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*Erasmus*

**EFFECTS OF NEGATIVE PEACE ON  
HOMICIDES, LABOR MARKET AND  
AGRICULTURE  
CASE OF PEACE AGREEMENT NEGOTIATIONS IN  
COLOMBIA**

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## List of Acronyms

BANREP	Banco de la República de Colombia (Central Bank of Colombia)
CAV	Cumulative Abnormal Volatility
FARC	Fuerzas Armadas Revolucionarias de Colombia (Revolutionary Armed Forces of Colombia)
FDI	Foreign direct investment
GDP	Gross domestic product
GMH	Grupo de Memoria Histórica (Historical Memory Group)
HDI	Human Development Index
ISS	Institute of Social Studies
UN	United Nations Development Programme
UNDP	United Nations Development Programme
SCM	Synthetic Control Methods

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## **Abstract**

The ongoing armed conflict in Colombia has persisted as a prolonged war since the 1960s. The conflict records nearly 500,000 deaths (1944-2018), approximately ten million victims - most of them civilians- (1958-2020) and incalculable costs. The underlying reasons are economic inequality, political participation, access to land, drug trafficking, among others.

Several armed groups have been involved in the conflict, including the Colombian army, paramilitary groups, criminal groups, drug traffickers and extreme left-wing subversive guerrillas, including the FARC guerrillas. The FARC guerrillas were the oldest and largest insurgent group on the continent, and had military, political and economic influence in a large part of the Colombian regions. Therefore, the negotiations and the peace agreement between the Colombian government and the FARC guerrilla were a fact that seeks to solve part of the country's violence problems.

In the framework of the peace process in Colombia, this paper seeks to identify the effects that the negotiation and the ceasefire -both known as negative peace- had on sensitive variables such as the homicide rate, employment in agriculture and the national unemployment rate. Aiming to claim causality, Synthetic Control Methods and differences-in-differences models were performed. It was found that the Negative Peace contributed to the reduction of the homicide rate by at least 6.55 deaths (per 100,000 inhabitants), increased employment in agriculture by 2.88 percentage points, and reduced the unemployment rate by at least 1.42 percentage points. These estimations are statistically significant.

The results support an underlying hypothesis: (Negative) Peace with its limitations and problems is still better than any war scenario.

## **Relevance to Development Studies**

Within the multiple discussions with my supervisor, I will take a question of his: "What could be more important than reducing fatalities?"

## **Keywords**

Negative peace; armed conflict; homicides rate; agriculture; labour market; Synthetic Control Methods; Differences-in-Differences; impact evaluation.

# Chapter 1 Introduction

Violence in Colombia has been a structural problem since its founding as a republic. The causes associated with this social dynamic are due to economic inequality, restricted political participation, drug trafficking, lack of institutional instruments -among others-, these grounds reflect a relatively young nation struggling with its own limitations. The human and social cost of the conflict has been of a remarkable scale, some estimates show that, during the period 1944-2018, violence in Colombia left a toll of at least 470,000 deaths, mostly civilians (Oquist, 1980 & GMH, 2023). In addition, the dynamics of the war in Colombia have had different actors, such as the Colombian army, paramilitary groups, and the emergence of subversive guerrillas, both military and political, operating in mainly rural areas, among others the FARC guerrillas.

The Fuerzas Armadas Revolucionarias de Colombia FARC (Spanish for Revolutionary Armed Forces of Colombia) was the largest and oldest subversive guerrilla group in the South American continent. Its foundation is recognized in 1964 until the year of its demobilization in 2016. Due to its wide influence in (mainly) rural territories, this guerrilla group is credited with the death of approximately 36,000 people and an undetermined number of displaced persons. During the 1980s this guerrilla intensified acts of violence -extortions, kidnappings, human rights violations- and started financing from other illegal sources such as drug trafficking, extortion, oil theft and smuggling.

The peace agreement between the Colombian State and the FARC -also known as the Havana agreement, where the negotiations took place-, are a series of negotiations with the aim of dismantling and ending the armed conflict between the two parties. The negotiations began in 2012 and were officially announced on September 4 of the same year. At the beginning of the negotiations, the war events continued both sides. Since 2014 however the FARC showed intention to end the conflict with unilateral ceasefires in the rural and urban territory (UN, 2020). On August 24, 2016, the negotiations of the agreements in Havana ended, ending the conflict of this guerrilla with the Colombian Stat. The final agreement was signed and both parties ordered the definitive ceasefire as of 00:00 on August 29, 2016.

It is important to highlight the change in the political orientation of the Havana Treaty negotiations in contrast to the paramilitary demobilization process under the Justice and Peace Law since 2005<sup>1</sup>. The previous process had no negotiations and faced criticism and adjustments by the Colombian Constitutional Court. Additionally, it employed the use of force as the only instrument to combat the illegal forces of the subversive guerrillas.

This document seeks to frame the potential effects that Negative Peace -defined merely as the absence of conflict (Galtung 1969:183)- has on some Colombian socioeconomic variables. This is particularly in the agricultural and employment sector, as well as (on / in) some previous estimations on the effect of the Colombian peace process in some (other) socioeconomic variables. For this, Synthetic Control Methods and Differences-in-Differences techniques will be used to estimate the impact of negative peace -achieved since 2014-, which is a triumph of the peace treaty negotiations on employment and agriculture sector variables.

Peace research focuses on the costs of war, rather than on the benefits of peace itself. This paper seeks to be a starting point for future research on the impact of the peace process on the Colombian economy. The underlying hypothesis of this research assumes that negative peace - ceasefire and negotiations, with all its limitations and debates - is a preferable situation to the "best" scenario within a war.

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<sup>1</sup> Justice-&-Peace Law: [http://www.secretariasenado.gov.co/senado/basedoc/ley\\_0975\\_2005.html](http://www.secretariasenado.gov.co/senado/basedoc/ley_0975_2005.html).



## Chapter 2 Background and Context

This section describes a brief (and very simplified) account of the armed conflict in Colombia. Since this document focuses on the conflict with Fuerzas Armadas Revolucionarias de Colombia - Ejército del Pueblo FARC-EP or FARC (Spanish for The Revolutionary Armed Forces of Colombia - People's Army), some facts and participants of the conflict are intentionally omitted.

### 2.1 History of the Colombian Armed Conflict (Simplified)

The armed conflict in Colombia has been a protracted war that has been going on since the 1960s. The motivations for the conflict are diverse and have been transformed over time. Land ownership, political participation, control over drug production and trafficking have been the basis of the long-term conflict. This struggle involves the Colombian state, extreme left-wing insurgent guerrillas, paramilitaries, drug cartels, common criminals; each with their own agendas and areas of influence.

According to the report of the Colombian Historical Memory Group (GMH, 2013) between 1958 and 2012 the conflict has led to the death of approximately 220,000 people. Of the victims, 81.5% were civilians and 18.5% were combatants of some war force within the country. Additionally, this situation of violence has led to the forced internal displacement of 8.5 million people, causing humanitarian crises, social problems, and negative impact on the economy.

Some academics and official reports indicate that the armed conflict in Colombia, as it is currently known, began with the founding of the FARC guerrilla in 1964 (GMH, 2013:121 & Pizarro, 2014), however, the structural conditions associated with this situation date back decades. The Liberal and Conservative political parties are the oldest and most "traditional" in Colombia<sup>2</sup>. They were founded in the mid-nineteenth century and were involved in various clashes until the end of the Thousand Days War in 1903. From that moment the conservative party took power in a period of low violence until 1930 when it lost the presidency of the country. The change of power and political orientation led to the generation of regional conflicts (Chacón and Sánchez, 2003:46), thereafter the political changes were increasingly agitated.

This situation led to a bipartisan dispute -period known as "La Violencia" (Spanish for "The Violence")-, between 1946-1966. Here approximately 190,000 people died and close to two million suffered forced displacement within the country (Oquist, 1980). Additionally, the assassination of Liberal leader Jorge Eliecer Gaitán in April 1948 exacerbated the situation of struggle on account of political positions. This led to an agreement between the traditional political parties - Liberal and Conservative - to alternate presidential power and the composition of the congress every four years, a period known as the Frente Nacional (Spanish for National Front).

The National Front as an agreement between two political parties generated the centralization of power in Colombia and the systematic exclusion of a large part of the rural population. It did not represent a transformation of the political, economic, or social reality of the

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<sup>2</sup> The Liberal party had a social perspective, focused on the promotion of equality and equity, with the purpose of protecting workers' rights, poverty, and inequality; the Conservatives, in contrast, sought economic protection policies and an interventionist state against free trade. None of the parties, however, recognized themselves as leftist or progressive (Oquist, 1980:53).

peasants -including land ownership. This motivated the formation of groups of "rural bandits"; peasant troops that sought to extort or rob large estates and take loot for their own benefit or to distribute among the poor peasants of the region (Sánchez and Meertens, 1983:225).

Although there is no consensus regarding the founding of FARC, it is recognized that on May 10, 1964, military actions were carried out to assault the region where the peasants who had taken up arms were grouped (Pizarro, 2004; GMH, 2013:121). The region known as Marquetalia, a mountainous area of peasant protection, was the site of the combat between the guerrillas and the Colombian army that transformed the conflict from a struggle by civilians in self-defense to a political and military problem (Bonnet, 2006). During the 1960s and 1970s the expansion of the FARC guerrilla was limited by financial, political, and military problems, where its growth in terms of members went from 100 in 1965 to close to 1000 in 1978 (González, 1996:125).

Also, in the 1970s in Colombia, a phenomenon of marijuana production, transport and export known as the Marimba Bonanza originated. Since the United States was the main destination market, this bonanza made Colombia a participant in the international drug trafficking market and was the precedent for subsequent drug trafficking (Medina, 2012:156). However, the change in drug consumption patterns in the United States during the 1970s and 1980s, and the shift from marijuana to cocaine, also modified the production and commercialization of this value chain from Colombia (Bentacourt, 1991:9).

This paper does not describe the more detailed issues of drug trafficking in Colombia, however, the emergence of drug cartels, such as the Medellín and Cali Cartel<sup>3</sup>, financed both guerrillas and paramilitary groups. This led to a significant increase in violence, as these groups fought for control of drug trafficking routes and engaged in assassinations, kidnappings, and extortion. First, competition for coca commercialization routes and land for its cultivation generated a wave of violence in rural and urban areas alike; particularly for some peasants the choices were between illicit cultivation or taking up arms (Medina, 2012:150). Second, the kidnapping of relatives of members of the Medellín<sup>4</sup> cartel led to the formation of self-defense groups that would be the origin of paramilitarism in Colombia given the limitations of the state apparatus to sustain the monopoly of arms (GMH, 2013:65).

