LUND UNIVERSITY
School of Economics and Management

Master's Programme in Economic Development and Growth (MEDEG)

# The social and political implications of insurgent control in Colombia:

## A micro assessment at the municipality level

by

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Abstract

The following dissertation examines the relationship between the actual control of insurgent groups, FARC and AUC, in municipalities of Colombia and the subsequent performance of public services. By resorting to a novel semi-parametric, group-based-trajectory model, this paper manages to discern the *de facto* presence of such groups at the municipality level, which allows carrying out such examination. It is found that the relationship between public services and the degree of authority of any of the parties in Colombia follows a U-shape, which mirrors the concave shape relationship between violence and the degree of control of any of the parties. Further, violence also seems to have an impact on the provision of public services through the fact that municipalities under insurgent rule are more able to invest more in per capita terms in public services than municipalities that are under dispute. Moreover, in line of what the previous literature states, it is found that municipalities that are more violent tend to receive a higher share of the transfer from the State. Thus, transfers from the State it is not an alternative channel through which insurgent full control is associated with a better provision of public services. Finally, this dissertation assesses the electoral impact at the local level of such dynamics of control, violence and provision of public services and reveals that the presence of insurgent groups is associated with stronger support in the elections, even after accounting for selective violence. Our results suggest that a new mixed theory of greed and grievance is in place to understand the activity of insurgent groups in the late 20th century and early 21st century.

*Keywords:* Municipality, violence, control, insurgent, areas, provision of public services.

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# 1    Introduction

Colombia has historically always suffered from widespread violent conflict. The armed conflict has been raging the country throughout its whole history and, above all else, from the sixties of the past century onwards, with the creation of several guerrillas and the subsequent appearance of paramilitaries. Previously, Colombia had suffered from fourteen civil wars in the 19th century, the cruellest of which lasted for three years (The War of 1,000 days) and finished in the 20th century (Bergquist et al, 1981; Úrrego & Ardila, 2002). The decades of the twenties and thirties saw the creation of the first self-defence peasant organisations and incipient violent movements. Later on, in 1948, the politician that defended the interests of the lower class, Jorge Eliecer Gaitan, was assassinated and triggered the period called *La Violencia,* which involved the two main parties of Colombia, the liberals and the conservatives, and left a trail of more than 200,000 deaths in only one decade[1]. This bloody period, which spanned from 1948 to 1958, supposed the creation of the self-defence peasant organisations that were the inception of *Fuerzas Armadas Revolucionarias de Colombia* (FARC[2]) in the sixties. Finally, in the eighties, FARC changed their strategy, switching from self-defence to a full-scale plan to take over the power of the country, resorting to drug production and distribution (Vélez, 2001; Offstein & Aristazábal, 2003; Cooper, 2014), kidnappings (Cook, 2011, p. 26) and natural resource appropriation (Wunning & Durpsa, 2004). Given the blooming period of FARC and the incapacity of the State to fight against it, a group of self-defence paramilitary forces emerged: *Autodefensas Unidas de Colombia* (AUC), which represented the interests of local elites and faced the guerrilla resorting to similar degrees of brutality.

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[1] *"¡Basta ya! Colombia: Memorias de Guerra y Dignidad".*
[2] From now on, FARC and guerrilla will be used indistinctly.

In this framework, it seems sensible to investigate how the provision of public services vary across municipalities (if they vary at all), as some municipalities are controlled by illegal groups and many others by the State, in order to shed some more light on the human and local impact of the conflict. For doing so, we address the issue of detecting the control status of the municipalities in Colombia, which can be derived from dynamics of violence over time that were carried out by two of the most prevalent insurgent groups in Colombia, FARC and AUC. Municipalities will be classified in four different groups; those controlled by the State, those ruled by FARC, those under the authority of AUC and those areas that suffer from persistent and sustained-in-time conflict or confrontation. We then investigate whether the arrangement of public services is systematically poorer across the different regions and, if so, through which means this takes place, other than the intrinsic impact of violence. We also explore possible impacts on the electoral processes at the local level, which are likely to arise given the degrees of control of the insurgents on the population.

Globally, this conflict, although not considered implicitly so in the literature, might be deemed as a real civil war. The duration of the conflict between the guerrilla and the State, which has savaged the country especially after the appearance of the paramilitaries, and the amount of deaths it has left behind witness to the validity of the term civil war. The confrontation in Colombia meets the widely accepted definition of civil war, more than hundred annual killings, the involvement of two parties or more and the fact that none of the parties accumulates more than 95% of the casualties (Small and Singer, 1982). The report *"¡Basta ya! Colombia: Memorias de Guerra y Dignidad"* estimates that over 220,000 people have been killed between 1958, a few years before the official birth of FARC, and 2012. This figure acquires an even more worrying and appalling character when looking at the number of displaced people by the conflict, which amounts to around 5.7 million according to estimations of this report. These figures, both from an ethical and, also, an economic point of view, are sufficient reasons to look into this complex drama that has characterised the country. This piece of work provides a new, innovative approach on the consequences that it has provoked.

The time period that we investigate spans from the nineties to the recent years. Decentralisation is one of the main institutional changes that marked a milestone in the relationship between municipalities and the central administration in 1991 and, in turn, brought the war to a radical new sphere. That year, a new Constitution was approved; in which transfers of competencies of basic public services such as water, sewage, healthcare and education from the central government to the municipality was one of the main novelties. Previously, in 1988, popular elections for the mayor had been also introduced, at the expense of institutional appointment from the department or State level. Such changes came hand in hand with an increase of transfers from the State to the municipalities, in order to accompany political and administrative decentralisation with fiscal decentralisation[3].

The challenge of such change was not minor for the country, since nowadays there are 1,122 municipalities in Colombia, classified in six different categories. The capital, Bogotá, and other big cities correspond to the "Especial" category. Cities between 100,000 and half a million inhabitants and current income between 100,000 and 400,000 minimum monthly wages belong to the first category. The lowest category is 6, with municipalities of less than 10,000 inhabitants and current income that does not exceed 15,000 minimum monthly salaries[4]. While it is true that the idea of such change was to give more power to the locality, where the knowledge of how to provide these services is higher, this transfer of competencies offered a new set of opportunities to the illegal armed actors of the Colombian conflict. They changed their strategy, which focused primarily on raising revenues from kidnapping, extortion and, mainly, on drug production and distribution, and rushed in to control the local power.

Many scholars have tried to get a glimpse at the local level in order to understand the micro economic, social and political consequences of the armed conflict in Colombia (Rubio, 2002; García & Hoskin, 2003; Sánchez and Díaz, 2005;

[3] Pedraza (2012) shows that around 46% of the current revenues of the State are transferred to the municipalities.
[4] For more information about the distinct categories and the classification criteria, the reader is referred to the bill *"LEY 617 DE 2000"* passed by the Congress of Colombia.

Pedraza, 2012; Menéndez et al, 2013, among many others). Some authors have studied the relationship between armed conflict and the provision of public service (Takeuchi Rodríguez, 2009; Mejía et al, 2004), but, to the best of our knowledge, nobody has investigated the effect of the institutional/*de facto* control of illegal armed groups on such provision nor has anyone studied the channels through which this relationship happens and its electoral repercussions. Hence, we intend to bring in some insight regarding the social implications of the conflict on the civil population, which is a crucial element for the development of any society that strives to grow and become more inclusive and peaceful. We contribute to the literature by using a model that allows differentiating violent presence from *de facto* presence of insurgent groups, which does not imply the use of widespread violence, and, by using these results, to assess the impact of such presence on the provision of public services. Moreover, we innovatively delve into how investments per capita and State transfers differ in municipalities controlled by illicit bands with respect to areas of dispute. These are two other complementary channels through which the intensity of violence in municipalities ruled by insurgent groups could affect the provision of public services.

We find that those municipalities where the State is present enjoy the best results in terms of social provision. More remarkably, and the main finding of this dissertation, municipalities that are controlled by insurgent groups also present better indicators that zones under dispute. This is, though, not surprising if we take into account that violence negatively affects such provision. In the literature, violence patterns are shown to follow a concave shape curve, being violence an unnecessary and even counterproductive tool for insurgents once they have absolute authority over a region. We also find that firm insurgent control, which is associated with lower violence, is also associated with a higher per-capita investment. Therefore, not only violence *per se* affects the provision of public services, but also the effect of violence on per capita investment complements the full impact of violence on the provision of public services. On the contrary, municipalities that are under dispute and suffer from more violence are found to receive the highest part of State transfers. Thus, we can observe a negative correlation between violence and per-capita investment in basic public services and a positive correlation between violence and the transfers a municipality

receives. Finally, we obtain outcomes that show that this relative benevolence in per capita investment and use of violence is correlated with greater support in the local elections. Although establishing a sound causality is beyond the scope of this dissertation, the implications of these results are not to be belittled and might be the grounding work for further research that looks into the different political and social dynamics at the local level. They suggest a complex interaction of greed and grievance factors explaining the origin and expansion of insurgent groups and bring new evidence that a new theory that complements the reductionism of each of the two theories alone is necessary.

The structure of the dissertation is as follows. Section II makes a comprehensive compilation of the existent literature on the effects of decentralisation and the effects of violence on the provision of public services. Section III presents our theoretical model. Section IV and V displays the data and methodology, and the results we obtained, respectively. Section VI exhibits an alternative model that serves as robustness check for previous results and section VII concludes.

# 2    Literature review

Existing literature has investigated the different consequences of the process of local decentralisation in Colombia and also how illegal groups have used this shift in the power balance among different public administration levels to their advantage.

Rodríguez Takeuchi (2009) makes a preliminary effort to quantitatively study the difference in provision of basic public services across municipalities that have conflict presence and those that do not have such presence. She finds that literacy rates and grade achievements are significantly lower in violent municipalities. Sewage and water coverage present also weaker coverage in zones where there is presence of conflict. Rodríguez uses three proxies of presence: attacks, victims and displaced people. Nonetheless, these three variables are not fully picking up the institutional presence of the guerrillas and paramilitary forces, they might reflect selective violence in insurgent controlled municipalities, fighting in areas under dispute or terrorist attacks in areas where the State is present. Echandía (1999) also argues that presence of violence does not imply control over the territory. This dissertation will present a much more complex and comprehensive model of interaction between violence levels and degrees of control.

Mejía et al (2004) report that, between 1993 and 2002, violent armed groups slightly negatively affected the provision of public services. They find that the presence of intimidation activities from FARC or paramilitaries comes hand in hand with a negative impact on enrolment rates in primary education and, also, on the rate of people affiliated to *régimen subsidiado* (subsidized health regime), defined by the government as the mechanism through which the poorest have

access to basic and primary health services. Additionally, actions of intimidation[5] of FARC lead to a decrease in the investment on water infrastructure and sewage and are associated with an increment in the investment in education and healthcare. Violent actions from the paramilitaries bring about the same positive impact on education and healthcare. These striking outcomes might be result of complex interactions between violence, institutionalised control and provision of public services that this dissertation tries to disentangle. To sum up, the presence of guerrilla or paramilitary violence has some negative consequences on basic indicators. Accordingly, the negative effects in enrolment in education and healthcare system might come from violent action preventing the normal functioning of these services and not from the deviation of funds, as the pure theory of greed suggests (Rubio, 2002; Bottía, 2003).

On the other hand, Sánchez (2006) finds that decentralisation has driven a clear improvement in several of the basic public services, mainly through an increase in expenditure financed by the same municipality. He ascertains that the bulk of the improvement in health and education coverage rates works through a rise in the local investment in those ambits. Simpson and Vergara (2002), comparing between years 1993 and 1997, outline that decentralisation brought about an enhancement of education enrolment rates and the rates of literacy, but also spot inefficiencies in local performance. Moreover, Faguet and Sánchez (2014) show that decentralisation caused an increase in enrolment rates in the school and it also led to an improvement in the coverage of basic health services for the most disadvantaged part of the population. Most of the increase in the enrolment took place in public schools, which suggests an enhancement of the local administration as compared with the central government management. In addition, Sánchez and Chacón (2006) reveal that three quarters of the population were enrolled in secondary school by the year 2000, compared with slightly less than half of the population a decade before. Regarding the *régimen subsidiado de salud,* it experienced a boost in the people that joined it between three and six-fold

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[5] According to the authors, actions of intimidation are the addition of political assassinations, political attacks, political kidnapping and slaughters of peasants.

across the different regions of the country. Sánchez and Chacón report that, by the year 2000, around 60% of the population at the lower end of the income distribution were members of this healthcare mechanism. Similarly, Jaramillo (2002) indicates that the healthcare system expanded during the nineties. Revealing an opposite sign, Maldonado and Forero (2002) describe that the coverage of water supply and sewage have remained modest and not enough to keep up with the augmentation of the population. Overall, the conclusion that can be gleaned from the existent literature is that decentralisation is correlated with a better supply of public services.

