticity.[21]

The baseline results use a local linear polynomial of the normalized distance and limit the sample to tracts within the distance suggested by the optimal bandwidth algorithm of Calonico, Cattaneo and Titiunik (2014) when using night light luminosity as an outcome (which represents approximately 2.26 km). The results are also presented under a variety of different bandwidths to check the robustness of the main findings given the classic trade-off between bias and power, and since

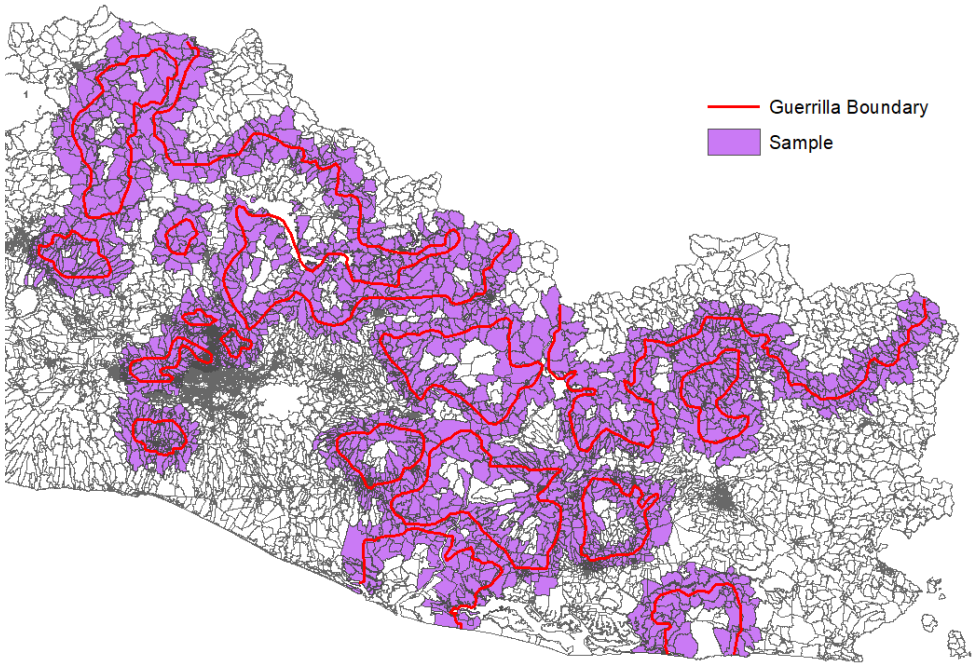
[19] As a result of the distance normalization, tracts touching the guerrilla-controlled boundary get the value of zero in their distance variable and tracts outside the guerrilla-controlled area get a negative value, contrary to tracts inside.

[20] The choice of 400 breaks is to account for enough spatial variation without compromising the variation we are exploiting.

[21] As a a robustness check, we also estimate Conley standard errors to account for spatial correlation in the data (Conley, 1999).

there is no optimal bandwidth algorithm for a spatial regression discontinuity design.

Figure 3. Census Tracts and Boundaries Employed in the Empirical Analysis



Notes: The figure shows in purple the actual census tracts used in the analysis. The selected tracts are within approximate two kilometers from the guerrilla boundary (see Figure 1), which is the optimal bandwidth when using the algorithm of Calonico, Cattaneo and Titiunik (2014).

IV.B Validation of the local continuity assumption

This subsection shows that before the FMLN began to control territories in 1985, areas around the boundary had similar geographic and socioeconomic characteristics.

Geography and socioeconomic development before guerrillas controlled the territory

To ensure census tracts outside the boundary are an appropriate counterfactual of guerrilla-held ones, we first tested for preexisting differences in geographic or socioeconomic characteristics before the start of guerrilla control. Much of the boundary follows the Sierra of Metapán and the Sierra Madre formations (Figure C.1).

For this purpose, we estimated Equation (1) to test for discontinuities related to geographic characteristics (e.g., elevation, slope, and access to waterways) and some socioeconomic characteristics

(e.g., road and railway density in 1980 and crop agro-climatic yields from 1961 to 1979).[22] Table 1 shows that 30 out of 32 baseline covariates are statistically similar across the boundary. The only exceptions are altitude and sugarcane yields. The statistical significance of the difference in sugarcane yields between controlled and uncontrolled areas could be driven by the difference in altitude because that variable is included in the mechanical estimation of past potential sugarcane yields.[23] Moreover, the difference in mean altitude is small (17.13 meters from a dependent mean of 502.7) and aligns with the observation that the guerrillas occupied higher territories as a military strategy. Yet, the difference in altitude is not correlated with variables that proxy state capacity or economic development.[24] For example, education levels and population were similar across the boundaries before the FMLN took control. Results also show that before the guerrillas controlled them, these territories were similarly likely to be subject to the national land reform. This initiative redistributed large haciendas to peasants in 1980 in an attempt to palliate increasing levels of mobilization by the peasantry. Therefore, this shows that the FMLN did not establish its areas of control in places with higher land inequality or differentials in elite strength.

[22] Crops were selected according to their relevance for domestic consumption and exports.

[23] According to the model documentation of GAEZ v.3 project, altitude and terrain variables are used in the first stage of the agro-climatic analysis. A potential concern with the difference in sugarcane yields is that these can come from land concentration. However, as we show in Table 1, there are no differences in the probability of being part of the 1980 Land Reform across the boundary, which is a good proxy for land concentration in the 1980s and the strength of the elites. Additionally, the cultivation of sugarcane in Central America can vary between 400 and 1500 masl depending on its type.

[24] For robustness, Figure D.3 shows no statistical differences once altitude is included as a control. These results are also illustrated graphically in Figure D.2 of Appendix D and confirm the validity of the local continuity assumption for all outcomes. The specification that controls for altitude is not used to report main estimates as it may result in biased coefficients. The estimate that can be identified when adjusting for imbalanced covariates in RD designs is a weighted average of the treatment effects where the weights depend on the conditional distribution of the imbalanced covariate on the treatment, which is not our estimate of interest. See Calonico et al. (2019) for a discussion.

Table 1. Smooth Condition Test

Panel A: Geographic Characteristics (Before 1980)							
	Altitude	Slope	Ruggedness	Hydrography	Roads and Railway (1980)	Had a city or Village (1945)	Distance to City or Village (1945)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Guerrilla Control	17.13***	0.352	0.440	0.0261	0.0198	0.0136	-0.0534
	(5.679)	(0.222)	(0.321)	(0.0246)	(0.0284)	(0.0225)	(0.0464)
Dependent mean	502.7	7.160	10.28	0.230	0.370	0.100	1
Panel B: Infraestructure Characteristics (Before 1980)							
	Distance to Communications (1945)	Communications Density (1945)	Part of Land Reform (1980)	Inside a Wide Cultivated Area (1980)	Had a Parish (1979)	Distance to Parish (1979)	Distance to School (1980)
	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Guerrilla control	0.0639	-0.0535	-0.0135	-0.0193	-0.00395	0.0528	0.0782
	(0.0501)	(0.0602)	(0.0163)	(0.0132)	(0.00565)	(0.0698)	(0.0791)
Dependent mean	0.900	0.430	0.0600	0.790	0.0100	3.420	12.11
Panel C: Population Demographics (Before 1980)							
	Total of Population (15)	Population Density (16)	Years of Education (17)	Natality Rate (18)	In-migration Share (19)	Out-migration Share (20)	Inside a High Populated Area (21)
Guerrilla control	3.010	-171.0	-0.160	-0.0445	-0.0110	-0.000182	-0.0160
	(4.085)	(110.2)	(0.113)	(0.0757)	(0.00827)	(0.00103)	(0.0116)
Dependent mean	162	2165	4.410	0.190	0.140	0.0100	0.800
Panel D: Agro-climatic Potential Yields (1961-1979)							
	Aggregate Yield Index (22)	Bean Potential Yield (23)	Coffee Potential Yield (24)	Cotton Potential Yield (25)	Maize Potential Yield (26)	Wet Rice Potential Yield (27)	Sugarcane Potential Yield (28)
Guerrilla control	0.0269	0.00514	0.00385	0.000764	-0.00918	0.0134	0.0460**
	(0.0165)	(0.00385)	(0.00426)	(0.000516)	(0.0116)	(0.0115)	(0.0196)
Dependent mean	0.0900	4.080	1.690	0.710	9.850	8.790	6.500
Panel E: High Suitability Index (1961-1990)							
	Bean High Suitability (29)	Coffee High Suitability (30)	Maize High Suitability (31)	Sugarcane High Suitability (32)			
Guerrilla control	-0.0150	-0.0145	0.00174	-0.0148			
	(0.0105)	(0.0123)	(0.00510)	(0.0125)			
Dependent mean	0.930	0.150	0.990	0.180			
Observations	3,652	3,639	3,639	3,639			
Bandwidth (Km)	2.266	2.266	2.266	2.266			

Notes: The table presents the results of estimating Equation (1) for a variety of geographic characteristics (panel A), roads and infrastructure availability (panel B), demographic characteristics (panel C), and agricultural characteristics (agro-climatic potential yields in panel D and indicators for high suitability index in panel E) before the war started. The information was gathered from diverse sources (See Appendix A for more details). The unit of observation is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates were weighted using a triangular kernel. The dependent mean corresponds to the mean outside the territories of guerrilla control but within the area of analysis. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Furthermore, we tested the robustness of the validity of the local continuity assumption to different choices of bandwidth distance around the cutoff. The results confirm the robustness of the local continuity assumption to the bandwidth choice (see Figures D.4, D.5, and D.6).[25]

V MAIN RESULTS

V.A Night light luminosity, wealth, and human capital

Table 2 presents formal estimates of Equation (1) for the main outcomes of interest. All estimates suggest strong and negative impacts of guerrilla territorial control on development outcomes. First, the results show that locations within guerrilla-controlled territories had lower night light luminosity in 2013, relative to places outside these areas. The effects are sizable. Approximately 20 years after the end of the Civil War—and about 30 years after these areas were first controlled by guerrillas—areas that were once under FMLN rule experienced nearly 18.6 percent lower night light luminosity than places with no guerrilla control (see column (1)).[26] Considering that a one percentage point (pp) change in luminosity corresponds to a 0.28 pp change in GDP (Henderson, Storeygard and Weil, 2012), areas that had been under guerrilla control had approximately 5.2 percent lower GDP ($18.6 \times 0.28 = 5.2$) than areas that had not.

Second, we also document that areas controlled by the guerrillas are less wealthy and have lower human capital almost two decades after the end of the Civil War. Column (2) of Table 2 shows that areas controlled by guerrillas had a wealth index 0.125 sd lower than areas not controlled by the FMLN. Consistent with these negative effects on wealth, column (3) shows that individuals living in areas close to the border but still within guerrilla territorial control had 0.28 less years of education by 2007. In Table D.1, we present the analysis by cohorts that were exposed to guerrillas versus cohorts that already finished their education by the time guerrillas arrived to the areas where they lived. We find that the effects are driven by individuals who were at school age during the war, whereas individuals who finished their education before 1980 had similar years of education across the boundary.[27]

[25] An additional assumption is that there should be no selective sorting across the boundary. We discuss this assumption in detail in Section V.B.3.

[26] The sign and statistical significance of the estimated effect is stable after using different transformations of the dependent variable. In Table D.2 in the Appendix D, we provide evidence of the robustness of these effects to variations in the estimation of the dependent variable, such as log, level, and weighted-level values. Weights correspond to the share of the pixel's area over the census tract area.

[27] In column (4) in Table D.2 in the Appendix, we also study literacy rates. These were constructed as the number of individuals 18 years or older who can read, divided by the total number of individuals older than 18 years. We find that individuals in FMLN-controlled areas had 2.1 percent lower literacy rates, relative to people living outside these areas. This corresponds to a 2.6 percent drop relative to the average literacy rate in 2007.

The graphical representation of these effects is in Figure D.7, where a decline is observed in all the outcomes inside guerrilla-controlled areas. The discontinuity is especially strong for night light luminosity. All in all, the estimates present negative and sizable impacts of guerrilla territorial control on long-term development outcomes.

Table 2. Effects of Guerrilla Territorial Control on Night Light Luminosity, Wealth, and Human Capital

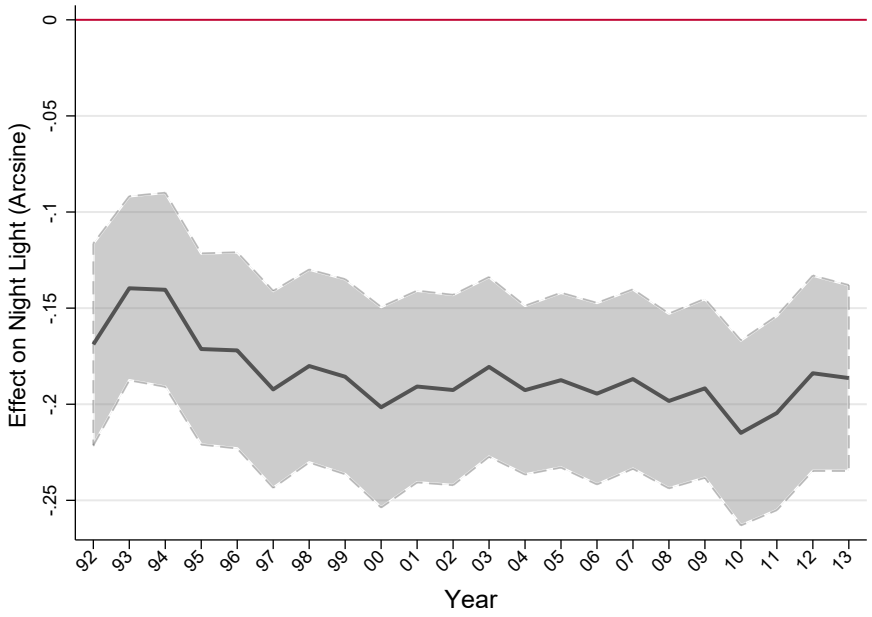
	Night Light Arcsine	Wealth Index	Years of Education
	(2013)	(2007)	(2007)
	(1)	(2)	(3)
Guerrilla control	-0.186***	-0.125***	-0.279**
	(0.0247)	(0.0377)	(0.109)
Observations	3,652	3,086	3,637
Bandwidth (Km)	2.266	2.266	2.266
Dependent mean	3.540	0.140	6.570

Notes: The table presents the results of estimating Equation 1 for the main outcomes. Columns (1) shows the effect of whether a census tract is under guerrilla control on the arcsine of night light luminosity from NOAA. Column (2) does the same but uses as dependent variable a standardized score of household wealth. Column (3) shows as dependent variable years of education of the population older than 18 years. The unit of observation in all columns is the census tract. Information from columns (2) and (3) was obtained from the Population Census of 2007. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with an indicator of whether the tract is under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates use triangular kernel weights. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Figure 4 presents the effects on night light luminosity for all years of data from 1992 to 2013 to test whether the effects are persistent over the years.[28] The results suggest that not only were the negative effects persistent since 1992, but also the magnitudes barely changed over the years. Overall, these results confirm our quantitative results that guerrilla control produced a negative persistent effect on development outcomes. Section VI explores mechanisms to explain the persistence of effects.

[28] Unfortunately luminosity data is not available for years prior to 1992.

Figure 4. Effects of Guerrilla Control on the Arcsine of Night Light Luminosity Over Time



Notes: This figure shows the coefficients obtained from the estimation of Equation 1 for each year between 1992 and 2013. The estimates shown include 400 break fixed effects. Overall, the effect of guerrilla control on night light luminosity is negative and stable over time.

V.B Robustness checks

Three approaches were used to test the robustness of the results: an estimation of the main results using alternative RD specifications, a placebo test that uses difference in altitude to define artificial boundaries, and a restriction in population sorting across boundaries.

V.B.1 Alternative RD specifications

To see whether the results are driven by specific regression discontinuity specifications, we conducted a number of robustness checks (see Appendix D). One potential concern is that the results are valid only for the selected bandwidth. Figure D.8 illustrates that the effects of FMLN territorial control on the main outcomes are robust to different choice of bandwidths between 0.1 and 4 km. Second, in Tables D.21- D.23, the main results are presented using alternative RD polynomials (constant, linear, and quadratic), using additional bandwidth options, and varying the kernel choice. Overall, the results are robust to alternative specifications.

V.B.2 The use of altitude to define borders

One relevant concern regarding the empirical strategy is that since FMLN-controlled territories were defined using altitude as the main geographic feature for the borders, the results may reflect some socioeconomic characteristic associated with higher-altitude areas rather than rebel control. As shown above, there are no statistical differences in variables that measure economic productivity and state capacity at baseline in areas that were later controlled by the FMLN.

Nevertheless, we conducted a placebo exercise by selecting pairs of neighboring census tracts in areas that were never under guerrilla control but which have the same difference in altitude as tracts inside the FMLN areas (Table 1). The intuition here is that if negative effects on development outcomes were driven by significant altitude differences, there would be similar effects on outcomes in areas with the same altitude differences that were not under FMLN control. Results are in Table D.4 in the Appendix. The effects on development are positive and smaller in magnitude than the estimated effects for FMLN control. Moreover, we repeat the same exercise with tracts outside guerrilla areas that have larger altitude differences. Even in this extreme case (that comprises a small percentage of tracts in our sample), the effects are small. Finally, Table D.5 shows estimates of the main effects when we restrict the sample to census segments without a sudden change in altitude relative to their immediate neighbors. Results do not change.

These results provide evidence that the main effects are not the by-product of higher altitudes but rather the consequence of guerrilla control.[29]

V.B.3 Population sorting

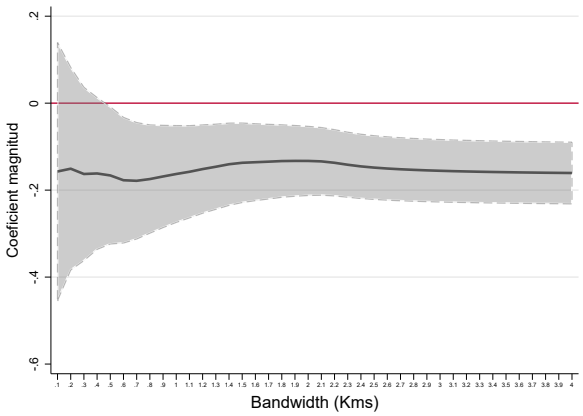
One potential concern is that individuals in FMLN areas may have moved to nearby areas (our control group) by the time the boundaries formed. We address this concern by evaluating the effects for individuals who never moved (or "stayers.") Table D.6 shows that results are of similar magnitude and significance as for the whole sample, suggesting that in-sample migration may not be a concern. Figure 5 presents more evidence that suggests that the effects do not arise from out-migration from FMLN territories. The figures illustrate the estimates of Equation (1) on education outcomes observed at the individual level for the subsample of "stayers." As shown in Figure 5, effects remain negative and statistically significant.

[29] We also estimate the main model and include altitude as a control in the main specification. The results are stable to the inclusion of this *bad control*, suggesting that higher altitude could not drive the results. These results are available upon request but are not in the paper due to space concerns.

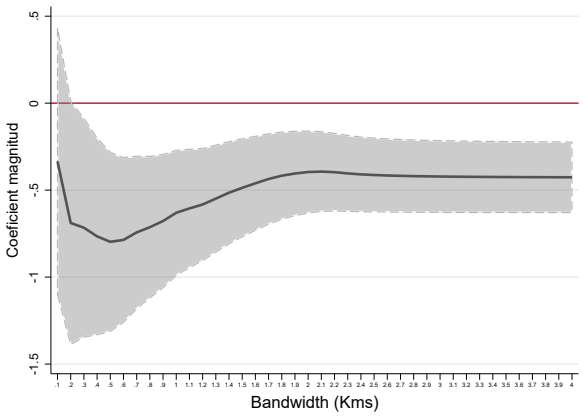
These results align with qualitative evidence that shows that the guerrilla provided key defense functions for peasants in their controlled areas (Pearce, 1986), suggesting that we should not expect out-sorting to areas controlled by the Salvadoran state.

Figure 5. Effects of Guerrilla Control on Education Outcomes of the Nonmoving Population Only

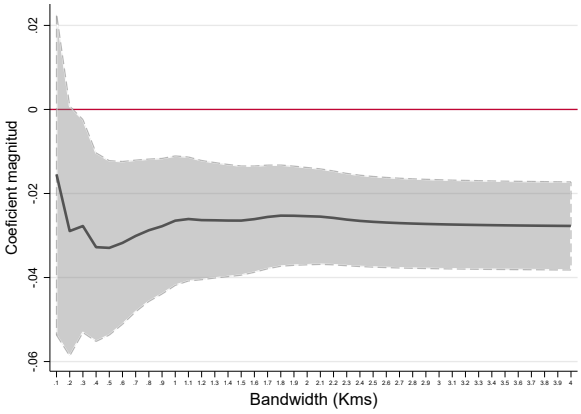
(a) Wealth Index



(b) Average Years of Education



(c) Literacy Rate



Notes: The figure illustrates the results for each outcome variable obtained from the estimation of Equation 1 using the "stayers" subsample. Overall, we find that the effects of guerrilla control on the three outcomes are consistent under a wide range of bandwidths (0.1 to 4 kilometers).

Finally, we explore whether recent and selective migration at the time of the boundary could be explaining the differences in economic development across the boundary and find no evidence of it. In particular, we trimmed the sample in two ways: first, we omit the 10.4% of the control group sample with the highest education and wealth, as in-migration to control nearby areas is 10.4%. Second, we omit the 3.3% of the guerrilla sample with the lowest education and wealth,

as in-migration to guerrilla areas is 3.3%. The estimates based on the trimmed samples remain similar (see Table 3). Moreover, we take advantage that the census contains information on the year individuals arrived to each location to account for in-sample migration in 1980 and 1985 in Columns (3)-(4) and (5)-(6). Results do not change, moreover the rates of migration across the boundaries are very low (less than 1%).