Paramilitarism was a form of self-defense by drug traffickers to protect their interests. Later this phenomenon was extended to rural elites who did not find security from the state apparatus (GMH, 2013:34). The relationship between paramilitaries, regional elites and the Colombian army was reflected in the political and logistical economic support against leftist guerrillas (Borrero, 2010), which in turn represented a series of harassments for the civilian population and representatives of non-traditional parties. The motivations for the proliferation of paramilitarism were aligned with its sponsors: rural elites sought to defend their properties from extortion and kidnapping by the subversive guerrillas, drug traffickers sought to expand their business by securing routes and illicit crops, and the military sought to combat the various subversive guerrillas by any means necessary, to the point that members of the army were identified within the paramilitary groups (Gutiérrez & Barón 2006:267).

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<sup>3</sup> Drug trafficking organizations dedicated to processing and exporting coca paste to the United States through clandestine routes.

<sup>4</sup> Kidnapping was a modality of extortion adopted by some guerrillas that emerged after the FARC, specifically the M-19 guerrillas (Movimiento 19 de abril) carried out the kidnapping of a relative of the traffickers Ochoa Vásquez -partners of Pablo Escobar-, which led to the formation of the group MAS or Muerte A Secuestradores (Spanish for Death to Kidnappers) and later to the organization of paramilitary groups (GMH, 2013:66).

Then, at the end of the 1980s, different actors of the conflict were already identified: the FARC guerrilla that had grown due to the failed attempts of the Colombian state to repress or negotiate with this group, the drug trafficking cartels, which had considerable military power and notable economic power, and the paramilitary self-defense groups that not only protected the assets of drug traffickers but also of different elites, especially large rural landowners (GMH, 2013:143).

The 1990s had several relevant events for the armed conflict in Colombia. A new constitution for the country was regulated which sought political pluralism - political parties other than Liberal and Conservative -, There was economic opening that sought the industrialization of the country, agrarian transformation and to integrate the guerrillas in this process. the rigidity in the positions of the guerrillas however and the Colombian government prevented a viable agreement and led to the (self) exclusion of the subversive groups in the new constituent (GMH, 2013:143). Likewise, the disappearance of the Medellín and Cali cartels in 1993 and 1996, respectively, opened the door for guerrilla groups and paramilitaries to become part of this business and find a more profitable source of financing than extortion and kidnapping. Contrary to what one might think, the second half of the 1990s was characterized by an increase in violent actions such as armed interventions, massacres, forced disappearances, and massive displacement of the population whose main victims were the civilian population (Moreno et al., 2020). ,2020 :4).

This is explained by the expansion of FARC and paramilitaries. The FARC expanded its control by taking over territories previously controlled by guerrillas that decided to demobilize with the 1991 constitution - the M19 and EPL guerrillas- and trying to take the conflict to the cities (Echandía, 2006:49). For its part, the expansion of the paramilitaries is explained by the legalization of private security cooperatives through Decree 356 of 1994 -subsequently repealed in 1997-. The criteria for the formation of these cooperatives were weak and allowed the inclusion of criminals or drug traffickers. Also, the weakening of the Colombian army due to fighting with the FARC shifted responsibility in the fight against insurgent groups. This resulted in human rights violations such as massacres and forced disappearances with the complicity of the public forces. Finally, the unification of the self-defense groups as a structured organization led to the formation of the United Self-Defense Forces of Colombia (AUC) as a central command with influence in the political and military orientation of several regions of Colombia (GMH, 2013: 158). At the end of the 1990s, the paramilitary influence at the regional level was notable and was decisive for the following presidential elections and the composition of the congress.

Additionally, in 1999 the Colombian government made a new attempt to establish a peace process with the FARC, establishing a demilitarized zone for the talks in the municipality of San Vicente del Caguán -Caquetá, a department in southern Colombia-. The FARC arrived strengthened with control over more than 600 municipalities -out of a total of 1,110- and about 28,000 combatants (Aguilera, 2010:160). This allowed them to have negotiating power vis-à-vis the Colombian government and about two years of a demilitarized region. This was a failed process that ended in 2002, increasing the distrust of the political-economic elites, as well as public opinion and the international community about the Colombian government's incapacity. In this context, one of the most violent periods in the history of Colombia began, characterized by the urbanization of the conflict between guerrillas and paramilitaries, seeking territorial control and establishing alliances with drug traffickers (GMH, 2013:176).

Against this backdrop, in 2002 Álvaro Uribe was elected president of Colombia. His government had several peculiarities. First, he delegitimized the internal armed conflict with the guerrillas and denied any possibility of dialogue or negotiations with this armed group - which he called narco-terrorist-. This implies denying any kind of political or ideological

recognition to the FARC. The democratic security policy consisted of the largest legal, logistical, and military attack against the FARC guerrillas. Although it achieved results in reducing the military capacity of the guerrillas, the costs were considerable: increased taxes for the fiscal expenditure of the war, doubling the number of men in the Colombian army, the military commanders generated pressure on the armed forces that led to commit human rights violations such as extrajudicial executions, persecution of members of Congress, judges and journalists. Despite all the effort the guerrillas were weakened but not exterminated and they adapted to new dynamics of war (GMH, 2013:179).

At the same time, the Uribe government proposed a peace and demobilization process with the paramilitaries. This process was known as the Justice and Peace Law, which basically provided total impunity for the crimes committed by the self-defense structures. The criminals did not accept to return the assets accumulated through illegality and did not recognize the rights of the victims. Although this led to a partial disarmament of some paramilitaries, the process failed due to rulings of the judiciary and the international community that demanded a more complete process and reparations (GMH, 2013:184). Additionally, the non-compliance of some conditions by the government ended up sinking this demobilization process. Later the emergence of new narco-paramilitary groups was evidenced; the violent activity of the paramilitaries increased between 2011 and 2012. Uribe's government ended in 2010 leaving as political successor Juan Manuel Santos, who had been minister of defense and would continue -supposedly- with the democratic security strategy according to his political affiliation.

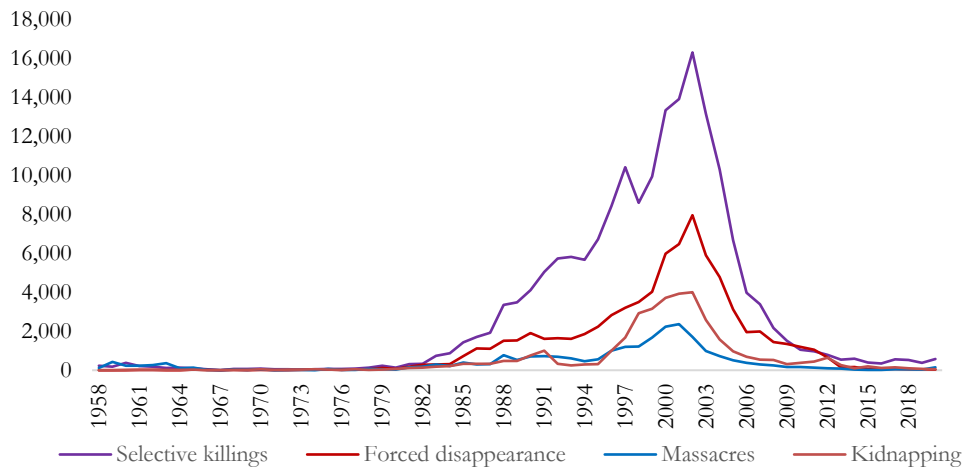
The consequences of the armed conflict have a magnitude. According to the records of the Colombian Victims Unit, up to 2022, 9.5 million people have been recognized as having been affected by the armed conflict in Colombia (18% of the total population). Also, 270,465 deaths have been registered in the framework of the armed conflict, about 35,000 deaths are attributed to the FARC guerrillas and about 90,000 deaths to the paramilitaries. It should also be noted that currently most of the victims have been part of civil society and not the armed forces (legal or illegal)<sup>5</sup>.

Graph 1 shows the crime statistics related to the armed conflict in Colombia. The violent dynamics began to increase in intensity in the 1980s as a consequence of drug trafficking. This behaviour increased notably during the 1990s and 2000s, mainly due to the expansion of insurgent guerrillas and the emergence of paramilitarism; in this period not only the intensity of violence is observed but also the diversification of the means of coercion - selective killings were the most common practice - and modalities such as forced disappearance, massacres and kidnappings appear. The highest values were registered at the beginning of the 2000s and suddenly began to decrease, mainly due to the negotiation -and partial demobilization- with paramilitary groups and due to the military defeats that the insurgent guerrillas had during that decade (GMH, 2013:160).

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<sup>5</sup> [https://datospaz.unidadvictimas.gov.co/archivos/datosPaz/Boletin\\_Datos\\_Para\\_la\\_Paz\\_JUNIO\\_V\\_FINAL.pdf](https://datospaz.unidadvictimas.gov.co/archivos/datosPaz/Boletin_Datos_Para_la_Paz_JUNIO_V_FINAL.pdf)

**Graph 1. Victims of Colombian conflict by crime (1958-2020)**



Own elaboration with data of GMH (2023)

## 2.2 The Colombian peace process

The peace process in Colombia had previous attempts that failed due to political, economic, and military conditions; three of which are mentioned: The amnesty to FARC from the Betancourt government (1982-1984); self-exclusion in the participation of the new constitution of Colombia (1991); and the zone of détente in the Pastrana government (1999-2002). These processes are evidence that the peace negotiation processes are not alien to the country's history.

According to the archives of the Central Bank of Colombia, once Juan Manuel Santos takes office as President of the Republic (2010), the exploratory phase of the peace process begins. Here commissions of the Colombian government established contact -in secret- with representatives of the FARC guerrilla. This process began in 2010 and ended in 2012 with the official establishment of the negotiation tables of the peace agreement. During this phase, the governments of Norway and Cuba served as facilitators for the talks between the parties. Additionally, FARC chose the government of Venezuela and Chile as other guarantor countries of the agreement (Banrep, 2018).

Subsequently, the 2012-2016 phase of talks began, which took place in the city of Havana, Cuba. During these years, intense negotiations were evidenced between representatives of the Colombian government and the FARC guerrilla group. Additionally, the process had the participation of different sectors of Colombian society such as politicians, academics, representation of victims, businessmen, civil society, among others. Five fundamental points were addressed that sought to solve the structural problems of the conflict. These points were (i) Integral rural reform, (ii) Political participation of the guerrilla and the victims, (iii) Solution to the drug problem, (iv) Reparation of the victims, and (v) Endorsement and follow-up of the agreement. In principle, this phase did not contemplate a ceasefire by the negotiating teams, however, during this phase and as a sign of goodwill. In 2014 the FARC decreed a unilateral ceasefire that would later become a bilateral ceasefire from the Colombian authorities negotiation (UN, 2022:19). The negotiations ended in September 2016, and the agreement was submitted to a democratic referendum which was rejected by the Colombian people. However, representatives of the opposition to the agreement -led by Álvaro

Uribe- held meetings with the government to communicate their position and adjust the agreement. Finally, after the changes proposed by the opposition and the unanimous approval of the congress, the agreement was signed in Bogota in November 2016<sup>6</sup>.