Among the many factors that explain the change in the efficiency and the evolution of basic public services indicators after the process of decentralisation, violence and activity of illegal armed groups play a fundamental role. In fact, Sánchez and Díaz (2005) state that the GDP share of education expenditures regularly increased after the process of decentralisation, but the rate of primary enrolment has failed to keep up with the same pace, revealing the potential existence of other factors driving this decoupling, such as violence and terror coming from illicit organisations. They find that the average yearly increase of pupils in primary school in the period comprising the years between 1995 and 2002 was 2,58% in regions where there was no FARC activity, whereas the augment was 1.11% in areas in which FARC actions were reported. A negative but more moderate effect is found in areas where *Ejército de Liberación Nacional (*ELN), which is another less predominant guerrilla, or paramilitaries performed any action or attack. For secondary school, the relative dragging down effect is, on average, around 2% due to FARC actions, although the increase is still positive. The explanation for this stronger negative difference with respect to primary pupils is probably the fact that pupils in secondary school are an attractive pool of recruiters for outlaw organisations (Vélez, 2001; Rangel, 1999). Finally, for the *regimen subsidiado de salud,* the results reveal that FARC and ELN activity hindered the growth of members joining the regime (1.5% and 3%, respectively). In the case of paramilitaries this is even higher, about 4.3%. Overall, the negative impact is a loss of 3.6% in the membership in municipalities where any illegal armed violence was detected as compared with municipalities with no activity.

Supposedly, the distinct performance of public services has an impact on local political processes and so does violence. García (2016), whose methodology this dissertation imitates, reports that population living under the yoke of insurgent groups in Colombia tend to align and vote for parties that are closely related to these organisations. On the contrary, Sánchez and Chacón (2006) discern that large voter turnover and strong political support is associated with lower levels of insurgent or paramilitary activities. Sánchez and Díaz (2005) expose that voter turnover was three percentage points lower in municipalities with FARC activity in the local elections of 1990, 1992, 1994 and 1997; for ELN, it was 4,5 percentage points. Miguel and Hoskin (2003) also found that a sound authority of the guerrilla is associated with reduced degrees of voter turnover at the election for the lower-house of the Congress, The House of Representatives.

Overall, the obvious conclusion from the literature compilation is the objectively imperious need to find a more reliable measure of presence of illegal bands. An article in the newspaper *El País* (1999) denounced that in Cali, in the local and regional elections of 1997, more than fifty candidates were murdered, over 350 quit the race and in two dozens of municipalities the elections had to be postponed or the participation was ridiculously low. The utilisation of violent attacks or violent signs of presence of outlaw groups is most likely introducing biases in the analysis. Areas where the grip of these groups over the population is tighter, widespread violence is less likely to occur because these organisations have, at best, no incentives to use, if they do not face actual disincentives from the loss of support and legitimacy. The next sections propose the model that could circumvent such hurdles and the results that it has yielded.

# 3    Theoretical model

As we have seen, the inconvenient of the work on insurgent groups and their effect on public service provision that has been carried out so far lies in the fact that they have neglected the dynamics of violence and control at the local level in Colombia, which is most likely rendering biased results. It is of vital importance to be able to spot the dynamics of institutionalised control at the local level, which do not exhibit a straight, linear relationship with violence, as literature argues. In this framework, Rubio (2002) finds that certain public entities and programs[6] help explain the presence of subversive groups in the municipality. Therefore, the density of public institutional infrastructure could be a good proxy for the underlying presence of illicit groups, assuming that those areas with a more disperse concentration are highly correlated with stronger control of these illegal organisations. However, the inconvenient of this approach is that he uses the coefficient of the probit model where the dependent variable is the violence experienced by these municipalities and the explanatory regressor is the infrastructure density. This leaves us again at the departure point, since our ultimate goal is to capture the underlying institutionalised presence of the subversive bands, not the violent presence. Furthermore, Bottía (2003) points out that the absence of the State is not a good predictor of the expansionary presence of FARC.

We propose a far more innovative and comprehensive solution. Our theoretical model will rest on Duncan's (2004) concave shape curve that describes violence patterns and control status in Colombia and the preceding, pioneering and general work of Kalyvas (2006) for civil wars. Kalyvas (2006) defines a global

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[6] The presence of public postal companies and the fact that the municipality receives the program *Plan Nacional de Rehabilitación* (PNR) has strong explanatory variable for the presence of FARC and higher energetic transport taxes is a solid predictor for the presence of paramilitary groups.

framework to explain the behaviour of violence in civil wars and argues that violence is seen by most of the actors resorting to it as a means to obtain a total control, and not as an end in itself. Whereas in those areas in which the armed groups are engaged in conflict each party resorts to violence to keep the civilians in line and to gain power and influence over the territory through fear and threats, in those areas where there is no contestant to the power of an illegal armed actor, these illegal groups do not have incentives to use violence. It is not only that the illicit organisation will not have incentives to draw on violence in areas under its rule, but also, they even face disincentives in such areas. Kalyvas (2000) mentions that civilian participation in the conflict, by way of support or collaboration, plays a prominent role in deciding the winner of a civil war. According to the author, violence is used at will at the beginning, but its intensity dwindles and becomes selective violence as one of the parties consolidates its rule.

Duncan (2004) applies this theory proposed by Kalyvas about control status and the patterns of violence that stem from it to Colombia. He advocates for this potential concave shape between institutional control of illegal actors and violence, to the extent that violence has to be low in areas under the auspices of the State, it increases until it reaches a peak when competition is more ferocious, and it decreases again as insurgent groups consolidate their power. Vargas Meza (1998) asserts that paramilitary bands have contested the authority of FARC in its traditional strongholds in the Caribbean by intimidating and acting against the civilians in the region. Castilla and Gómez (2006) also contend that civilians are an essential part of the conflict in Colombia, to the extent that they provide political, economic and social support and have become either a vital tool or the target of the opposite faction. Carrying out attacks in regions of grievance where the insurgent organisation has support turns the population against the established actor and makes it easier for other actors to use this weakness against the incumbent organisation. Sanín (2004) asseverates that FARC did not usually adopt paths of violent expansion in areas in which they already played a prominent role. Ortiz (2001) brings further qualitative proof and describes how inhabitants of several towns of Urabá, a traditionally FARC-supporting region, gave their support to paramilitaries after FARC increased its executions of civilians. Our model, then, aligns with the broad benchmark introduced by

Kalyvas (2000), defended theoretically in the Colombian context by Duncan (2004) and by other scholars who draw on qualitative evidence. Terror is a prominent mechanism in the case of the Colombian conflict and is considered to be a function of the degree of authority the contestant party has over the territory. Therefore, if violence is a function of control, the control status can be derived from the patterns of violence an area has suffered over a certain period of time.

Naturally, and also proven by the scholars and mentioned in the literature review, degrees of violence translate into the provision of public services. The main hypothesis of this dissertation is that the institutionalised or greater control of local institutions by the guerrilla or paramilitaries, since it is correlated with lower intensity of violence, should lead to better outcomes of public services in terms of education, healthcare, water infrastructure and sewage or sanitation, among others, in comparison to conflict zones. Overall, it is expected that the existence of such a concave shape of violence and control will have an impact on the capacity of municipalities to provide public services. Then, we will investigate whether there is a U-shape relationship between public service provision and control status of the town, which would mirror the concave shape curve between degrees of control and violence and connect the latter with the provision of social services. Figure 3.1 visualises this relationship.
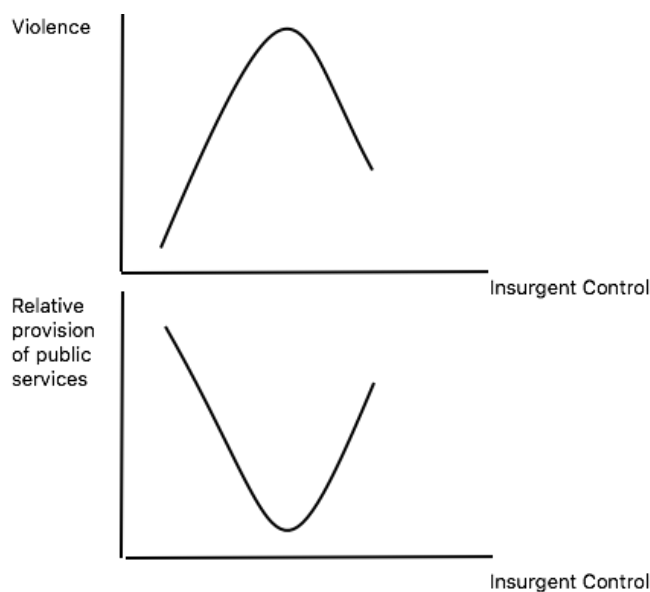


*Figure 3.1. Interaction between control status, violence and provision of public services*
*Source: Own elaboration*

Different levels of violence per se are not the only reason why provision of public services differs across municipalities that are controlled by insurgent groups and contested municipalities. There is also a complementary/indirect impact of violence on public provision that is not expected to work through an access to relatively higher amounts of State transfers from part of insurgent localities. The reason is that municipalities with higher transfers from the State tend to be more violent (disputed municipalities) than poorer municipalities, which tend to be under the rule of illicit organisations. The explanations for this puzzle are manifold. It might be that either, ex-ante, contested areas are precisely fought over because they enjoy more financial transfers and/or because, ex-post, the amount of transfers that go to contested municipalities is higher, given that they perform worse in social terms and these transfers have the objective of helping these areas. For instance, poverty indicators and size of the municipality are the two factors that mainly determine the level of transfers from the State[7].

Regarding the ex-ante approach and from a theoretical perspective, Escobar (1995) denotes four different areas of presence and expansion of the guerrilla: areas where the guerrilla captures economic profitable activities (what could be considered as regions of greed), areas that are electoral and political strongholds of the organisation (the guerrillas take advantage of political discontentment and grievance) and two additional zones, one in which the guerrilla presents fight and another one of recovery/transit. In line with our hypothesised relation between violence, control degrees and transfers enjoyed by the locality, Ortiz (2001) states that areas of political support of the guerrilla are characterised by a weaker degree of violence than economic profitable areas. Similarly, Naylor (1993) asserts that there are two main financing resources for the guerrilla: the parasitic and the symbiotic financing. The former refers to the strategy of the guerrilla in areas of expansion, where they use threats and violence to extract as much resources as they can. The latter implies areas where the State is inexistent and the FARC acts as the institutionalised government. Kalyvas (2000) also highlights that insurgents

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[7] The reader is referred to article 7 of the bill *Ley 1176* of 2007 passed by the Congress of Colombia in order to know in detail how the transfers are calculated.

are much more likely to settle and achieve the monopoly of power in peripheral, remote zones.

Consistent with the theoretical framework, Bottía (2003) finds that FARC expanded (expansion captured by the presence of violence) to those regions that are economically profitable in terms of natural resources, precious metals or illegal crops. Moreover, Rubio (2002) finds that the presence of local tributes coming from petrol or gas pipes increases the probability of presence of violence from guerrillas by eight-fold, whereas the access to national credit increases the probability 400%. He also unfolds that the inflow of financial resources coming from royalties[8] is positively associated with violent presence of illicit groups. Therefore, as depicted in Figure 3.2, we hypothesise that there is another arising association between violence intensity, the resources a municipality receive and the behaviour of public services, where richer municipalities suffer more from violence and, in consequence, have a poorer relative performance of public services.
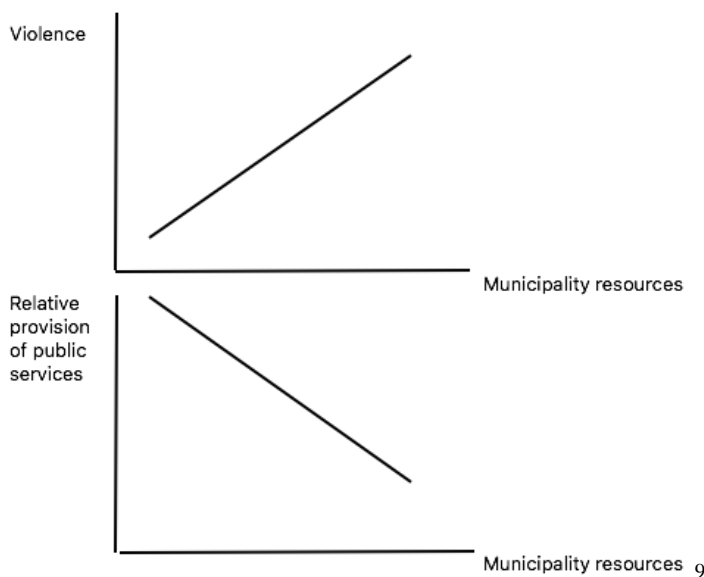


*Figure 3.2. Interaction between fiscal resources, violence and provision of public services*
*Note:* Resources refers to transfers from the State. *Source:* Own elaboration

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[8] *Fondo Nacional de Regalías*. It administrates, distributes and ensure the increase in efficiency of funds that come from exploitation of non-renewable natural resources. For more information, the reader is advised to see the decree *Decreto Ley transitorio 4923-2011*.
[9] Municipality resources refers to transfers from the State.