Table 3. Accounting for selective in-migration

Trimming using the	All-Time In-migration Rate		1980 In-migration Rate		1985 In-migration Rate	
	Wealth Index	Wealth Index	Wealth Index	Years of Education	Years of Education	Years of Education
	(1)	(2)	(3)	(4)	(5)	(6)
Guerrilla control	-0.101***	-0.260**	-0.121***	-0.277**	-0.121***	-0.275**
	(0.0353)	(0.107)	(0.0357)	(0.109)	(0.0357)	(0.108)
Observations	3,641	3,648	3,641	3,648	3,641	3,648
Bandwidth (Km)	2.271	2.271	2.271	2.271	2.271	2.271
Dependent mean	-0.0300	6.540	-0.0300	6.570	-0.0300	6.560

Notes: The results follow the specification of Equation 1 for the Wealth Index and Years of Education outcomes. However, we trim the dependent variables by using different in-migration rates. In Columns (1) and (2), we use the all time in-migration rate to trim the 10.4% most educated and wealthy people and the 3.3% least educated and wealthy from the control group's respective distributions. In Columns (3) and (4), we use the in-migration rate from 1975 to 1980 to trim the 0.4% most educated and wealthy people and the 0.6% least educated and wealthy from the control group's respective distributions. In Columns (3) and (4), we use the in-migration rate from 1979 to 1985 to trim the 0.7% most educated and wealthy people and the 0.8% least educated and wealthy from the control group's respective distributions. The unit of observation in all columns is the census tract. Information from all Columns was obtained from the Population Census of 2007. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract is under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The estimates use triangular kernel weights. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

V.C External validity

In the Appendix D, we conducted two analysis to rule out that the results are specific to our rd-sample. First, we show that at baseline the rd-sample is similar in characteristics as the rest of the country (see Table D.7). Second, we show how the main results change once we move outside of the 2km bandwidth. Figure D.9 shows that results are pretty homogeneous across space.

VI EXPLORING POTENTIAL MECHANISMS

Why would FMLN's influence be so persistent so many years after its territorial control ended? As discussed above, one possible explanation concerns the reshaping of economic structures and local governance that led to the dismantling of the former commercial agriculture system and fostered persistent norms of distrust against the state and elites. Our analysis implies that reliance

on plot-based agriculture and lack of public engagement with the state and any large landowner after the war created a negative feedback loop that depressed living standards in the long run.[30]

VI.A Transformation of local governance: lower trust and public goods provision

Both FMLN documents and scholarly work suggest that the political organization of the masses was a key strategy used by the guerrilla rebels against the Salvadoran state (FMLN, 1983, 1984; Binford, 1997; Pearce, 1986). In rebel-controlled areas, the social base of the FMLN set up participatory forms of government to replace the municipal administration. As noted above, the guerrillas eliminated state and judicial authorities and established community-based organizations—first the PPL and later the "dual powers"—to represent peasants and to address key development issues. (Binford, 1997; FMLN, 1984).

These types of institutions can promote the formation of social capital. Yet, when they are created as an alternative to the state, they may reduce engagement with formal state institutions in the long run. Reliance on local informal institutions may create informational problems that prevent the state from efficiently providing public goods. Moreover, politicians may perceive the lack of trust towards institutions as a disincentive to investment if they will never receive political support from these areas.

We study the validity of this mechanism by examining contemporary attitudes towards the state and public goods provision. Table 4 presents the estimates of Equation (1) using available data from the Latin American Public Opinion Project (LAPOP) in 2004-2016.[31] We used the data to construct four indicators of political attitudes and behaviors including: political participation, engagement with politicians, nondemocratic engagement, and trust in institutions. These indexes were constructed using the inverse covariance-weighted average of answers to a set of questions that capture the variables of interest.

Although individuals living in former FMLN areas are not less likely to participate in politics or to engage violently with politics (columns 1 and 3), they exhibit less engagement with politicians and less trust in institutions (columns 2 and 4). Consistent with the lack of trust in politicians and the state, the results suggest that individuals in former FMLN areas are less likely to vote

[30] While most of the agriculture elites from the 1950s were dissolved after the civil conflict, distrust towards the state and new elites or landowners could still be in place due to historical persistence, even if the new landowners provide better labor conditions.

[31] LAPOP conducts surveys of public opinion throughout the Western Hemisphere, including North, Central, and South America and the Caribbean. LAPOP's core project is the AmericasBarometer, a rigorous comparative survey of political and social attitudes and demographic and economic characteristics.

for the left party in the 2014 presidential elections.[32] and more likely to cast blank votes in 2014 presidential elections and 2015 municipal elections (see Table D.14).[33] Moreover, we find that if anything individuals in former guerrilla areas are less likely to vote for the left.[34]

Table 4. Effects of Guerrilla Territorial Control on Attitudes towards the Government

	Inverse Covariance Index (ICW)			
	Political Participation (2004-2016)	Engagement with Politicians (2004-2016)	Non-Democratic Engagement (2004-2016)	Trust in Institutions (2004-2016)
	(1)	(2)	(3)	(4)
Guerrilla control	0.153	-0.518**	-0.132	-0.626**
	(0.190)	(0.259)	(0.253)	(0.269)
Observations	242	248	172	241
Bandwidth (Km)	2.266	2.266	2.266	2.266
Dependent mean	-0.420	-0.120	-0.0300	-0.240

Note: The table presents the results of estimating Equation 1 for our outcomes related to political discontent and mistrust. Column (1) shows the political participation scope that includes questions that measure whether the citizen votes, attends protests, and attends government meetings. Column (2) reports the engagement with politicians scope that measures the extent to which citizens contact state authorities and/or bureaucracies to solve issues and attend government/political meetings. Column (3) shows the nondemocratic engagement scope that measures the extent to which citizens approve the use of alternative or violent means to engage in politics. Column (4) reports the trust in institutions item that measures the extent to which citizens trust different types of Salvadoran institutions, including the police, the powers of state, and local government. The table reports the inverse covariance-weighted average index as dependent variables. Panel B uses the simple sum of questions by each item. The unit of observation in all columns is the census tract. The information was obtained from the Latin American Public Opinion Project (LAPOP) survey. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates weight using a triangular kernel. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

As mentioned before, less political engagement and less trust in institutions may complicate the provision of public goods by the state and reduce the incentives of politicians to improve these

[32]During the (post-conflict) 1989-2009 period, all presidential elections were won by ARENA, the main right-wing political party in El Salvador. After 20 years, the presidential elections were won by the first FMLN candidate Mauricio Funes (2009-2014), which raised the expectations of FMLN supporters of an improvement in the living conditions for the Salvadorans. However, during Funes' presidential term, he was accused of several corruption acts. This could explain the differences in support for the FMLN presidential candidate in 2014 (Salvador Sanchez Ceren) in guerrilla-controlled territories that we find in the data.

[33]Note that this effect is small given that on average only a low percentage of individuals vote in blank (one percent at each poll station).

[34]Table D.15 also presents the results using the simple sum of questions related to each outcome instead of the inverse covariance index. For instance, for the outcome of political participation, we add all questions in LAPOP where the main topic is intended to measure this outcome. Results do not change.

functions. We explore the validity of these arguments in Table 5. To measure the current access or utilization of public goods in FMLN-controlled areas, we estimated Equation (1) using measures of access/usage of sewerage service, potable water, electricity, and garbage collection service. We also included a measure of the share of employees working in the public sector.[35] The analysis also evaluates the impacts of guerrilla control on public infrastructure using the total number of schools and hospitals, roads density, and public investment as outcomes of interest.

Table 5. Effects of Guerrilla Control on Public Goods Provision

	Public Investment	Hospitals per 100k	Schools per 100k	Road Density	Public Workers	2007 - Share of Households who report having			
	(1995-2015)	Population (2015)	Population (2007)	(2014)	(2007)	Sewerage Utilization	Garbage Utilization	Water Access	Electricity Access
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Guerrilla control	0.127**	-2.938	27.76***	0.246*	-0.00344*	-0.0255	-0.0523***	-0.0392**	-0.0290***
	(0.0614)	(0.0204)	(4.626)	(10.07)	(0.00205)	(0.0180)	(0.0185)	(0.0193)	(0.00862)
Observations	1,068	3,668	3,668	3,681	3,668	3,668	3,668	3,668	3,668
Bandwidth (Km)	3.082	2.266	2.266	2.266	2.266	2.266	2.266	2.266	2.266
Dependent mean	0.320	15.21	96.61	1.200	0.042	0.400	0.510	0.780	0.910

Note: The table presents the results of estimating Equation 1 for our outcomes related to public goods provision. Column (1) shows whether the canton has received public investment for any social project (FISDL), mostly related to building or updating infrastructure. Column (2) and (3) reports the number of hospitals and schools per each 100k population, respectively. Column (4) shows the road density in each census tract, which is measures as the length of all roads in the unit divide by its area. Column (5) shows the share of public workers within each census tract normalized by the population over 16 years of age. Columns (6) to (9) report the share of households with any of the marked services within each census tract. Information in the latter columns comes from the Population Census of 2007. Information from columns (2) and (4) comes from Google maps. The unit of observation in Column (1) is the Canton, but for the rest of the Columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects that represent the closest evenly spaced break in the guerrilla-controlled boundary. The estimates weight using a triangular kernel. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

The estimates point to three key results. First, perhaps somewhat surprisingly, column (1) indicates that inside areas with past guerrilla presence there is more public investment measured as any government expenditures in social projects related to infrastructure. This is consistent with qualitative evidence highlighting an increase in school investments in the post-conflict period. In line with these results, there are also more schools per 100,000 inhabitants and road density in areas with past guerrilla presence relative to the other areas (as illustrated in columns 3 and 4). However, as shown in the previous section, the larger number of schools inside rebel-held territories did not translate into better education outcomes. Similarly, we also find that there are no significant differences in the distance of each segment to the closest local police office (locally

[35] These measures consist of rates estimated by dividing the number of households with access to each public service by the total number of households in each census tract. Further explanation about the construction of variables is in Appendix A.

known as *comisarias*) between the treated and control areas.[36] Second, areas with past guerrilla presence had less public workers in 2007 relative to the other areas (see column 5). This implied that despite the higher investment in infrastructure, actual governmental personnel was less available to work in these areas. Third, there is less utilization and access of public services in areas with high guerrilla presence relative to the other areas (columns 7-9). The effects of FMLN control in public goods provision are robust to different bandwidths as in Figure D.10. The graphical representation of these effects is also illustrated in Figure D.11.

All in all, areas with past guerrillas presence have higher investments in infrastructure, but at the same time they also have less public personnel and access/utilization of public services, relative to the other areas. The low levels of institutional trust and political engagement may partly explain these effects. In fact, trust has a central role in the effective functioning of state institutions as has been shown in the classic work of Banfield (1967), Almond and Verba (2015), and Coleman (1990). On the one hand, politicians may have less information about the needs of local populations and also less willingness to improve public services where constituents distrust them. On the other hand, trust links citizens to the institutions that are created to represent them thereby increasing the legitimacy and the effectiveness of governments by, for instance, facilitating cooperation and responsiveness from citizens to state recommendations which might facilitate the implementation of policies that are welfare improving (Mishler and Rose, 2001). As such, for instance, locals may have less incentives to demand public services if they do not trust the state, as has been documented in other developing contexts when health malpractices are translated in less demand for public health services (see Alsan and Wanamaker, 2018, Lowes and Montero, 2021, Martinez-Bravo and Stegmann, 2022 for examples).

VI.B Transformation of economic structures: land fragmentation, agricultural productivity, and inequality

As part of their self-governance initiatives, one key FMLN strategy was to promote land access to formerly landless peasants. The FMLN pressured peasants in areas under its control to occupy and cultivate properties formerly owned by large landowners. In the absence of state authorities, many peasants organized cooperatives and occupied tens of thousands of hectares of land, eventually claiming these properties under the terms of the peace agreement (Wood, 2010). By the war's end, new patterns of land tenure and use had been consolidated.

[36] The results are available upon request.

This transfer of agrarian property rights eliminated large extension crops for exports and transformed the land into small plots largely planted with corn and beans. The peasants' newfound land access may have attached them to these areas but their inability to scale up farming activities and their reliance on staple food crops may have restricted improvement in their material well-being. This highlights an important economic mechanism that links the FMLN with lower development through higher fragmentation of agricultural land and encouraged subsistence farming. We explore this hypothesis by studying the effects of guerrilla control on agricultural productivity and land fragmentation today.

Land fragmentation

Given that guerrilla controlled areas experienced a redistribution of commercial plots to peasants during 1985-1992, we start by analyzing whether there is more land fragmentation today in former FMLN areas. We do so by considering the size of the plots in those areas relative to places nearby. Table 6 shows that commercial plots are much smaller inside formerly guerrilla-held areas. We find this for every type of plot we examined whether it is owned or rented (see columns 1 and 2). In addition, column (3) shows that the size of plots for cultivation is also smaller for commercial producers (Panel A). In contrast, we find no differences for subsistence crops (Panel B); this offers further evidence that large landowners experienced fragmentation of their land that persists today. This result is also confirmed in column (4), where we see that the share of the land commercial farmers owned is much smaller within formerly FMLN-controlled areas. In Table D.8 in the Appendix, we also look at the Simpson index to measure land fragmentation. Consistent with these results, we find more land fragmentation in former FMLN areas relative to nearby locations. Overall, lower plot size was likely to affect agricultural productivity by replacing plots from commercial to subsistence exploitation as we document in the next subsection. In fact, previous work has documented that land size reduces agricultural yield by limiting economies of scale (Ali, Deininger and Ronchi, 2019, Wan and Cheng, 2001).

Table 6. Effects of Guerrilla Control on the Size of Plots

Panel A: Size of Plots by Producers Focused in Commercial Activity (Has)				
	Own Area (2007)	Total Area (2007)	Cultivated Area (2007)	Share of Owned Area (2007)
	(1)	(2)	(3)	(4)
Guerrilla control	-1.100**	-1.255**	-0.543**	-0.0402*
	(0.538)	(0.541)	(0.231)	(0.0233)
Observations	2,021	2,003	2,017	1,838
Bandwidth (Km)	2.266	2.266	2.266	2.266
Dependent mean	5.130	6.800	2.530	0.350
Panel B: Size of Plots by Producers Focused in Subsistence Activities (Has)				
Guerrilla control	0.00451	0.0202	0.0133	0.0183
	(0.0146)	(0.0160)	(0.0124)	(0.0276)
Observations	2,309	2,298	2,292	1,677
Bandwidth (Km)	2.266	2.266	2.266	2.266
Dependent mean	0.230	0.660	0.600	0.680

Note: The table presents the results of estimating Equation 1 for our outcomes related to the size of land used by producers for their agricultural activity. Panel A shows the outcomes for the average plot managed by producers focused on commercial activities. Panel B does the same, but for the average plot managed by producers focused on subsistence activities. Column (1) uses as dependent variable the size of the land the producer owns. Column (2) uses the size of the total land the producer manages, which could also include rented land. Column (3) uses the area cultivated by the producer. Column (4) uses the share of the total area managed by the producer that the producer owns. The information in all columns comes from the Agricultural National Census of 2007. The unit of observation in all columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The estimates use triangular kernel weights. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Agricultural productivity

Next, we analyze whether the changes in economic production promoted during the period of guerrilla control led to changes in agriculture productivity today. Table 7 presents the results of the spatial RD analysis for the total extension of land cropped (panel A), the share of the land harvested (panel B), and the actual crop yield in 2005 (panel C). Consistent with qualitative evidence, we find that the production of export crops such as sugarcane was significantly reduced. Moreover, the measures of productivity are much lower in later years in the areas guerrillas controlled. The estimates confirm that actual crop yield was lower for all crops within controlled areas.

Table 7. Effects of Guerrilla Control on Agricultural Productivity

	Subsistence crops		Cash crops	
	Bean	Maize	Coffee	Sugarcane
	(1)	(2)	(3)	(4)
Panel A: Crop Production in 2005 (1000 Tons)				
Guerrilla control	-0.00167	-0.0110	-0.00540	-1.829***
	(0.00161)	(0.0324)	(0.00789)	(0.529)
Observations	3,652	3,652	3,652	3,652
Dependent mean	0.100	1.910	0.460	15.46
Panel B: Share of harvest in 2005 (Has)				
Guerrilla control	-0.0112***	-0.0310***	-0.0202***	-0.00357
	(0.00356)	(0.0109)	(0.00753)	(0.00230)
Observations	3,651	3,651	3,651	3,651
Dependent mean	0.0400	0.110	0.0800	0.0300
Panel C: Actual Crops' Yield in 2005 (Tons/Ha)				
Guerrilla control	-0.00471***	-0.0161***	-0.00622**	-1.078***
	(0.00126)	(0.00586)	(0.00242)	(0.241)
Observations	3,566	3,550	3,649	3,649
Dependent mean	0.400	2.250	0.840	61.22
Bandwidth (Km)	2.266	2.266	2.266	2.266

Notes: The table presents the results of estimating Equation (1) for outcomes related to agriculture. Panel A shows results using as dependent variable each crop's production in 1,000 tons. Panel B uses as dependent variable the share of harvested land of each crop from the total area of each census tract. Panel C uses the actual yield of each crop, which is measured as the total production over the total of cultivated land for each crop. The unit of observation in all columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates use triangular kernel weights. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

We next explore whether there are differences in the occupations of employed individuals living today in areas with past guerrilla's presence relative to the other areas. Not surprisingly, and in line with previous results, we find that individuals living in these areas work disproportionately in agriculture (specifically subsistence agriculture) but less in other occupations known to create more added value including, for example, manufacturing, mining, and services (Table D.9). Whats more, these differences in occupations between the treated and control areas are maintained even as the bandwidth around the discontinuity is increased from 2 to even 18kms, suggesting that these differences are not affected by the location or creation of urban centers close to the disconti-

nuity (Figure D.13).

Inequality and cooperatives

As shown in the previous section, guerrilla-controlled areas were more likely to have experienced land fragmentation as a result of the displacement of large landowners that still persists today. It is possible, however, that even though these areas are poorer, they may have less income inequality. We explore this notion by using reported income from household surveys and the wealth index from the demographic census.

Table D.10 presents results for different measures of inequality. We find that while individuals have less income in guerrilla-controlled areas (columns (1) and (2)), there is no evidence of lower inequality in terms of wealth assets or income.[37] This result is robust to different measures. Moreover, we also find no difference in whether farmers belong to a cooperative in a former FMLN territory relative to areas outside (see Table D.12).[38] Although the FMLN redistributed land to peasants, most of its agriculture programs targeted subsistence crops. There was no program to teach peasants how to grow and commercialize export crops.

The results presented in this section leave open the question of why there is still land fragmentation in these areas despite the low productivity associated? One explanation is the persistent distrust towards the elites and the state present in former guerrilla controlled areas, which has isolated these communities from improvements in productivity associated to large landowners. There is qualitative evidence that even though agriculture commercial farmers would like to invest in these areas, citizens are reluctant to let them enter due to high distrust towards out-groups (even though many of the large landowners or investors are not associated to the historical elites from the 1970s).[39]

[37] We also checked the robustness of these results using the Wealth Index from the information of the Census in 2007 at the census tract level (Table D.11). We don't find any difference across the boundary when using this measure to assess inequality.

[38] This result is also consistent with the evidence in Table 1 showing that there were no baseline differences in the land reform implemented by the state in the 1980 across the boundaries. This reform transformed many of the large plots into cooperatives.

[39] Another possibility is that individuals from guerrilla areas cannot sell their land and are attached to the land. However,we do not observe that there are differences between treatment and control areas in land ownership or land property rights. If anything, individuals in former guerrilla areas are more likely to have property rights over their land. Results are available upon request.

VI.C Ruling out migration

This section explores potential differences in migration patterns in guerrilla-controlled areas compared to areas outside the boundary. As explained above, guerrilla areas promoted changes in the economic structure that might have induced different patterns of worker selection. For example, it is possible that high-ability workers could have migrated from these areas due to fear of having their income expropriated (out-migration). At the same time, there could have been adverse selection of workers if guerrilla-held areas attracted less productive peasants or individuals with more egalitarian preferences into the areas (in-migration).

We explore these migration patterns empirically in Table 8 using data from the 2007 census. Columns (1)–(5) examine impacts on international migration. In particular, we estimated Equation (1) for the share of international emigrants during the period of FMLN territorial control and afterward, the number of years since the international emigrant left the household, and the share of households receiving remittances. Unfortunately, the 2007 census does not include questions related to internal migration. However, international migration is a significant form of migration in El Salvador.

The results suggest that individuals in formerly guerrilla-controlled areas were not more likely to migrate abroad or to receive remittances than individuals in nearby locations, and that—if anything—migration abroad seems to be more recent. The coefficients are also negative, indicating that individuals were less likely to migrate internationally. These results provide evidence that guerrilla areas did not face more "brain drain," a result that is consistent with the possibility that elites were not living in these locations and mainly left their operations in these locations when their workers stayed. Moreover, it is consistent with the idea that peasants supported the guerrilla movement and wanted to stay in these locations.

We examine in-migration outcomes in columns (6)–(9). To evaluate if there was more migration into rebel areas, we estimated Equation (1) for the share of individuals who always lived in the same location, the share of individuals who lived in the same location as their mothers, in-migration during the Civil War period, and years since arrival.[40]

The results show no evidence of large differences in migration patterns for areas under guerrilla control. Moreover, the coefficient estimates are positive, suggesting that areas under guerrilla

[40] In-migration variables were constructed from the Population Census of 2007. Further explanation of the definition of each variable is in Appendix A.

control were less likely to have more in-migration. Importantly, the magnitude of the estimated coefficients is small and close to zero for all these outcomes.[41]

To further examine whether there was more migration by highly educated individuals from FMLN areas, we examined the same outcomes in columns (6)–(9) of Table D.16 using the sample of individuals who had finished at least high school by the time the conflict started. The magnitude of all the coefficients in Table D.16 is close to zero and not significant, implying that migration of highly educated individuals may not be driving the effects. Moreover, the sign of the coefficients in columns (6)-(8) highlights that if anything there is more in-migration of highly selected individuals.