From December 2016 -until today- the implementation of the agreement began with several nuances: several commissions and tribunals were created for the reincorporation of combatants, the reparation of victims and to comply with all the points of the peace agreement (Banrep, 2018). It is to say that from the institutional point of view the Colombian state has been inclined to comply with what was agreed in the agreements; the participation of the United Nations and other governments in the verification of compliance has been an important support for the credibility of the agreement. However, the 2018 presidential elections are won by the opposition party -to the agreement and to the Santos government-. This led to partial non-compliance with the agreement and lack of guarantees for some former FARC guerrilla fighters<sup>7</sup>, which led to the regrouping of some members to criminal life, no longer as part of a guerrilla group but as part of criminal groups.

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<sup>6</sup> See United Nations report: <https://unmc.unmissions.org/cronologia-0>

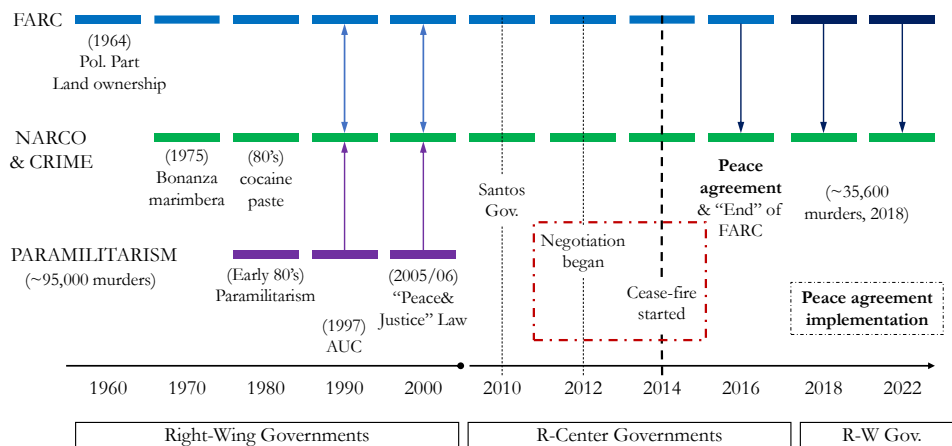
<sup>7</sup> <https://www.elspectador.com/judicial/corte-constitucional-declara-estado-de-cosas-inconstitucional-en-el-acuerdo-de-paz/>

## 2.3 Summary

The armed conflict in Colombia has been going on for almost 6 decades. It is a complex situation involving several actors and causes. The reasons for its existence are inequality, political participation, poverty, drug trafficking and lack of state authority.

In a simple timeline (see Figure 1), in the mid-1960s the appearance of the FARC guerrilla was a consequence of lack of political participation and problems with access to land ownership. In the 1970s the phenomenon of drug trafficking appeared in Colombia as a profitable business that would expand during the 1980s with cocaine trafficking. In the same decade the phenomenon of paramilitarism appeared; these are private armies of (rural) elites or drug traffickers who did not receive sufficient security guarantees from the state. The 1990s were characterized by an increase in violence as result of the growth of guerrillas and paramilitaries and the weakness of the Colombian army and state, in addition to a failed peace process with the FARC that ended in 2002. In the 2000s the high rate of violence continued, the change of policy based on constant attack on the guerrillas and support to the paramilitaries had notable consequences in terms of human rights. In addition to a weak process of demobilization of the paramilitaries caused crime spikes between 2011 and 2012.

**Figure 1. Context of the Armed Conflict in Colombia**



Own elaboration with information of Central Bank of Colombia (2018) & GMH (2019)

In 2010, the election of the Santos government brought a disruptive change in the country's security policy, the exploratory phase began secretly and in 2012 it was made public. That same year the negotiation tables are officially established with international guarantees and since 2014 ceasefires are established by the guerrilla and later by the Colombian government; after several years of intense negotiation the agreement is signed in December 2016 and the implementation process begins. By 2018 Colombia has a new political change with the election of a right-wing president who was relatively negligent with the agreement and its implementation.

# Chapter 3 Framework

## 3.1 Introduction

Scholarly focus on peace academic production has been notably less extensive compared to the attention given to the study of war and violence (Gleditsch et al., 2014). We can assume that emphasis given to study of war is due to more tangible and observable causes and effects, such as conflicts, political differences, violence -in all its forms- amongst others; In contrast, peace studies focus their attention on the diminishing of conflict with security approaches. However, other studies argue that peace is a complex and relative concept that responds to the context of each case, resulting in outcomes that are both highly varied and difficult to predict (Olivus & Akebo, 2021).

## 3.2 Negative Peace Foundation

According to some literature, peace is the nonappearance of war or other forms of violence; the argument is based on the world being more peaceful in large part due to a decrease in violent behaviours, particularly that which results in battle deaths (Diehl, 2016:2). Nevertheless, peace does not only refer to the axiomatic relationship based on the absence of conflict, but peace can also be understood as the combination of structural factors such as security, development, human rights, and social justice (Roberts, 2008:538).

Two relevant concepts can be bear in mind, *Negative Peace* defined merely as the absence of violence -or absence of violent conflict- and that could have short and medium term effects (Galtung, 1969: 183); while *Positive Peace* has a more structural condition in terms of main conflict issues resolved, for instance: (i) absence of major territorial claims, (ii) institutions for conflict management, (iii) high levels of functional interdependence, and (iv) satisfaction with the status quo (Goertz, Diehl, & Balas, 2016).

Negative Peace approaches encompass all facets linked to the termination or reduction of current hostile relations, including even the conclusion of armed conflicts. Consequently, disarmament attempts, negotiations-conversations that led to the cessation or moderation of wars and rivalries, and other similar processes, are framed as Negative Peace efforts (Diehl, 2016:3). The notion of negative peace encompasses more complex aspects than merely indicating that the participants are not in armed conflict (see Table 1); therefore, it includes additional processes such as negotiations that allow the resolution of the main reasons for the conflict, have diplomatic or multilateral support, and are based on previous processes that are similar and successful (Diehl, Goertz & Gallegos, 2021:609).

So, we can state that negative peace is more frequently studied because the actions that entail it are more common. Likewise, negative peace is the first step in achieving sustainable structural peace; both concepts - negative and positive peace - are complementary rather than opposites, and both are required to achieve a truly peaceful society<sup>8</sup>.

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<sup>8</sup> “An Interview with Johan Galtung,” Peace Insight, n.d., <https://www.peaceinsight.org/en/articles/interview-johan-galtung/?location=sudan&theme=peace-education>



**Table 1. Peace scale criteria for state relationships.**

Indicator	Peace Scale Indicators				
	Rivalry		Negative peace	Positive peace	
	Severe rivalry	Lesser rivalry	Negative peace	Warm peace	Security community
War plans	Present	Present	Present	Absent	Joint war planning
Conflicts	Frequent MIDs; variety of hostility levels	Isolated MIDs; Thompson rivalries; International Crisis Behavior crises	Absent	No plausible counterfactual war scenarios	No plausible counterfactual war scenarios
Main issues in conflict	Unresolved	Unresolved	<i>Communication and issues</i> Mitigated; some resolved; some low salience		Resolved
Communication	Absent	Absent	Intergovernmental	Intergovernmental and highly developed transnational ties	Institutionalized mechanisms
Diplomacy	<i>Agreements, institutions and diplomacy</i>				
	No recognition; diplomatic hostility	No recognition; diplomatic hostility	Diplomatic recognition; statements suggesting conflict	Diplomatic relations	Diplomatic coordination
Area/level/number agreement	None	None	Peace negotiations and/or agreements	Nascent functional agreements; nascent integration	Extensive institutionalized functional agreements
"Anchor" cases	USA-USSR (1948-1989), India-Pakistan (1947-present), France-Germany (nineteenth and twentieth centuries)	Bulgaria-Greece (1908-1913), Colombia-Venezuela (1841-1982), Russia-Ottoman Empire (1849-1856)	Egypt-Israel (1989-present), UK-France (1898-1945), Finland-USSR/Russia (1944-present)	Argentina-Brazil (1986-present), Romania-EU Members (1995-present), Malaysia-Indonesia (1967-present)	France-Germany (1992-present), USA-Canada (1987-present), Denmark-Sweden (1952-present)

MID, Militarized interstate dispute.

Source: Goertz G, Diehl PF and Balas (2016) & Diehl, Goertz & Gallegos (2021)

Using the concept of Negative Peace, we can adapt this definition to the case of the peace negotiations between the Colombian government and the FARC guerrillas. The negotiations had exploratory phases between September 2010 and August 2012, however, on October 18, 2012, the negotiations were officially installed, thus initiating the public phase of the process to be carried out in Havana, with the objective of reaching agreements on the points of the agenda. On August 24, 2016, a first Final Agreement was reached, which was signed in Cartagena a month later.

Although negotiations began in 2012, according to documentation from government institutions and NGOs associated with the process<sup>9</sup>, there was cessation (interrupted) the conflict since 2014. The cease in the conflict reduced the average number of daily deaths associated with the conflict from 3.12 to 0.46 deaths per day, which means that the cessation of violence prevented the death of 4,331 people between civilians, security forces and guerrillas<sup>10</sup>.

Beyond the obvious benefits of the cessation of the conflict such as the reduction of the homicide rate and the combat count, this research seeks to identify the effect that Negative Peace has on the Colombian economy, that is, the economic effects of the negotiations and the ceasefire (both conditions were fulfilled since 2014, not before) on strategic sectors such as employment and agriculture.

There are some criticisms of the concept of negative peace. One is that the absence of violence is an under-conceptualized version of the idea of peace; this definition could turn

<sup>9</sup> Presidency of the Republic of Colombia: <http://consulta.archivogeneral.gov.co/ConsultaWeb/elemento-del-cuadro.jsp?id=37011478&total=12&ini=1&fin=12>.

<sup>10</sup> Conflict Analysis Resource Center (Centro de Recursos para el Análisis de Conflictos - CERAC in Spanish): <https://www.blog.cerac.org.co/monitor-del-cese-el-fuego-bilateral-y-de-hostilidades-final>.

the discourse into a dichotomous narrative - about violence or not, usually short-term - which limits the nuances of the causes and effects of a war. Additionally, peace processes are unique and cannot be explained across countries; the contexts, motives, and consequences of each process are different and rarely comparable (Olivius & Åkebo, 2021:4).