Then, the alternative channel through which areas that are controlled by illicit groups enjoy relatively better social indicators in comparison to municipalities under dispute could be a relatively higher per-capita social investment in public services, which is correlated with a lower degree of violence with respect to conflict areas. Figure 3.3 reflects this hypothesis. The intuition for such statement lies in the fact that insurgent control is implicit, to the extent that they may not be directly involved in the local administration due to high opportunity costs. Rangel (1997) points out that the relationship between FARC and the local government goes beyond programmatic alignment of interests, since the guerrilla tolerates other parties as long as they bend to their interests. Hence, local authorities, which are elected with their consent or active participation, might have some degree of freedom, despite being subjected to the orders of the organisation. That is, a mayor could be forced to hand in a share of the resources to the band, but also given some freedom of action when deciding where to invest the rest of the resources. This is denominated by Rangel (1997) as armed clientelism.
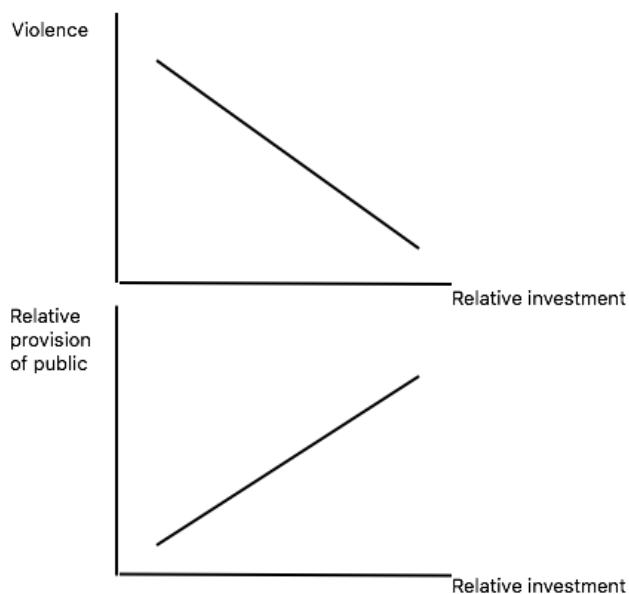


*Figure 3.3. Interaction between relative investment, violence and provision of public services*
*Source:* Own elaboration

What is critical, then, is that this last strategy would provide a hint of the possible existence of the so-called "proto-States", regions in which the legal government is incapable of asserting itself and alternative, illicit organisations constitute themselves as the *de facto* power over the area. De la Torre et al (2011, p. 59) maintain that there were vast areas of the Eastern part of Antioquia (*Oriente*

*Antioqueño),* including head-municipalities, that were under the authority of either FARC or AUC. Furthermore, Restrepo (2002) suggests that the guerrilla already provided justice, public administration and exerted tax collection[10] pressure in some zones due to the process of appropriation of local governments after the course of decentralisation. He argues that the guerrilla provided such services in order to legitimise itself as the actual institutionalised presence in the area. Rangel (1997) affirms that there are many cases in which civilians contribute voluntarily to the guerrilla in order to receive protection from them. In some other cases, they have been encouraged by the police to seek justice or protection in the leader of the guerrilla. This argument is also endorsed qualitatively by Buscaglia and Ratliff (2001), who mention a survey in which almost 60% of respondents report having resorted to the dispute solving mechanism of FARC, 35% asserted that they participated in communal public work fostered by FARC and almost 70% reported having received healthcare assistance from FARC. On the other hand, Menéndez et al (2013) allege that FARC and EPL established basic services that would be otherwise the duty of the State in those regions where they were founded in order to gain legitimacy, such as the distribution of fishery and wood resources and basic justice provision. Hence, they highlight the strategy of legitimatisation that FARC was following in some areas where the State did not cover the basic needs of a high share of the population.

The patterns of control have political effects at the locality, given that it is easier and more pragmatic for insurgent groups to jump from pure violent contest to political contest when they are consolidated in a region, through the influence they can exert on the inhabitants. In fact, García (2016) shows how the fact that an insurgent group controls a municipality increases the support that it receives in the elections. He states that the stronger the grip an armed group has on the population, the higher its ability to enforce a candidate or a favourite politician. Our last logical step in our model, then, is to look into the political consequences of the interactions between control conditions, violence and provision of public

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[10] Echandía (2006) and Rachini (2003) offer anecdotical evidence of how insurgent and contra-insurgent groups were in charge of the tax system in some areas.

services. It is very likely that a more solid insurgent control and the use of less violence will translate into higher local support in the elections. This support could be due to legitimate support of the population or by-product of fear and extortion strategies, which can be characterised as selective violence, violence that is targeted and very efficient in order to gain absolute political control over a territory.

In light of this theory, the political support to these outlaw organisations in areas under dispute should be relatively lower and in areas that they control, relatively higher. This approach also tells us that political support is a function of the resources and effort that insurgent organisations are able to devote to electoral representativeness, either with carrots and/or sticks. Hence, on account of this model, the fact that public services perform relatively better in areas that are under the rule of insurgent bands will necessarily be reflected on electoral outcomes. It may be either result of political legitimation, wherein areas that have more resources are more capable of creating better social indicators and/or an outcome of greed, wherein areas that are strongly controlled by insurgent groups will also suffer from selective violence. Accordingly, we say be reflected because assuming that stronger popular support is caused by better social indicators is temerarious, since higher electoral support might mirror both political legitimisation and armed clientelism. This last theory introduces again a very complex interpretation of the results when only looking at the political representativeness and calls for a cautious analysis of the implications of the outcomes.

All in all, the main core of the next sections can be summarised as the intention to spot whether the complex mechanism of violence and control, which is formally proposed and studied by Duncan (2004) as an inverse concave shape, is mirrored by a similar pattern in the coverage of basic public services. That is, from a starting point where there exists a wide consensus among scholars that violence clearly negatively affects the provision of such services, the behaviour of public services should closely follow the dynamics of violence. This will establish a further association between the provision of public services and the control status, to the extent that violence and control are also strongly related. At the same time, given that the association between the fiscal transfers that a municipality receives

and the amount of violence is positive, we investigate if the former (transfers from the State) does not exhibit either a positive association with the presence of insurgent bands. By extension, we investigate if it exhibits a positive association with the fact that the municipality is contested. As we expect not to find any positive association, we look further into an alternative channel through which strong insurgent authority positively affects the provision of public services aside from the intrinsic impact of lower violence, which is social investment. Eventually, although not new in the literature, we investigate the degree of electoral support of the organisations according to the authority they exert on the population.

# 4    Data and Methodology

The unit of analysis in this project is the municipality, where the competition over the control of local resources takes place. The data that is used is a comprehensive longitudinal municipal dataset that can be downloaded in the CEDE-Uniandes website. It exhaustively compiles information from several data sources and contains data on indicators related to conflict and violence, agriculture, general characteristics of the municipality, education, healthcare and good governance. The sample is constituted by 1,122 municipalities, which corresponds to the whole universe of municipalities in Colombia. The data on the presence of violent attacks ranges from 1993 to 2013 in the case of FARC and from 1993 to 2008 for AUC. AUC are included in the analysis for two reasons. Firstly, the evolution of AUC activity is key to classify municipalities according to the status of control. Second, paramilitary counter-insurgency was the response of many landowners and much of local elite in general to fight against the guerrilla, given the inability of the State to impose itself in many areas. Hence, it is sensible to think that AUC brought authority and similar patterns of local organisation to those used by FARC in their municipalities. The other notorious guerrilla in the 20th century, ELN, is not part of the analysis, given that by the end of the century and, therefore, at the beginning of the period we study, it had already been broadly dismantled or absorbed by FARC (Castilla & Gómez, 2006). From the same website, we will also use information on results in local elections from 1988 until 2015.

As explained previously, one of the main problems that has burdened any attempt to study the impact of the illegal armed organisation on the provision of public services is the lack of a credible and consistent proxy for the presence of guerrillas or paramilitary groups. In order to overcome this impediment, we resort to the so-called semi-parametric group-based trajectory model. García (2016) uses this model to characterise the presence of guerrillas and paramilitaries in

Colombia in order to study its impact on vote decision by using data from a national survey. This model detects the amount of trajectory groups that best fits the distribution of violence, the shape of each trajectory and assigns individuals to the group where they are more likely to be in given their evolution over time. The choice of the model is a logit model, since the data about the presence of illegal actors are given by one if there has been any violent or terrorist action perpetrated in the municipality by an insurgent group and zero otherwise[11]. The final choice of model for the evolution of FARC and AUC violence was a four-group trajectory model, respectively[12].

Once each of the municipalities has been assigned to one of the trajectories, García (2016) draws on Kalyvas (2006) in order to discern which municipalities are controlled by the guerrilla, by the paramilitaries or by the State and which ones are contested. Thus, this model, by relying on Kalyvas and Duncan's theoretical foundations, enables the researcher to use information on the evolution of different attacks from different groups and its interactions in order to decipher patterns of presence and assign each municipality to the group of control in which they are more likely to be in. Once the different groups are localised, they will be used as proxy for presence of illegal actors or State; in other words, they will be used as independent variable.

To start with, the panel data of UniAndes has a cross-sectional part, where they collected data from year 2005 on the rate of people suffering a lack of access (privation) to several basic public services or to human capital formation that should be provided by the public administration. The variables that are considered here and with respect to education are the rate of population that are illiterate, the percentage of the population that cannot attend school, the rate that experience a

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[11] Based on our data, two, three and four trajectories with different polynomial orders have been tested in order to obtain the optimal number of groups and the optimal shape of each group for both FARC activity and AUC activity.
[12] The tool that was used to determine the final number of trajectory groups was the Bayesian Information Criteria (BIC). The model with the highest BIC (or less negative) is the best model choice given the data at hand. Table A.1 in Appendix A shows the models that were tested and their corresponding BIC for the evolution of FARC actions and Table A.2 reflects the homologue result for violent activities carried out by the AUC.

lag in the years of school (that is, they are registered to a lower grade than they should be given their age) or the percentage of children that do not have access to *primera infancia*[13]. Regarding healthcare, the variables are the percentage of people who are insured by the healthcare system, the proportion of people in need of primary health assistance that actually receive it and the share of inhabitants that are provided improved water access. Some control variables will be also utilised. The rurality index might be affecting the provision of public services and also the degrees of violence and control. Similarly, the distance to the nearest head municipality offers a proxy for remoteness to the civil powers of the area. The GDP of 2005 at constant prices is also essential as control, given that municipalities that are ruled by insurgent are expected to be poorer. Thus, the coefficient of status without accounting for the economic development of the municipality would be biased, colleting the effect of poverty and not the presence of insurgent groups. Total population is included in order to control for systematic differences in control status according to the size of the city, since it is much more likely that small cities or towns which are ruled by outlaw groups. Finally, dummies of the four different regions are included on account of systematic differences across the five regions of the country: Orinoquia, Caribe, Pacífica, Andina and Amazonas, the latter being the omitted variable.

A basic OLS model is called for since there is no clearly valid instrumental variable that would permit us to isolate the exogenous effect of insurgent control and disputed areas on the outcomes previously exposed and avoid the endogeneity that is highly likely to arise in a non-experimental dataset. The variables of interest are a dummy of FARC control, a dummy of AUC control and a dummy of State control, since we are interested in observing if it is true that disputed areas fare overall worse than any other municipality.

Another way to look at the issue is to resort to data that is posterior to the end of the period when the main bulk of violence took place. Since the activity of FARC vanished in 2013 and the majority of paramilitary forces were disarmed after

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[13] In English, these services correspond to kindergarten.

2005, we run another set of OLS regressions on the performance of essential services such as electricity, water, and the gas rate coverage in 2013. The same controls will be used in this and the rest of regressions, but for GDP of 2005, which will be substituted by current income of the municipality in 2013, since the dataset only contains information about GDP in 2005.

Even if violence is very likely to affect the provision of public services, we can be more concrete and explore the channels through which the provision is altered. We investigate whether areas that are controlled by insurgent groups present systematically different social indicators because they capture municipalities that receive more transfers from the State. Nonetheless, a potential critique that arises from this empirical strategy is that the regression could be suffering from reverse causality bias. As we have seen, there can be both ex-ante and ex-post association between status control and financial transfers that municipalities enjoy. From the ex-ante point of view, intuitively, violence levels will differ across the different regions according to the expected loot the insurgents expect from their capture. As insurgent groups rushed in to get hold of local resources, it is sensible to assume that municipalities that are richer in terms of transfers from the government will suffer the most part of contested violence. Alternatively, areas that are more remote and relatively poorer will experience a stronger authority of outlaw bands and less violence. This approach, though, cannot be tested, given that the information on SGP starts in year 2002, which is almost a decade after the first year of violence that is utilised in this essay in order to define the status of each municipality, 1993. In other words, SGP in our model is much more likely to be the consequence of the status of the municipality and not the cause. Ex-post, the most intuitive rationale relies on the fact that transfers are fixed on account of a formula that takes into account the needs and the performance of the municipalities.

Another possibility, if better public provision is not a result of higher transfer figures, is to investigate if investment in public services is relatively higher in areas of strong control of illicit organisations, as compared with contested municipalities. Whilst in economic profitable areas the illegal actors do not have a firm control and spoil the benefits from those activities by resorting to violence, in regions in which the illegal actors wield a stronger grip, which tend to be poorer,

they will invest in some basic public services, either because they directly control the municipality or because of the prevalence of armed clientelism.

The dependent variables are now, on the one hand, transfers of the government that have to be destined to investment in various social aspects and, on the other hand, investment on these social services. This time, though, the information on the dependent variables is dynamic; it ranges from the year 2002 until 2015 for the transfers and from 2000 to 2010 for the information on local investment on social services. Our independent variable is again the control status. The dataset becomes a pool of cross sections. A pool of cross sections deals with each observation as if they were completely independent and increases the efficiency of the estimators, since the sample is bigger. Nonetheless, observations of the same municipality over time are not independent and could render biased standard errors. This will be corrected by allowing the errors to cluster by municipality. Furthermore, year fixed effects are included as an original control variable in order to control for other dynamic variables that could have an effect on the dependent variable that is measured over time. Region fixed effects are also added to hold constant specific features of the municipality that do not change over time either, but that are different from the control status of the observation and have an impact on the dependent variables. Lastly, specific time trends for each region are also introduced.