Table 8. Effects of Guerrilla Control on Migration Outcomes

	International Migrants					Always Lived in	Same Location	People who Arrived	Years since
	During Control	At any time	Years since	Households who Received	Received Remittance from	same Location	as the Mother	During Control	Arrival
	(Share)	(Share)	departure	Remittances (Share)	War Migrant (Share)	(Share)	(Share)	(Share)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Guerrilla control	-0.00219	-0.00221	-0.341	-0.00674	-0.00194	0.00788	0.00648	-0.00452	-0.218
	(0.00171)	(0.00498)	(0.277)	(0.00427)	(0.00126)	(0.00956)	(0.00978)	(0.00321)	(0.411)
Observations	3,637	3,637	3,396	3,637	3,637	3,637	3,637	3,637	3,524
Bandwidth (Km)	2.266	2.266	2.266	2.266	2.266	2.266	2.266	2.266	2.266
Dependent mean	0.0200	0.110	7.420	0.100	0.0100	0.770	0.730	0.0600	16.47

Note: The table presents the results of Equation 1 for our outcomes related to migration. Columns (1) to (5) focus on outcomes for international migrants. Columns (6) to (9) focus on internal in-migration flows. All information was obtained from the Population Census of 2007. The unit of observation in all columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates use triangular kernel weights. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Finally, we also looked at temporal migration for work by analyzing whether individuals work in a different census tract or municipality from where they live across the boundaries (Table D.17). We do not find that individuals from former guerrilla areas are more likely to work outside their area, providing further evidence that out-migration may not be driving the results.

One puzzle with these results is why individuals do not migrate out today given the better economic opportunities in nearby areas. One potential explanation for this result is that individuals living today in guerrilla areas prefer not to leave their village as they have build strong social ties among their community, more "roottedness", and do not trust outsiders. This idea is in line with

[41] The sign of the coefficients is consistent with the idea that communities in previously controlled areas are closed to external individuals.

our previous results illustrated in Table D.18, where we show that individuals in former guerrilla areas are more likely to trust the members of their community relative to individuals of nearby areas.[42]

VI.D Ruling out conflict and violence persistence

This section explores whether the negative effects of guerrilla control stemmed mainly from higher conflict or the persistence of violence, which may have been more intense in areas close to the boundary where territorial control was contested. As such, conflict or violence may primarily produce the negative effects we see in the development outcomes.

We tested this mechanism in several ways. First, we estimated Equation (1), controlling for the segments in disputed areas where the Salvadoran government and the guerrillas usually fought over territorial control. Second, we used a donut-hole approach to exclude all observations within 80 meters from the boundary of guerrilla-held territories.[43]

Results for the main outcomes of interest from these exercises are in Table 9. In general, the coefficients are negative, statistically significant, and similar in size. This suggests that conflict is not the main factor behind the negative effects of guerrilla control.

To provide more evidence, Table 10 presents the estimates of Equation (1) on war crimes. These crimes include the number of deaths, disappearances, and other crimes associated with the conflict as reported by The Truth Commission. The results once again support the idea that areas under guerrilla control did not experience disproportionately higher crimes, relative to other areas.[44]

Finally, we appraise the role of guerrilla control in contemporaneous measures of crime and judge whether the historical presence of guerrillas prevented the development of criminal actors.[45] On the one hand, it is possible that the social capital left in former guerrilla areas may have done so (Sviatschi, 2020). Tightly knit communities with strong social ties are better able to prevent

[42] Importantly, these results are not explained by individual's attachment to their land as previous papers have shown occurs when property rights are not defined or are dependent on land use and plots are isolated from large markets (Albertus, Espinoza and Fort, 2020; De Janvry et al., 2015). Several factors suggest that this is not the case. First, after the peace agreements in 1992, the state recognized property rights over the land invaded by guerrillas and consequently, individuals could sell their land and migrate to other places, if they should desire. Second, we also show that our results do not vary according to the distance of each individual to the road network or a main city (see Table D.19 in the Appendix).

[43] All segments within an 80 meter distance were excluded in a effort to shut off almost every segment close to the boundary and inside the guerrilla zone with an immediate neighbor outside it.

[44] The negative coefficient associated with the war crime estimates suggests that guerrilla areas experienced less crimes, leading to lower-bound estimates of our main outcomes.

[45] After 1996, gang development mainly due to deportations from the United States affected El Salvador.

the entrance of criminals because they raise detection probabilities and attach shame to criminal behaviors (Buonanno, Montolio and Vanin, 2009). If social capital persists, we expect crimes associated to non-state armed actors, which are pervasive in El Salvador, to be lower. On the other hand, if our results were explained by violence during or after the control of these areas, we should expect more violence today. To test these hypotheses, we considered homicide rates during 2017 using police data, and victimization rates from 2004 to 2016 using LAPOP surveys.

Table D.20 in the Appendix presents the results. Consistent with the findings presented above that violence during conflict was not greater in guerrilla-controlled areas, the results largely suggest no differences in homicide rates between areas under and outside FMLN control.[46] If anything, the estimates are negative, which suggests that the documented differences in long-term development did not arise from increases in conflict or violence. Moreover, there is evidence that people living in areas that were once under guerrilla control are less likely to be victims of violent crime or extortion related to gang activity, which is consistent with persistence norms of cooperation, and higher levels of social capital. This results align with the qualitative evidence gathered from interviews with locals and former guerrilla commanders who repeatedly expressed thoughts like the following: 'the fact that the maras (gangs) are barely present in these areas reflects that the self-organization of the people worked.' (Joaquín Villalobos, FMLN Military Commander, interview conducted on March 23, 2022).

[46] Figures D.16 and D.17 confirm this result for different bandwidths.

Table 9. Effects of Guerrilla Territorial Control on Main Outcomes, Controlling for Conflict

Panel A: Separating Guerrilla disputed areas from Governmental controlled areas			
	Night Light Arcsine	Wealth Score	Years of Education
	(2013)	(2007)	(2007)
	(1)	(2)	(3)
Guerrilla control	-0.127***	-0.170***	-0.438**
	(0.0314)	(0.0564)	(0.188)
Disputed area	0.0851*	-0.0592	-0.230
	(0.0473)	(0.0654)	(0.207)
Observations	3,652	3,637	3,637
Bandwidth (Km)	2.266	2.266	2.266
Dependent mean	3.540	0.0400	6.570
Panel B: Donut Hole Analysis (400 mts)			
Guerrilla control	-0.164***	-0.123**	-0.308**
	(0.0520)	(0.0541)	(0.153)
Observations	1,564	1,555	1,555
Bandwidth (Km)	0.981	0.981	0.981
Dependent mean	3.250	-0.200	5.850

Note: The table presents results for the main outcomes but under different specifications that help discard the hypothesis that the effects were driven by conflict. Panel A shows results when separating the control group between government-controlled areas and areas that were disputed by guerrillas. Notice that in panel A, the omitted category concerns segments under pure governmental dominance. Panel B shows results using a donut-hole methodology with a hole of 400 meters. The unit of observation in all columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to to set the bandwidth and the estimates weight using a triangular kernel. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 10. Effects of Guerrilla Territorial Control on Crimes during the War Period

	Total War Events	Total War Victims	Has a War Event	Has War Victims
	(1)	(2)	(3)	(4)
Guerrilla control	0.00641	-0.259	0.00179	0.00321
	(0.0894)	(0.490)	(0.00264)	(0.00287)
Observations	3,663	3,663	3,663	3,663
Bandwidth (Km)	2.271	2.271	2.271	2.271
Dependent mean	0.0400	0.210	0.001	0.002

Note: The table presents the results of estimating Equation 1 for our outcomes related to crimes committed in the war period. Columns (1) and (3) report the total of events related to war and its probability, respectively. A war event can be a massacre, combat, bombing, or any other war event that caused victims from war. Columns (2) and (4) show the total number of victims and the probability of the census tract to have war victims. The unit of observation in all columns is the canton level. The information was recovered from the registry of victims. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to to set the bandwidth and the estimates weight using a triangular kernel. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

VI.E Other mechanisms

In this section we discuss other potential mechanisms that could be driving the results, such as child recruitment, disproportionate improvements in control areas or changes in the supply and quality of education.

Recruitment— Coercive recruitment has figured prominently in existing work that ties civil conflict to lower levels of education: military experience is a bad substitute for education and labor market experience, and child soldiers lose key formative years of schooling (Blattman and Miguel, 2010). However, the existing evidence shows that it is unlikely to be a driver of our results. First, child soldiers were not a prominent actor in the ranks of the FMLN. Estimates suggest that out of the out of the 9,000-12,000 FMLN members, only 2,000 where under the age of 18, or about 20%, while the percentage of underage combatants in the Salvadoran Army was a whopping 80% (48,000 out of the 60,000 combatants) (Courtney, 2010). Moreover, the overwhelming conclusion of most historical studies is that recruitment into the FMLN was mostly voluntary. A study conducted by UNICEF at the end of the war shows that while 91.7% of the recruits of the FMLN had joined voluntarily, close to 53% of the under-aged Salvadoran Army soldiers were forcibly recruited (Courtney, 2010).

Post-conflict investment in guerrilla areas— It is unlikely that our results are driven by post-conflict differential patterns of public spending aimed at punishing these areas. Although we cannot assess the voting patterns of these areas immediately after conflict, evidence from elections for 2014 and 2015 do not show that these areas are favoring a specific political party, if anything, there is a small and negative effect on the vote share for the leftist party, as shown in Table D.14. Moreover, significant efforts to reconstruct the country in the aftermath of conflict were made, which resulted in investments and infrastructure, mostly roads and schools. In fact, the evidence presented above shows that these areas received more of this investment, not less.

In terms of private investment, we do not find qualitative evidence supporting lower willingness to invest in these locations from large agriculture producers or firms. Moreover, several counter-arguments suggest there lower private investment is not driving our main results. First, control group areas are extremely close (just 2km away) and thus, it is difficult to argue why private investment would arrive to nearby control areas and not to guerrilla areas, since guerrillas were no longer in the location in the post-period. Second, it is highly unlikely that contemporaneous investors are aware of the boundary that divides areas that had guerrillas presence in 1980s. In fact, the boundaries of guerrillas territorial control do not overlap with the administrative division or the road network of El Salvador. On other words, the boundaries are not salient. Evidence from our focus groups supports this argument since few of our interviews knew the exact boundaries of historical guerrilla presence (if anything they know which were the municipalities affected by guerrillas but not the exact boundary). Third, there are no differences between treatment and control areas on the number of new businesses such as restaurants, malls, and markets across the boundaries, providing evidence that most of the development was driven by local actors.[47]

Spillovers in non-guerrilla areas during territorial control and in the post-period— We also rule out that effects are driven by counter-insurgency in nearby areas in the control group during territorial control. Another possibility is that control nearby areas benefited from the lack of development or the agriculture focus of guerrilla areas. If this would be the case effects would be concentrated close to the boundary or just in the rd-sample. First, evidence from the doughnut-hole analysis shows that this is not the case: effects are robust to excluding observations close to the boundary. Second, if we increase the sample beyond the bandwidth to 17 km we see homogeneous effects on

[47] We checked for this possibility by digitizing the number of commercial establishments 2kms around the boundary of past guerrillas presence using Google Maps. We were not able to distinguish any significant differences between treated and controls areas on the number of commercial establishments. The estimates are available upon request.

development.[48]

Quality of education—In the Appendix, we also analyze whether the quality of education, measured by the education of teachers and the actual number of teachers, is lower in areas with past guerrillas presence relative to other areas. This is a relevant concern as it might explain why there are worst education outcomes despite the larger presence of physical school inside treated areas. We do not find evidence of any significant differences in either of these variables, which suggests that quality of education was not different across treatment and controls areas (see Table D.24).

VII DISCUSSION

This paper explores the long-term development impacts of guerrilla territorial control in El Salvador. The empirical methodology uses a spatial regression discontinuity that compares night light luminosity, wealth, and human capital between areas close to the boundary of FMLN control.

The results suggest that guerrilla control had sizable negative and persistent consequences for night light luminosity, wealth, and human capital. These effects are not completely accounted for by sorting from treated areas, out-migration, higher conflict intensity, child recruitment by rebels, lower public or private investment, or differences in the quality of education. Our analysis suggests that our main results are in fact driven by the fact that guerrillas transformed local governance and social capital leading to a persistent change in economic structures. In fact, areas with high guerrillas presence have today higher political discontent and institutional distrust, smaller land holdings, and lower agricultural productivity. Moreover, they have moved away from agricultural economic activities related to commercial exploitation to privilege subsistence activities.

These findings offer important insights for other countries where non-state armed actors are present or which are trying to promote post-conflict development, but which do not have quality data to conduct similar analyses. In particular, these results suggest that areas under rebel governance may have embarked on a negative development path that is likely to persist. In fact, our analysis

[48]One potential concern as with many rd- designs is that we observe cross-sectional differences today in development. Therefore, due to the lack of panel data, we cannot disentangle how much effects are driven by improvements in the control group and deterioration in guerrilla areas over time versus just improvements in the control group and no changes in guerrilla areas. To shed light on this issue, we analyze heterogeneous effects based on distance to a main road, city or population density. If effects would be driven by only improvements in control areas but no changes in the treated group, we would expect a mitigation of the negative effects on development in better connected regions. Table D.19 shows that this is not the case. These results imply that even areas that were more developed before the arrival of guerrillas are equally affected by their historical presence today.

suggests that increasing public investment by itself is not enough to guarantee recovery in areas with non-state armed actors and that building trust towards the state and promoting less land fragmentation of commercial plots is key in moving towards a more productive growth path in the long term.

References

Acemoglu, Daron and James A Robinson. 2012. Why nations fail: The origins of power, prosperity, and poverty. Currency.

Acemoglu, Daron, Simon Johnson and James A Robinson. 2001. "The colonial origins of comparative development: An empirical investigation." American economic review 91(5):1369–1401.

Acemoglu, Daron, Suresh Naidu, Pascual Restrepo and James A Robinson. 2019. "Democracy does cause growth." Journal of political economy 127(1):47–100.

Albertus, Michael, Mauricio Espinoza and Ricardo Fort. 2020. "Land reform and human capital development: Evidence from Peru." Journal of Development Economics 147:102540.

Ali, Daniel Ayalew, Klaus Deininger and Loraine Ronchi. 2019. "Costs and benefits of land fragmentation: evidence from Rwanda." The World Bank Economic Review 33(3):750–771.

Almond, Gabriel Abraham and Sidney Verba. 2015. The civic culture: Political attitudes and democracy in five nations. Princeton university press.

Alsan, Marcella and Marianne Wanamaker. 2018. "Tuskegee and the health of black men." The quarterly journal of economics 133(1):407–455.

Álvarez, Alberto Martín. 2011. "De guerrilla a partido político: el Frente Farabundo Martí para la Liberación Nacional (FMLN)." Historia y política: Ideas, procesos y movimientos sociales (25):207–233.

Arjona, Ana. 2016. Rebelocracy. Cambridge University Press.

Arjona, Ana, Nelson Kasfir and Zachariah Mampilly. 2015. Rebel governance in civil war. Cambridge University Press.

Banfield, Edward C. 1967. "The moral basis of a backward society.".

Bauer, Michal, Christopher Blattman, Julie Chytilová, Joseph Henrich, Edward Miguel and Tamar Mitts. 2016. "Can war foster cooperation?" Journal of Economic Perspectives 30(3):249–74.

Binford, Leigh. 1997. "Grassroots development in conflict zones of northeastern El Salvador." Latin American Perspectives 24(2):56–79.

Blattman, Christopher and Edward Miguel. 2010. "Civil war." Journal of Economic literature 48(1):3–57.

Breslawski, Jori. 2021. "The Social terrain of rebel held territory." Journal of Conflict Resolution 65(2-3):453–479.

Buntaine, Mark T, Daniel L Nielson and Jacob T Skaggs. 2021. "Escaping the disengagement dilemma: Two field experiments on motivating citizens to report on public services." British Journal of Political Science 51(2):685–705.

Buonanno, Paolo, Daniel Montolio and Paolo Vanin. 2009. "Does social capital reduce crime?" The journal of law and economics 52(1):145–170.

Calonico, Sebastian, Matias D Cattaneo, Max H Farrell and Rocio Titiunik. 2019. "Regression discontinuity designs using covariates." Review of Economics and Statistics 101(3):442–451.

Calonico, Sebastian, Matias D Cattaneo and Rocio Titiunik. 2014. "Robust nonparametric confidence intervals for regression-discontinuity designs." Econometrica 82(6):2295–2326.

Castañeda, Eduardo Sancho. 2016. "El control social y territorial de una fuerza insurgente. El caso de la Resistencia Nacional (RN) durante el conflicto armado." Revista Policía y Seguridad Pública pp. 191–226.

Cattaneo, Matias D, Michael Jansson and Xinwei Ma. 2020. "Simple local polynomial density estimators." Journal of the American Statistical Association 115(531):1449–1455.

Chávez, Joaquın. 2011. "Revolutionary Power, Divided State." Mapping Latin America: A Cartographic Reader pp. 250–253.

Coleman, James. 1990. "Social capital. Foundations of social theory." The Cambridge: Belknap Press of Harvard University .

Collier, Paul. 2008. The bottom billion: Why the poorest countries are failing and what can be done about it. Oxford University Press, USA.

Conley, T.G. 1999. "GMM estimation with cross sectional dependence." Journal of Econometrics 92(1):1–45.
URL: *https://www.sciencedirect.com/science/article/pii/S0304407698000840*

Courtney, Jocelyn. 2010. "The Civil War That Was Fought by Children: Understanding the Role of Child Combatants in El Salvador's Civil War, 1980-1992." Journal of Military History 74(2).

De Groot, Olaf J, Carlos Bozzoli, Anousheh Alamir and Tilman Brück. 2021. "The global economic burden of violent conflict." Journal of Peace Research .

De Janvry, Alain, Kyle Emerick, Marco Gonzalez-Navarro and Elisabeth Sadoulet. 2015. "Delinking land rights from land use: Certification and migration in Mexico." American Economic Review 105(10):3125–49.

Dell, Melissa. 2010. "The persistent effects of Peru's mining mita." Econometrica 78(6):1863–1903.

Dell, Melissa and Benjamin A Olken. 2020. "The development effects of the extractive colonial economy: The dutch cultivation system in java." The Review of Economic Studies 87(1):164–203.

Dell, Melissa, Nathan Lane and Pablo Querubin. 2018. "The historical state, local collective action, and economic development in Vietnam." Econometrica 86(6):2083–2121.

Fergusson, Leopoldo, Ana María Ibáñez and Juan Felipe Riano. 2020. "Conflict, educational attainment, and structural transformation: La violencia in colombia." Economic Development and Cultural Change 69(1):335–371.

FMLN. 1983. "Sobre el Desarrollo del FMLN." Comandancia General del FMLN .

FMLN. 1984. "Situacion Revolucionaria y Escalada Intervencionista en la Guerra Salvadorena.". Text digitized by Centro de Estudios Marxistas "Sarbelio Navarrete" (CEM) and Servicio Informativo Ecumenico y Popular (SIEP).

Foster, Andrew D and Mark R Rosenzweig. 2022. "Are There Too Many Farms in the World? Labor Market Transaction Costs, Machine Capacities, and Optimal Farm Size." Journal of Political Economy 130(3):636–680.

Grasse, Donald, Renard Sexton and Austin Wright. 2021. "The Logic and Impacts of Rebel Public Services Provision: Evidence from Taliban Courts in Afghanistan.".

Green, Amelia Hoover and Patrick Ball. 2019. "Civilian killings and disappearances during civil war in El Salvador (1980–1992)." Demographic Research 41:781–814.

Henderson, J Vernon, Adam Storeygard and David N Weil. 2012. "Measuring economic growth from outer space." American economic review 102(2):994–1028.

Hijmans, Robert J, Susan E Cameron, Juan L Parra, Peter G Jones and Andy Jarvis. 2005. "Very high resolution interpolated climate surfaces for global land areas." International Journal of Climatology: A Journal of the Royal Meteorological Society 25(15):1965–1978.

Jablonski, Ryan S and Brigitte Seim. 2022. "What politicians don't know can hurt you: The effects of information on politicians' spending decisions." Available at SSRN .

Lauria-Santiago, Aldo A and Jeffrey L Gould. 2008. To Rise in Darkness. Duke University Press.

Leon, Gianmarco. 2012. "Civil conflict and human capital accumulation the long-term effects of political violence in perú." Journal of Human Resources 47(4):991–1022.

Liu, Shelley X. 2022. "Control, Coercion, and Cooptation: How Rebels Govern after Winning Civil War." World Politics 74(1):37–76.

Lowes, Sara and Eduardo Montero. 2021. "The legacy of colonial medicine in Central Africa." American Economic Review 111(4):1284–1314.

Loyle, Cyanne E, Kathleen Gallagher Cunningham, Reyko Huang and Danielle F Jung. 2021. "New Directions in Rebel Governance Research." Perspectives on Politics pp. 1–13.

Martín Alvarez, Alberto. 2010. From Revolutionary War to Democratic Revolution: The Farabundo Martí National Liberation Front (FMLN) in El Salvador. Germany.

Martinez-Bravo, Monica and Andreas Stegmann. 2022. "In vaccines we trust? The effects of the CIA's vaccine ruse on immunization in Pakistan." Journal of the European Economic Association 20(1):150–186.

Michalopoulos, Stelios and Elias Papaioannou. 2013. "Pre-colonial ethnic institutions and contemporary African development." Econometrica 81(1):113–152.

Miguel, Edward and Gérard Roland. 2011. "The long-run impact of bombing Vietnam." Journal of Development Economics 96(1):1–15.
URL: *https://www.sciencedirect.com/science/article/pii/S0304387810000817*

MINED. 2009. "Historia de El Salvador." Ministerio de Educacion de El Salvador .

Mishler, William and Richard Rose. 2001. "What are the origins of political trust? Testing institutional and cultural theories in post-communist societies." Comparative political studies 34(1):30–62.