Perhaps for the Colombian case the most accurate denomination is the non-peace non-war situation, especially after the signing of the agreements in 2016. This is a scenario where violence between groups is stopped, but the fundamental problems that caused the conflict in the first place have not yet been solved (Mac Ginty, 2010:146). From this it can be deduced that Peace can be weak due to structural issues and can generate new outbreaks of violence in the short term, in addition to the fact that the idea of peace is unique and hardly comparable with other processes in different countries.

### **3.3 War-Peace Economics**

From violence perspective, wars and conflicts represent an irrecoverable loss of efficiency and income for society and, even more serious, loss of physical, human, social and natural assets, among others (Brauer & Dunne, 2011:7). The expected effects of war are reflected in fundamental macroeconomic variables of growth -GDP, trade, exchange rate, investment, FDI- and development -GDP per capita, unemployment, education, GINI, HDI, among others-.

Another perspective is that of the reconstruction economy. These are two types of challenges in post-conflict scenarios: the first is related to the transformation of the war economy into a market economy (Joshi & Wallenstein, 2018:14); the conditions for the evolution of the economy are adequate multilateral funding, mobilization of external and internal resources to improve labor market conditions, intensify job creation, poverty alleviation and sustainable growth -these last two in the long term-. The second challenge is creating new market segments for the traditionally excluded population (Castillo, 2008:39); usually, the affected population has a large volume, representing the availability of labor, the formation of new households, and the demand for goods and services.

Likewise, the economics of peace speaks of the dividends brought about by scenarios of concord, which basically refer to the relocation of resources destined for the war to other sectors, i.e., the opportunity cost of the conflict with respect to the economy of a country or territory. Peace dividends can be static - of activities - or dynamic - of resources, particularly budgetary - (Brauer & Dunne, 2011:4). Nonetheless, empirical evidence shows that peace dividends -resource relocation- are subject to political willing rather than technical or economic components; additionally, the relationship -or correlation- between post-conflict and resource relocation is relatively weak (Aslam, 2007:45).

### **3.4 Empirical cases on peace assessment**

As for empirical work on the impact of peace and violence in Colombia, there have been some previous studies that seek to measure the impact of both violent events and the peace agreement, which are discussed below.

Mejia-Posada et al. (2022) analyses the impact of violent events on the COLCAP index<sup>11</sup>. Findings reveal the COLCAP index experiences a substantial adverse abnormal return of

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<sup>11</sup> COLCAP index is a market-capitalization weighted index comprising the 25 most liquid stocks listed on Colombia's stock market.

0.1% one day following a bombing attack, and this negative impact intensifies, reaching -0.18% by the third day. Additionally, events linked to the peace agreement display a notable positive abnormal return of 0.58% on the event date, and this positive effect continues to grow, reaching 1.02% the following day; cumulative abnormal volatility (CAV) shows no statistically significant differences after either terrorist attacks or peace-related events.

Corredor (2020:26) seeks to measure the impact of the agreement negotiations on the country's risk rating through the EMBI<sup>12</sup> indicator using SCM. In the period between 2012 and 2014, a positive effect of 11.1% of the peace policy on the EMBI indicator is observed during those years. This result is consistent with the average increase of 3.21% in Colombia's GDP per capita, which could be interpreted as a positive benefit for the country's economic and financial indicators, stimulating investment and improving trade through an increase in exports. However, when examining the period from 2014 to 2017, the comparative analysis reveals a negative impact of 18.10% on the real EMBI Colombia. This discrepancy could have arisen because the peace process in the years 2014 to 2017 occurred in a context of marked global economic instability, as evidenced by the decline in oil barrel prices. Given that Colombia is a nation whose economy relies heavily on this commodity, its finances were affected because of these conditions.

Other empirical exercises focused on the relationship between the costs of war: Studies of the conflict in Colombia are part of this trend; we can find evidence of the cost of the armed conflict in the labour market and precisely its effect on the unemployment rate, employing both the synthetic control method and difference-in-differences models, analysis reveals that between 1994 and 2014, the period of intense armed conflict significantly increased Colombia's unemployment rate by approximately 3.9 to 4.3 percentage points. (Velásquez, Castellanos & Cruz, 2022:9); also, in the effect that the conflict has had on investor confidence in Colombia and its bond market (Castañeda & Vargas, 2012:191).

This summary shows that the works related to the peace process in Colombia are related to the financial sector, and there are few works related to the real sector of the Colombian economy. The closest approximation to the agricultural sector is found in Jiménez et al (2022:10), this paper identifies a possible -positive- impact on Colombia's agricultural economy under the condition of the fulfilment of the peace agreements -signed in 2016-. This paper uses computerized general equilibrium (CGE) to simulate post-conflict scenarios but does not consider the effects of negative peace.

### 3.5 Hypothesis of research

The research hypotheses of this paper are the following:

- H<sub>1</sub>: The negative peace -negotiation and ceasefire- between the Colombian government and the FARC guerrilla had an impact on the homicide rate in Colombia between 2014-2019.
- H<sub>2</sub>: The negative peace -negotiation and ceasefire- between the Colombian government and the FARC guerrilla impacted employment in agriculture (% of total employment) in Colombia between 2014-2020.
- H<sub>3</sub>: The negative peace -negotiation and ceasefire- between the Colombian government and FARC guerrillas influenced the unemployment rate in Colombia between 2014-2019.

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<sup>12</sup> The JP Morgan Emerging Market Bond Index (EMBI) is a set of bond indices to track bonds in emerging markets operated by J P Morgan (Akkaya, 2019:374).

# Chapter 4

## Data and Methodology

### 4.1 Data

Given the aim of this research is to identify the effect of the Negative Peace on the Colombian economy, that is, the changes in the employment and agriculture sectors in Colombia after the beginning of the Negotiation Tables between the Government and FARC-EP, in addition to the cessation of the conflict. Therefore, the target variables of this paper are the homicide rate, employment on agriculture, and unemployment rate.

Evidence shows that useful variables to explain employment (or unemployment in this case) are measures of GDP and investment in addition to labour force related indicators such as population density, gross enrolment in primary education and life expectancy at birth (Velasquez, Castellanos & Cruz, 2022:6).

Given that the conflict in Colombia has a rural nature -the origin and the fighting-, changes in the dynamics of the country's agriculture and the performance of the sector should be expected. Therefore, it would take greater participation in Colombia's economy, as evidenced by World Bank data since 2014. As with the labour market, macroeconomic variables such as labour force, population density, land employed for agricultural use, investment, GDP per capita, among others, are used (Arendonk, 2015:26).

Data for all these macroeconomic variables are obtained from the World Bank's World Indicators 2023<sup>13</sup>, the target variables of this work are the following: (1) Intentional homicides (per 100,000 people) 1997-2019; (2) Employment in agriculture (% of total employment) 1996-2020; (3) Unemployment, total (% of total labour force) 2000-2019; (4) Agriculture, forestry, and fishing, value added (% of GDP) 1964-2021. As covariates for these estimations next variable taken from World Bank Database are used: (1) Rural population, (2) Arable Land, (3) Access to electricity, (4) Trade (% of GDP), (5) GDP per capita, (6) GDP growth rate, (7) Poverty rate, (8) Military expenditure, (9) Life expectancy (10), Gross capital formation, (11) Primary full, (12) Regional fixed effects. Data is displayed in three segments, first for Colombia, second for control groups –detail of control group for each viable can be found in ANNEX A-, and lastly the total.

Descriptive statistics show, for different periods, Colombia has an atypically high homicide rate average (Table 2) in comparison with the control group -nearly 5.08 times-, also presents a lower participation of agriculture in total employment mean (Table 3) regarding the countries of control -10 p.p. less-, and the Colombian unemployment rate is higher in 3.93 p.p. in average contrasting with the rest of countries (Table 4). Regarding variables such as poverty, urban population, military expenditure, and (rural) access to electricity, Colombia's average is over the control group; in contrast, the value is lower for GDP per capita, arable land, and rural population.

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<sup>13</sup> Full description of variables can be found in: <https://databank.worldbank.org/metadataglossary/all/series>

**Table 2. Intentional homicides (per 100,000 people) 1997-2019**

Variable	Colombia (n=1)			Control group (n=45)			Total (n=46)		
	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.
Homicide rate (x100k people)	23	43.23	15.68	1,035	8.50	13.79	1,058	9.25	14.73
Poverty (% of population)	19	9.87	5.46	572	3.17	6.42	591	3.39	6.49
Unemployment rate	23	11.94	3.44	1,035	7.96	4.69	1,058	8.05	4.71
Population density	23	39.34	3.36	1,032	711.60	2952.55	1,055	696.95	2921.80
Primary full rate (%)	23	103.63	8.09	639	95.17	9.87	662	95.46	9.93
Military expend. (% of GDP)	23	3.31	0.27	884	1.74	1.14	907	1.78	1.16
GDP p.c. (constant 2015 US\$)	23	5,086	904	1,035	20,877	21,030	1,058	20,534	20,928

Own calculations using World Bank Data

**Table 3. Employment in agriculture (% of total employment) 1996-2020**

Variable	Colombia (n=1)			Control group (n=168)			Total (n=169)		
	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.
Employment agr. (% of total)	25	18.23	1.71	4,200	28.23	23.60	4,225	28.18	23.54
GDP p.c. (constant 2015 US\$)	25	5,080	899	4,175	12,171	17,101	4,200	12,129	17,059
Crop production index	25	84.64	11.24	4,166	91.13	27.35	4,191	91.09	27.29
Trade (% of GDP)	25	36.41	1.93	3,929	84.37	52.32	3,954	84.07	52.29
Arable land (% of land area)	25	1.82	0.35	4182	15.34	13.97	4207	15.26	13.97
Rural population (% of total)	25	22.93	2.83	4200	43.94	22.99	4225	43.81	22.98
Electricity, rural (% of rural pop)	25	86.99	5.70	3,877	74.16	35.66	3,902	74.25	35.56

Own calculations using World Bank Data

**Table 4. Unemployment, total (% of total labour force) 2000-2019**

Variable	Colombia (n=1)			Control group (n=128)			Total (n=129)		
	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.
Unemployment rate (%)	20	11.37	3.07	2,560	7.44	5.57	2,580	7.47	5.57
GDP p.c. (const. 2015 US\$)	20	5,229	882	2,560	14,267	19,486	2,580	14,197	19,426
Gross capital form. (% of GDP)	20	21.22	2.62	2,560	23.28	8.10	2,580	23.27	8.07
Population density	20	40.11	2.87	2,560	392.33	1856.99	2,580	389.60	1850.03
Urban population (% of total)	20	77.68	2.23	2560	59.08	23.14	2580	59.23	23.11
Life expectancy (years)	20	74.50	1.85	2560	70.29	9.34	2580	70.32	9.31
Primary full rate (%)	19	118.23	3.48	2,239	102.56	13.62	2,258	102.69	13.64

Own calculations using World Bank Data

## 4.2 Identification Strategy

As an identification strategy, two complementary methodologies are used - in terms of robustness - Synthetic Control Methods and Difference-in-Difference. First, the synthetic control model is estimated for the target variables, first without controls and then adding covariates. Subsequently, the exercise is repeated using the difference-in-differences methodology, first without using controls, then adding covariates; Subsequently, the exercise is repeated using as counterfactual the donor countries that the synthetic control algorithm returned in the first exercise.