Finally, we want to investigate if relatively high investment rates that take place in insurgent zones compared to confrontation zones translate into a stronger popular support in the local elections. One of the inconveniences that our theoretical model poses is that, even in the existence of better public services, popular support could be driven by selective violence, understood as violence addressed to specific targets in order to obtain the absolute power on the municipality. From now on, we call this selective violence political presence and it refers to the presence of violent political events. We have attempted to proxy it by creating a variable that captures whether there has been a political violent act in the municipality by each insurgent group or that seizes if at least one of the local elections is reported as missing due to irregularities or its cancellation. We obtain a dummy variable for each insurgent that assigns a one (political presence

variable) to each municipality that suffered a violent political act or in which there was a missing election and a zero otherwise.

The model is once again a pool of cross sections, taking advantage of the information provided by UniAndes on the local electoral processes to elect a mayor that has taken place in the country since 1993. In total, there have been six elections in years 1994, 1997, 2000, 2003, 2007 and 2015. However, we focus on the first five elections and we discard the last one, in 2015, a year when the activity of FARC had already come to a halt, due to the "peace process"[14]. Regarding the regressions that verify the validity of the political presence we elaborate, it is also a pool of cross sections. We utilise the probit model for the latter, since it fits the data much better than OLS does, the reason being that it forces the dependent variable to lie between 0 and 1[15]. The control variables are the same as the previous models that had SGP and investment as dependent variables.

To sum up, the empirical strategy relies on the semi-parametric group-based trajectory modelling that will allow for an efficient allocation of each municipality to a corresponding control status. Status will be the independent variable that will be used for the OLS of social basic indicators on the one hand and for the pool of cross sections of the evolution of State transfers, investment figures and electoral consequences on the other hand.

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[14] The *peace process* is the name that has received the peace negotiations between the central government led by Santos and the guerrilla FARC and that started in 2012.
[15] In this way, the strong assumption of linearity in OLS is not necessary and the relationship between both sides of the regression becomes a cumulative normal function.

# 5   Empirical results

## 5.1   Control status

After setting the appropriate model and after the number of groups and shapes of trajectories have been successfully recognised through a visualisation of both semi-parametric models, we have been able to infer the status of each municipality based on the evolution of violence of both groups over time by resorting to Kalyvas (2006, p. 220-224)[16]. All the big cities (*Especial* category or first category according to Colombian classification) were assigned to municipalities controlled by the State before the model was run. The reason is that they show a clear bias, since reports of terrorism are more common and reliable than in the rest of municipalities in the country. Thus, the presence of violent attacks is more easily reported, which does not mean that insurgent groups control the municipality. Sticking to García's argument, those towns that have suffered intense guerrilla activity at the beginning of the period and a later progressively diminishing activity together with a historical low intensity of paramilitary activity are deemed to be under control of the guerrilla. By extension, an inverse pattern would indicate predominance of paramilitary wings in the area. Should there be persistence of violence by more than one-armed actor of the conflict throughout the period, it would suggest that the area is under dispute. Kalyvas distinguishes five different kinds of control, but two of them are impossible to capture with the model at hand, which are the distinctions between the full and the partial control of each of the insurgent groups.

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[16] Table A.3 in Appendix A details to which groups each municipality in our sample has been allocated.

Each municipality is assigned to one violence trajectory for each of the insurgent groups. Figures 5.1 and 5.2 depict the different trajectories that the model identified for FARC and AUC violence activity. The percentages indicate the proportion of municipalities that lie within each category. Table 1 summarises the village status according to the combination of violence dynamics from both groups in each municipality. Figures 5.3-5.5 and A.3 allow visualising the status control of each of the insurgent groups and the conflict areas; although the territorial extension of FARC seems too lengthy, it is consistent with the magnitude of the danger it meant to the State in the nineties and beginning of 21st century[17]. However, their figures might be inflated, since narco-traffickers, which have been left out of the analysis due to feasibility reasons, might have also contested the authority of FARC in some of these regions that the model returns as being under full control of FARC. In addition, the previously mentioned fact that bigger cities tend to report more and more accurately the presence of violent attacks might also introduce a bias in the "big cities" in the sample, even after accounting for the biggest and the most predominant cities in the country.
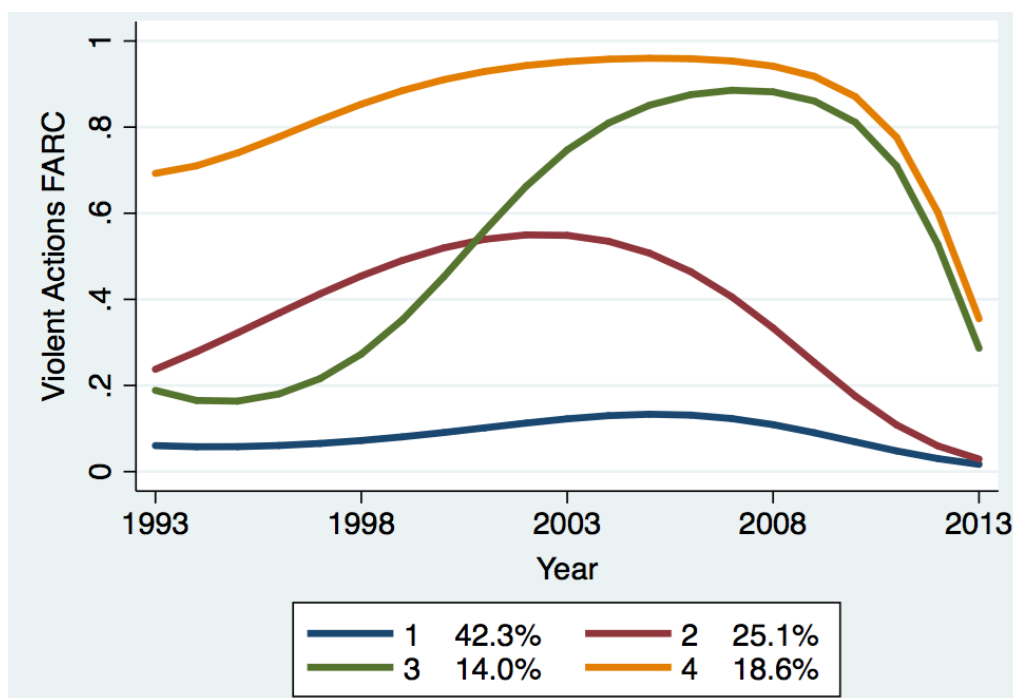


*Figure 5.1. Trajectory paths of FARC activity*

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[17] Restrepo (2002) argues that over 40% of Colombian territory suffered the presence of FARC.

*Figure 5.2. Trajectory paths of AUC activity*
*Source:* Data collected from the panel data of UniAndes

*Table 5.1. Characterisation of the status of municipalities*

| FARC  AUC | Low stable (1) | Moderate increasing, moderate decreasing (2) | Increasing (3) | Chronic high (4) |
|---|---|---|---|---|
| Low stable (1) | State | Guerrilla | Guerrilla | Guerrilla |
| Concave shape weak (2) | Paramilitary | Dispute | Guerrilla | Guerrilla |
| Concave shape intense (3) | Paramilitary | Paramilitary | Dispute | Guerrilla |
| Increasing (4) | Paramilitary | Dispute | Dispute | Dispute |

*Note:* Note that with FARC, the name of the shape of the trajectories has been determined by forgoing the last years, from 2008 to 2013, since the fact that the violence declines drastically is consistent with the process of peace that was taking place. *Source:* Own elaboration from the results of Figure 5.1 and 5.2
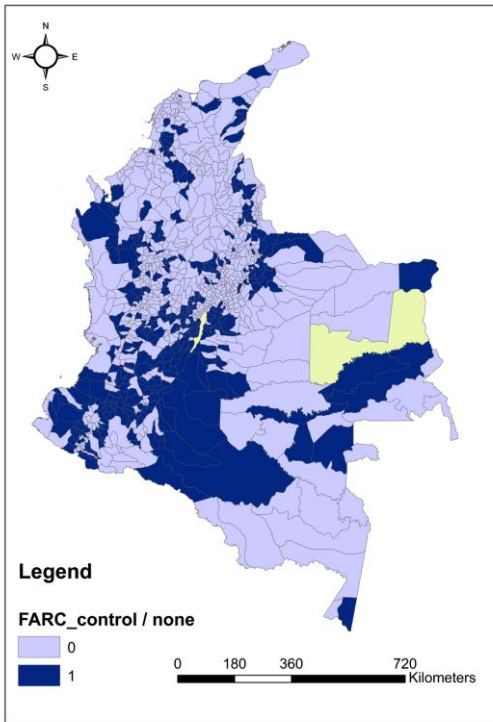
*Figure 5.3. FARC controlled areas*
*Source:* Own elaboration from Table 5.1
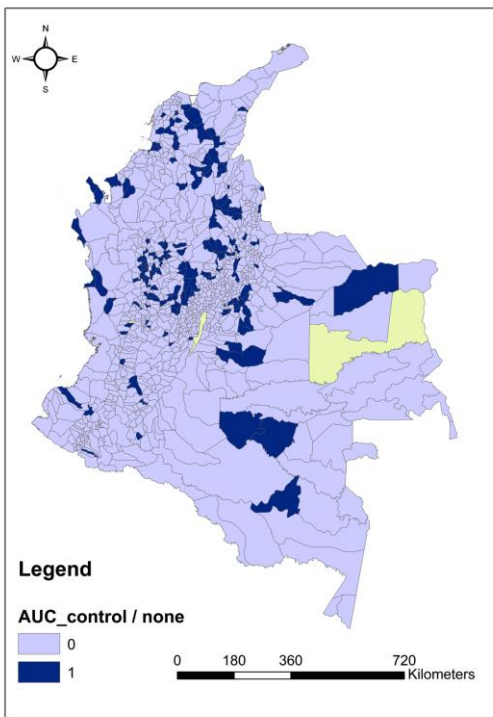


*Figure 5.4. AUC controlled areas*
*Source:* Own elaboration from Table 5.1
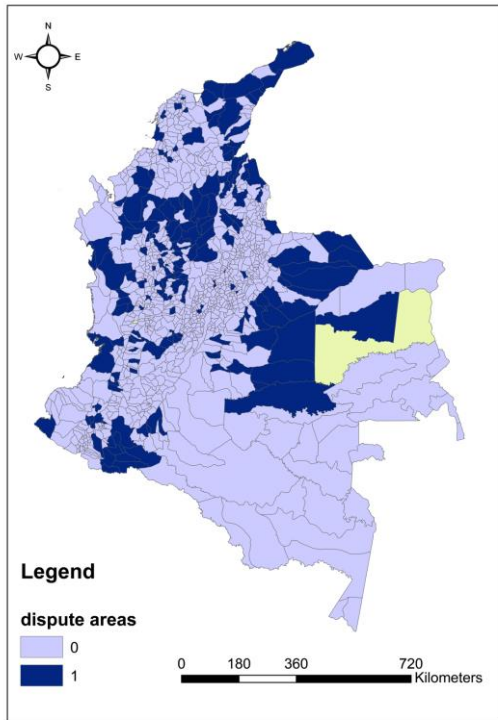
*Figure 5.5. Disputed areas*
*Source:* Own elaboration from Table 5.1

Once the characterisation of violence patterns and the assignment of the status to each municipality have been done, we obtain a reliable estimation of the status of each municipality in Colombia. This will be used to study the effects of the status of the town on the main indicators of social performance of the local administration.

## 5.2   Public services

The grounding pillar for this dissertation and on which the rest of the study will build upon is the actual presence of positive correlation between the presence of FARC and AUC and the provision of public services against the counterfactual of being under dispute. Given that in the first set of regressions we have privation of various social basic indicators as the dependent variable, we expect to obtain negative values on the coefficient of the three dummies with respect to the omitted one, which are the disputed areas. The negative coefficients on the dummies of FARC and AUC control would be evidence in favour of the

hypothesis being tested in this essay, as it would imply that people in these areas have less privation to access basic health and education services. A negative coefficient on the State dummy is more than expected and would provide credibility to the results of the semi-parametric modelling. State control naturally leads to a wider and stronger provision of public services and, if this is not the case, our model is very likely to return biased results either because the model does not correctly identify the number of trajectories and their shape or because our assignment of status to each municipality is ill conceived. If both hypothesised signs hold, namely a negative sign both for the State and the insurgent municipalities with respect to disputed areas, this would give empirical evidence to the existence of a concave relationship between control levels and provision of public services, which in turn would mirror the concavity in the relationship between violence and degrees of control.

Table 5.2 shows the results of this first exploratory regression in 2005. The percentage of children that cannot attend school is, on average, lower at the 1% significance level in areas controlled by FARC and AUC than in disputed areas. The coefficients on both variables show the expected negative sign between each area and the omitted dummy in the regression, which is disputed areas. In this case, areas controlled by FARC suffer, on average, 1.48 percentage points less of privation in school attendance, while the percentage is 1.23 percentage points less for AUC areas. For *primera infancia* services (services addressed to children with kindergarten age), the percentage of population with lack of access to those tends to be also lower in zones that are controlled by FARC and AUC and the coefficients are more negative than school attendance for both, 1.71 and 1.54 percentage points, respectively. Although some of the coefficients do not show any level of significance (at the 1, 5 or 10% level), they do present an expected negative sign, except for the level of literacy in municipalities under AUC domination.