Moodie, Ellen. 2011. El Salvador in the aftermath of peace. University of Pennsylvania Press.

Pearce, Jenny. 1986. "Promised Land." Peasant Rebellion in Chalatenango, El Salvador .

Pence, Karen M. 2006. "The role of wealth transformations: An application to estimating the effect of tax incentives on saving." Contributions in Economic Analysis & Policy 5(1).

Pettersson, Therése and Magnus Öberg. 2020. "Organized violence, 1989–2019." Journal of peace research 57(4):597–613.

Pinkovskiy, Maxim and Xavier Sala-i Martin. 2016. "Lights, camera… income! Illuminating the national accounts-household surveys debate." The Quarterly Journal of Economics 131(2):579–631.

Riaño, Juan Felipe and Felipe Valencia Caicedo. 2020. "Collateral damage: The legacy of the secret war in Laos.".

Riley, Shawn J, Stephen D DeGloria and Robert Elliot. 1999. "Index that quantifies topographic heterogeneity." intermountain Journal of sciences 5(1-4):23–27.

Ritter, Paul. 1987. "A vector-based slope and aspect generation algorithm." Photogrammetric Engineering and Remote Sensing 53(8):1109–1111.

Sánchez De La Sierra, Raúl. 2020. "On the origins of the state: Stationary bandits and taxation in eastern congo." Journal of Political Economy 128(1):000–000.

Stewart, Megan A. 2018. "Civil war as state-making: Strategic governance in civil war." International Organization 72(1):205–226.

Sviatschi, María Micaela. 2020. Spreading Gangs: Exporting US Criminal Capital to El Salvador. Technical report Mimeo.

Wan, Guang H and Enjiang Cheng. 2001. "Effects of land fragmentation and returns to scale in the Chinese farming sector." Applied Economics 33(2):183–194.

Williams, Michael C. 1998. "Keeping the Peace: Multidimensional UN Operations in Cambodia and El Salvador.".

Wood, Elisabeth. 2003. Insurgent collective action and civil war in El Salvador. Cambridge University Press.

Wood, Elisabeth. 2010. "Agrarian Reform, Land Occupation, and the Transition to Democracy in El Salvador." Distributive Justice Transitions pp. 141–76.

Wood, Elisabeth Jean. 2008. "The social processes of civil war: The wartime transformation of social networks." Annu. Rev. Polit. Sci. 11:539–561.

Zedong, Mao. 1938. "Problems of war and strategy." Selected Works of Mao Zedong 2:224.

Contents (Appendix)

A Data Sources and Variable Definitions

A.A *Guerrilla territories*

- **Territories under control by 1991:** Following Castañeda (2016), this study uses the maps that document FMLN-held areas as submitted to the United Nations and approved by the different political parties in El Salvador during the ceasefire process. Since the map originally had an image format, we used ArcMap to digitize it by hand and convert it to a shapefile format. Thus, this is the only part of the spatial analysis that is not coded.

A.B *Geospatial variables*

- **Night light luminosity:** Data on night light luminosity comes from the Defense Meteorological Satellite Program Operational Linescan System (DMSP-OLS). This data was obtained from the US National Oceanic and Atmospheric Administration (NOAA) at https://ngdc.noaa.gov/eog/download.html. This data has a resolution of 30 arc seconds (1 km^2) and spans 1992 to 2013. We present results using the 2013 data as it is the last year available. However, the challenge with night light luminosity data is the significant fraction of observations that take the value of zero and the existence of extreme values in the right tail of the distribution (Michalopoulos and Papaioannou, 2013; Pinkovskiy and Sala-i Martin, 2016). To account for this potential concern, we adjust the outcome of interest using the logarithm and the inverse hyperbolic sine transformation.[49]

- **Elevation:** Elevation was obtained from the Google Earth Engine Data Catalog and is available at https://developers.google.com/earth-engine/datasets/catalog/USGS_SRTMGL1_003. This data provides elevation information in meters at the 3 arc-seconds spatial resolution (90 mts^2). The digital elevation model (DEM) was created based on the images of the Shuttle Radar Topography Mission (SRTM) of NASA. In this study, we calculated the average elevation for each census tract.

- **Slope:** this study uses the terrain() function in R to compute the slope from the elevation data accordingly with Ritter (1987).[50] The algorithm uses four neighboring pixels to compute each pixel's slope in degrees. Thus, higher values represent steeper terrain. Our study uses the average of the slope at the census tract level.

[49] The inverse hyperbolic sine transformation is defined as $log(y_i + (y_i^2 + 1)^{1/2})$ and can be interpreted as a logarithmic dependent variable (Pence, 2006).

[50] Documentation of the R tool can be found at https://www.rdocumentation.org/packages/raster/versions/3.4-10/topics/terrain

- **Ruggedness:** This study implements the terrain ruggedness index of Riley, DeGloria and Elliot (1999) using the tri() function in R.[51] The algorithm uses five neighboring pixels to calculate each pixel's index from the elevation data. Our study uses the average of the ruggedness index at the census tract level.

- **Rivers and lakes:** Information on surface water bodies comes from the Google Earth Engine Data Catalog and is available at https://developers.google.com/earth-engine/datasets/catalog/MERIT_Hydro_v1_0_1. The data comes from the MERIT Hydro dataset with a 3 arc-seconds spatial resolution (90 mts^2). Our variables take the value of one if a river or lake passes by a census tract.

- **Precipitation:** Precipitation was obtained from the Global Climate Database created by Hijmans et al. (2005) that is available at http://www.worldclim.org/. This data provides a historic time series of rainfall in millimeters from 1960 to 2018 at the 2.5 minutes spatial resolution (21 km^2) with a monthly periodicity. This study standardizes the series from 1960 to 1979 and calculates the standardized average of rainfall for each census tract from 1975 to 1979.

- **Temperature:** Maximum temperature was obtained at the Global Climate Database created by Hijmans et al. (2005) and is available at http://www.worldclim.org/. This data provides a historic time series of temperature in Celsius from 1960 to 2018 with a monthly periodicity at the 2.5 minutes spatial resolution (21 km^2) with a monthly periodicity. This study standardizes the series from 1960 to 1979 and calculates the standardized average of temperature for each census tract from 1975 to 1979.

- **Historical crop yield:** Agro-climatic yield rasters were obtained from the Global Agro-Ecological Zones version 3.0 (GAEZ v 3.0) project and are available at https://www.gaez.iiasa.ac.at. The data has a spatial resolution of 5 arc-minutes (9 km^2) and a yearly periodicity. We used the 30-year average starting in 1961 of the most relevant crops in terms of consumption and exports for 1990 (i.e., coffee, cotton, rice, beans, and sugarcane).

- **Roads and railways in 1980:** the map outlining the road and railway network in 1980 for El Salvador was obtained from the United States Library of Congress and is available at https://www.loc.gov/resource/g4840.ct000627/. This map was made by the

[51] Documentation of the R tool can be found at https://www.rdocumentation.org/packages/spatialEco/versions/1.3-7/topics/tri

Central Intelligence Agency. Since the map originally had an image format, we used ArcMap to digitize it by hand and convert it to a shapefile format. Our variable takes the value of one if a census tract contains part of a road or railway.

- **Distance to the capital:** We calculated the euclidean distance in kilometers from the centroid of each census tract to San Salvador, the capital city of El Salvador.
- **Distance to the coast:** We calculated the euclidean distance in kilometers from the centroid of each census tract to the nearest coast.
- **Distance to departamental boundaries:** We calculated the euclidean distance in kilometers from the centroid of each census tract to the nearest departmental boundary.

A.C *Population and Household Census of 2007 (PHC)*

The PHC of 2007 is available at http://www.censos.gob.sv/censo/Default.aspx.

- **Census cartography:** DIGESTYC also provided maps of the 12,435 census tracts (*segmentos censales*) in the 2007 census. Each census tract represents a small area with a fixed geographic perimeter. On average, they have an area of 1.7 km^2, a perimeter of 5.5 km, 131 households, and 473 individuals.
- **Wealth score:** we built a wealth score that represents the living conditions of each household using household characteristics and asset ownership such as the type of roof, access to water, television, etc. To construct the score, we used a principal component analysis following the steps recommended by the Demographic and Health Surveys program (DHS), which can be consulted at https://dhsprogram.com/topics/wealth-index/Wealth-Index-Construction.cfm. We calculate the average of this measure for each census tract.
- **Years of education:** The PHC asks each individual the total number of years of education in single years. However, our variable only takes into account individuals older than 18 years since most of this population already finished secondary school. We calculate the average of this variable for each census tract.
- **Literacy rate:** The PHC asks each individual if they can read and write. Thus, our literacy rate variable is the number of individuals older than 18 years who can read in each tract over the total population in the same age range in the same tract.
- **Public good provision rates:** The PHC asks each household if they have water access, sew-

erage, electricity, and garbage services. Our rates are calculated as the total number of households who report having the service in each tract over the total households in the same tract.

- **Total number of hospitals:** The Ministry of Health of El Salvador provided us with the location of all hospitals in El Salvador in 2015. The variable we use is the total number of hospitals in each census tract.
- **Total number of schools:** The Ministry of Health of El Salvador provided us with the location of all schools in El Salvador in 2007. The variable we use is the total number of schools in each census tract.
- **Economically active population:** Our variable is calculated at the segment level and is the sum of all people 16 years or older who are working or in search of work in the census tract over the people in the same age range in the same tract.
- **Working population:** Our variable is calculated as the total individuals who worked last week at least one hour, no matter the occupation, in a given census tract. This variable is normalized by the total population aged 16 years or older.
- **Salaried population:** Our variable is calculated as the total individuals in a given census tract who worked last week and received any sort of compensation for it. This variable is normalized by the total population aged 16 years or older.
- **Public workers:** Our variable is calculated as the total individuals in a given census tract who worked last week in the public sector. This variable is normalized by the total population aged 16 years or older.
- **Independent workers:** Our variable is calculated as the total individuals in a given census tract who worked last week as independent workers. This variable is normalized by the total population aged 16 years or older.
- **Total of employers:** Our variable is calculated as the total individuals in a given census tract who employed at least one person for his or her own business. This variable is normalized by the total population aged 16 years or older.
- **Weekly worked hours:** These are the average hours the working population worked last week in a given census tract.

- **International migrants:** This is the total number of people who are reported by their households to be outside El Salvador in 2007 for each census tract.
- **International migrants in the war period:** This is the total number of people who left El Salvador between 1979 and 1990 and are reported by their households to be outside El Salvador in 2007 for each census tract.
- **Remittances rate:** This is the share of households in a given census tract that report receiving monetary help from a member outside El Salvador in 2007.
- **In-migration during the war period:** This is the total number of individuals who reported in 2007 that they arrived in a given census tract between 1979 and 1990.
- **Moving population:** This is calculated as the number of people in a given census tract who reported in 2007 any relocation in their entire life.
- **Moving population share:** This is calculated as the moving population in each census tract over the total population in the same tract.

A.D *Presidential election results*

All data related to elections was provided by the Tribunal Supremo Electoral of El Salvador, which included the list of results and coordinates for each polling station.

- **Left voting share:** This is calculated as the total votes for the FMLN party over the total valid votes for each polling station in El Salvador.
- **Right voting share:** This is calculated as the total votes for the ARENA party over the total valid votes for each polling station in El Salvador.
- **Blank voting share:** This is calculated as the total blank votes over the total valid votes for each polling station in El Salvador.
- **Turnout share:** This is calculated as the total valid votes over the total number of people registered to vote in each polling station in El Salvador.

B Descriptive Statistics

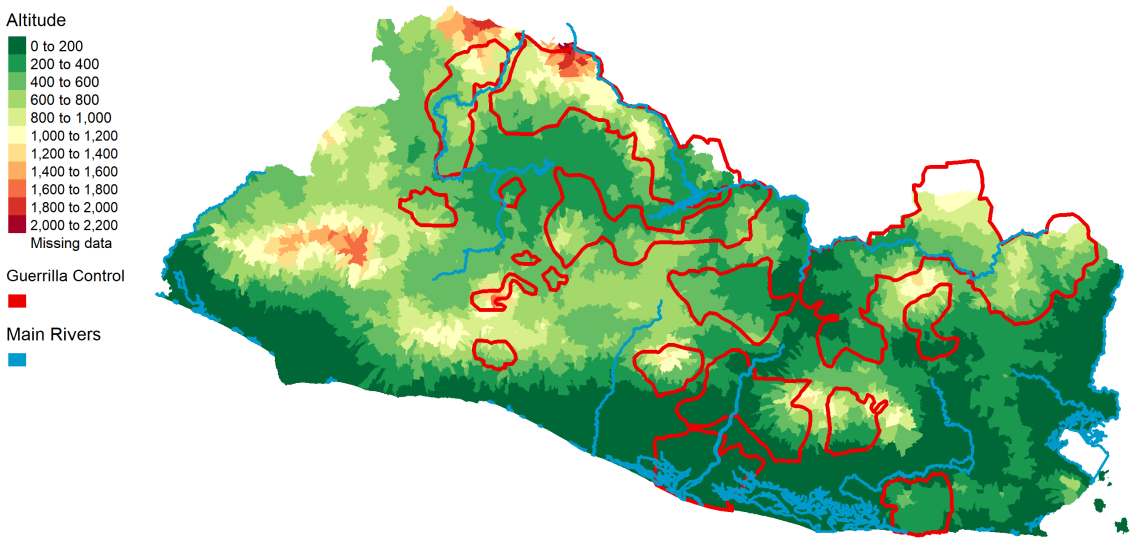
Table B.1. Summary Statistics of the Variables Used in the Estimation

	Mean	SD	Min	Max	Obs
Panel A: Ceasefire map of 1991					
Segment under guerrilla control	0.168	0.374	0.000	1.000	9,627
Distance to nearest controlled area	-7.291	10.090	-55.373	9.007	9,627
Panel B: Geographic characteristics					
Night light density (2013)	28.900	23.796	0.000	62.258	9,626
Arcsine(Night light)	3.384	1.433	0.000	4.825	9,626
Log(Night light)	2.635	1.554	-8.709	4.131	9,626
Night light (Weighted by surfice area)	28.900	23.796	0.000	62.258	9,626
Altitude (DEM)	604.770	216.959	200.139	2,185.630	9,626
Slope	3.008	2.319	0.077	30.777	9,626
Ruggedness	135.913	100.615	7.163	1,545.388	9,626
Hydrography	0.218	0.413	0.000	1.000	9,627
Coffe Yield (1961-1990)	1.669	0.159	1.070	2.982	9,627
Cotton Yield (1961-1990)	0.729	0.086	0.000	1.006	9,627
Dry Rice Yield (1961-1990)	5.300	0.545	0.000	5.615	9,627
Wet Rice Yield (1961-1990)	8.906	0.975	0.000	9.381	9,627
Bean Yield (1961-1990)	4.160	0.148	2.674	4.470	9,627
Sugarcane Yield (1961-1990)	6.691	0.671	0.000	8.884	9,627
Monthly Mean Rainfall (1975-1979)			-0.067	-0.032	9,625
Monthly Minimum Temperature (1975-1979)	0.126	0.033	0.074	0.218	9,625
Monthly Maximum Temperature (1975-1979)	0.212	0.050	0.119	0.376	9,625
Roads and Railway (1980)	0.364	0.481	0.000	1.000	9,627
Distance to Coast	36.054	16.641	0.000	99.952	9,627
Distance to Capital	40.222	35.021	0.000	175.078	9,627
Panel C: Socioeconomic characteristics (2007 census)					
Wealth Index	-0.019	0.903	-2.049	1.751	9,608
Sewerage Service Rate	0.405	0.442	0.000	1.000	9,609
Water Access Rate	0.787	0.299	0.000	1.000	9,609
Electricity Rate	0.872	0.188	0.000	1.000	9,609
Garbage Rate	0.498	0.445	0.000	1.000	9,609
Total Hospitals	0.068	0.262	0.000	3.000	9,627
Total Schools	0.450	0.724	0.000	9.000	9,627
Total Population	476.089	137.920	2.000	3,462.000	9,609
Female Head Rate	0.340	0.094	0.000	1.000	9,609
Gender Rate	0.473	0.031	0.316	1.000	9,609
Average Age	27.784	3.594	14.600	52.143	9,609
Fertility Rate	0.664	0.056	0.060	1.000	9,608
Years of Education	6.482	2.818	0.000	15.272	9,609
Literacy Rate	0.809	0.135	0.000	1.000	9,609
Attended School Rate	0.791	0.136	0.000	1.000	9,609
International Migrants	21.001	20.715	1.000	181.000	9,052
Total War Migrants	4.067	6.099	0.000	103.000	9,052
Migrants' Gender Rate	0.628	0.202	0.000	1.000	9,038
Remittances Rate	0.097	0.085	0.000	0.998	9,609
In-migration at War Period	24.164	30.330	0.000	246.000	9,609
Moving Population	370.101	145.858	0.000	3,440.000	9,609
Moving Population Share	0.772	0.195	0.000	1.000	9,609
Economically Active Population	0.542	0.140	0.000	1.000	9,609
Working Population	0.491	0.133	0.000	1.000	9,609
Salaried Population	0.455	0.149	0.000	1.000	9,609
Weekly Worked Hours	45.099	5.526	8.111	80.571	9,607
Public Worker	0.041	0.037	0.000	0.333	9,609
Private Worker	0.230	0.124	0.000	1.000	9,609
Employer	0.015	0.024	0.000	0.364	9,609
Independent Worker	0.115	0.070	0.000	0.623	9,609

Notes: Summary statistics of most raw variables used in the analysis.

C Maps

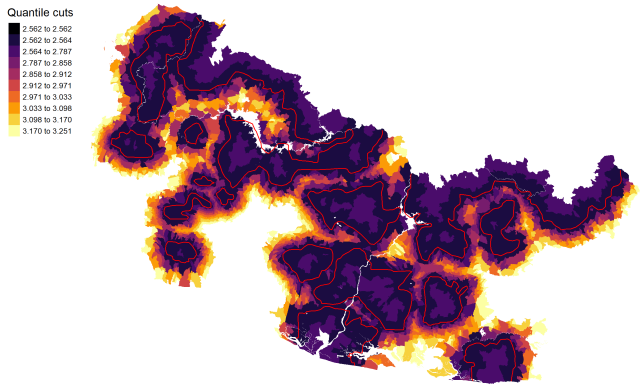
Figure C.1. Mapping of Altitude, Main Rivers, and Guerrilla-Controlled Territories



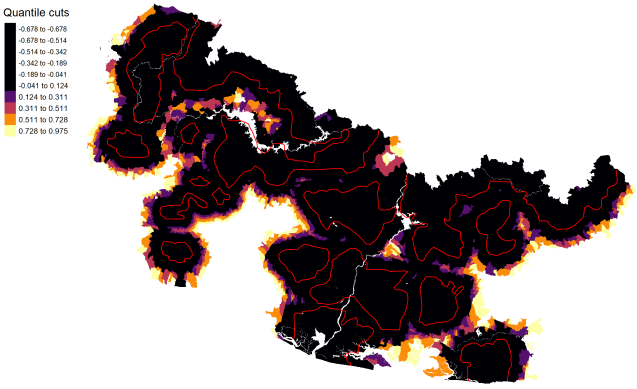
Notes: The figure maps the guerrilla-controlled areas, main rivers, and the variation in altitude for El Salvador. The latter is at a resolution of three arc-seconds and based on the DEM model of NASA's SRTM.

Figure C.2. Spatial Representation of the Main Outcomes' Predictions

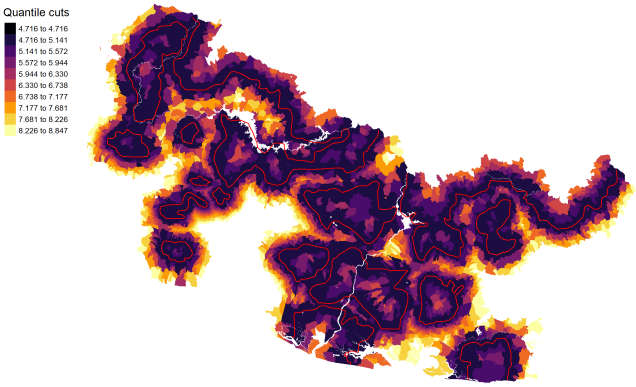
(a) Arcsine (Night Light)



(b) Wealth Index



(c) Years of Education



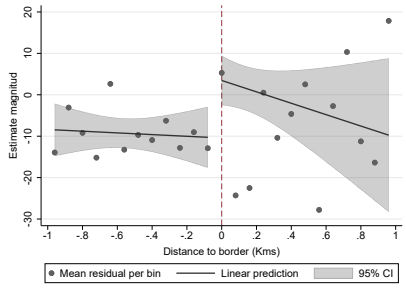
Note: Each map shows the spatial distribution of a given outcome's prediction when using Equation 1. All heat plots are at the census tract level and lighter colors represent higher values of each outcome. Also, the ranges of values and colors are obtained from splitting the outcome's distribution in ten quantiles. These figures should be thought as the three-dimensional analogues of the two-dimensional RD plots.