### Synthetic Control Methods

The synthetic control method is employed for causal inference as an alternative to difference-in-differences estimation for the estimations with data at the country level, following Abadie and Gardeazabal (2003) and Abadie et al. (2010). With this alternative identification technique, one does not choose a discrete set of control group countries, instead, the synthetic control method is designed to produce a single synthetic comparator, which best imitates the aggregate treated country -Colombia in this case- in its pre-treatment characteristics. This technique is crafted to generate a singular synthetic counterpart that effectively replicates the aggregate attributes of the treated country—specifically, Colombia in this instance—prior to any interventions. The method constructs a weighted combination from countries in the control group, based on pre-specified characteristics, to which the average of the treatment group is then compared.

$$Y_{1t} - \sum_{j=2}^{J+1} w_j^* Y_{jt} \quad (1)$$

Equation 1 summarizes the estimation of the effect where  $Y_{1t}$  is the outcome variable for unit  $j$  out of  $J + 1$  units -Colombia and control countries- at time  $t$ . In this case the treatment unit:  $j=1$  -Colombia in this case- subtracts the summation of weighted vector  $w_j^*$  - given is a vector of optimally chosen weights- after the intervention  $t = T_0$  getting the effect in period  $t$  after treatment starts (Cunningham, 2021:517).

### Difference in Difference

The difference-in-difference model is outlined by Equation 2:

$$Y_{it} = \alpha + \beta Treat_i + \gamma Post_t + \delta Treat * Post_{it} + X\theta_{it} + \epsilon_{it} \quad (2)$$

where  $Y_{it}$  is the unemployment rate for country  $i$  in year  $t$ ;  $Treat_i$  is a dummy variable that takes the value 1 if the country is Colombia, and 0 if the country belongs to the control group;  $Post_t$  is a dummy variable equal to 1 if the year is 2014 -year that starts the conflict cessation- or later, and 0 otherwise;  $Treat * Post_{it}$  is the interaction of the  $Treat_i$  and the  $Post_t$  variables; the vector  $X$  represents control variables, which are the same set of predictors for the synthetic control;  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ , and  $\Theta$  are unknown parameters, and  $\epsilon_{it}$  is a random unobserved error term. The main coefficient of interest,  $\delta$ , is the DiD estimate and represents the impact of Negative Peace on Colombia's unemployment rate and agricultural participation in the GDP.

## Chapter 5 Results

The results are presented as follows: for each of the targeting variables of this work, first, the estimation of the Synthetic Control Methods is presented -graph and punctual estimation-. Subsequently, the results of the differences-in-differences methodology are presented for all the available information without and including controls (Columns 1 and 2), estimation for the whole sample (Columns 3 and 4), estimation including only the donors with positive weight from SCM (Columns 5 and 6) and the calculation of the sample excluding the donors (Columns 7 and 8), estimation including time-country fixed effects are presented between columns 3 to 8.

### 5.1 Intentional homicides (per 100,000 people) 1997-2019

The negative peace -negotiation plus ceasefire- has a significant effect on the homicide rate in Colombia. The Synthetic Control Method estimates a decrease of at least 8.42 killings per 100.000 inhabitants, namely, around 4,208 avoided murders (Table 5); on average, for the period 2014-2019, the effect of negative peace on homicide rate was -13.16 killings per 100.000 people -or 6,582 people by year-. This estimate is based on the behaviour of the donors -South Africa (0.854) and El Salvador (0.146)- that explain the performance of this variable in Colombia, the history of these countries is high compared to the rest of the sample, the similarities with Colombia can be explained by the historical behaviour and the covariates (Graph 2).

**Table 5. Homicides SCM estimation**

Variable	Estimates	p-values
HRx100k (2014)	-8.4168**	0.0444
HRx100k (2015)	-17.0062**	0.0444
HRx100k (2016)	-15.0657**	0.0222
HRx100k (2017)	-14.4575**	0.0222
HRx100k (2018)	-12.8617**	0.0222
HRx100k (2019)	-11.1735*	0.0889

Own calculations using World Bank Data

**Graph 2. Homicides rate SCM**



Own calculations using World Bank Data

Across the four sets of regressions, difference-in-difference estimates show negative peace reduces at least 18.07 homicides per 100,000 people on average per year (Table 6); this reduction changes slightly to 18.47 by including controls and year-country fixed effects - Column 4-. This estimate represents the 43% reduction in the homicide rate compared to the sample average for the entire period 1997-2019 (see Table 2). Results are significant at a 1% level in all cases except the estimation made only with donors (South Africa and El Salvador in Column 6), where not statistically significant at all; the lack of significance on this set and the decreasing trend of killings in recent years diminishes the statistical power of the claim inferred by SCM estimates; nonetheless, inverse relationship between negative peace and the homicide rate remains.

**Table 6. Effect of Negative Peace on intentional homicides (per 100,000 people)**

VARIABLES	(1) hrx100k Sample	(2) hrx100k Sample	(3) hrx100k Sample(FE)	(4) hrx100k Sample(FE)	(5) hrx100k Donors(FE)	(6) hrx100k Donors(FE)	(7) hrx100k NoDonors(FE)	(8) hrx100k NoDonors(FE)
TREAT	40.45*** (3.338)	20.03*** (4.431)	42.06*** (3.696)	41.65*** (4.323)	10.39*** (3.113)	-564.4 (4,190)	42.06*** (3.781)	41.66*** (4.110)
YEAR	-0.679 (0.989)	-1.361 (0.838)	-3.587** (1.592)	-3.621 (2.405)	-35.35** (14.85)	84.58 (347.5)	-1.667 (1.067)	-4.155* (2.296)
T * Y	-21.91*** (3.473)	-18.07*** (3.515)	-21.91*** (3.329)	-18.47*** (3.127)	-22.07*** (6.613)	-25.20 (13.14)	-21.91*** (3.380)	-18.39*** (2.965)
Poverty (2015)		0.325** (0.161)		0.0588 (0.100)		0.0833 (1.663)		-0.0119 (0.0843)
U Rate		0.122 (0.104)		0.533*** (0.144)		1.226 (2.234)		0.509*** (0.137)
Pop Density		0.0226*** (0.00694)		0.000460 (0.0164)		-2.189 (16.69)		0.00690 (0.0143)
Primary (full)		-0.158** (0.0738)		-0.210** (0.0859)		-2.017 (1.555)		-0.219*** (0.0750)
Militar (%GDP)		-0.697 (0.466)		-0.384 (0.846)		18.61 (20.83)		-0.234 (0.770)
GDP p.c.		-8.61e-05*** (1.74e-05)		0.000483* (0.000287)		-0.0226 (0.0423)		0.000482* (0.000261)
Latam		23.82*** (2.862)		3.190 (3.990)		564.7 (4,118)		3.618 (3.579)
Constant	8.677*** (0.496)	17.45** (7.317)	9.325*** (2.565)	18.33** (8.871)	63.94*** (11.26)	354.1 (609.3)	8.009*** (2.471)	19.06** (8.055)
Observations	1,058	348	1,058	348	69	35	1,012	332
R-squared	0.129	0.670	0.912	0.946	0.760	0.976	0.908	0.932

Robust standard errors in parentheses

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

Own calculations using World Bank Data



## 5.2 Employment in agriculture (% of total employment) 1996-2020

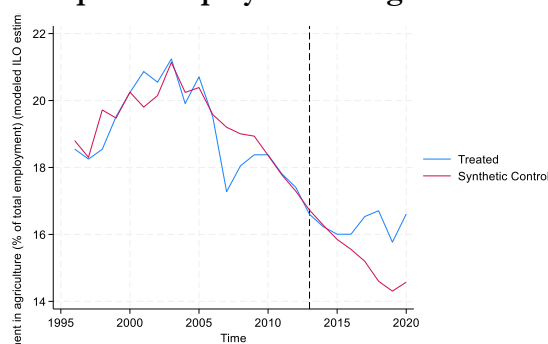
Negative peace has no statistical effect on employment in agriculture using SCM for estimation. The Synthetic Control Method estimates the increase in the share of formal employment in agriculture between 0.15 to 2.1 percentage points: the donors for estimation were Croatia (0.095), Fiji (0.18), Indonesia (0.047), Mauritius (0.222), Paraguay (0.184), Suriname (0.056), Syria (0.067), Uruguay (0.14), Venezuela (0.009). The historical behaviour of the synthetic control fits well with the actual variable (Graph 3); however, looking at Table 7, we observe that none of these estimates is statistically significant.

**Table 7. Employment ag. SCM estimation**

Variable	Estimates	p-values
EmAgr (2014)	-0.0455	0.8988
EmAgr (2015)	0.1544	0.8036
EmAgr (2016)	0.4509	0.6429
EmAgr (2017)	1.3360	0.3988
EmAgr (2018)	2.1064	0.3393
EmAgr (2019)	1.4621	0.4464
EmAgr (2020)	2.0343	0.4464

Own calculations using World Bank Data

**Graph 3. Employment in ag. SCM**



Own calculations using World Bank Data

Unlike the SCM estimator, difference-in-difference estimations show an increase of employment in agriculture of at least 2.88 percentage points up to 3.28 -focusing on the estimates with controls- (Table 8). The estimates are statistically significant at the 1% level. This estimate represents an increase of 15.8% in the participation of agricultural employment with respect to the sample average for entire period 1996-2019 (see Table 3). Given that in 2019 the population employed in agriculture was 3.4 million in Colombia (DANE, 2023), the effect of the negative peace led to the generation of approximately 97,883 new jobs.