*Table 5.2. OLS of the percentage of privation in several basic indicators in 2005*

| VARIABLES | (1) Illiteracy | (2) Atten school | (3) School lag | (4) *Primera infancia* | (5) Healthcare access | (6) Improved water |
|---|---|---|---|---|---|---|
| FARC control | -0.37 | -1.48*** | -1.48** | -1.71*** | -0.63 | -1.42 |
| | (0.97) | (0.52) | (0.63) | (0.62) | (0.52) | (1.75) |
| AUC control | 0.15 | -1.23** | -0.70 | -1.54** | -0.55 | -1.35 |
| | (1.04) | (0.57) | (0.67) | (0.69) | (0.54) | (1.88) |
| State control | -3.71*** | -3.73*** | -3.79*** | -3.99*** | -1.94*** | -5.89*** |
| | (0.95) | (0.53) | (0.60) | (0.62) | (0.51) | (1.63) |
| Rural Index | 19.96*** | 11.26*** | 7.99*** | 10.79*** | 8.86*** | 52.66*** |
| | (1.26) | (0.79) | (0.93) | (0.93) | (0.76) | (2.50) |
| Dist. Capital | 0.03*** | 0.02*** | 0.02*** | 0.03*** | 0.01*** | 0.05*** |
| | (0.01) | (0.00) | (0.00) | (0.00) | (0.00) | (0.01) |
| GDP | 0.00 | -0.00** | -0.00 | -0.00** | -0.00* | -0.00** |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Population | -0.00 | 0.00** | 0.00 | 0.00** | 0.00* | 0.00** |
| | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Andina | -2.22 | -4.97*** | -5.78*** | -8.61*** | -4.77*** | -14.65*** |
| | (2.10) | (0.84) | (1.43) | (1.13) | (1.40) | (3.92) |
| Caribe | 14.95*** | -2.75*** | 2.80* | 2.65** | -4.68*** | -2.33 |
| | (2.18) | (0.92) | (1.48) | (1.23) | (1.40) | (4.18) |
| Pacífica | -2.49 | -2.24** | -4.20*** | -3.78*** | -1.19 | -15.35*** |
| | (2.23) | (0.93) | (1.53) | (1.33) | (1.52) | (4.37) |
| Orinoquia | -1.99 | -2.77*** | -4.74*** | -5.48*** | -4.73*** | -7.41 |
| | (2.30) | (1.06) | (1.51) | (1.26) | (1.53) | (4.64) |
| Constant | 15.20*** | 10.11*** | 31.99*** | 18.71*** | 8.10*** | 15.88*** |
| | (2.12) | (0.94) | (1.49) | (1.25) | (1.39) | (4.24) |
| R-squared | 0.45 | 0.34 | 0.30 | 0.41 | 0.22 | 0.38 |

*Note:* Robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

*Source:* Panel data UniAndes

Finally, a test of equality of coefficients was carried out in order to check whether each of the coefficients of insurgent controlled municipalities is significantly different from the State zones (see Table B.1 in Appendix B). The reason is that given the hypothesis that municipalities controlled by the illegal organisations tend to perform better in provision of basic public services than disputed municipalities but should offer inferior levels than municipalities that are controlled by the State, such test should yield a significant negative difference in favour of the coefficient in State municipalities. As we observe, the F-test value is huge or, alternatively, the p-value is very small and, thus, we can reject the null at the 1% confident level for the six regressions that either the coefficient of FARC or AUC control is equal to the coefficient of State control.

In order to check if these results hold if we look at the year when all violence came to a halt, we run the same model on some dependent variables that were measured in 2013, when the activity of both FARC and AUC are reported to be

very weak or none at all. The main indicators that are collected for this year are the percentage of total aqueduct coverage that the municipality enjoys and the share of households that are covered by electricity and gas network. The same general remarks regarding the hypotheses and the requirements for the validity of our presence model previously exposed apply for the outcomes of this new model. There is only one exception; we expect a reversal in the sign of all three dummies, given that the share of coverage is expected to be higher in all areas with respect to disputed areas.

Table 5.3 reports the results. The conclusions are again that areas controlled by insurgent groups perform much better in terms of two of the three indicators. The third, aqueduct coverage, reflects a positive coefficient, although not significant at any of the common significance levels. On average, a municipality that is under insurgent rule will present an index of total electricity coverage of 2.4 percentage points higher in FARC municipalities and 3.1 percentage points higher in AUC municipalities, both with respect to disputed areas. The F test (see Table B.2 in Appendix B) that checks for equality of coefficients between AUC and FARC municipalities and areas under the aegis of the State reveal evidence again that they are significantly different in favour of State areas at the 95% confidence level.

Therefore, these first results point to the existence of a similar concave shape that follows the steps of the violence curve that Duncan and Kalyvas propose. If violence affects the provision of public services, as the review of literature suggests, the provision of public services should follow suit. The results, which go along the hypothesis of this essay, also indicate that the tail of the public service concave shape curve is unbalanced in the part of the State, as public services are showing better signs of performance that in areas that are under the authority of outlaw organisations. This is coherent with the figure 3.1 that is exhibited in the theoretical section.

*Table 5.3. OLS of basic public service coverage in 2013*

| VARIABLES | (1) Aqueduct | (2) Electricity | (3) Gas |
|---|---|---|---|
| FARC control | 2.274 | 2.403** | 3,772** |
| | (2.723) | (1.181) | (1,463) |
| AUC control | 4.374 | 3.182** | 4,228*** |
| | (3.213) | (1.259) | (1,234) |
| State control | 7.779*** | 5.777*** | 5,293*** |
| | (2.839) | (1.158) | (1,251) |
| Rural Index | -46.26*** | -19.98*** | -1,835 |
| | (4.223) | (1.630) | (1,685) |
| Dist. Capital | 0.0156 | -0.0437*** | -0.164 |
| | (0.0179) | (0.00700) | (7.121) |
| Population | 1.74e-06 | -1.57e-05* | 0.219*** |
| | (2.36e-05) | (8.40e-06) | (0.0258) |
| Current Income | -1.63e-06 | 1.11e-05* | 0.0316 |
| | (1.78e-05) | (6.33e-06) | (0.0202) |
| Andina | -2.322 | -7.154*** | -2,151*** |
| | (2.612) | (0.962) | (793.0) |
| Caribe | 5.510** | -3.795*** | -1,046 |
| | (2.703) | (1.075) | (2,109) |
| Pacífica | -7.849* | -11.67*** | 4,004*** |
| | (4.322) | (2.256) | (1,199) |
| Orinoquia | 2.718 | -15.85*** | 82.46 |
| | (5.245) | (3.069) | (2,255) |
| Constant | 78.69*** | 106.2*** | -5,658*** |
| | (3.201) | (1.080) | (2,055) |
| | | | |
| Observations | 982 | 1,100 | 540 |
| R-squared | 0.121 | 0.281 | 0.971 |

*Note:* Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Aqueduct and electricity are calculated as percentage of coverage, whereas gas is the number of users that are connected to the gas network.

*Source:* Panel data UniAndes

## 5.3    Channels

The next step in the dissertation brings about a change in the type of data utilised and it focuses on understanding the channels through which the different status of municipalities are associated with basic social indicators, aside from violence *per se*. The data that will allow this study are, firstly, the hierarchical transfers from the State to the municipalities. There are two types of transfers in which we are interested. The most relevant for this study is the *Sistema General de Participación,* which consists in transfers to Departments, Districts, Municipalities and indigenous entities, which come from the Nation's current income as envisaged in the Constitution in 2001 (DNP, 2005). As Bonet et al

(2014) introduce, the SGP combines in a unique transfer the previous *situado fiscal* (transfers to departments that should use such funds to invest in education and healthcare system) and the *participaciones municipales (*funds addressed to education, healthcare, water and basic sanitation). The distribution of funds from the SGP goes as follows: 58.5% go to provide services related to education, to increase the quality of the system and to ensure the free access to it. 24.5% is intended to healthcare provision, among which financing the *regimen subsidiado* and improving social health are a priority. In addition, around 5.5% is planned to be invested water and basic sanitation. Finally, *primera infancia* represents an especial split that is only contemplated under emergency cases and that cannot be a fixed destination of annual SGP.

Table 5.4 reports the results of the pool of cross sections with fixed effects with different types of SGP as dependent variable. Results are astoundingly conclusive at the 1% significance level. Disputed areas receive, on average, higher quantities of all kinds of SGP from the central government. A municipality ruled by FARC receives, on average, 2 billion *pesos* less than what a municipality with dissension obtains. The figure is even greater for areas under AUC control, which perceive almost 2.9 billion less than disputed areas. Dividing SGP between those transfers that are addressed to educational, water and sanitation or healthcare enhancement does not yield radically different estimates, which stay greatly negative at the 1% significance level. Regarding the municipalities in which the State has been able to impose itself, they present the larger negative coefficient in almost all the variables, but in educational services. On average, these areas are recipients of 2.9 billion *pesos* less than municipalities with permanent conflict.

Therefore, the relatively better performance of basic public services in municipalities ruled by outlaw bands is not a consequence of the fact that these areas are favoured by the State in terms of transfers. On the contrary, municipalities that are contested show the worst performance of public services, but the highest amount of transfers received from the State. Two explanations ex-post for this puzzle emerge. Given that conflict areas will tend to suffer much more from violence, which, in turn, damages the provision of public services, one would expect that the central government would make an effort to strengthen the financial support to these areas, so that they become capable of carrying out the

basic functions of the public administration. This is consistent with how the transfers are calculated. A complementary explanation could be that the Administration in Bogotá is well aware of the regions of the country upon which they do not hold a strong, institutionalised grip, which leads them to decrease the transfers to municipalities that are under insurgent rule. Nonetheless, this is highly unlikely, given that transfers are determined by a fixed formula that takes into account the own resources and the social indicators of the municipality. *Ex-ante,* and as pointed out in the theoretical model, scholars tend to agree that municipalities that receive a larger share of transfers are succulent objectives for illicit organisations. Overall, these results, due to the important weight that the ex-ante reason is given by the scholars, indicate that the presence of greed among the members of the insurgent organisations, which tend to dispute and expand to municipalities that are richer and receive a higher share of the transfers from the State.

*Table 5.4. Pool of cross sections of SGP (in hundred million pesos)*

| VARIABLES | (1) Total SGP | (2) Educ serv | (3) Free educ | (4) Prim inf | (5) Water | (6) Health serv | (7) Rég Subs | (8) Tot health |
|---|---|---|---|---|---|---|---|---|
| FARC control | -20.17*** | -11.50*** | -0.45*** | -0.13*** | -0.73*** | -0.32*** | -5.24*** | -5.65*** |
| | (5.73) | (3.48) | (0.12) | (0.03) | (0.23) | (0.11) | (1.18) | (1.36) |
| AUC control | -28.82*** | -16.67*** | -0.64*** | -0.17*** | -1.14*** | -0.47*** | -6.94*** | -7.60*** |
| | (6.49) | (3.93) | (0.14) | (0.03) | (0.26) | (0.14) | (1.29) | (1.52) |
| State control | -29.07*** | -15.88*** | -0.66*** | -0.19*** | -1.21*** | -0.50*** | -7.54*** | -8.26*** |
| | (6.11) | (3.71) | (0.14) | (0.03) | (0.23) | (0.13) | (1.25) | (1.45) |
| Rural Index | -48.80*** | -30.50*** | -1.33*** | -0.13** | -1.84*** | -0.95** | -9.60*** | -11.29*** |
| | (14.42) | (8.53) | (0.32) | (0.05) | (0.68) | (0.37) | (2.24) | (3.03) |
| Current Income | 1.01*** | 0.60*** | 0.02*** | 0.00*** | 0.04*** | 0.03*** | 0.15*** | 0.21*** |
| | (0.14) | (0.08) | (0.00) | (0.00) | (0.01) | (0.01) | (0.01) | (0.02) |
| Population | -0.78*** | -0.47*** | -0.02*** | -0.00*** | -0.03*** | -0.02*** | -0.11*** | -0.16*** |
| | (0.20) | (0.11) | (0.00) | (0.00) | (0.01) | (0.01) | (0.02) | (0.04) |
| Dist. Capital | -7.03*** | -4.56*** | -0.14*** | -0.06 | -0.01* | -0.07 | -1.61*** | -0.02*** |
| | (25.32) | (15.11) | (0.56) | (0.14) | (1.09) | (0.05) | (5.3) | (0.01) |
| Constant | 73.48*** | 44.15*** | 1.82*** | 0.27*** | 2.82*** | 1.41*** | 15.16*** | 17.73*** |
| | (21.08) | (12.51) | (0.48) | (0.07) | (0.95) | (0.54) | (3.28) | (4.41) |
| Observations | 15,374 | 15,374 | 15,374 | 15,374 | 15,374 | 15,374 | 15,374 | 15,374 |
| R-squared | 0.27 | 0.25 | 0.29 | 0.34 | 0.31 | 0.28 | 0.28 | 0.29 |

*Note:* Robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All fixed effects and linear specific trends are included, although not reported. Scale of variables population and current income does not change.

*Source:* Panel data UniAndes

Another channel that is explored in this dissertation is whether the investment in basic public services throughout the period shows systematic differences across the different areas, depending on their status. That is, as the percentage of people

with lack of access to several basic services that should be provided by the public administration are higher in disputed areas, we could expect higher relative levels of investment in the rest of municipalities. A possible argument for this hypothesis relies on the fact that the local control that insurgent bands exert in the municipality is an indirect control, to the extent that they allow the presence of a given candidate as long as he/she fulfils their desires. The mayor in question might be left with decision power on local investment after he/she has transferred the agreed-on share of the resources. If that is true and municipalities controlled by insurgent groups invest relatively more than areas with violent altercations, these results would complement the outcomes that were obtained in the first basic OLS model. A positive sign of the municipalities controlled by illicit armed actors on the levels of investment per capita on social indicators will provide a hint that the local power invests relatively more in social resources in the absence of intense dispute. Once again, the coefficient of the State on the second regression on investment per capita is expected to be consistently and solidly positive with respect to the other three areas.