D Robustness Tests

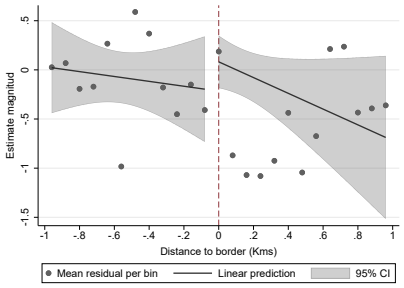
D.A Empirical Strategy

Figure D.1. Plots of Smoothness around the Discontinuity

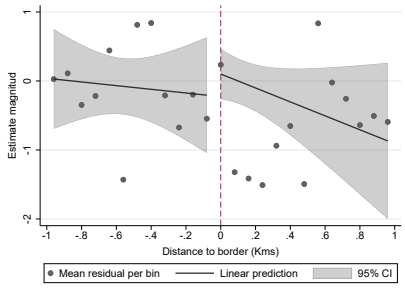
(a) Altitude



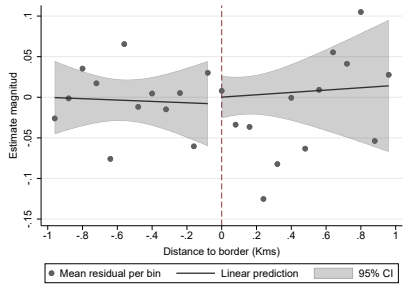
(b) Slope of Altitude



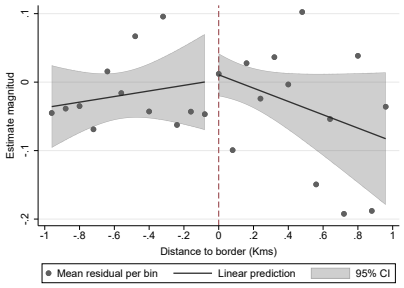
(c) Terrain Ruggedness



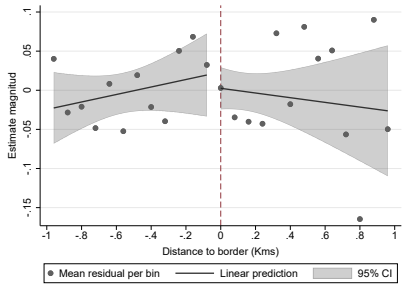
(d) Hydrographic Bodies



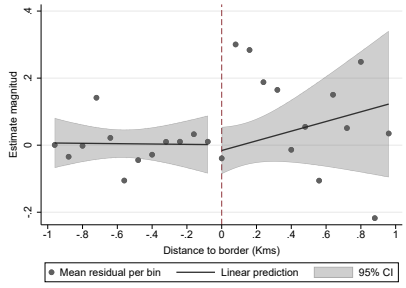
(e) Roads-Railway Infrastructure



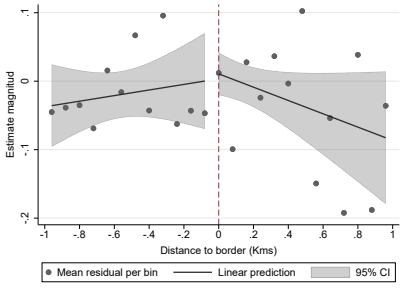
(f) Had a City (1945)



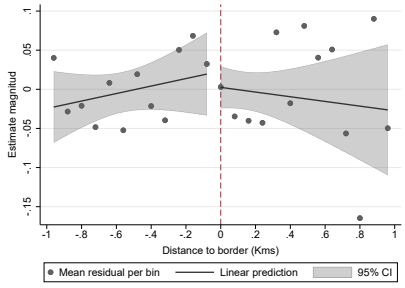
(g) Distance to City (1945)



(h) Distance to Comms (1945)



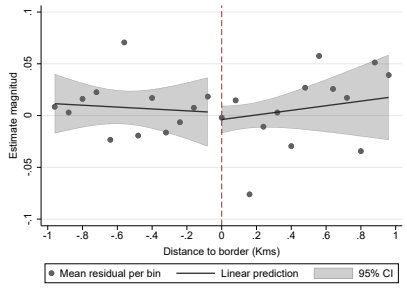
(i) Comms Density (1945)



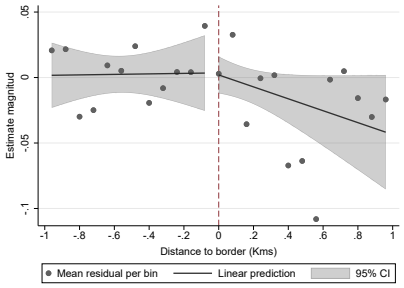
Notes: The results follow the specification of Equation (1). The estimates shown include 400 break fixed effects.

Figure D.2. Plots of Smoothness around the Discontinuity (cont'd)

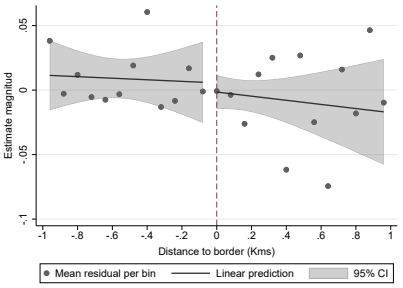
(a) Inside Highly Populated Area (1980)



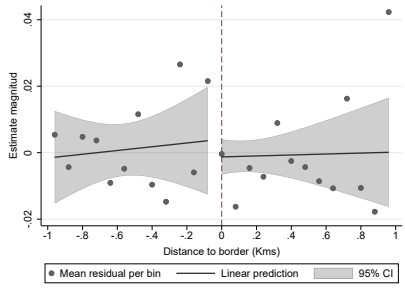
(b) Part of Land Reform (1980)



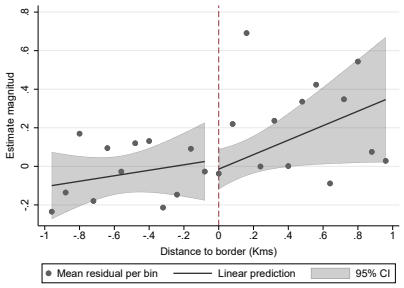
(c) Inside Cultivated Area (1980)



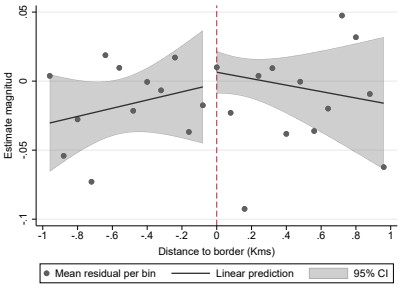
(d) Had a Parish (1979)



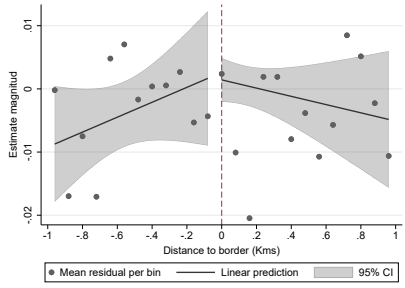
(e) Distance to Parish (1980)



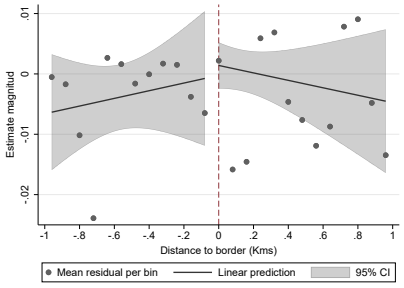
(f) Aggregate Yield Index (1961–79)



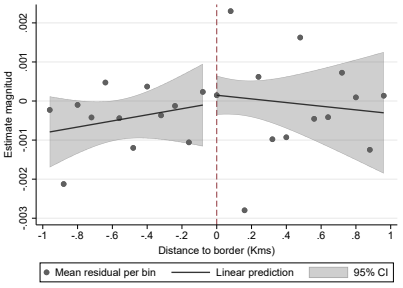
(g) Bean Agro-climatic Yield



(h) Coffee Agro-climatic Yield



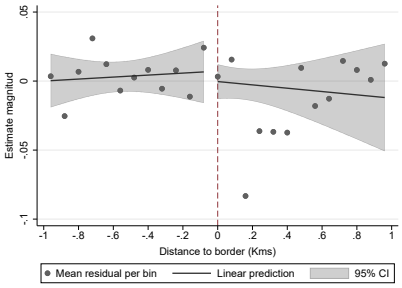
(i) Cotton Agro-climatic Yield



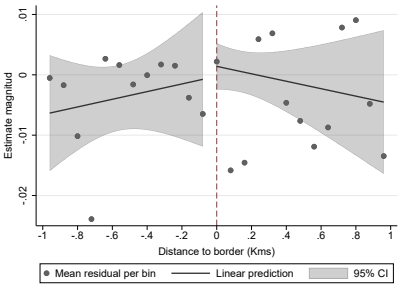
Notes: The results follow the specification of Equation (1). The estimates shown include 400 break fixed effects.

Figure D.3. Plots of Smoothness around the Discontinuity (cont'd)

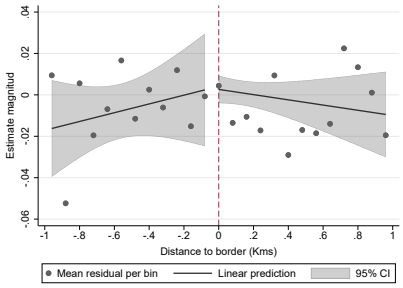
(a) Maize Agro-climatic Yield



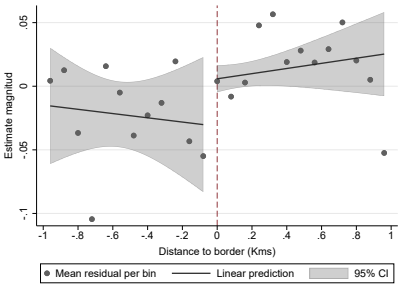
(b) Coffee Agro-climatic Yield



(c) Wet Rice Agro-climatic Yield



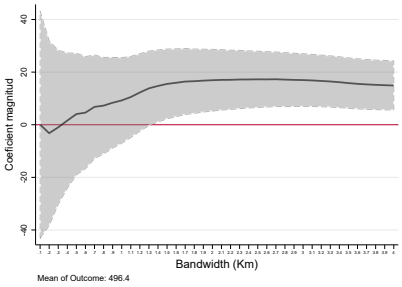
(d) Sugarcane Agro-climatic Yield



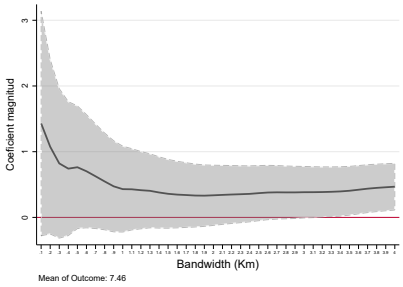
Notes: The results follow the specification of Equation (1). The estimates shown include 400 break fixed effects.

Figure D.4. Smooth Condition Test Under Different Bandwidths

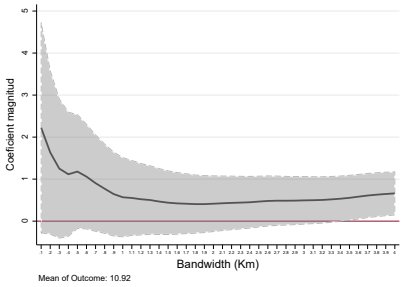
(a) Altitude



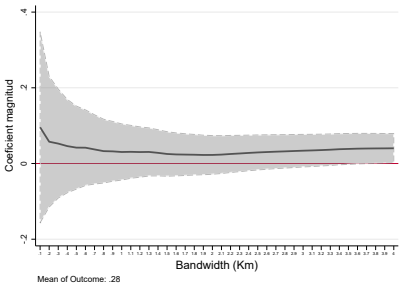
(b) Slope of Altitude



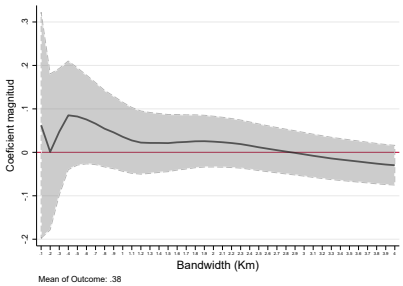
(c) Terrain Ruggedness



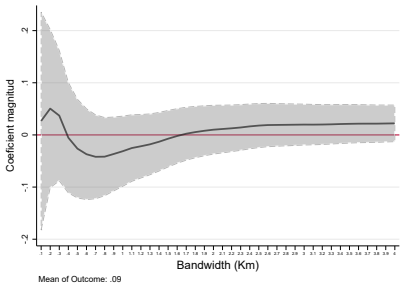
(d) Hydrographic Bodies



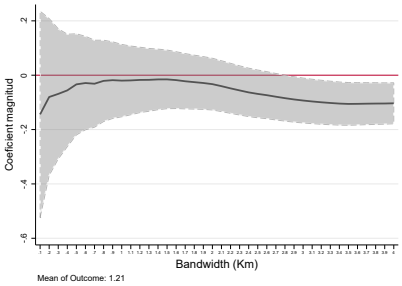
(e) Roads-Railway Infrastructure



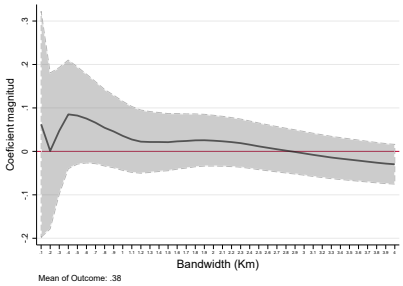
(f) Had a City (1945)



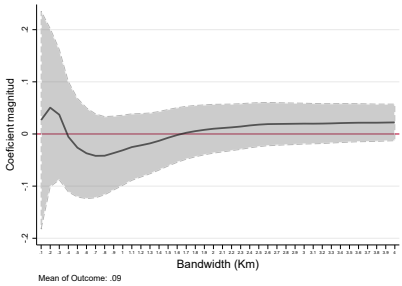
(g) Distance to City (1945)



(h) Distance to Communications (1945)



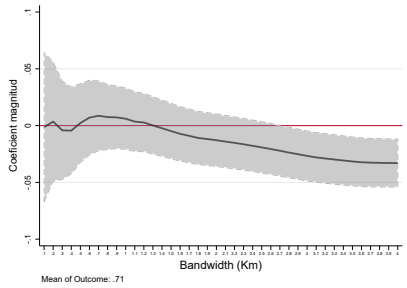
(i) Communications Density (1945)



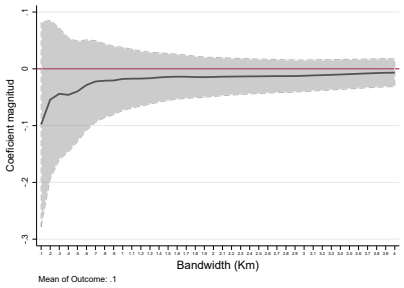
Notes: The results follow the specification of Equation (1). The estimates shown include 400 break fixed effects.

Figure D.5. Smooth Condition Test Under Different Bandwidths (cont'd)

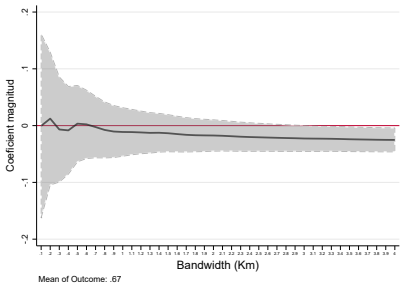
(a) Inside Highly Populated Area (1980)



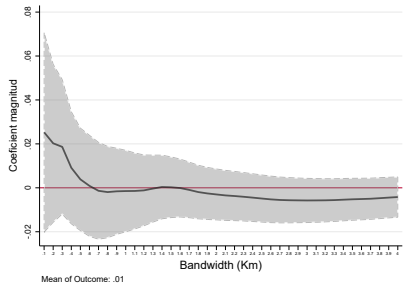
(b) Part of Land Reform (1980)



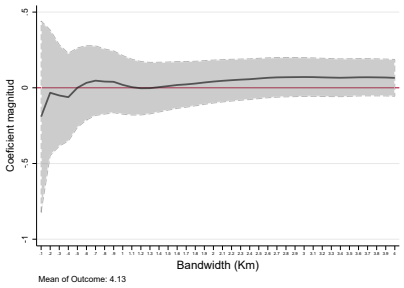
(c) Inside Cultivated Area (1980)



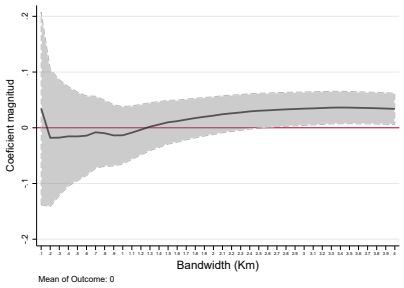
(d) Had a Parish (1979)



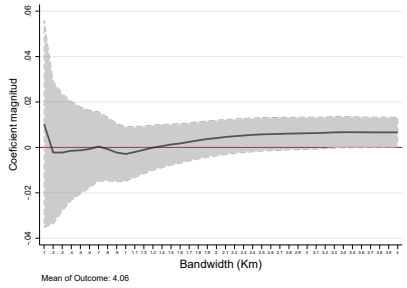
(e) Distance to Parish (1980)



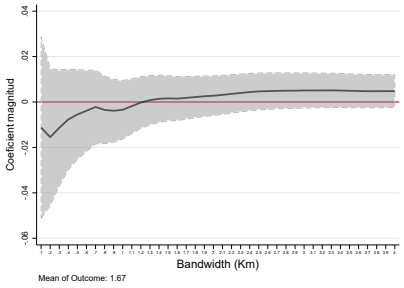
(f) Aggregate Yield Index (1961–79)



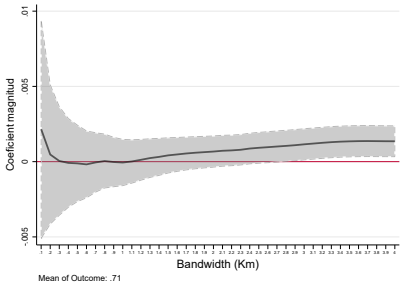
(g) Bean Agro-climatic Yield



(h) Coffee Agro-climatic Yield



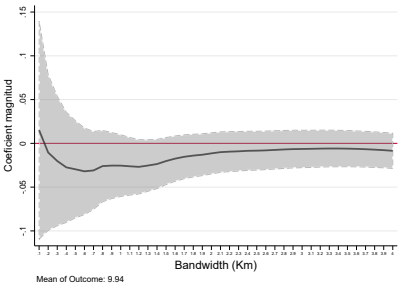
(i) Cotton Agro-climatic Yield



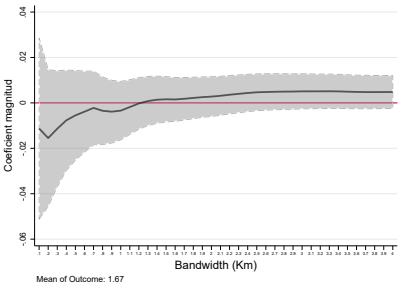
Notes: The results follow the specification of Equation (1). The estimates shown include 400 break fixed effects.

Figure D.6. Smooth Condition Test Under Different Bandwidths (cont'd)

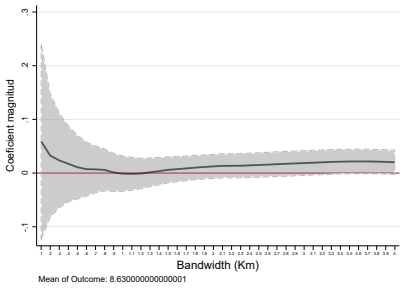
(a) Maize Agro-climatic Yield



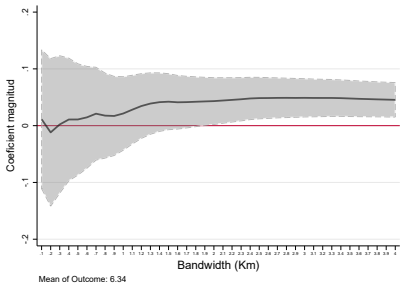
(b) Coffee Agro-climatic Yield



(c) Wet Rice Agro-climatic Yield



(d) Sugarcane Agro-climatic Yield

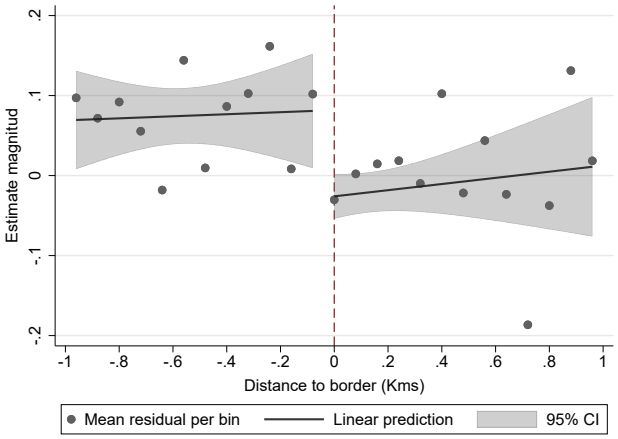


Notes: The results follow the specification of Equation (1). The estimates shown include 400 break fixed effects.