**Table 8. Effect of Negative Peace on Employment in agriculture (% of total employment)**

VARIABLES	(1) EmAgr Sample	(2) EmAgr Sample	(3) EmAgr Sample(FE)	(4) EmAgr Sample(FE)	(5) EmAgr Donors(FE)	(6) EmAgr Donors(FE)	(7) EmAgr NODonors(FE)	(8) EmAgr NODonors(FE)
TREAT	-10.79*** (0.541)	1.725*** (0.627)	-27.81 *** (0.624)	9.090*** (1.028)	7.969*** (0.361)	3.106 (3.249)	-27.84*** (0.632)	15.22*** (1.063)
YEAR	-5.513*** (0.765)	0.607 (0.379)	-9.624*** (0.514)	-6.480*** (0.560)	-4.401** (2.093)	0.825 (2.228)	-9.946*** (0.522)	-6.777*** (0.560)
T * Y	2.791*** (0.837)	2.900*** (0.785)	2.791*** (0.581)	2.882*** (0.568)	1.370** (0.648)	3.276*** (0.673)	2.881*** (0.603)	2.902*** (0.593)
Rural Population		0.412*** (0.0129)		0.00718 (0.0351)		0.569*** (0.121)		0.00571 (0.0356)
Arable Land		-0.0241** (0.0117)		0.0212 (0.0301)		0.342 (0.236)		0.00612 (0.0302)
Crop Index		-0.0708*** (0.00815)		-0.0407*** (0.00390)		-0.118*** (0.0160)		-0.0330*** (0.00369)
GDP p.c.		-0.00018*** (1.20e-05)		0.000137*** (2.20e-05)		7.60e-05 (8.46e-05)		0.000121*** (2.17e-05)
Access Electricity		-0.275*** (0.00733)		-0.0952*** (0.00834)		0.0389 (0.0366)		-0.107*** (0.00827)
Trade (%GDP)		-0.0267*** (0.00351)		-0.0120*** (0.00380)		-0.0260*** (0.00881)		-0.0139*** (0.00436)
Latam		-3.597*** (0.388)		-37.85*** (1.962)		3.677 (2.765)		-44.57*** (2.105)
Constant	29.78*** (0.440)	41.52*** (1.129)	50.07*** (0.546)	60.47*** (2.543)	10.88*** (1.489)	2.513 (5.075)	50.30*** (0.535)	61.83*** (2.587)
Observations	4,225	3,625	4,225	3,625	275	247	3,975	3,403
R-squared	0.012	0.800	0.981	0.984	0.943	0.971	0.982	0.985

Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1  
Own calculations using World Bank Data

### 5.3 Unemployment, total (% of total labour force) 2000-2019

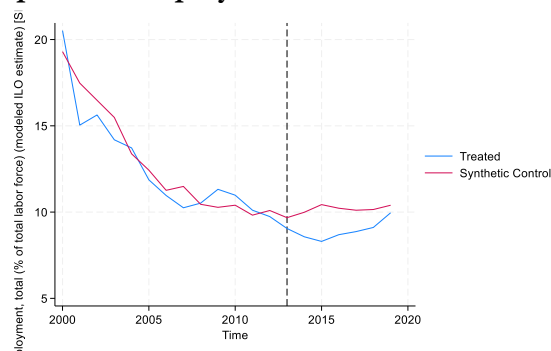
The estimation using synthetic control methods shows a reduction of unemployment rate owing to the negative peace in Colombia. It can be seen a proper pre-treatment fit between the actual data and the synthetic estimation (Graph 3), the estimation is based in the weighing of following countries: Algeria (0.307), Egypt (0.003), Eswatini (0.067), Ghana (0.43), Slovak Republic (0.006), South Africa (0.187). Consequently Table 9 displays a partial reduction in unemployment between 1.4 and 2.1 percentage points, this estimation is statistically significant, and this effect vanishes after 2015.

**Table 9. Unemployment SCM estimation**

Variable	Estimates	p-values
Urate 2014	-1.4205*	0.0859
Urate 2015	-2.1332*	0.0781
Urate 2016	-1.5342	0.2422
Urate 2017	-1.2384	0.3906
Urate 2018	-1.0396	0.5313
Urate 2019	-0.4368	0.7734

Own calculations using World Bank Data

**Graph 4. Unemployment rate SCM**



Own calculations using World Bank Data

The estimation using difference-in-difference confirms a reduction in unemployment rate in at least 2.36 percentage points up to 3.27 (Table 10), on average. This reduction is consistent over time and for all set of regressions, and estimates are statistically significant at the 1% level. The reduction of 2.36 p.p. in the unemployment rate represents -in 2019- an increase in the number of actual workers on labour force in 480.765 people approximately.

Estimations for other variables like GDP per capita and Agriculture, forestry, and fishing, value added (% of GDP) were performed using Synthetic Control Methods, with no statistical significance in estimators. The results can be found in the Annex B.

**Table 10. Effect of Negative Peace on unemployment rate, total (% of total labour force)**

VARIABLES	(1) Urate Sample	(2) Urate Sample	(3) Urate Sample(FE)	(4) Urate Sample(FE)	(5) Urate Donors(FE)	(6) Urate Donors(FE)	(7) Urate NoDonors(FE)	(8) Urate NoDonors(FE)
TREAT	4.882*** (0.812)	4.190*** (0.863)	-3.081*** (0.894)	1.498 (1.138)	-2.907** (1.181)	-0.293 (3.846)	-3.047*** (0.923)	1.481 (1.150)
YEAR	-0.348 (0.238)	-0.868*** (0.245)	-1.161*** (0.308)	-0.504 (0.423)	-7.635*** (2.630)	4.042 (3.639)	-0.862*** (0.276)	-0.215 (0.401)
T * Y	-3.157*** (0.863)	-2.359*** (0.887)	-3.157*** (0.861)	-2.884*** (0.850)	-0.865 (0.763)	-3.271** (1.275)	-3.270*** (0.882)	-2.959*** (0.875)
GCF		-0.0619*** (0.0156)		-0.100*** (0.0115)		-0.263*** (0.0872)		-0.0993*** (0.0109)
GDP p.c.		-9.08e-05*** (8.18e-06)		-0.000152*** (2.94e-05)		-0.00173*** (0.000475)		-0.000143*** (2.58e-05)
Pop Density		-0.000283*** (2.54e-05)		0.000631 (0.000459)		0.122 (0.0788)		0.000487 (0.000377)
Urban (%)		0.0899*** (0.00814)		0.0127 (0.0249)		-0.478 (0.344)		0.00854 (0.0216)
Life expect.		-0.00753 (0.0298)		-0.0288 (0.0289)		-0.296 (0.180)		-0.0271 (0.0271)
Primary (full)		0.0426*** (0.00967)		0.00233 (0.00483)		-0.252*** (0.0837)		0.00918** (0.00466)
Latam		-3.494*** (0.317)		-5.811*** (1.406)				-5.802*** (1.326)
Constant	7.540*** (0.133)	1.895 (1.349)	15.83*** (0.496)	20.29*** (2.452)	20.04*** (2.650)	109.8*** (33.77)	15.61*** (0.497)	19.44*** (2.307)
Observations	2,580	2,258	2,580	2,258	140	137	2,460	2,140
R-squared	0.005	0.111	0.888	0.896	0.884	0.922	0.885	0.893

Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1  
Own calculations using World Bank Data

## Chapter 6

### Discussion

The first point of the discussion is based on the possible overestimation of the effect that the Negative Peace negotiations and ceasefire had on the homicide rate in Colombia. Therefore, two additional exercises were carried out; the first is the estimation using synthetic control and excluding the original donors (South Africa and El Salvador) to analyse the consistency of the estimation, while the second part consists of carrying out the estimation between 2006-2019 given that it is the period after the peak of violence in Colombia, but at the same time it was a period where the FARC persisted adapting to the dynamics of the conflict. The possible mechanisms that lead to the results of all targeting variables -including employment in agriculture and unemployment rate- are explained later.

### 6.1 About Intentional homicides

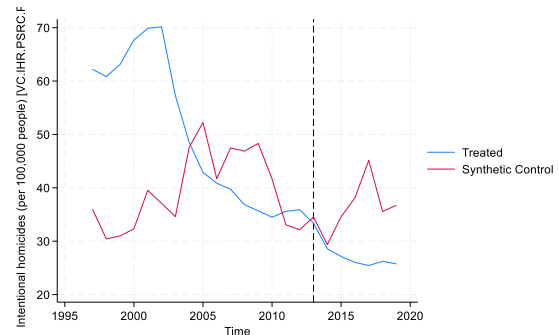
Intentional homicides 1997-2009 (excluding first donors: South Africa & El Salvador): By excluding the main donors from the synthetic control estimate. It can be observed the effect of negative peace had a reduction effect of at least 7.4 deaths per 100,000 inhabitants, which represents 3,732 deaths per year (Table 10); estimates are statistically significant at 5% and 10% level. The new donors for this exercise are Jamaica (0.773), Russian Federation (0.227). Although the estimate is consistent, we see that the synthetic estimate does not fit properly with the actual history of killings in Colombia (Graph 5).

**Table 11. Unemployment SCM estimation**

Variable	Estimates	p-values
HR 2014	-0.7787	0.2791
HR 2015	-7.4657 **	0.0465
HR 2016	-12.0660 **	0.0233
HR 2017	-19.6961 **	0.0233
HR 2018	-9.3382 *	0.0698
HR 2019	-10.9667 *	0.0698

Own calculations using World Bank Data

**Graph 5. Unemployment rate SCM**



Own calculations using World Bank Data

Intentional homicides 2006-2019: Descriptive statistics show that during the period 2006-2019, Colombia presented a homicide rate of 32.26 deaths per 100,000 inhabitants, which is close to four times the value recorded by the control group (Table 12). Compared with the period 1997-2019, the reduction is 11 deaths per 100,000 inhabitants, representing 5,500 deaths avoided per year. Although it is a considerable reduction, the number of homicides in Colombia is still much higher when compared to the control group.

**Table 12. Intentional homicides (per 100,000 people) 2006-2019**

Variable	Colombia (n=1)			Control group (n=75)			Total (n=76)		
	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.
Homicide rate (x100k people)	14	32.26	5.52	1,050	8.22	13.41	1,064	8.53	13.61
Poverty (% of population)	12	6.48	2.13	617	2.11	3.99	629	2.19	4.00
Unemployment rate	14	9.75	0.99	1,008	7.75	5.33	1,022	7.77	5.30
Population density	14	41.56	2.02	1,050	593.35	2459.57	1,064	586.09	2444.13
Primary full rate (%)	14	108.32	6.45	708	97.25	8.32	722	97.47	8.43
Military expend. (% of GDP)	14	3.29	0.27	877	1.81	1.38	891	1.83	1.39
GDP p.c. (constant 2015 US\$)	14	5,688	608	1,050	21,646	21,483	1,064	21,436	21,418

Own calculations using World Bank Data

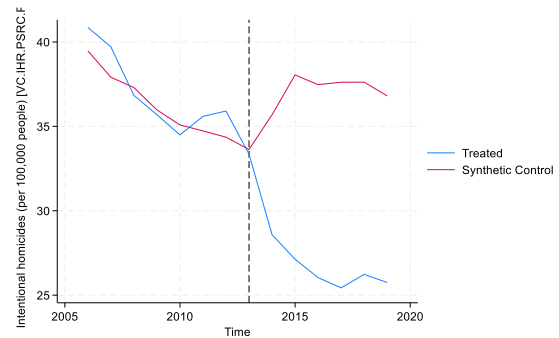
Negative peace -still- has a significant effect on the homicide rate in Colombia for the period 2006-2019. Utilizing the Synthetic Control Method, the analysis suggests a reduction of at least 7.1 homicides per 100,000 residents, equivalent to approximately 3,550 prevented murders in one year (Table 13). This estimation is derived from the behavior of donors, namely Belize (0.078), El Salvador (0.05), Honduras (0.045), and South Africa (0.827). Notably, these donor countries' historical trends and covariates, justifying the observed impact on homicide rates (Graph 5). Although the results are statistically significant, this estimate is not considered robust because it needs more information over the pretreatment period.