Table 5.5 summarises the results that we found using the same pool of cross sections that was used in the previous model. This time, the dependent variables are the investment per capita over time of each municipality on public services, transport, water and sanitation, education and health, for which we have information for the first decade of the twenty-first century. Regarding overall public services, the coefficients are positive and significant at the 95% confidence level for the three dummies of interest. In municipalities ruled by AUC the coefficient is half as large but still positive and significant at the same confidence level. Estimates have the same positive sign and significance with respect to healthcare investment. *De novo*, the areas controlled by FARC are estimated to invest, on average, twice as much as areas of AUC (around 600 *pesos* per capita in FARC areas, against 320 in AUC areas). If we look at water and sanitation investment, the coefficients lose a bit of significance; now, they are significant at the 90% confidence level. Nonetheless, the magnitude of the coefficients is still remarkable, and it is substantially bigger for FARC areas, in comparison to AUC controlled zones. Regarding educational and transport investment, the estimates stay significant at different levels for FARC municipalities (at the 10 and 5%

significant level each), whereas they are not statistically different than zero in municipalities where AUC have a strong predominance.

With reference to the municipalities that enjoy State preponderance, results go along the same lines of findings in the previous sections, being most of them positively significant. However, two results called our attention. Firstly, the effect of the dummy of State control on educational investment is not statistically different than zero, although it is positive. The second surprise is that in none of the F-tests that were done for the five regressions (see Table B.3 in Appendix B), we could reject, at the 90% confidence level, the null hypothesis that the coefficient of the dummy of the State is equal to the other two other status-dummy coefficients. The most likely explanation for these outcomes could reside in the fact that these kinds of investments tend to be characterised by huge fixed, sunk investments. Given that municipalities that are controlled by the State tend to be much larger, it is less of a surprise that investment per capita does not vary, on average, from State areas to insurgent areas. As a matter of fact, the mean value of total population in our sample in FARC municipalities is 21,933.24 and 17,957.17 in AUC municipalities, against around 48,000, on average, in State areas.

Overall, the conclusion we can glean from this section that examined the means by which different outcomes in social indicators emerge across the different status of the municipality is that municipalities that show better outcomes also tend to invest more in public services (coherent with Figure 3.3). We have also observed that this relatively better performance does not seem to be caused – at least, it is not correlated – with a more active role and involvement of the central government on the municipalities that perform relatively better. On the contrary, municipalities that perform relatively worse also tend to receive a higher share of State transfers (consistent with Figure 3.2). A potential explanation is that the government knows which areas are controlled by the insurgent groups and reduces the amount of transfers accordingly. Nonetheless, the reader is advised to take this implication with utmost caution, given that there is not enough evidence to categorically affirm this fact, which would need a much deeper knowledge of the political and administrative transfer decisions. Additionally, transfers are determined on the basis of an equation that takes into account the needs and the privation of the municipalities. Hence, it is much more likely that the determinant

of this help coming from the State and destined to disputed areas derive from the fact that these areas suffer from intense violence and the provision of public services is consequently very restricted. A further explanation but impossible to test given the data we obtained consists in the fact that insurgent organisation knows ex-ante which municipalities receive a larger share of transfers and want to dispute those areas. Although our empirical evidence is not able to distinguish this effect, it is broadly defended and proven in the literature that this is the case.

*Table 5.5. Pool of cross sections of investment per capita (in hundred pesos)*

| VARIABLES | (1) Public services | (2) Transport | (3) Water and sanitation | (4) Education | (5) Health |
|---|---|---|---|---|---|
| FARC control | 0.28** | 0.89** | 2.18* | 0.72* | 5.96** |
|  | (0.12) | (0.36) | (1.25) | (0.39) | (2.45) |
| AUC control | 0.16** | 0.77 | 1.64* | 0.63 | 3.21* |
|  | (0.07) | (0.64) | (0.86) | (0.57) | (1.90) |
| State control | 0.31** | 1.32* | 1.97* | 0.89 | 3.10* |
|  | (0.15) | (0.78) | (1.01) | (0.65) | (1.83) |
| Rural Index | -0.31 | -0.30 | -0.95 | -0.92 | -2.85 |
|  | (0.25) | (0.81) | (1.21) | (0.68) | (3.13) |
| Current Income | 0.05 | 0.01 | 0.09 | 0.124 | -0.245 |
|  | (0.01) | (0.07) | (0.08) | (0.116) | (0.579) |
| Dist. Capital | -0.129 | 0.395* | 0.698 | 0.711 | 4.114 |
|  | (0.23) | (0.843) | (1.476) | (1.705) | (8.209) |
| Constant | 0.04 | 0.02 | -0.59 | 0.70* | -0.99 |
|  | (0.14) | (0.49) | (0.67) | (0.41) | (1.93) |
| Observations | 9,686 | 9,686 | 11,734 | 11,734 | 11,734 |
| R-squared | 0.01 | 0.00 | 0.01 | 0.01 | 0.01 |

*Note:* Robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All fixed effects and linear specific trends are included, although not reported. Scale of variables population and current income does not change.
*Source:* Panel data UniAndes

Hence, this section concludes that greed seems to be an important driver in the process of expansion of insurgent groups. It also discerns that municipalities that are under the rule of insurgent groups exhibit relatively higher amounts of social investment per capita. This explains why lower levels of violence that are found to take place in this kind of municipalities lead to a relatively better behaviour of public services, beyond the intrinsic effect of violence on such provision. We propose that the *rationale* for this event is that the power that is held by insurgent organisation tends to manifest in an indirect manner, rather than through a direct control of the institutions. Therefore, the following block is devoted to explore whether the local electoral process of the country are affected by the presence of

armed actors, the degree of control they exert on the population and the performance of the public services they provide.

## 5.4   Electoral consequences

Hoyos and Ceballos (2004) report that insurgent actions from guerrillas cause a reduction in electoral participation. The Colombian Federation of Municipalities (*Federación Colombiana de Municipios)* declared in 2003 that 22 of the municipalities in the mayoral election of that year presented a unique candidacy due to threats and pressure on the rest of lists to quit the electoral race. Hence, in the presence of armed clientelism, it is complicated to spot the interaction between the guerrilla and the local government.

We first look into the effect of the presence of FARC and the State on the political presence of the AUC in the municipality and the effect of the presence of AUC and State on the political presence of AUC. The homologue presence of each insurgent group on its political presence has been dropped from each regression due to high potential endogeneity, since the presence of political acts also affects the classification of each municipality in our model. The reason to make these first two regressions is to ensure the validity of the variable of political presence. The main pillar of the theory consists in the fact that selective, political violence occur in areas that are widely or fully controlled by the illegal organisation. Consequently, we expect a negative effect of the presence of the opposite insurgent organisation and the State on the political presence of the insurgent group. Once we have proven it, we are able to run the same model, but changing the dependent variable to the percentage of votes that the winner obtained and adding all three dummies of presence and the three dummies of political presence as explanatory variables. Hence, we are able to identify if FARC or AUC control is positively correlated with stronger support to the winning candidate and whether this positive impact is more likely to be a result of social legitimisation or of selective violence.

Table 5.6 collects the outcomes of the OLS model in the first two columns. Despite OLS is not the appropriate model for the data at hand; it is still valid to draw conclusion on the sign of the coefficients and their statistical significance. The first column shows that the presence of AUC or State statistically discourages the political presence of FARC, whilst the second column reflects the same reality but for the political presence of AUC. However, we will not stay longer with the interpretation of these results, as the dependent variable is a dummy in the three models, which makes OLS a poor estimator for our model. The third column is the really interesting one, since we can see that municipalities that are controlled by FARC or AUC are positively associated with the electoral support to the mayor. Although the coefficients are small, especially in FARC areas, the mean representativeness of the mayor is 1 percentage points superior in FARC municipalities, with respect to disputed areas, whereas it 2.5 times higher in AUC municipalities with respect to disputed municipalities. The political presence has, surprisingly, no significant impact on the electoral support of the winning candidate, whereas the legal political control of the State has, as expected, a positive and significant impact on the representativeness of the winner.

*Table 5.6. Pool of cross sections of political variables*

| VARIABLES | (1) FARC political presence | (2) AUC political presence | (3) Representativity of the mayor |
|---|---|---|---|
| FARC political presence | | | -0.00750 |
| | | | (0.0124) |
| AUC political presence | | | 0.0221 |
| | | | (0.0271) |
| State control | -0.0223*** | -0.00214* | 0.0244*** |
| | (0.00209) | (0.00121) | (0.00502) |
| FARC control | | -0.00221* | 0.0118** |
| | | (0.00121) | (0.00498) |
| AUC control | -0.0147*** | | 0.0272*** |
| | (0.00295) | | (0.00596) |
| Rural Index | -0.000614 | -0.00267 | 0.0925*** |
| | (0.00414) | (0.00174) | (0.00728) |
| Population | 5.11e-09 | 6.11e-09*** | -4.46e-09 |
| | (5.00e-09) | (1.38e-09) | (3.47e-09) |
| Dist. Capital | 3.01e-05* | -6.67e-06 | 0.000102*** |
| | (1.74e-05) | (4.99e-06) | (3.03e-05) |
| Disputed areas | -0.00548 | 0.00336** | |
| | (0.00348) | (0.00171) | |
| Constant | 0.0176*** | 0.00329** | 0.467*** |
| | (0.00486) | (0.00128) | (0.00716) |
| | | | |
| Observations | 26,593 | 26,593 | 5,630 |
| R-squared | 0.035 | 0.028 | 0.114 |

*Note:* Robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All fixed effects and linear specific trends are included, although not reported.
*Source:* Panel data UniAndes

Table 5.7 displays the results from the probit model. Results stay similar, with still sound, negative coefficients of the control of each of the dummies of control of other insurgent groups on the probability of electoral presence of the opposite group. As the probit model is not a linear model, the coefficients cannot be interpreted in the standard way. For instance, the probability marginal effect of going from a municipality controlled by the State to a municipality not controlled by the State also depends on the values of the rest of the covariates. Therefore, post estimations have been run in order to look at the probability margins of changing from an area controlled by the State or the opposite insurgent band to the political presence of the insurgent group that is being analysed, by holding the rest of covariates at their means.

*Table 5.7. Probit model of political variables*

| VARIABLES | (1) FARC political presence | (2) AUC political presence |
|---|---|---|
| AUC control | -0.395*** | |
| | (0.0979) | |
| State control | -1.070*** | -0.409** |
| | (0.106) | (0.164) |
| Disputed areas | -0.110 | 0.283** |
| | (0.0779) | (0.144) |
| Rural Index | -0.0205 | -0.493** |
| | (0.159) | (0.247) |
| Population | 2.72e-07** | 2.45e-07*** |
| | (1.19e-07) | (5.42e-08) |
| Dist. capital | 0.00119** | -0.00114 |
| | (0.000530) | (0.000852) |
| FARC control | | -0.328** |
| | | (0.165) |
| Constant | -2.467*** | -2.729*** |
| | (0.197) | (0.352) |
| Observations | 16,495 | 8,886 |

*Note:* Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. All fixed effects and linear specific trends are included, although not reported.
*Source:* Panel data UniAndes

Table 5.8 shows these results. Column 1 and 2 reflect the probability of political presence of each insurgent group given the presence of the opposite outlaw organisation and the State with all other covariates at their means. At first sight, there is one striking result, for the fact that a municipality is under dispute increases the probability of political presence of AUC by 0.6 percentage points. The most intuitive explanation lies in the fact that disputed areas between AUC and FARC are probably due to great landowners or local elite in general resorting

to paramilitaries in order to defeat FARC. Therefore, given the local political power of these local elites, AUC are expected to enjoy a stronger support in some areas of dispute, where the incumbent is AUC. Table 5.9 depicts the marginal difference, which could be also obtained by subtracting each pair of coefficients in Table 5.8 (by switching between 0 and 1 each of the explanatory relevant variables), and its significance[18].

*Table 5.8. Margins at means*

| VARIABLES | (1)<br>FARC political presence | (2)<br>AUC political presence |
|---|---|---|
| AUC control=0 | 0.0115***<br>(0.00136) | |
| AUC control=1 | 0.00380***<br>(0.00113) | |
| State control=0 | 0.0265***<br>(0.00217) | 0.00421***<br>(0.00113) |
| State control=1 | 0.00133***<br>(0.000444) | 0.00117**<br>(0.000591) |
| Disputed areas=0 | 0.0104***<br>(0.00126) | 0.00233***<br>(0.000646) |
| Disputed areas=1 | 0.00772***<br>(0.00172) | 0.00544**<br>(0.00237) |
| FARC control=0 | | 0.00373***<br>(0.00102) |
| FARC control=1 | | 0.00133**<br>(0.000675) |
| | | |
| Observations | 16,495 | 8,886 |

*Note:* Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. All fixed effects and linear specific trends are included, although not reported.