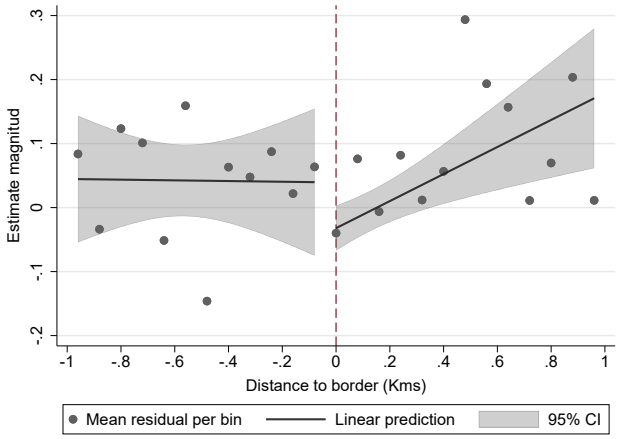
D.B Main Outcomes

Figure D.7. Effects of Guerrilla Control on Main Outcomes

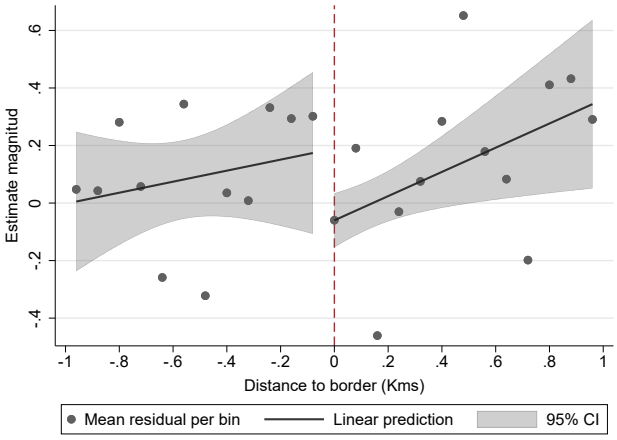
(a) Arcsine(Night Light)



(b) Wealth Index



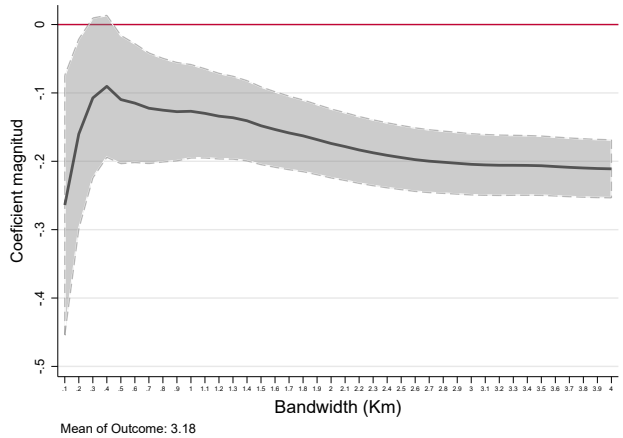
(c) Years of Education



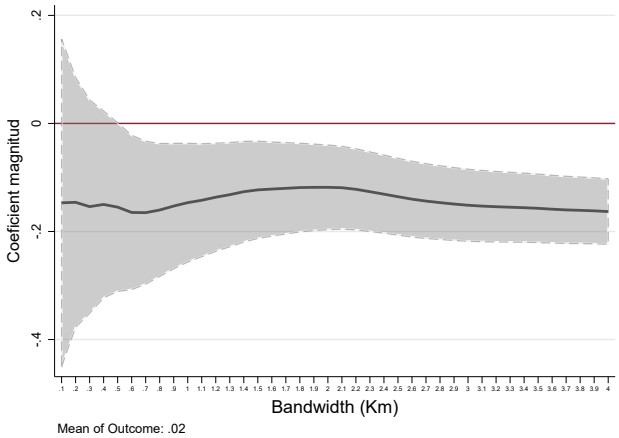
Notes: The results follow the specification of Equation (1). The estimates shown include 400 break fixed effects.

Figure D.8. Effects of Guerrilla Control on Main Outcomes under Different Bandwidths

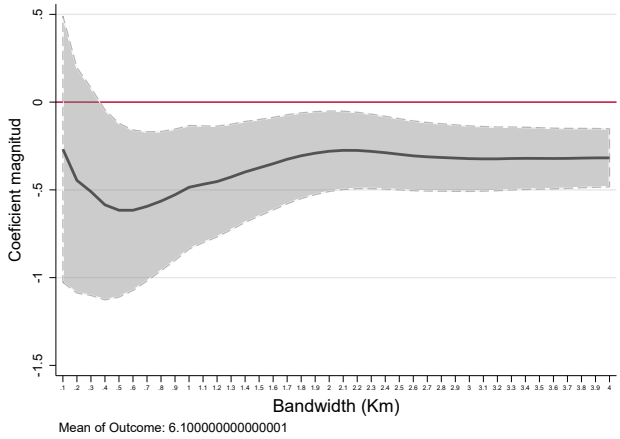
(a) Arcsine (Night Light)



(b) Wealth Index



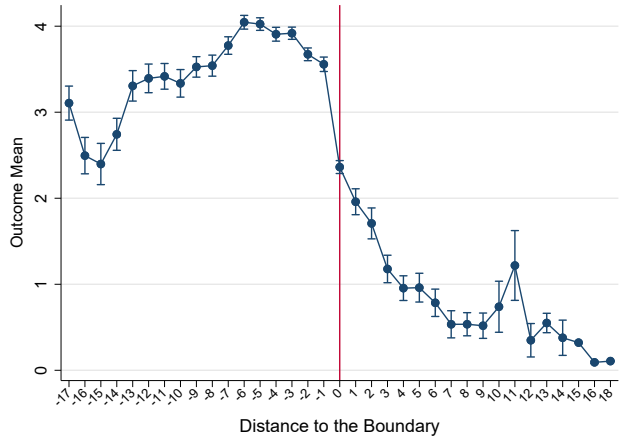
(c) Years of Education



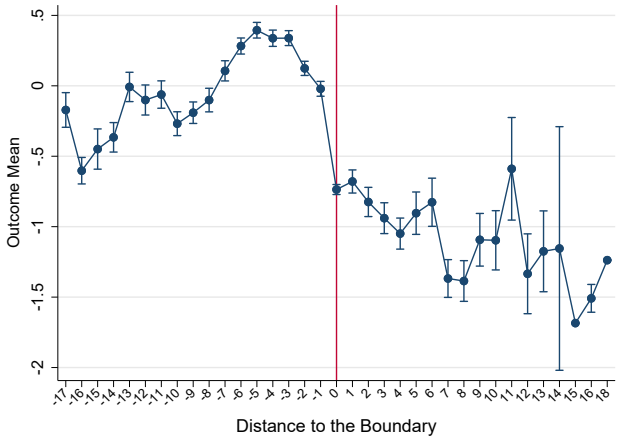
Notes: The results follow the specification of Equation 1. The estimates shown include 400 break fixed effects. The figure illustrates the coefficients for 40 individual estimations, one for each of the different bandwidths around the discontinuity. The gray coloring illustrates 95% confidence intervals.

Figure D.9. External Validity for Main Outcomes

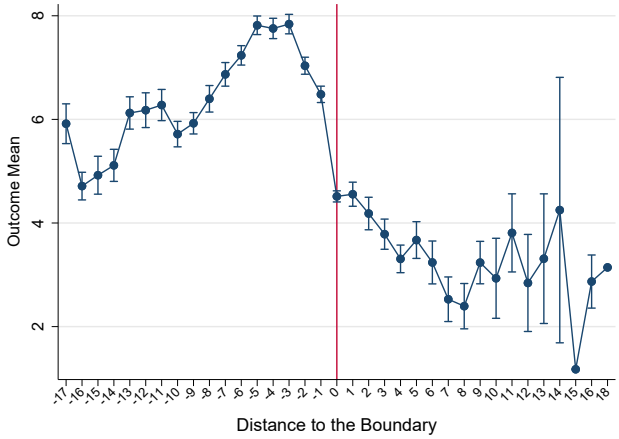
(a) Arcsine (Night Light)



(b) Wealth Index



(c) Years of Education

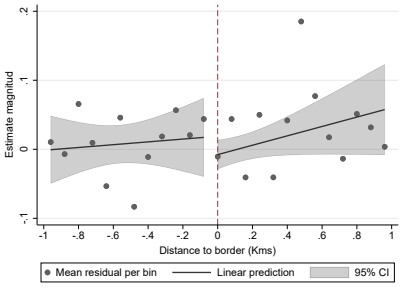


Notes: The figure shows the raw mean of each outcome by bin. Each bin corresponds to the distance to the boundary in kilometers, which ranges from 17 kilometers outside the guerrilla controlled boundary to 18 kilometers within the boundary. Negative values signal being outside the boundary and positive values mean being inside the boundary.

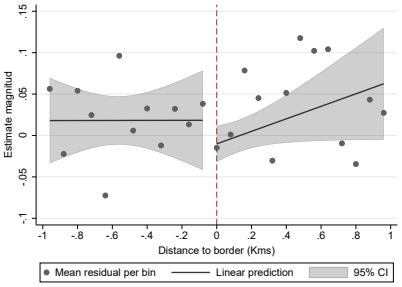
D.C Public Goods Provision

Figure D.10. Effects of Guerrilla Control on Public Goods Provision

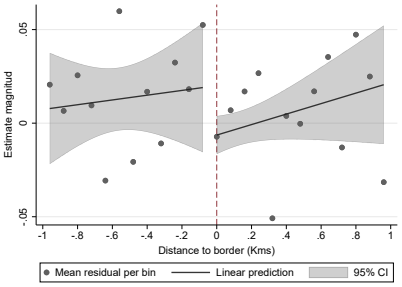
(a) Sewerage Service



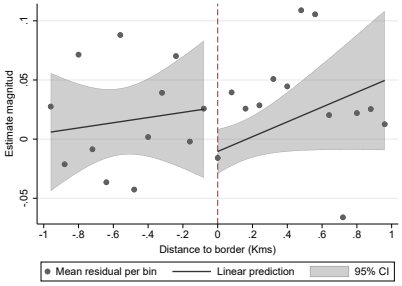
(b) Water Access



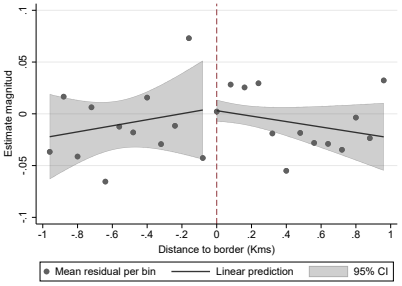
(c) Electricity



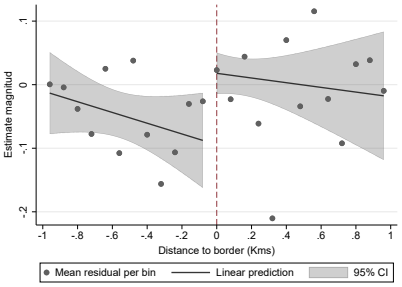
(d) Garbage Disposal



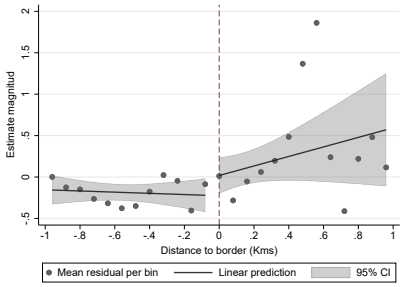
(e) Total Hospitals



(f) Total Schools



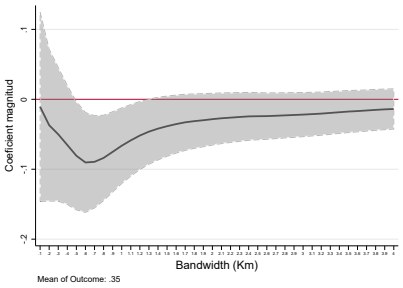
(g) Road Density



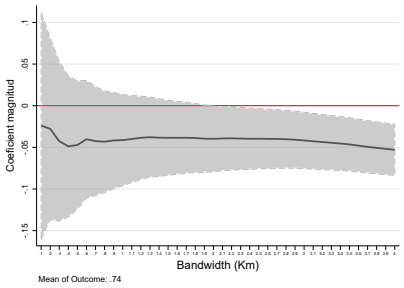
Notes: The results follow the specification of Equation (1). The estimates shown include 400 break fixed effects.

Figure D.11. Effects of Guerrilla Control on Household Conditions under Different Bandwidths

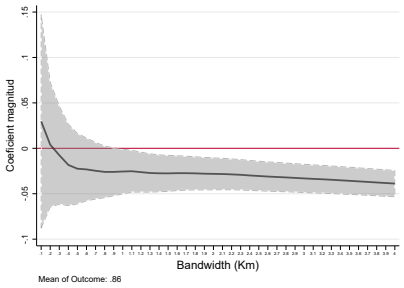
(a) Sewerage Service Rate



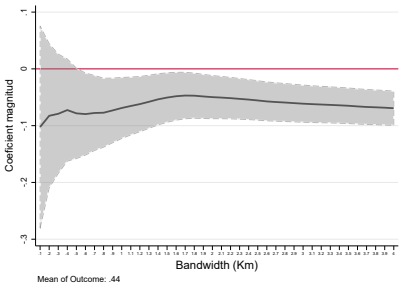
(b) Water Access



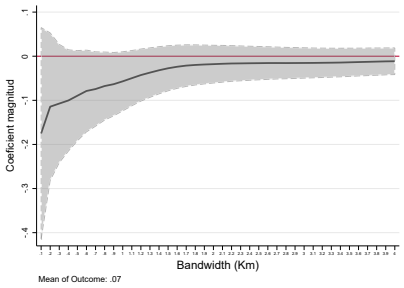
(c) Electricity Rate



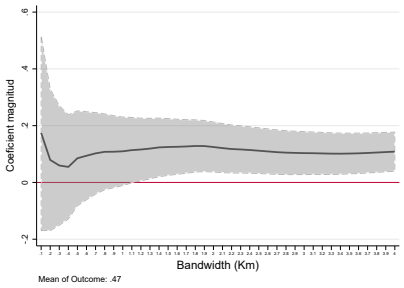
(d) Garbage Rate



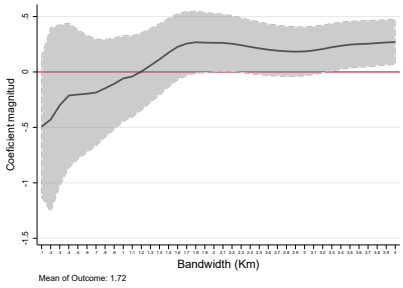
(e) Total Hospitals



(f) Total Schools



(g) Road Density



Notes: The results follow the specification of Equation 1. The estimates shown include 400 break fixed effects. The figure illustrates the coefficients for 40 individual estimations, one for each of the different bandwidths around the discontinuity. The gray coloring illustrates 95% confidence intervals.

Table D.1. Effects of Guerrilla Control on Years of Education by Age Cohort

	Years of Education	
	In School Age at War (1982-92)	Not In School Age at War (1982-92)
	(1)	(2)
Guerrilla control	-0.346***	-0.160
	(0.121)	(0.113)
Observations	3,635	3,635
Bandwidth (Km)	2.266	2.266
Dependent mean	7.860	4.410

Notes: The table presents the effects of guerrilla control on the years of education by age cohort. Column (1) estimates the effect for the sample of people who during the war period were school age. Column (2) does the same but uses the sample of people who during this period were not school age. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. We use the algorithm of Calonico, Cattaneo and Titiunik (2014) to set the bandwidth and weight using a triangular kernel. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table D.2. Effects of Guerrilla Territorial Control on Other Transformations of Night Light Luminosity

	Transformations of Night Light (2013)			Literacy Rate
	Logarithm	Level (Raw)	Weighted by Pixel Area	(2007)
	(1)	(2)	(3)	(4)
Guerrilla control	-0.218***	-1.710***	-1.710***	-0.0212***
	(0.0294)	(0.339)	(0.339)	(0.00501)
Observations	3,652	3,652	3,652	3,637
Bandwidth (Km)	2.266	2.266	2.266	2.266
Dependent mean	2.810	30.72	30.72	0.810

Note: The table presents the results of Equation 1 using different transformations of night light luminosity. The unit of observation in all columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. We use the algorithm of Calonico, Cattaneo and Titiunik (2014) to set the bandwidth and weight using a triangular kernel. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table D.3. Effects of Guerrilla Territorial Control on Main Outcomes Using Conley Standard Errors

Panel A: Conley Standard Errors (0.5 Kms)			
	Night Light Arcsine	Wealth Index	Years of Education
	(2013)	(2007)	(2007)
	(1)	(2)	(3)
Guerrilla control	-0.186***	-0.126***	-0.279***
	(0.0242)	(0.0331)	(0.103)
Observations	3,652	3,637	3,637
Panel B: Conley Standard Errors (2 Kms)			
Guerrilla control	-0.186***	-0.126***	-0.279**
	(0.0278)	(0.0465)	(0.129)
Observations	3,652	3,637	3,637
Panel C: Conley Standard Errors (4 Kms)			
Guerrilla control	-0.186***	-0.126**	-0.279**
	(0.0344)	(0.0546)	(0.142)
Observations	3,652	3,637	3,637
Bandwidth (Km)	2.266	2.266	2.266

Note: The table presents the results of Equation 1 using Conley standard errors. The unit of observation in all columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. We use the algorithm of Calonico, Cattaneo and Titiunik (2014) to set the bandwidth and weight using a triangular kernel. Conley standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table D.4. Placebo Test for All Pairs of Neighbors Whose Difference in Altitude is between the Following Thresholds

	Altitude difference between 15 and 20 masl			*Altitude difference between 20 and 100 masl*		
	Altitude	Night Light- Arcsine (2013)		Altitude	Night Light- Arcsine (2013)	
	Any neighbor pair	Any neighbor pair	Both neighbors outside guerrilla area	Any neighbor pair	Any neighbor pair	Both neighbors outside guerrilla area
	(1)	(2)	(3)	(4)	(5)	(6)
Difference	17.83***	0.0206***	0.0239***	47.71***	-0.0114***	-0.0172***
	(0.0322)	(0.00521)	(0.00525)	(0.201)	(0.00384)	(0.00430)
Neighbor pairs	2,914	2,914	2,515	11,811	11,811	8,742
		Wealth Index (2007)			*Wealth Index (2007)*	
		(7)	(8)		(9)	(10)
Difference	-	0.0149	0.0202**	-	-0.0456***	-0.0468***
	-	(0.00921)	(0.00980)	-	(0.00501)	(0.00583)
Neighbor pairs	-	2,910	2,513	-	11,729	8,733
		Years of Education (2007)			*Years of Education (2007)*	
		(11)	(12)		(13)	(14)
Difference	-	0.0818***	0.0964***	-	-0.0540***	-0.0513***
	-	(0.0307)	(0.0336)	-	(0.0144)	(0.0172)
Neighbor pairs	-	2,911	2,513	-	11,758	8,734

Note: The table presents the placebo test results. The unit of observation in columns (1) to (3) is the pair of neighboring census tracts conditional on having a difference in altitude between 15 and 20 masl. The unit of observation in columns (4) and (5) is the pair of neighboring census tracts conditional on having a difference in altitude between 20 and 100 masl. Columns (1), (2), (4), and (5) show the mean difference for all neighbor pairs in the sample. Columns (3) and (6) do the same for pairs in which both neighboring tracts are outside the guerrilla-controlled area. Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table D.5. Main Results Restricting the Sample to Tracts without Sudden Altitude Changes with Respect to Their Neighbors

	Night Light Arcsine	Wealth Index	Years of Education
	(2013)	(2007)	(2007)
	(1)	(2)	(3)
Guerrilla control	-0.146***	-0.120***	-0.309**
	(0.0240)	(0.0439)	(0.137)
Observations	2,572	2,561	2,562
Bandwidth (Km)	2.103	2.103	2.103
Dependent mean	3.740	0.120	6.920

Note: The table presents main results without considering segments that have a difference in altitude of more than 100 masl with respect to their neighbors. Column (1) shows the effect of whether a census tract was under guerrilla control on the arcsine of night light luminosity from NOAA. Column (2) does the same but uses as dependent variable a standardized score of household wealth. Column (3) shows as dependent variable years of education of the population older than 18 years. The unit of observation in all columns is the census tract. Information from columns (2) and (3) was obtained from the Population Census of 2007. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates use triangular kernel weights. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table D.6. Effects of Guerrilla Territorial Control on Main Outcomes for Individuals Who Have Always Lived in the Same Place

	Wealth Index	Years of Education	Literacy Rate
	(2007)	(2007)	(2007)
	(1)	(2)	(3)
Guerrilla control	-0.140***	-0.402***	-0.0261***
	(0.0383)	(0.112)	(0.00563)
Observations	3,084	3,633	3,633
Bandwidth (Km)	2.266	2.266	2.266
Dependent mean	0.130	6.790	0.820

Note: The table presents main results for the sample of people who have always lived in the same place. The unit of observation in all columns is the census tract. The information was obtained from the Latin American Public Opinion Project survey (LAPOP). Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to to set the bandwidth and the estimates weight using a triangular kernel. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table D.7. Comparison of Baseline Characteristics Between Census Tracts In and Out the RD-Sample

	In RD-Sample		Out of RD-Sample	
Baseline Characteristics	Mean	Obs	Mean	Obs
Geographic Characteristics (Before 1980)				
Altitude	488.319	3,681	499.802	8,752
Slope	8.624	3,681	6.968	8,751
Ruggedness	12.381	3,681	10.300	8,751
Hydrography	0.320	3,681	0.266	8,754
Infrastructure Characteristics (Before 1980)				
Roads and Railway	0.401	3,681	0.366	8,754
Had a City/Village	0.128	3,681	0.073	8,754
Distance to City/Village	1.024	3,681	1.285	8,754
Distance to Comms	1.199	3,681	1.257	8,754
Comms Density	0.328	3,681	0.334	8,754
Had Land Reform	0.081	3,681	0.112	8,754
Cultivated area	0.665	3,681	0.676	8,754
Had a Parish	0.011	3,681	0.011	8,754
Distance to Parish	4.309	3,681	4.055	8,754
Distance to School	16.980	3,681	21.771	8,754
Population Demographics (Before 1980)				
Total Population	158.233	3,667	161.574	8,735
Population density	1,418.195	3,666	2,060.920	8,735
Years of Education	3.493	3,666	4.227	8,737
Natality Rate	0.174	3,664	0.175	8,730
In-migration (Share)	0.108	3,636	0.147	8,646
Out-migration (Share)	0.006	3,446	0.008	8,272
High Populated area	0.674	3,681	0.722	8,754
Agro-Climatic Potential Yield (1961-1979)				
Z-Potential Yield	-0.012	3,681	0.005	8,754
Bean Potential Yield	4.056	3,669	4.068	8,632
Coffe Potential Yield	1.678	3,669	1.670	8,632
Cotton Potential Yield	0.709	3,669	0.709	8,632
Maize Potential Yield	9.827	3,669	9.990	8,632
Wet Rice Potential Yield	8.714	3,669	8.591	8,632
Sugarcane Potential Yield	6.408	3,669	6.307	8,632
Crops' High Suitability (1961-1990)				
Bean High Suitability	0.858	3,691	0.942	8,736
Coffee High Suitability	0.086	3,691	0.146	8,736
Maize High Suitability	0.980	3,691	0.983	8,736
Sugarcane High Suitability	0.108	3,691	0.194	8,736

Note: The table compare the mean and number of observations of outcomes in Table 1 between census tracts in the RD-sample and census tracts outside the sample.