**Table 13. Homicides SCM estimation**

Variable	Estimates	p-values
HR 2014	-7.1038 **	0.0400
HR 2015	-10.9209 *	0.0667
HR 2016	-11.4325**	0.0400
HR 2017	-12.1808 *	0.0533
HR 2018	-11.3878 *	0.0533
HR 2019	-11.0528**	0.0133

Own calculations using World Bank Data

**Graph 5. Unemployment rate SCM**



Own calculations using World Bank Data

In the analysis across the four regression sets, difference-in-difference estimates reveal that negative peace, on average, reduces homicides by at least 6.55 per 100,000 individuals annually (refer to Table 6); this reduction represents approximately 3,276 avoided murders. Compared to the sample average period (2006-2019), this estimate reflects a 20.3% decrease in the homicide rate. Results demonstrate statistical significance at the 1% level in all cases except when exclusively considering donors; as it can be assumed, the lack of significance in this set weakens the statistical power of the claim derived from Synthetic Control Method (SCM) estimates.

**Table 14. Effect of Negative Peace on intentional homicides (per 100,000 people)**

VARIABLES	(1) hrx100k Sample	(2) hrx100k Sample	(3) hrx100k Sample(FE)	(4) hrx100k Sample(FE)	(5) hrx100k Donors(FE)	(6) hrx100k Donors(FE)	(7) hrx100k NoDonors(FE)	(8) hrx100k NoDonors(FE)
TREAT	28.15*** (1.005)	11.21*** (3.555)	32.96*** (0.988)	27.42*** (2.140)	0.985 (2.777)	387.6 (317.0)	32.97*** (0.949)	27.71*** (1.350)
YEAR	-0.457 (0.837)	-0.981 (0.721)	-0.811 (0.618)	0.0227 (0.833)	-6.228 (7.236)	-373.4 (303.8)	-0.503 (0.420)	-0.419 (0.582)
T * Y	-9.571*** (1.263)	-6.552*** (1.843)	-9.571*** (1.060) (0.571)	-8.277*** (0.905) (1.169)	-9.328** (4.585) (7.434)	-23.32 (26.09) (184.4)	-9.584*** (1.032) (0.371)	-8.485*** (0.732) (0.530)
Poverty (2015)		0.906*** (0.320)		0.00976 (0.258)		4.929 (2.737)		0.147** (0.0648)
U Rate		-0.237*** (0.0490)		0.0354 (0.0738)		-3.502 (3.805)		-0.0183 (0.0306)
Pop Density		0.00140 (0.00112)		0.00652* (0.00371)		24.42 (15.07)		0.00532** (0.00252)
Primary (full)		-0.156* (0.0942)		-0.0428 (0.0495)		-0.673 (1.883)		-0.0598** (0.0244)
Militar (%GDP)		0.0126 (0.242)		0.374 (0.770)		6.986 (38.78)		-0.462 (0.305)
GDP p.c.		-3.91e-05*** (1.34e-05)		5.14e-05 (0.000125)		0.155 (0.161)		9.93e-06 (7.60e-05)
Latam		17.45*** (2.501)		4.279*** (1.420)				4.915*** (1.079)
Constant	8.412*** (0.549)	19.42** (9.610)	3.382*** (0.462)	4.896 (5.201)	33.47*** (4.486)	-2,003 (1,527)	3.571*** (0.407)	9.237*** (2.673)
Observations	1,064	426	1,064	426	70	29	1,008	409
R-squared	0.043	0.547	0.937	0.959	0.675	0.943	0.949	0.958

Robust standard errors in parentheses

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

Own calculations using World Bank Data

## 6.2 Potential mechanisms

One of the most important facts is to consider that the peace negotiations in the Colombian context were successful. Successful in the sense that this process leads to the signing of the agreement, demobilization of an important part of the FARC guerrilla and termination of the conflict as it was known for the last 60 years. Having established a precise and clear framework from the beginning of the negotiations would be considered the cornerstone of this process. Therefore, three relevant dimensions that were maintained throughout the process are considered: the timing of the negotiations, the inclusion of different societal actors and the transparency of the process (Dilek & Baysal, 2022:449).

Regarding the moment of the negotiations, it should be noted that on the part of the FARC guerrilla, a decrease in military power and its support from the international community and Colombian public opinion was evidenced. Mainly due to the loss of its ideological north, and the means of coercion through violence; between 2002-2010 the FARC had a deterioration in its combatant base from 20,000 to 8,000, which impacted its influence in the Colombian territory (GMH,2013:179). Since the Santos government reestablished diplomatic relations with Venezuela and Ecuador, leads to weakening international support on the subversive group (IFIT, 2019:132). To determine the moment, it is crucial to consider the maturity of the conflict, the parties acquire certain sensitivity and perceive greater damage by doing nothing. The maturity of the conflict is based on the 'mutually hurting stalemate', although it is a subjective concept, it allows the parties to consider accessing negotiations (Zartman, 2000:14).

Concerning the inclusion of participants, the beginning of the negotiations involved only members of the Colombian government and representatives of the guerrillas. Although the guarantor countries (Norway, Cuba, Venezuela, and Chile) accompanied the process, they did not participate directly in the negotiations and functioned as facilitators. However, the progress of the negotiations obtained the support of the international community, including the United Nations. Perhaps one of the most relevant facts is the inclusion of the victims in the process in 2014, the participation of the victims had great relevance given that issues of transitional justice, reparation, and non-repetition of the conflict were included (Dilek & Baysal, 2022:460). From the theory, inclusion means the representation of the relevant actors of the conflict in the decisions; that may be taken at the negotiation table and to include the marginalized in those decisions (Planta, 2015:3). Additionally, the representation of conflict's actors helps to reduce the argumentative power of the detractors of the negotiations (Stedman, 1999:36). A potential weakness of inclusion is not negotiating with terrorists - due to the international policies-, which limits the end of a conflict by non-violent means (Toros, 2008:416).

As regards transparency in this type of process, although the negotiations between the Colombian government and FARC began secretly, the Colombian government's announcement at the end of 2012 about the establishment of negotiations helped to have a positive opinion from the public. Different sectors of Colombian civil society supported the process and were committed to monitoring the negotiations, including human rights organizations, indigenous communities, Afro-Colombian communities, the Colombian private sector, among others (GMH, 2013:358). The transparency argument is based on the legitimacy of the process, which translates into the trust that the actors have in the negotiations, their commitment and therefore the effectiveness of this (Dilek & Baysal, 2022:455).

The characteristics (timing, inclusiveness, and transparency) and the definition of a primary agenda made it possible to carry out the negotiations and subsequent signing of the peace agreement in Colombia. It is not possible to easily relate to the econometric estimates



made in this paper, however, it is possible to argue the timeliness of the moment.

With respect to the timing, it is important to note that the public phase of the peace negotiations in Colombia occurs at the end of 2012. This moment is important because homicides in Colombia started to grow for the first time since 2002, during 2010 and 2011 murders increased at a rate of 3.2 and 0.9% respectively<sup>14</sup>; this turning point coincides with the first two years of the Santos government. However, the decreasing trend reappears since 2012 -beginning of negotiations- and is maintained since 2014 -beginning of the ceasefire-; the conjecture at this point is that the negotiation of the agreement and the ceasefire prevented the potential resurgence of the war or the stagnation of the decreasing trend in the homicide rate.

This conjecture could be supported by several punctual facts, first the compliance of the ceasefire by the FARC during most of the time in the negotiations (Banrep, 2018)<sup>15</sup>, the bilateral ceasefire established since 2015 involving the Colombian military forces. The partial processes of demobilization and disarmament verified by the United Nations and by NGOs -CERAC and CINEP-, this process was innovative at the institutional level and in the articulation of actors that allowed the laying down of arms in the affected territory involving former combatants, victims, civil society, international organizations, government agencies among others -i.e. transparency and inclusion in the process-; according to CERAC's estimate the negotiations prevented the death of at least 2700 people and additionally the ceasefire prevented the death of 673 (CINEP, 2017: 17) for a total of 3,373 non-murders; this estimate not very different from proposed in the present document where it is estimated that approximately 3,276 deaths were avoided -represented in a rate of 6.55 homicides per 100,000 people- (Table 14).

Of course, there are contradictions in this argument, the expansion of illicit crops -reaching historic increases<sup>16</sup> - since 2014 and the growth of criminal gangs may undermine this argument. However, during the period 2014-2019 the homicide rate in Colombia at the national level did not register any significant growth, although the trend is not identified as negative either.

The implications for the welfare of rural households indicate that, upon full agreement on the points of rural reform and illicit crop substitution, there would be an increase in income and consumption of rural households driven by the levy in the financial and mining sector (Jiménez et al, 2022:15); additionally, the regions that were more affected by the conflict are those that increase their agricultural productivity compared to those where the intensity of the conflict was lower.

In terms of the labour market, some estimates show that the presence of the conflict in Colombia has cost at least 3.7 percentage points in the unemployment rate (Velázquez, 2022:15 and Calderon-Mejia and Ibañez, 2016:10); this suggests that the gradual decrease of the conflict will have a positive implication on the absorption of the labour force by the labour market.

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<sup>14</sup> World Bank data homicides Colombia: <https://data.worldbank.org/indicator/VC.IHR.PSRC.P5?locations=CO>

<sup>15</sup> <https://bapp.com.co/documento/cese-al-fuego-declaratoria-de-cese-unilateral-al-fuego-y-a-las-hostilidades-por-tiempo-indefinido/>

<sup>16</sup> <https://www.unodc.org/colombia/es/el-cultivo-de-coca-alcanzo-niveles-historicos-en-colombia-con-204-000-hectareas-registradas-en-2021.html>

### 6.3 Research limitations

The first limitation has to do with the exogeneity of the peace treaty, although the peace treaty is disruptive from a political point of view given the change in Colombia's security orientation (GMH, 2013:178), the history of failed negotiations over the past 3 decades shows that the willingness to negotiate by the Colombian government and some parts of the FARC is not new, and therefore, not completely unexpected. From an econometric point of view this means that the explanatory variable is correlated with the errors and therefore there is no strict exogeneity for the model (IZA, 2023:6), this has implications for the consistency and unbiasedness of the estimates. Therefore, although the evidence shows a strong correlation with characteristics such as significance and magnitude, it is not possible to infer causality from negative peace to the variables of interest.