*Source:* Panel data UniAndes

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[18] Hence, the presence of AUC decreases, on average, the probability of electoral presence of FARC by 1,4%, whereas the presence of the State reduces it more than twice as much, by 3,2%. Both outcomes are sound and significant at the 99% confident level. On the contrary, the effect of the presence of FARC on political appearance of AUC is far weaker, the effect amounts to a shrinkage in the probability of 0,5% and the confident level goes down to 95%. The impact of the presence of the State is also scant and similar in magnitude, 0,6%, although it is again solid at the 99% confidence level.

*Table 5.9. Marginal differences*

| VARIABLES | (1) Marginal difference FARC-AUC | (2) Marginal difference State-FARC | (3) Marginal difference Dispute-FARC | (4) Marginal difference AUC-FARC | (5) Marginal difference State-AUC | (6) Marginal difference Dispute-AUC |
|---|---|---|---|---|---|---|
| AUC control | -0.0145*** | | | | | |
| | (0.00286) | | | | | |
| State control | | -0.0325*** | | | -0.00676*** | |
| | | (0.00258) | | | (0.00247) | |
| Disputed areas | | | -0.00484 | | | 0.00617* |
| | | | (0.00325) | | | (0.00359) |
| FARC control | | | | -0.00555** | | |
| | | | | (0.00250) | | |
| Observations | 16,495 | 16,495 | 16,495 | 8,886 | 8,886 | 8,886 |

*Note:* Robust standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$. All fixed effects and linear specific trends are included, although not reported. Before the dash, the variable that switches between 0 and 1; after the dash, the political presence variable that receives the impact of such switch.

*Source:* Panel data UniAndes

All in all, we observe that the lack of presence of any of the two insurgent organisations reduces its probability of being able to jump into the local political sphere and carry out acts of selective violence. This is line with the theoretical model we propose, to the extent that a stronger control facilitates the use of targeted violence and removes incentives to use widespread, indiscriminate violence. Moreover, it is coherent with García (2016), when he asseverates that it is easier and more efficient for insurgent organisations to get hold of the local political power once they enjoy a sound authority over the municipality. Furthermore, we do not find evidence that the presence of selective violence leads to an increase in the share of votes a candidate receives, whereas the fact that it is being controlled by any of the two illicit bands in our sample does have a positive impact. This outcome suggests that legitimacy is a powerful incentive for insurgent groups in municipalities in which they wield a firm rule over the population, for there is a positive association between this control and the representativeness of the mayor once selective violence has been accounted for. These results are not new, since García (2016) already found that the electoral mass tend to align themselves with the leading insurgent organisation and support them. This suggests the existence of an intricate network of incentives of illicit

organisations, where grievance seems to be playing a vital role in understanding the presence and authority of insurgent groups.

# 6     Robustness checks

Another way to overcome the hurdle of accurately capturing the *real* presence of illegal actors is to use the binary nature of the presence of the State in terms of security forces. In other words, those areas where there is an absence of police might be instantaneously classified as areas where outlaw organisations have more power. Rangel (1997) alleges that the strategy of the guerrilla was to avoid or remove the power of police in order to gain access to the fiscal resources and expand its political power. In fact, he claims that, at that time, 95% of *corregimientos*[19] did not have police stations, neither did 10% of the municipalities in the whole country.

Hence, a final robustness check will be carried out by taking advantage of the democratic security policy of Uribe in 2002. The president at that time reinforced the presence of police in areas where there was no presence of police and also in zones where there was conflict and the presence was weak. The fact that a municipality received recruitments after that year is a strong sign of presence of illegal actors in the area. The analysis centres on the level of investment in those basic public services used in the previous model (water and sanitation, health, education and basic public services) and how they change in areas that were controlled by illicit organisations both before and after the new police reinforcements came into place. The hypothesis, given the previous outcomes, is that levels of investment should decrease after the strengthening of police force in municipalities controlled by illicit organisations, given that these areas are likely to suffer from dispute and, therefore, they should fare relatively worse than before 2002. Castilla and Gómez (2006) declare that most of the escalation in confrontation between 2002 and 2005 are attributable to State promoted actions,

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[19] Local sub-entity that is dependent on the municipality.

which is most likely the result of the policy of *seguridad democrática.* At the same time, we also expect that the coefficients on disputed areas are not significantly different from zero for both periods (before and after 2002), since the fact that they receive new waves of State security does not change the status of the municipality.

Hence, the model we utilise in this last section is a difference in difference design with the same controls as the previous model with investment per capita, but with the introduction of total population as control variable and the presence of total investment as dependent variable. It basically compares the difference on the average of the distinct dependent variables (investment in the four basic public services commented in the paragraph before) for each area before and after 2002 with respect to the difference in the same indicator for the counterfactual of being a municipality that is controlled by the State. Thus, the model also calls for a slight change in the dummy representation. As reinforcements were sent to either areas under dispute or controlled by illicit bands, we introduced a dummy of disputed areas and the effect of the constant now represents the average impact of being a municipality under the auspices of the State on the investment in public services. It is natural to assume that as State areas did not receive reinforcements, changes in investment quantities before and after that year should be pure accident and caused by other factors.

Table 6.1 displays the results from this last model. The coefficient on year 2002 captures all the time changes that have taken place before and after this year, without taking into account the change caused by the reinforcement of the police. The coefficients on the different reinforcement variables grasp the effect of being before 2002 in a municipality that received the reinforcements. The DID (difference in difference) coefficient is the coefficient of interest in this case. It gives us the difference in the effect of being in a municipality that received the strengthening of police forces before and after 2002 and compares it with the difference between State municipalities, which did not receive reinforcements, before and after 2002. Education and health are significantly negatively affected by the consignment of new forces to an area that was controlled either by FARC or AUC. The investment in education gets reduced around 2.8 million *pesos* in the case of AUC, and 3.1 million *pesos* in the case of FARC. The impact is even

stronger in health investment, where the shrinkage consists of about 4.3 and 5.1 million *pesos,* respectively. The negative impact on public service spending is significant and negative, as well, but much more modest in quantities, around fifty pesos for each of the two areas. The coefficient on water and sanitation investment in positive but not even significant at the 10% level. Moreover, as expected, the null hypothesis that the diff and diff estimate for disputed municipalities is significantly different than zero for the four different social services cannot be rejected at the 90% confidence interval, which is coherent with our hypothesis that once violence is in place, more conflict should not greatly affect the provision of public services.

*Table 6.1. Difference in difference with fixed effects (in million pesos)*

| VARIABLES | (1) Public services | (2) Water/Sanitation | (3) Education | (4) Health |
|---|---|---|---|---|
| t2002 | 0.61** | 2.36** | 2.27*** | 5.93*** |
| | (0.28) | (0.98) | (0.68) | (2.13) |
| Reinforcement FARC | 0.47** | -0.06 | 1.59*** | 1.06 |
| | (0.24) | (0.18) | (0.30) | (0.69) |
| Reinforcement AUC | 0.48* | 0.22 | 1.18*** | 0.26 |
| | (0.27) | (0.23) | (0.35) | (0.37) |
| Reinforcement Dispute | -0.81 | -0.83 | -0.03 | 2.22** |
| | (1.11) | (0.97) | (1.57) | (1.07) |
| DID FARC | -0.49** | 7.78 | -3.10*** | -4.33** |
| | (0.24) | (9.45) | (0.66) | (2.12) |
| DID AUC | -0.45* | -0.96 | -2.77*** | -5.17** |
| | (0.23) | (1.22) | (0.73) | (2.20) |
| DID dispute | 1.34 | 1.24 | 8.13 | 0.78 |
| | (1.67) | (3.30) | (7.66) | (3.27) |
| Dist. Capital | -0.00 | 0.00 | -0.01** | -0.00 |
| | (0.00) | (0.01) | (0.00) | (0.02) |
| Rural Index | -0.01 | 1.61 | -3.99*** | -5.51 |
| | (1.66) | (1.86) | (1.23) | (4.36) |
| Current Income | -0.00 | 0.00 | 0.00*** | 0.00*** |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Population | 0.00* | 0.00* | 0.00** | -0.00 |
| | (0.00) | (0.00) | (0.00) | (0.00) |
| Constant | -0.55 | -1.29 | 1.89** | 3.78 |
| | (1.40) | (1.62) | (0.88) | (3.12) |
| | | | | |
| Observations | 9,686 | 11,734 | 11,734 | 11,734 |

*Note:* Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1. Year and municipality fixed effects and linear specific trends are included, although not reported.

*Source:* Panel data UniAndes

Therefore, this last robustness check lends more credibility to the model that has been presented throughout the whole dissertation and suggests the negative effect of violence confrontation on investment on social services. By extension, it also gives more support to the relative positive effect of full control of insurgent

organisation on the provision of public services, given the stark correlation between confrontation and degrees of control we have proposed.

# 7    Conclusion

This dissertation has been a comprehensive study of the social and political implications of the different actual degrees of control by part of insurgent groups or the State. We contribute to the existing literature by providing a model that captures the evolution of violence over time and converts it into information on control status. In turn, this new information can be used to study how this actual presence affects the provision of public services, through which channels beyond the impact of violence itself and the political implications at the local electoral level. It has been found that, indeed, municipalities that are controlled by the State perform the best and that municipalities that are under the authority of outlaw organisation also perform relatively better than areas under dispute. This fact matches both the hypothesis of our model and also the authors that have proven that violence substantially and negatively affects social indicators.

Moreover, we corroborate that a municipality suffering from intense violence is correlated with the resources a municipality receives from the State. Municipalities that are under dispute relatively receive much more resources from the central administration that municipalities that are fully controlled by insurgent groups. Without daring to draw a hasty conclusion, this could be a consequence of several factors. The most feasible explanation lies in the fact that disputed areas perform much worse in the provision of public services and, thus, they are favoured according to how the calculations of transfers are carried out. Further, by drawing on the literature and although we could not put it to the test with our data, illicit groups know *a priori* the municipalities that are recipients of larger State transfers and intent to get advantage of it. This points to the existence of greed as the major driver of the organisations in areas of expansion.

We also turn to investment per capita in social aspects and we discern a positive and significant impact of being in a municipality under the yoke of an insurgent group with respect to municipalities in conflict. We propose that this could be

driven by an indirect rule of illicit groups, which tolerate the presence and policy of a given candidate as long as they receive a share of the resources. Indirectly, this suggests that these municipalities, as they suffer from less intense violence, are more able to carry out more of the basic functions of the public administrations.

Eventually, we look into the political consequences of these interactions and we find that mayors of municipalities that are ruled by outlaw organisations tend to present slightly higher degrees of political representativeness than areas that suffer from widespread violence, even after controlling for selective violence that could take place in areas fully controlled by insurgents. This indicates that grievance is an important tool that outlaw organisations use to consolidate their power in certain areas. The combination of this result with the previous outcomes on the investment per capita and the transfers a municipality received could have formidable implications for the theories of greed and grievance that monopolise the literature on the appearance and expansion of illicit groups in Colombia. Our results suggest that a pure theory of either greed or grievance as incompatible substitutes is not applicable to Colombia and suffers from short-sightedness. Rather, a combination of both seems to be much more in place, to the extent that insurgent groups might be using grievance in areas they control to their advantage, whereas they carry out a strategy of aggressive and greedy expansion to areas that are more economically profitable.

These outcomes have also survived the robustness check, which consisted in exploiting an exogenous shock to the control status of many of the municipalities. This shock is the policy of President Uribe, who sent police reinforcements to many municipalities in 2002 to recover the presence of the State in those regions. By using a difference in difference model, we unfold that those areas that were controlled by insurgent groups perform worse in terms of investment in some social basic services after being contested by the State, whereas municipalities that were already competed do not suffer a significant change. This suggests that violence, as a function of control, impacts very negatively the provision of public services.

From this point onwards, further research would be appropriate in order to disentangle the interaction between violence, local per capita investment and local political dynamics, given the incipient, exploratory evidence found in this dissertation. New studies could also find a way of solving the intrinsic issue of endogeneity from which any type of non-experimental study such as this one suffers. Even more importantly, such study could give definitive evidence regarding the drivers of insurgent actions and whether, as we propose, greed and grievance build a complex network of synergies that shed light on how the guerrilla, the paramilitaries have held their ground and, in general, how civil war has been so sustained and persistent in time. It would also give crucial hints as to how to avoid insurgent groups from keeping the pulse with the State and also to prevent them from hindering the appearance of a peaceful and thriving society.