Table D.8. Simpson's Index

	All plots	Comercial plots	Subsistence plots
	(1)	(2)	(3)
Guerrilla control	0.0402*	0.0399†	1.28e-05
	(0.0217)	(0.0267)	(0.0267)
Observations	2,266	1,913	1,963
Bandwidth (Km)	2.266	2.266	2.266
Dependent mean	0.530	0.420	0.460

Note: The table presents the results of Equation 1 for the Simpson's Index calculated for all plots, commercial plots, and subsistence plots in the Agrarian Census of 2007. The calculation of the Simpson's Index is $S = 1 - \frac{\sum_i^N a_i^2}{(\sum_i^N a_i)^2}$ where a_i refers to the size of each plot. The unit of observation is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates use triangular kernel weights. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1, † p<0.15.

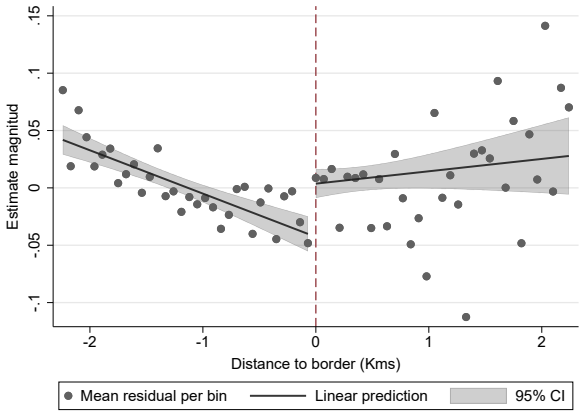
Table D.9. Workers by Economic Activity

	Share of Workers by Economic Activity		
	Agriculture	Industry	Services
	(1)	(2)	(3)
Guerrilla control	0.0465***	-0.0261***	-0.0204**
	(0.00984)	(0.00559)	(0.00877)
Observations	3,647	3,647	3,647
Bandwidth (Km)	2.271	2.271	2.271
Dependent mean	0.190	0.230	0.580

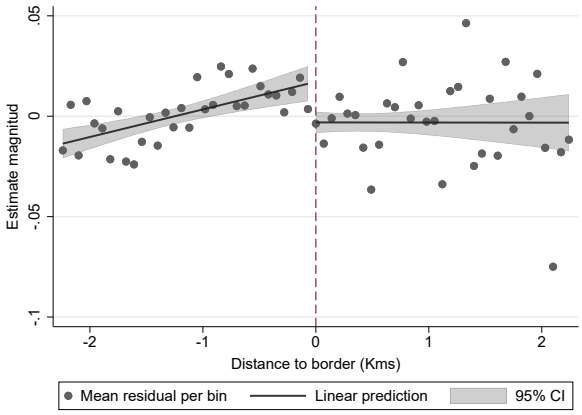
Note: The table presents the results of Equation 1 for the share of workers in each economic activity. The information was calculated from the Census 2007 and using ISIC v4 to classify each occupation. The unit of observation is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The estimates use triangular kernel weights. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1, † p<0.15.

Figure D.12. Plot of the Effect of Guerrilla Control on the Share of Workers by Economic Activity

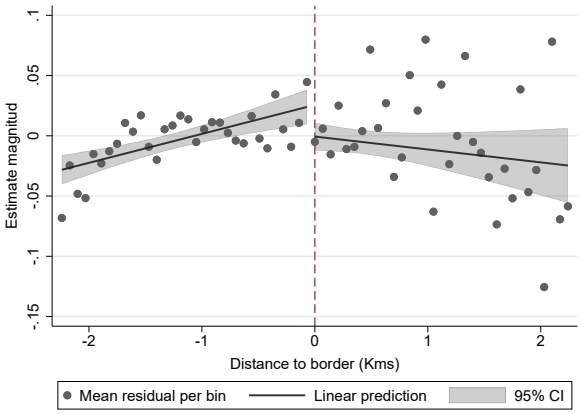
(a) Agriculture



(b) Industry



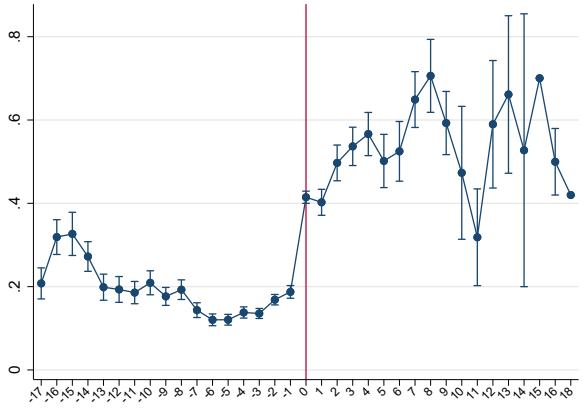
(c) Services



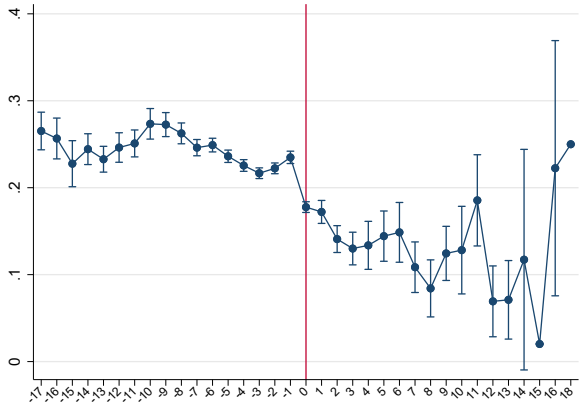
Notes: The results follow the specification of Equation (1). The estimates shown include 400 break fixed effects.

Figure D.13. Share of Workers by Economic Activity and Distance to the Boundary

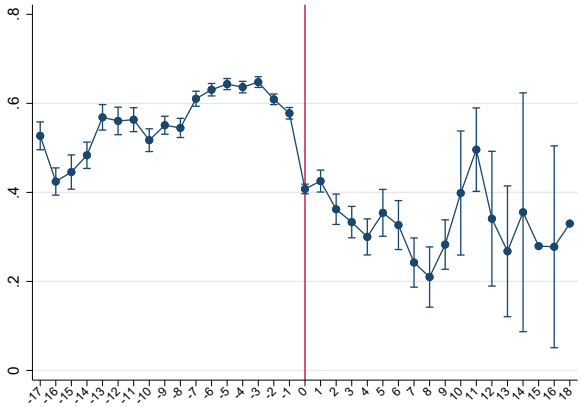
(a) Agriculture



(b) Industry



(c) Services



Notes: The figure shows the raw mean of each outcome by bin. Each bin corresponds to the distance to the boundary in kilometers, which ranges from 17 kilometers outside the guerrilla controlled boundary to 18 kilometers within the boundary. Negative values signal being outside the boundary and positive values mean being inside the boundary.

Table D.10. Inequality of Income at the Canton Level

	Real Per Capita Income					
	Logarithm	Level	Gini Index	Interquartile Range (p75-p25)	Percentile Range (p90-p10)	Percentile Range (p90-p50)
	(1)	(2)	(3)	(4)	(5)	(6)
Guerrilla control	-0.223***	-39.08**	0.0119	0.0217	1.490	0.0366
	(0.0682)	(15.25)	(0.0163)	(0.193)	(1.256)	(0.284)
Observations	542	542	542	542	542	542
Bandwidth (Km)	3.082	3.082	3.082	3.082	3.082	3.082
Dependent mean	5.330	266.8	0.320	2.450	5.240	2.360

Note: The table presents the results of Equation 1 for the real per capita income taken from the Household Surveys (2012 to 2018). Each column represent a different measure of inequality using the real per capita income. Column (4) report the interquartile range, calculated as the difference of the per capita income in percentile 75 minus the per capita income in percentile 25 for each canton. Column (5) shows the percentile range of the difference between percentile 90 and 10 for each canton. Column (6) reports the percentile range of the difference between percentile 90 and 50 for each canton. The unit of observation is at the canton level. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates use triangular kernel weights. Robust standard errors in parentheses.

Table D.11. Inequality of the Wealth Index at the Census Tract Level

	Wealth Index			
	Gini Index	Interquartile Range (p75-p25)	Percentile Range (p90-p10)	Percentile Range (p90-p50)
	(1)	(2)	(3)	(4)
Guerrilla control	-0.00348	66.59	83.12	0.0682
	(0.0104)	(67.56)	(68.39)	(0.116)
Observations	2,985	2,985	2,985	2,985
Bandwidth (Km)	2.271	2.271	2.271	2.271
Dependent mean	0.280	3.520	47.07	1.980

Note: The table presents the results of Equation 1 for the wealth index constructed from Census of 2007. Each column represent a different measure of inequality using the real per capita income. Column (2) report the interquartile range, calculated as the difference of the wealth index in percentile 75 minus the wealth index in percentile 25 for each census tract. Column (3) shows the percentile range of the difference between percentile 90 and 10 for each census tract. Column (4) reports the percentile range of the difference between percentile 90 and 50 for each census tract. The unit of observation is at the census tract level. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The estimates use triangular kernel weights. Robust standard errors in parentheses.

Table D.12. Cooperatives

	Has a cooperative	Producer belongs to a cooperative	Commercial producer belongs to cooperative	Subsistence producer belongs to cooperative	Producer belongs to association
	(1)	(2)	(3)	(4)	(5)
Guerrilla control	0.00545	0.00226	0.00879	-0.00301	-0.00480
	(0.00354)	(0.00960)	(0.0158)	(0.00429)	(0.00579)
Observations	929	2,400	2,400	2,400	2,400
Bandwidth (Km)	2.266	2.266	2.266	2.266	2.266
Dependent mean	0.0100	0.0500	0.0700	0.0100	0.0100

Note: The table presents the results of Equation 1 for outcomes related to cooperatives. Information was taken from the Agrarian Census of 2007. The unit of observation is at the census tract level. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The estimates use triangular kernel weights. Robust standard errors in parentheses.

Figure D.14. Distribution of the Distance to the Border for All Census Tracts

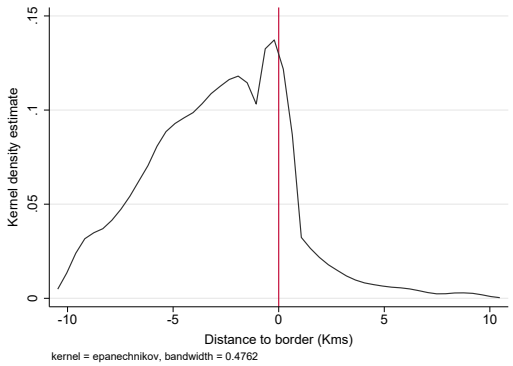


Table D.13. Density Test of the Distance to the Border as Running Variable

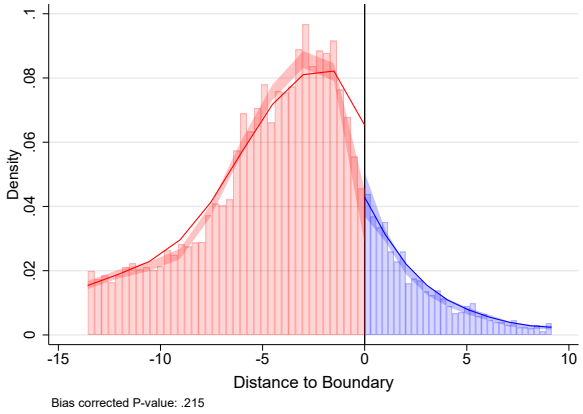
Method	Bias-corrected t-statistic	P-value for density test
Robust	-0.945	0.345
Cut-off in 0	Left	Right
Total Obs.	10,356	2,079
Effective Obs.	2,079	1,602
Bandwidth (Km)	2.266	2.266

H_0: No manipulation or continuity in the density.

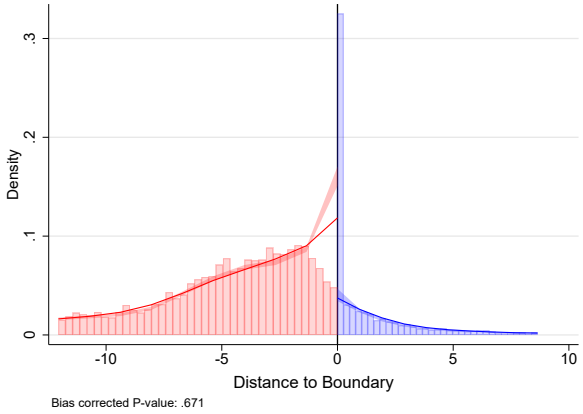
Note: The table presents the bias-robust corrected estimate of the density test for the distance to the border as running variable. We follow the methodology proposed by Cattaneo, Jansson and Ma (2020). In this test, the null hypothesis is that there is continuity around the cutoff.

Figure D.15. Plots of the Density Test of the Distance to the Border as Running Variable

(a) Without bunching at cutoff



(b) Bunching at cutoff



Note: The graph presents the density plots for the running variable when using the methodology of Cattaneo, Jansson and Ma (2020). Panel A shows the results using the distance from each census tract's centroid to the border. Panel B does the same but takes as treated all census tracts that intersect an area under guerrilla control. In both cases, the null hypothesis is not rejected, which means that continuity around the cutoff holds.

Table D.14. Effects of Guerrilla Territorial Control in the Elections of 2014 and 2015

Panel A: 2014 Presidential elections - Guerrillas' Party won				
	Left Voting Share	Right Voting Share	Blank Voting Share	Turnout Share
	(1)	(2)	(3)	(4)
Guerrilla control	-0.0350*	0.0341	0.00387***	0.0166
	(0.0199)	(0.0221)	(0.00131)	(0.0103)
Observations	416	416	416	416
Bandwidth (Km)	2.930	2.930	2.930	2.930
Dependent mean	0.480	0.400	0.0100	0.570
Panel B: 2015 Municipal elections				
Guerrilla control	-0.0152	-0.00723	0.00207**	0.0300
	(0.0278)	(0.0259)	(0.000905)	(0.0219)
Observations	434	434	434	434
Bandwidth (Km)	3.239	3.239	3.239	3.239
Dependent mean	0.410	0.630	0.0100	0.510

Note: The table presents the results of Equation 1 for our outcomes related to electoral results. The unit of observation in all columns is the polling station. Panel A shows the results for the presidential elections of 2014 and panel B does the same for the municipal elections of 2015. The information was obtained from the Salvadoran Electoral Court. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to to set the bandwidth and the estimates weight using a triangular kernel. Clustered errors at the Canton level are reported in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table D.15. Effects of Guerrilla Territorial Control on Political Attitudes

	Total Sum of Questions per Item/Scope			
	Political Participation	Engagement with Politicians	Non-Democratic Engagement	Trust in Institutions
	(1)	(2)	(3)	(4)
Guerrilla control	1.449	-0.380**	0.181	-4.112***
	(1.098)	(0.184)	(1.183)	(1.403)
Observations	242	248	172	241
Bandwidth (Km)	2.266	2.266	2.266	2.266
Dependent mean	12.96	0.380	4.780	11.72

Note: The table presents the results of Equation 1 for our outcomes related to political discontent and distrust. Column (1) shows the political participation scope, which includes questions that measure whether the citizen votes, attends protests, and attends government meetings. Column (2) reports the engagement with politicians scope, which measures the extent to which citizens contact state authorities and/or bureaucracies to solve issues and attend government/political meetings. Column (3) shows the nondemocratic engagement scope, which measures the extent to which citizens approve the use of alternative or violent means to engage in politics. Column (4) reports the trust in institutions item, which measures the extent to which citizens trust different types of Salvadoran institutions, including the police, the powers of state, and local government. The table uses the simple sum of questions by each item as dependent variables. The unit of observation in all columns is the census tract. The information was obtained from the Latin American Public Opinion Project survey (LAPOP). Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to to set the bandwidth and the estimates weight using a triangular kernel. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table D.16. Effects of Guerrilla Control on Migration Outcomes for the Highly Educated Population

	International Migrants					Always Lived in	Same Location	People who Arrived	Years since
	During Control (Share)	At any time (Share)	Years since departure	Households who Received Remittances (Share)	Received Remittance from War Migrant (Share)	same Location (Share)	as the Mother (Share)	During Control (Share)	Arrival
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Guerrilla control	0.00151	0.00343	0.226	-0.00573	-0.00112	-0.00376	-0.00713	-0.00491	-0.469
	(0.00452)	(0.00927)	(0.540)	(0.00463)	(0.00416)	(0.0127)	(0.0132)	(0.00535)	(0.531)
Observations	3,325	3,325	1,907	3,636	3,325	3,602	3,602	3,602	3,441
Bandwidth (Km)	2.266	2.266	2.266	2.266	2.266	2.266	2.266	2.266	2.266
Dependent mean	0.0200	0.100	6.220	0.110	0.0100	0.730	0.700	0.0800	17.68

Note: The table presents the results of Equation 1 for our outcomes related to migration. Columns (1) to (5) focus on outcomes for international migrants. All information was obtained from the Population Census of 2007. The unit of observation in all columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates use triangular kernel weights. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table D.17. Share of Individuals who Work in the Same Place as their Residence

	Work in the Same Place as Residence (Share)
	(1)
Guerrilla control	0.00333
	(0.00320)
Observations	3,647
Bandwidth (Km)	2.271
Dependent mean	0.987

Note: The table presents the results of Equation 1 for individuals who work in the same place as their residence. All information was obtained from the Population Census of 2007. The unit of observation in all columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates use triangular kernel weights. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table D.18. Share of Individuals who Report Having Distrust in Members of Their Community

	Distrust in Members of the Community (Share)
	(1)
Guerrilla control	-0.161**
	(0.0704)
Observations	268
Bandwidth (Km)	2.266
Dependent mean	0.120

Note: The table presents the results of Equation 1 for the share of individuals who report not trusting at all the members of their communities. Information was obtained from the Household Surveys from 2012 to 2018. The unit of observation in all columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to set the bandwidth and the estimates use triangular kernel weights. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table D.19. Heterogeneity by Baseline Distances to Road Network (1980) and Nearest City (1945)

Panel A: Heterogeneity by Distance to Road Network in 1980			
	Arcsine	Wealth Index	Years of Education
	(1)	(2)	(3)
Guerrilla control	-0.180***	-0.0947**	-0.282**
	(0.0269)	(0.0398)	(0.126)
Control × Distance to Road	0.00141	-0.0315	0.0275
	(0.0211)	(0.0224)	(0.0721)
Observations	3,663	3,641	3,648
Bandwidth (Km)	2.271	2.271	2.271
Dependent mean	3.530	-0.0200	6.570
Panel B: Heterogeneity by Distance to Nearest City in 1945			
	Arcsine	Wealth Index	Years of Education
	(1)	(2)	(3)
Guerrilla control	-0.232***	-0.116***	-0.321***
	(0.0303)	(0.0410)	(0.116)
Control × Distance to City	0.0399***	-0.00444	0.0271
	(0.0151)	(0.0220)	(0.0638)
Observations	3,663	3,641	3,648
Bandwidth (Km)	2.271	2.271	2.271
Dependent mean	3.530	-0.0200	6.570

Note: The table presents the results from the heterogeneity analysis at baseline for the main outcomes. Panel A shows how the results vary by distance to a road network in 1980. Panel B presents heterogeneity of results by distance to the nearest city in 1945. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. The algorithm of Calonico, Cattaneo and Titiunik (2014) was used to to set the bandwidth and the estimates weight using a triangular kernel. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

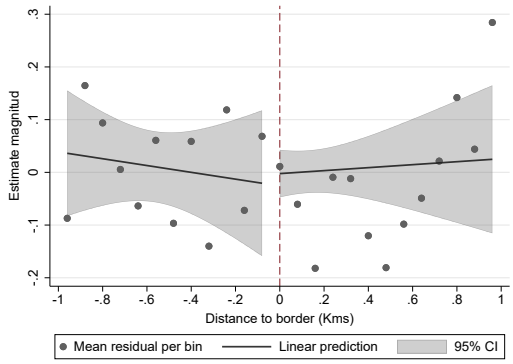
Table D.20. Effects of Guerrilla Control on Homicide and Victimization Rates

	Homicides	Victim of Any Crime	Victim of Gang Extorsion
	(2017)	(2004-2016)	(2004-2016)
	(1)	(2)	(3)
Guerrilla control	-0.0110	-0.210***	-0.193***
	(0.0562)	(0.0552)	(0.0637)
Observations	3,652	94	94
Bandwidth (Km)	2.266	2.266	2.266
Dependent mean	0.310	0.690	0.0400

Note: The table presents the results of Equation 1 for our outcomes related to current crime. Column (1) shows the number of homicides reported to police for each census tract in 2017. Column (2) shows the share of people within a census tract who reported being a victim of any type of crime in the LAPOP survey. Column (2) shows the share of people within a census tract who reported being a victim of extortion in the LAPOP survey. The unit of observation in all columns is the census tract. Controls not shown include a linear polynomial of the distance to the boundary of guerrilla territory, its interaction with whether the tract was under guerrilla control or not, and 400 fixed effects representing the closest evenly spaced break in the guerrilla-controlled boundary. We use the algorithm of Calonico, Cattaneo and Titiunik (2014) to set the bandwidth and weight using a triangular kernel. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Figure D.16. Plotting the Effects of Guerrilla Control on Homicide Rates

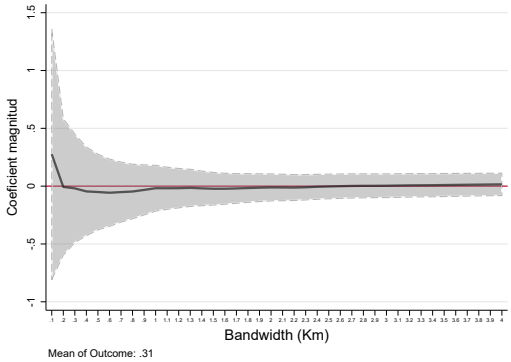
(a) Homicides (2017)



Notes: This figure shows the results obtained from the estimation of Equation (1). The estimates shown include 400 break fixed effects. There are no effects of guerrilla control on homicide rates in 2017.