When studying negative Peace, this paper is limited to the ceasefire between the FARC and the Colombian government from 2014. It does not include other acts of violence carried out by criminal gangs, paramilitary dissidents, common crime, military or public forces, among others; this is not a minor detail given that criminal wars are characterized as any conflict associated with illegal organizations that act in a structured manner in different Latin American countries (Zepeda, 2023:777). It is interesting to see how in the Colombian case the increase in the production and commercialization of narcotics has not necessarily translated into an increase in intentional murders, as was the dynamic of the 1990s and 2000s; this could mean a transformation of the conflict associated with the illegal narcotics trade.

Finally, limitation has to do with identifying the intensity of the conflict. The conflict does not affect all territories or all people equally, and therefore the effects are different for each case. According to CERAC, there are different stratifications in terms of the impact of the conflict on different municipalities in Colombia<sup>17</sup>. Given that this document is an aggregate analysis, this research does not allow us to identify the effect that negative peace has at the subnational level in Colombia.

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<sup>17</sup> <https://www.cerac.org.co/es/1%C3%ADneas-de-investigaci%C3%B3n/analisis-conflicto/tipologia-por-municipios-del-conflicto-armado.html>

## Chapter 7

### Conclusions

Violence is a structural condition in Colombia; it has been almost constant since the time of its founding as a republic. Moreover, violence intensified during the second half of the 20th century and reached its peak in the first decade of the 2000s. Although violence has multiple causes, the emergence of extreme left-wing insurgent guerrillas is one of the major consequences. Therefore, the negotiations and agreement between the Colombian government and the FARC guerrillas were an important development in trying to change the dynamics of violence in the country.

Establishing negotiations and cease-fire -or Galtung's negative peace- is the first step towards the construction of a structural, stable and lasting peace. In the Colombian case, peace efforts can benefit above all civil society, which has been the most affected in human, social and economic terms.

Aiming to claim causality, this paper seeks to identify the effect that the negative peace -negotiation and ceasefire-, as product of the negotiations between the Colombian government and the FARC guerrilla, had on the homicide rate, agricultural employment participation, and unemployment rate in Colombia. Using synthetic control methodologies and differences-in-differences, it was possible to establish that the effect of Negative Peace in Colombia decreased the homicide rate by at least 6.56 deaths (per 100,000 inhabitants); also had a positive effect on the participation of agricultural employment in the total labour force of 2.88 percentage points; finally, Negative Peace had a transitory effect on the decrease of unemployment at the national level of at least 1.42 percentage points; all these results are statistically significant.

However, the limitations of this modelling are based on the endogeneity of the peace process. While this process is disruptive at the political level, given the background of Colombian security policies, we cannot speak of a strict exogeneity of the peace negotiations in Colombia. Therefore, we cannot claim negative peace causality on these variables since endogeneity in the estimation. Nevertheless, this paper was able to identify a strong and statistically significant correlation between Negative Peace in Colombia and the socioeconomic variables of interest.

Further research on peace in Colombia is needed. Work at the regional level is required to identify the effects of the intensity of the conflict in different scenarios, given war did not affect all actors equally. In specific regions, the causality of the peace treaty in Colombia on socioeconomic conditions can be recognized.

### Motivation

Growing up in the Colombia of the 1990s and 2000s made much of my generation normalize the acts of violence. The government, the media, and the people talked daily about assassinations, kidnappings, and massacres for several years, which led us to an insensitivity to the slightest acts of violence.

This paper seeks to make a small contribution to stimulate all efforts for peace in Colombia, understanding that peace -with all its problems and limitations- is still better than any war. Recognizing the ideas underlying peace and war is a challenging task, but it must be done, aiming to give back to Colombia what war has taken from it.

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## Annex

### ANNEX A. Sample of countries for targeting variable.

#### Intentional homicides (per 100,000 people) 1997-2019

Albania	Australia	Austria	Brazil	Bulgaria	Canada	France
Colombia	Costa Rica	Croatia	Cuba	El Salvador	Finland	Germany
Guyana	Hong Kong, China	Hungary	India	Israel	Jamaica	Japan
Korea, Rep.	Kyrgyz Republic	Luxembourg	Macao, China	Malaysia	Mexico	Moldova
Morocco	Nepal	Netherlands	New Zealand	Nicaragua	Pakistan	Panama
Puerto Rico	Romania	Russian Federation	Slovak Republic	Slovenia	South Africa	Spain
St. Lucia	Sweden	United Kingdom	Uruguay			

#### Employment in agriculture (% of total employment) 1996-2020

Albania	Algeria	Angola	Argentina	Armenia	Australia	Austria
Azerbaijan	Bahamas	Bahrain	Bangladesh	Barbados	Belarus	Belgium
Belize	Benin	Bhutan	Bolivia	Bosnia and Ha.	Botswana	Brazil
Canada	Central African Rep.	Chad	Chile	China	Colombia	Comoros
Congo, Dem.	Congo, Rep.	Costa Rica	Cote d'Ivoire	Croatia	Cuba	Cyprus
Czechia	Denmark	Dominican Republic	Ecuador	Egypt	El Salvador	Eq. Guinea
Estonia	Eswatini	Ethiopia	Fiji	Finland	France	Fr. Polynesia
Gabon	Gambia	Georgia	Germany	Ghana	Greece	Guatemala
Guinea	Guinea-Bissau	Guyana	Haiti	Honduras	Hong Kong, China	Hungary
Iceland	India	Indonesia	Iran,	Iraq	Ireland	Israel
Italy	Jamaica	Japan	Jordan	Kazakhstan	Kenya	Korea, Rep.
Luxembourg	Madagascar	Malawi	Malaysia	Maldives	Mali	Malta
Mauritania	Mauritius	Mexico	Moldova	Mongolia	Morocco	Mozambique
Myanmar	Namibia	Nepal	Netherlands	New Zealand	Nicaragua	Niger
Nigeria	North Macedonia	Norway	Oman	Pakistan	Panama	Papua New Guinea
Paraguay	Peru	Philippines	Poland	Portugal	Puerto Rico	Romania
Russia	Rwanda	Samoa	Saudi Arabia	Senegal	Serbia	Sierra Leone
Singapore	Slovak Republic	Slovenia	Solomon Islands	South Africa	Spain	Sri Lanka
St. Lucia	V. & Grenadines	Sudan	Suriname	Sweden	Switzerland	Syria
Tajikistan	Tanzania	Thailand	Togo	Tonga	Trinidad and Tobago	Tunisia
Turkiye	Turkmenistan	Uganda	Ukraine	United Arab Emirates	United Kingdom	United States
Uruguay	Uzbekistan	Venezuela	Vietnam	West Bank and Gaza	Zambia	Zimbabwe

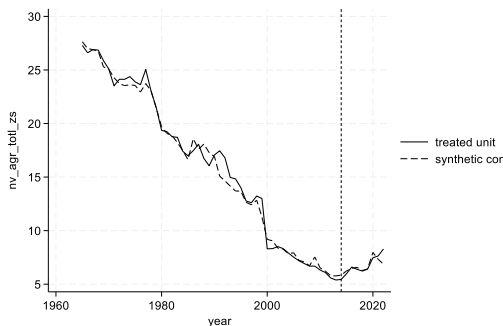
#### Unemployment, total (% of total labour force) 2000-2019

Albania	Algeria	Argentina	Armenia	Australia	Austria	Azerbaijan
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Bahamas	Bahrain	Bangladesh	Barbados	Belarus	Belgium	Belize
Benin	Bhutan	Bolivia	Botswana	Brazil	Brunei	Bulgaria
Burkina Faso	Burundi	Cambodia	Cameroon	Canada	Central African Rep.	Chad
Chile	China	Colombia	Comoros	Congo	Costa Rica	Cote d'Ivoire
Cuba	Cyprus	Czechia	Denmark	Dominican Republic	Ecuador	Egypt
El Salvador	Eswatini	Fiji	Finland	France	Gabon	Gambia
Georgia	Germany	Ghana	Greece	Guatemala	Guinea	Guinea-Bissau
Honduras	Hong Kong, China	Hungary	Iceland	India	Indonesia	Iraq
Ireland	Italy	Jamaica	Japan	Jordan	Kazakhstan	Kenya
Malaysia	Mali	Malta	Mauritania	Mauritius	Mexico	Mongolia
Morocco	Mozambique	Namibia	Nepal	Netherlands	New Zealand	Niger
Nigeria	North Macedonia	Norway	Oman	Pakistan	Paraguay	Peru
Portugal	Puerto Rico	Romania	Russian Federation	Rwanda	Saudi Arabia	Senegal
Sweden	Switzerland	Tajikistan	Tanzania	Thailand	Togo	Tonga
Tunisia	Turkiye	Uganda	Ukraine	United Kingdom	United States	Uruguay

**ANNEX B. SCM for Agriculture value added (% of GDP) and GDP per capita (constant 2015 US\$).**

**Agriculture, forestry, and fishing, value added (% of GDP) 1964-2021**

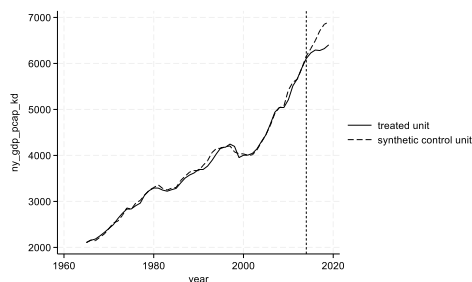


Own calculations using World Bank Data

Variable	Estimates	p-values
Agr Add Val 2014	-0.3997	0.8043
Agr Add Val 2015	-0.2572	0.8043
Agr Add Val 2016	0.1177	0.9348
Agr Add Val 2017	-0.1789	0.9783
Agr Add Val 2018	-0.0518	1.0000
Agr Add Val 2019	-0.0144	1.0000
Agr Add Val 2020	-0.5005	0.8261
Agr Add Val 2021	0.3105	0.8913
Agr Add Val 2022	1.4188	0.5435

Own calculations using World Bank Data

**GDP per capita (constant 2015 US\$)**



Own calculations using World Bank Data

Variable	Estimates	p-values
GDPpc 2014	-50.930	0.6632
GDPpc 2015	-94.350	0.7053
GDPpc 2016	-204.120	0.5579
GDPpc 2017	-428.500	0.4316
GDPpc 2018	-529.050	0.4105
GDPpc 2019	-497.820	0.4421

Own calculations using World Bank Data