Figure D.17. Effects of Guerrilla Control on Homicide Rates under Different Bandwidths

(a) Homicides (2017)



Notes: This figure shows the results obtained from the estimation of Equation (1). The figure illustrates the coefficients for 40 individual estimations, one for each of the different bandwidths around the discontinuity. The estimates shown include 400 break fixed effects. The gray coloring illustrates 95% confidence intervals.

Table D.21. Robustness Analysis for the Night Light Intensity Outcome

	Night Light Arcsine (2013)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Polynomial of order zero												
Guerrilla control	-0.153***	-0.160***	-0.153***	-0.147***	-0.346***	-0.153***	-0.153***	-0.160***	-0.153***	-0.147***	-0.346***	-0.153***
	(0.0278)	(0.0278)	(0.0277)	(0.0295)	(0.0220)	(0.0278)	(0.0278)	(0.0278)	(0.0277)	(0.0295)	(0.0220)	(0.0278)
Observations	1,494	1,344	1,443	1,406	4,946	1,442	1,494	1,344	1,443	1,406	4,946	1,442
Bandwidth type	mserd	mserd	mserd	msetwo	msetwo	msetwo	cerrd	cerrd	cerrd	certwo	certwo	certwo
Kernel	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov
Bandwidth (Km)	0.588	0.441	0.538	0.510	3.388	0.535	0.588	0.441	0.538	0.510	3.388	0.535
Dependent mean	3.250	3.200	3.200	3.180	3.670	3.200	3.250	3.200	3.200	3.180	3.670	3.200
Panel B: Polynomial of order one												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Guerrilla control	-0.186***	-0.215***	-0.198***	-0.201***	-0.232***	-0.211***	-0.142***	-0.153***	-0.147***	-0.159***	-0.188***	-0.165***
	(0.0247)	(0.0252)	(0.0248)	(0.0233)	(0.0238)	(0.0237)	(0.0298)	(0.0298)	(0.0295)	(0.0273)	(0.0272)	(0.0275)
Observations	3,652	3,373	3,619	4,221	4,019	4,092	2,542	2,342	2,514	2,953	2,808	2,851
Bandwidth type	mserd	mserd	mserd	msetwo	msetwo	msetwo	cerrd	cerrd	cerrd	certwo	certwo	certwo
Kernel	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov
Bandwidth (Km)	2.266	2.040	2.235	2.750	2.571	2.630	1.414	1.273	1.395	1.717	1.605	1.641
Dependent mean	3.540	3.520	3.540	3.590	3.570	3.580	3.450	3.440	3.450	3.510	3.500	3.500
Panel C: Polynomial of order two												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Guerrilla control	-0.205***	-0.252***	-0.220***	-0.231***	-0.239***	-0.235***	-0.140***	-0.147***	-0.146***	-0.225***	-0.234***	-0.235***
	(0.0274)	(0.0286)	(0.0277)	(0.0243)	(0.0269)	(0.0252)	(0.0336)	(0.0338)	(0.0334)	(0.0257)	(0.0282)	(0.0263)
Observations	4,851	4,834	4,842	8,244	7,595	8,096	3,232	3,212	3,220	5,962	5,282	5,824
Bandwidth type	mserd	mserd	mserd	msetwo	msetwo	msetwo	cerrd	cerrd	cerrd	certwo	certwo	certwo
Kernel	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov
Bandwidth (Km)	3.303	3.284	3.292	7.583	6.353	7.296	1.927	1.916	1.921	4.424	3.707	4.257
Dependent mean	3.660	3.660	3.660	3.800	3.800	3.810	3.500	3.500	3.500	3.710	3.680	3.710

Note: The table presents the robustness of the effects of guerrilla control on night light intensity using different polynomial orders. Panel A shows results for a constant polynomial. Panels B and C present the results using a first and second order polynomial, respectively. Estimations across columns show different bandwidth and kernel types and different bandwidth size. Robust standard errors in parentheses. "mserd" and "msetwo" specify one and two common MSE-optimal bandwidth selectors for the RD treatment effect estimator, respectively. "cerrd" and "certwo" indicate one or two common CER-optimal bandwidth selectors for the RD treatment effect estimator, respectively. The Kernel row indicates the type of kernel used: triangular, uniform, or epanechnikov. Differences in the number of observations are due to the selection of different bandwidths across specifications. *** p<0.01, ** p<0.05, * p<0.1.

Table D.22. Robustness Analysis for the Wealth Index Outcome

	Wealth Index (2007)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Polynomial of order zero												
Guerrilla control	-0.213***	-0.207***	-0.208***	-0.211***	-0.210***	-0.208***	-0.213***	-0.207***	-0.208***	-0.211***	-0.210***	-0.208***
	(0.0506)	(0.0544)	(0.0503)	(0.0517)	(0.0486)	(0.0507)	(0.0506)	(0.0544)	(0.0503)	(0.0517)	(0.0486)	(0.0507)
Observations	1,258	1,121	1,221	1,240	1,173	1,216	1,258	1,121	1,221	1,240	1,173	1,216
Bandwidth type	mserd	mserd	mserd	msetwo	msetwo	msetwo	cerrd	cerrd	cerrd	certwo	certwo	certwo
Kernel	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov
Bandwidth (Km)	0.391	0.273	0.358	0.374	0.315	0.354	0.391	0.273	0.358	0.374	0.315	0.354
Dependent mean	-0.330	-0.330	-0.330	-0.330	-0.360	-0.330	-0.330	-0.330	-0.330	-0.330	-0.360	-0.330
Panel B: Polynomial of order one												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Guerrilla control	-0.120***	-0.0951***	-0.109***	-0.118***	-0.103***	-0.107***	-0.144***	-0.119**	-0.133***	-0.137***	-0.111**	-0.127***
	(0.0397)	(0.0367)	(0.0392)	(0.0374)	(0.0365)	(0.0374)	(0.0504)	(0.0465)	(0.0498)	(0.0471)	(0.0457)	(0.0471)
Observations	2,987	3,038	2,933	3,298	3,104	3,179	2,088	2,108	2,057	2,289	2,164	2,204
Bandwidth type	mserd	mserd	mserd	msetwo	msetwo	msetwo	cerrd	cerrd	cerrd	certwo	certwo	certwo
Kernel	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov
Bandwidth (Km)	1.756	1.785	1.718	2	1.846	1.901	1.096	1.114	1.072	1.248	1.152	1.186
Dependent mean	-0.0500	-0.0500	-0.0600	-0.0400	-0.0500	-0.0500	-0.170	-0.170	-0.180	-0.140	-0.150	-0.140
Panel C: Polynomial of order two												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Guerrilla control	-0.104**	-0.121***	-0.101**	-0.140***	-0.136***	-0.142***	-0.139**	-0.112**	-0.126**	-0.125***	-0.145***	-0.120***
	(0.0436)	(0.0418)	(0.0424)	(0.0337)	(0.0340)	(0.0339)	(0.0561)	(0.0526)	(0.0540)	(0.0404)	(0.0403)	(0.0406)
Observations	4,308	4,450	4,460	7,227	6,909	7,052	2,861	2,955	2,959	5,001	4,740	4,841
Bandwidth type	mserd	mserd	mserd	msetwo	msetwo	msetwo	cerrd	cerrd	cerrd	certwo	certwo	certwo
Kernel	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov
Bandwidth (Km)	2.852	2.971	2.978	5.915	5.514	5.685	1.664	1.734	1.738	3.452	3.218	3.318
Dependent mean	0.0500	0.0600	0.0600	0.200	0.190	0.200	-0.0700	-0.0600	-0.0600	0.100	0.0900	0.100

Note: The table presents the robustness of the effects of guerrilla control on the wealth index using different polynomial orders. Panel A shows results for a constant polynomial. Panels B and C present the results using a first and second order polynomial, respectively. Estimations across columns show different bandwidth and kernel types and different bandwidth size. "mserd" and "msetwo" specify one and two common MSE-optimal bandwidth selectors for the RD treatment effect estimator, respectively. "cerrd" and "certwo" indicate one or two common CER-optimal bandwidth selectors for the RD treatment effect estimator, respectively. The Kernel row indicates the type of kernel used: triangular, uniform, or epanechnikov. Robust standard errors in parentheses. Differences in the number of observations are due to the selection of different bandwidths across specifications. *** p<0.01, ** p<0.05, * p<0.1.

Table D.23. Robustness Analysis for the Years of Education Outcome

	Years of Education (2007)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Panel A: Polynomial of order zero												
Guerrilla control	-0.648***	-0.664***	-0.650***	-0.654***	-0.637***	-0.592***	-0.648***	-0.664***	-0.650***	-0.654***	-0.637***	-0.592***
	(0.154)	(0.172)	(0.157)	(0.172)	(0.140)	(0.111)	(0.154)	(0.172)	(0.157)	(0.172)	(0.140)	(0.111)
Observations	1,348	1,150	1,289	1,249	1,289	1,669	1,348	1,150	1,289	1,249	1,289	1,669
Bandwidth type	mserd	mserd	mserd	msetwo	msetwo	msetwo	cerrd	cerrd	cerrd	certwo	certwo	certwo
Kernel	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov
Bandwidth (Km)	0.458	0.296	0.409	0.378	0.409	0.746	0.458	0.296	0.409	0.378	0.409	0.746
Dependent mean	5.760	5.870	5.830	5.840	5.830	5.870	5.760	5.870	5.830	5.840	5.830	5.870
Panel B: Polynomial of order one												
Guerrilla control	-0.280**	-0.189*	-0.230**	-0.277**	-0.145	-0.236**	-0.441***	-0.324**	-0.409***	-0.433***	-0.361**	-0.422***
	(0.117)	(0.107)	(0.114)	(0.115)	(0.119)	(0.117)	(0.157)	(0.143)	(0.154)	(0.155)	(0.164)	(0.159)
Observations	3,308	3,224	3,238	3,369	2,808	3,140	2,297	2,241	2,247	2,336	1,987	2,188
Bandwidth type	mserd	mserd	mserd	msetwo	msetwo	msetwo	cerrd	cerrd	cerrd	certwo	certwo	certwo
Kernel	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov
Bandwidth (Km)	2.001	1.933	1.942	2.051	1.615	1.868	1.249	1.206	1.212	1.280	1.008	1.166
Dependent mean	6.510	6.470	6.480	6.510	6.400	6.460	6.170	6.130	6.140	6.190	6.030	6.130
Panel C: Polynomial of order two												
Guerrilla control	-0.283**	-0.370***	-0.229*	-0.281***	-0.305***	-0.290***	-0.484**	-0.317*	-0.466**	-0.328**	-0.263**	-0.285**
	(0.139)	(0.126)	(0.139)	(0.102)	(0.108)	(0.103)	(0.188)	(0.168)	(0.189)	(0.129)	(0.134)	(0.130)
Observations	4,441	4,736	4,296	7,167	6,274	6,902	2,951	3,144	2,852	4,934	4,265	4,731
Bandwidth type	mserd	mserd	mserd	msetwo	msetwo	msetwo	cerrd	cerrd	cerrd	certwo	certwo	certwo
Kernel	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov	triangular	uniform	epanechnikov
Bandwidth (Km)	2.956	3.207	2.834	5.815	4.796	5.488	1.725	1.871	1.654	3.394	2.799	3.202
Dependent mean	6.830	6.950	6.780	7.270	7.180	7.270	6.430	6.460	6.400	6.980	6.770	6.950

Note: The table presents the robustness of the effects of guerrilla control on the number of years of education using different polynomial orders. Panel A shows results for a constant polynomial. Panels B and C present the results using a first and second order polynomial, respectively. "mserd" and "msetwo" specify one and two common MSE-optimal bandwidth selectors for the RD treatment effect estimator, respectively. "cerrd" and "certwo" indicate one or two common CER-optimal bandwidth selectors for the RD treatment effect estimator, respectively. The Kernel row indicates the type of kernel used: triangular, uniform, or epanechnikov. Estimations across columns show different bandwidth and kernel types and different bandwidth size. Robust standard errors in parentheses. Differences in the number of observations are due to the selection of different bandwidths across specifications. *** p<0.01, ** p<0.05, * p<0.1.

Table D.24. Quality of School Teachers

	Total Enrollment	Total Teachers	Certified Teachers	Certified Teachers with High-School	Teachers with High-School
	(1)	(2)	(3)	(4)	(5)
Guerrilla control	9.764	0.519	0.320	0.350	0.452
	(35.31)	(1.155)	(1.123)	(0.969)	(0.991)
Observations	1,522	1,522	1,522	1,522	1,522
Bandwidth (Km)	2.266	2.266	2.266	2.266	2.266
Dependent mean	386.7	13.42	12.78	11.51	11.88

Notes: This table shows the effects of guerrilla control on school size (columns 1 and 2) and quality of school teachers (columns 3 - 5). Data was obtained from the 2013 teacher census provided by the Ministry of Education. "Total enrollment" and "Total teachers" refer to the total number of students and teachers at the school level, respectively. "Certified teachers" refers to teachers who have received a formal accreditation in pedagogy from the Ministry of Education.

E Qualitative Study

This appendix provides further information on the methods used in the qualitative component of the study and their main results.

E.A Sample definition and recruitment of participants

The qualitative study aims to complement the quantitative results by gathering information to understand the dynamics that occurred within the territory controlled by the Salvadoran guerrilla, the stability of the borders, changes in the economic, and the social or political structure caused by the presence of guerrillas in the territory, among other potential mechanisms that can drive the main impacts documented in this study.

The target groups were: (i) political-military leaders, which designed and implemented the military strategy and policies with a broad knowledge of the grassroots social movement; (ii) religious and community leaders with depth knowledge of the armed conflict; (iii) citizens who lived in the areas controlled by the guerrillas during the civil war; and (iv) former guerrilla members who were prominent in the operational-military area.

Given the diversity of these groups, the information was collected using in-depth interviews and focus groups discussions. Groups (i) and (ii) were invited to join individual in-depth interviews and groups (iii) and (iv) were invited to participate in focus group discussions. A total of four focus groups and 8 in-depth interviews were conducted in June 2022. Focus groups were conducted in 3 municipalities of El Salvador: two focus groups in Chalatenango and Guazapa (one in each municipality), and two groups in Morazan. These municipalities were selected based on the intensity of guerrilla groups presence during the civil war.[52]

E.B Instruments

Three instruments were developed: (i) for in-depth interviews (for religious or community leaders and political-military leaders); (ii) for focus group discussions of citizens who lived in guerrilla-controlled areas; and (iii) for focus group discussions with former guerrilla members.

All three instruments include two components. First, questions related to the economic and social dynamics of guerrilla-controlled areas before and during the war. For example, the questions inquire about the main local economic activity before the arrival of the specific guerrilla group in

[52]Since Morazan was a crucial department for the FMLN during the Civil War, two focus groups were conducted there.

charge of the area or about the form of government in place during the conflict. Second, questions on participants' perceptions of changes in social and economic factors after the end of the armed conflict. For example, whether they perceived that the presence of the guerrillas affected the social and community ties in the area now in the present, among other questions.

On the other hand, instruments (i) and (ii) also include questions related to the characterization of the geographic space controlled by the guerrillas. For example, in this section the instruments inquire whether and how borders of the controlled territories changed during the conflict, when these borders became more stable, or reasons for guerrilla's settling in the the controlled areas, among others.

E.C Approach

For the qualitative study, a narrative interviewing technique was used. It consisted of a semi-structured approach to interviewing that uses open-ended questions to allow for more variation in responses. These interviews and focus groups create a natural in-depth discussion that allows to obtain specific details of the different components included in the instruments.

The interviews were between 60 to 70 minutes each and the focus group discussions lasted up to 1 hour. A local consultant with expertise on qualitative research and knowledge of the guerrillas movement in El Salvador conducted the interviews. She was responsible for recruiting participants who met the eligibility criteria, obtaining their informed consent, and conducting the interviews and producing their transcripts. For all the interviews, special care was taken to preserve the participants' anonymity and freedom to consent. Indeed, the strategy for maintaining trust and safety was to be extremely clear to all participants that the purpose of the survey was only academic. Only audio of the conversations was recorded and no photos or video were allowed.

E.D Main results

The main messages of the qualitative analysis are summarized below.

Establishment of self-governance institutions to promote social capital

Our interviews with FMLN commanders show that the consolidation of self-governance institutions in controlled areas was a key strategy of the guerrilla. From 1982 onwards, the state disappears in its traditional institutional framework. For example, municipal authorities ceased to function, local judges ceased to provide their services, etc. In the words of one the FMLN military commanders: 'Mayors, judges, security posts, everything disappears, (...), practically the

state disappears, and the state was us [the FMLN]' (Joaquín Villalobos, FMLN Military Commander, interview conducted on March 23, 2022). As a substitute for power, popular power emerges; that is, power determined by the people. When asked about FMLN-controlled areas, an influential religious leaders that lived in these areas says 'the project of structural change in control areas was always present. (...). Starting in 1982-1983, these places become controlled territories, the institutions disappear, and the popular powers emerge (...).' (Religious leader, interview conducted on March 25, 2022). In these new institutions, the key principle was the organization of local communities: 'the individual that lives in a controlled area has a clear consciousness that what prevails in these areas are values. (...) what was consolidated was an idea of social co-responsibility. (Religious leader, interview conducted on March 25, 2022). This strategy was not a by-product of the elimination of state authorities, but rather a deliberate plan to promote the autonomy of peasants from traditional government institutions. The change in military strategy- from a regular to an irregular war- that took place around 1984 was associated with the conviction that the civilian population had their right to live their own lives. Marisol Galindo, an FMLN commander explains: the locals 'had a right to be on their own land, the right to harvest, to not be treated as armed population,(...), that is, we [the guerrilla] made a clear distinction between guerrilla members and civilian population. (...). We wanted to rescue organizational forms of what today we call the Civil Society (...).' (Marisol Galindo, FMLN military commander, interview conducted January 28, 2022). When the state disappeared, governance was in charge of these informal institutions, like the 'poder de doble cara' (or double-faced power), which was the 'self-governance of civilians, to solve their own needs (...), and it had to be done in confrontation with the state' (Joaquín Villalobos, FMLN Military Commander, interview conducted on March 23, 2022). This organization of citizens in the communities made it possible to guarantee social cohesion or the "*tejido social.*"

Our interviews uncovered powerful evidence of the persistence of the social capital generated by these institutions. In several instances, different individuals reflected upon the fact that, although these areas seem to be less developed, they are extremely secure. When the interviewer noted that the zones with guerrilla presence don't have any gang presence, one of the former combatants said: 'Yes [they are the most secure], and where judges die of boredom.' She later added, 'I relate this to the level of organization that the community achieved. I am going to give you an example; en San José de las Flores there is a river and thermal waters, and there is a little hotel. If you go there and say you want to stay there for 10 days, they will ask you, who are you? Who sent

you? Once a fugitive gangster (marero) came who believed he could stay. It is impossible. They investigate who sent you, your references.' (Lorena G, FMLN military commander, interviewed on January 28, 2022). The same point was made in other interviews, where an excombatant said 'the fact that the maras (gangs) are barely present in these areas reflects that the self-organization of the population worked.' (Joaquín Villalobos, FMLN Military Commander, interview conducted on March 23, 2022)

The organization of the communities was promoted by local leadership groups, such as the Organization of the Comadres and the Sisters of the Assumption. One of the paradigmatic civil society organizations that developed and still exists today is the *Patronato para el Desarrollo de las Comunidades de Morazan y el Norte de San Miguel (PADECOMSM)*. This organization is based on a framework of participatory democracy and self-management, with local, zonal and regional councils that identify problems and devise solutions. The PADECOMSM emerged as a consequence of autonomous space that was granted to civilians in controlled areas.

Distrust towards the state

Our interviews with locals show that state distrust was pervasive among peasants and lower-income individuals during the civil conflict, and not necessarily circumscribed to guerrilla-controlled areas. This is frequently attributed to the fact that the state was entwined with economic elites, which used highly repressive methods to discipline the workforce. As a result, peasants were usually landless, and endured hard working conditions. When talking about the economic and social conditions in these areas, one military commanders says: 'In all those areas there were poor peasants and landowners, this was the predominant characteristic, landless peasants and big hacienda owners. (..) an additional issue was that it was problematic [for peasants to work the land, given that rent prices were impossible to afford, I mean, they worked to pay rent and what was left was useless, don't even think about luxuries like water or electricity, that did not exist, that was a luxury' (Lorena P, FMLN military commander, interview conducted on January 28). Participants described that, under these conditions, the need to reorganize themselves and create self-governing institutions in controlled areas was urgent, especially to substitute the traditional model where elites and the state coerced labor, and where basic services were lacking. The absence of the state during the territorial control helped to reinforce this view, as the state could not provide any public service or have physical presence during the guerrilla occupation. Indeed, local leaders from the new institutions or international organizations end up providing public ser-

vices to the communities, including education and health. As a result, the distrust to the state was more likely to be greater in the controlled territory relative to other non-controlled areas.

Migration decisions

Participants reported some reasons for not migrating from the controlled areas. The interviews reflect there was a sense of rootedness in the communities and attachment to their limited economic resources. One guerrilla commander says 'there were many families, that is why some schools for children emerge [in the controlled zones], because many of these families wanted to stay. (...) What the stories from those years reflect is that there was an important population that did not want to leave' (Marisol Galindo, FMLN military commander, interview conducted January 28, 2022).

Stability of boundaries Ex-guerrilla leaders confirm that the boundaries between the controlled and non-controlled territories were stable after 1984-85. A potential explanation is that around 1984 the guerrilla changed their military strategy. The regular war against the Salvadoran state had reached a stalemate, and the FMLN decides to switch to an irregular strategy, based on the control of liberated zones. Joaquín Villalobos, one of the most important FMLN military commanders also mentions that the State made a crucial mistake underestimating their capacity and practically left them territory: 'after they left us our territory, we moved to a superior level of organization and consolidation of power (...).' (Joaquín Villalobos, FMLN Military Commander, interview conducted on March 23, 2022). All military commanders interviewed agree that after 1984 the boundaries of the controlled areas were extremely stable, and confirmed that the map we use to identify control areas was the map used and approved by all parties during the peace talks sponsored by the UN.