# 8 Appendix A

*Table A.1. BIC of tested models for FARC*

| Trajectory groups | Polynomial order | BIC | Trajectory groups | Polynomial order | BIC |
|---|---|---|---|---|---|
| 4 | 0 0 0 0 | -11,975.12 | 3 | 1 1 1 | -12,080.44 |
| 4 | 0 0 0 1 | -11,979.05 | 3 | 1 2 3 | -11,264.22 |
| 4 | 0 0 1 1 | -11,904.09 | 3 | 1 3 2 | -11,335.84 |
| 4 | 0 1 1 1 | -11,898.01 | 3 | 1 2 2 | -11,373.34 |
| 4 | 0 1 2 2 | -11,277.21 | 3 | 1 3 3 | -11,239.32 |
| 4 | 0 1 1 2 | -11,559.44 | 3 | 1 1 3 | -11,560.93 |
| 4 | 0 1 1 0 | -11,915.87 | 3 | 1 1 2 | -11,670.26 |
| 4 | 0 3 2 2 | -11,131.45 | 3 | 1 3 1 | -11,544.39 |
| 4 | 0 2 3 3 | -11,039.73 | 3 | 2 1 2 | -11,575.33 |
| 4 | 0 3 3 2 | -11,048.69 | 3 | 2 1 1 | -11,940.78 |
| 4 | 0 3 3 3 | -11,027.36 | 3 | 2 2 3 | -11,239.82 |
| 4 | 0 2 2 3 | -11,088.04 | 3 | 2 3 2 | -11,299.36 |
| 4 | 0 2 2 2 | -11,153.51 | 3 | 2 2 2 | -11,346.09 |
| 4 | 0 2 2 1 | -11,250.35 | 3 | 2 3 3 | -11,210.95 |
| 4 | 0 1 0 1 | -11,982.19 | 3 | 2 1 3 | -11,461.06 |
| 4 | 0 1 1 3 | -11,489.45 | 3 | 2 3 1 | -11,415.14 |
| 4 | 0 1 3 3 | -11,170.24 | 3 | 2 0 2 | -11,570.51 |
| 4 | 0 1 2 1 | -11,454.29 | 3 | 2 1 0 | -11,938.26 |
| 4 | 0 3 1 3 | -11,148.80 | 3 | 2 0 1 | -11,941.24 |
| 4 | 0 1 3 1 | -11,368.57 | 3 | 2 3 0 | -11,412.61 |
| 4 | 0 2 3 1 | -11,134.36 | 3 | 2 0 3 | -11,467.19 |
| 4 | 1 3 2 0 | -11,231.28 | 3 | 3 1 1 | -11,915.97 |
| 4 | 1 3 2 1 | -11,229.38 | 3 | 3 1 2 | -11,563.34 |
| 4 | 1 2 3 1 | -11,137.99 | 3 | 3 2 1 | -11,463.95 |
| 4 | 1 2 2 1 | -11,253.57 | 3 | 3 2 2 | -11,335.86 |
| 4 | 1 2 2 0 | -11,255.73 | 3 | 3 3 2 | -11,294.46 |
| 4 | 1 2 3 3 | -11,044.29 | 3 | 3 2 3 | -11,230.09 |
| 4 | 1 2 3 2 | -11,066.36 | 3 | 3 2 1 | -11,463.95 |
| 4 | 3 3 3 3 | -11,003.88 | 3 | 3 2 0 | -11,462.82 |
| 4 | 2 1 3 3 | -11,128.44 | 3 | 3 1 3 | -11,450.31 |
| 4 | 2 1 1 3 | -11,367.90 | 3 | 3 1 0 | -11,915.83 |
| 4 | 3 1 2 3 | -11,145.75 | 3 | 3 0 1 | -11,925.05 |
| 4 | 3 2 1 3 | -11,146.58 | 3 | 3 0 2 | -11,558.33 |
| 3 | 0 0 0 | -12,081.85 | 3 | 3 2 0 | -11,462.82 |
| 3 | 0 0 1 | -12,072.43 | 3 | 3 3 1 | -11,396.30 |
| 3 | 0 0 2 | -11,662.96 | 3 | 3 0 3 | -11,455.15 |
| 3 | 0 0 3 | -11,557.63 | 3 | 3 3 3 | -11,206.65 |
| 3 | 0 1 1 | -12,077.37 | 2 | 1 2 | -11,953.24 |
| 3 | 0 1 2 | -11,667.13 | 2 | 1 0 | -12,462.01 |

| Trajectory groups | Polynomial order | BIC | Trajectory groups | Polynomial order | BIC |
|---|---|---|---|---|---|
| 3 | 0 2 1 | -11,605.80 | 2 | 1 1 | -12,448.38 |
| 3 | 0 2 2 | -11,373.12 | 2 | 2 1 | -12,218.02 |
| 3 | 0 2 3 | -11,262.73 | 2 | 2 2 | -11,765.84 |
| 3 | 0 3 2 | -11,336.31 | 2 | 2 0 | -12,232.16 |
| 3 | 0 3 1 | -11,549.87 | 2 | 0 2 | -11,954.74 |
| 3 | 0 3 2 | -11,336.31 | 2 | 0 1 | -12,449.56 |
| 3 | 0 3 3 | -11,238.25 | 2 | 0 0 | -12,461.37 |

*Source:* Own elaboration with the results of the semi-parametric model

*Table A.2. BIC of tested models for AUC*

| Trajectory groups | Polynomial order | BIC | Trajectory groups | Polynomial order | BIC |
|---|---|---|---|---|---|
| 4 | 0 0 0 0 | -5,748.16 | 3 | 1 1 1 | -5,714.02 |
| 4 | 0 0 0 1 | -5,732.14 | 3 | 1 2 3 | -4,988.52 |
| 4 | 0 0 1 1 | -5,723.78 | 3 | 1 3 2 | -4,969.03 |
| 4 | 0 1 1 1 | -5,720.94 | 3 | 1 2 2 | -4,969.22 |
| 4 | 0 1 2 2 | -4,978.83 | 3 | 1 3 3 | -4,967.41 |
| 4 | 0 1 1 2 | -5,144.10 | 3 | 1 1 3 | -5,139.55 |
| 4 | 0 1 1 0 | -5,722.25 | 3 | 1 1 2 | -5,148.06 |
| 4 | 0 3 2 2 | -4,974.21 | 3 | 1 3 1 | -5,113.31 |
| 4 | 0 2 3 3 | -4,948.25 | 3 | 2 1 2 | -4,969.22 |
| 4 | 0 3 3 2 | -4,982.18 | 3 | 2 1 1 | -5,437.43 |
| 4 | 0 3 3 3 | -4,974.79 | 3 | 2 2 3 | -4,943.18 |
| 4 | 0 2 2 3 | -4,943.82 | 3 | 2 3 2 | -4,988.47 |
| 4 | 0 2 2 2 | -4,983.59 | 3 | 2 2 2 | -4,944.81 |
| 4 | 0 2 2 1 | -4,968.80 | 3 | 2 3 3 | -4,940.66 |
| 4 | 0 1 0 1 | -5,723.18 | 3 | 2 1 3 | -4,988.52 |
| 4 | 0 1 1 3 | -5,149.06 | 3 | 2 3 1 | -4,983.77 |
| 4 | 0 1 3 3 | -4,963.91 | 3 | 2 0 2 | -4,964.57 |
| 4 | 0 1 2 1 | -5,133.96 | 3 | 2 1 0 | -5,442.11 |
| 4 | 0 3 1 3 | -4,962.59 | 3 | 2 0 1 | -5,440.43 |
| 4 | 0 1 3 1 | -5,121.43 | 3 | 2 3 0 | -4,990.01 |
| 4 | 0 2 3 1 | -4,962.32 | 3 | 2 0 3 | -4,990.01 |
| 4 | 1 3 2 0 | -4,975.24 | 3 | 3 1 1 | -5,450.98 |
| 4 | 1 3 2 1 | -4,994.88 | 3 | 3 1 2 | -4,996.25 |
| 4 | 1 2 3 1 | -4,967.05 | 3 | 3 2 1 | -4,996.25 |
| 4 | 1 2 2 1 | -4,973.52 | 3 | 3 2 2 | -4,949.29 |
| 4 | 1 2 2 0 | -5,137.47 | 3 | 3 3 2 | -4,993.17 |
| 4 | 1 2 3 3 | -4,946.79 | 3 | 3 2 3 | -4,947.73 |
| 4 | 1 2 3 2 | -4,971.28 | 3 | 3 2 1 | -4,996.25 |
| 4 | 3 3 3 3 | -4,965.74 | 3 | 3 2 0 | -4,999.13 |
| 4 | 2 1 3 3 | -4,941.89 | 3 | 3 1 3 | -4,991.56 |
| 4 | 2 1 1 3 | -4,967.05 | 3 | 3 1 0 | -5,753.89 |
| 4 | 3 1 2 3 | -4,974.57 | 3 | 3 0 1 | -5,443.82 |
| 4 | 3 2 1 3 | -4,952.09 | 3 | 3 0 2 | -4,964.95 |
| 3 | 0 0 0 | -5,740.95 | 3 | 3 2 0 | -4,999.13 |
| 3 | 0 0 1 | -5,723.11 | 3 | 3 3 1 | -4,988.47 |
| 3 | 0 0 2 | -5,149.25 | 3 | 3 0 3 | -4,989.88 |
| 3 | 0 0 3 | -5,140.06 | 3 | 3 3 3 | -4,945.39 |
| 3 | 0 1 1 | -5,714.28 | 2 | 1 2 | -5,136.77 |
| 3 | 0 1 2 | -5,143.31 | 2 | 1 0 | -5,757.12 |
| 3 | 0 2 1 | -5,130.66 | 2 | 1 1 | -5,735.81 |
| 3 | 0 2 2 | -4,964.57 | 2 | 2 1 | -5,434.47 |
| 3 | 0 2 3 | -5,151.21 | 2 | 2 2 | -4,994.24 |
| 3 | 0 3 2 | -4,964.95 | 2 | 2 0 | -5,447.65 |
| 3 | 0 3 1 | -5,117.45 | 2 | 0 2 | -5,141.69 |
| 3 | 0 3 2 | -4,964.95 | 2 | 0 1 | -5,741.41 |
| 3 | 0 3 3 | -4,963.16 | 2 | 0 0 | -5,765.65 |

*Table A.3. List of status of each municipality*

| FARC | AUC | Disputed | State |
|---|---|---|---|
| Abejorral | Alejandría | Amalfi | Medellín |
| Abriaquí | Amagá | Andes | Arboletes |
| Angostura | Angelópolis | Anorí | Bello |
| Argelia | Anza | Santafé de Antioquia | Entrerrios |
| Belmira | Armenia | Apartadó | Envigado |
| Betulia | Betania | Barbosa | Hispania |
| Buriticá | Ciudad Bolívar | Briceño | Itagui |
| Caicedo | Caramanta | Cáceres | Jardín |
| Campamento | Carolina | Caldas | La Estrella |
| Cañasgordas | Cisneros | El Carmen de Viboral | La Pintada |
| Caracolí | Concepción | Caucasia | Olaya |
| Carepa | Concordia | Dabeiba | Sabaneta |
| Chigorodó | Copacabana | El Bagre | San Jerónimo |
| Cocorná | Ebéjico | Guarne | San Juan de Urabá |
| Don Matías | Girardota | Ituango | Valparaíso |
| Fredonia | Gómez Plata | Mutatá | Barranquilla |
| Frontino | Heliconia | Nechí | Baranoa |
| Giraldo | Jericó | Puerto Berrío | Campo de La Cruz |
| Granada | La Ceja | Remedios | Galapa |
| Guadalupe | La Unión | Rionegro | Juan de Acosta |
| Guatapé | Maceo | Sabanalarga | Luruaco |
| Liborina | Marinilla | San Andrés de Cuerquía | Manatí |
| Murindó | Montebello | San Carlos | Palmar de Varela |
| Nariño | Necoclí | San Francisco | Piojó |
| Peñol | Pueblorrico | San Luis | Polonuevo |
| Peque | Puerto Nare | San Roque | Ponedera |
| Salgar | Puerto Triunfo | Santa Rosa de Osos | Puerto Colombia |
| San Rafael | Retiro | El Santuario | Repelón |
| Turbo | San José de La Montaña | Segovia | Sabanagrande |
| Uramita | San Pedro | Sonson | Santa Lucía |
| Urrao | San Pedro de Uraba | Tarazá | Santo Tomás |
| Valdivia | San Vicente | Toledo | Suan |
| Vigía del Fuerte | Santa Bárbara | Vegachí | Tubará |
| Yarumal | Santo Domingo | Yolombó | Usiacurí |
| Zaragoza | Sopetrán | Yondó | Bogotá, D.C. |
| Soledad | Támesis | Malambo | Cartagena |
| Achí | Tarso | Cantagallo | Altos del Rosario |
| Clemencia | Titiribí | Magangué | Arjona |
| El Carmen de Bolívar | Venecia | Montecristo | Arroyohondo |
| El Guamo | Yalí | Morales | Cicuco |
| Mahates | Candelaria | San Pablo | El Peñón |
| San Jacinto | Sabanalarga | Santa Rosa | Hatillo de Loba |
| Belén | Arenal | Santa Rosa del Sur | Margarita |
| Chiquinquirá | Barranco de Loba | Simití | Mompós |
| Chiscas | Calamar | Turbaco | Norosí (1) |
| Chita | Córdoba | Tunja | Regidor |
| Cubará | María La Baja | Duitama | San Cristóbal |
| El Cocuy | Pinillos | Aguadas | San Estanislao |
| El Espino | Río Viejo (1)(3) | Anserma | San Fernando |
| Gameza | San Juan Nepomuceno | La Dorada | San Jacinto del Cauca |
| Guayatá | San Martín de Loba | Manzanares | Santa Catalina |
| Güicán | Tiquisio | Marulanda | Soplaviento |
| Labranzagrande | Villanueva | Norcasia | Talaigua Nuevo |
| La Uvita | Zambrano | Salamina | Turbaná |
| Mongua | Aquitania | Samaná | Almeida |
| Pajarito | Campohermoso | Florencia | Arcabuco |

| FARC | AUC | Disputed | State |
|---|---|---|---|
| Pauna | Chivor | Belén de Los Andaquies | Berbeo |
| Paya | Garagoa | El Paujil | Betéitiva |
| Paz de Río | Guateque | Morelia | Boavita |
| Pesca | Miraflores | Valparaíso | Boyacá |
| Pisba | Páez | Balboa | Briceño |
| Sativanorte | Paipa | Buenos Aires | Buenavista |
| Socotá | Puerto Boyacá | Cajibío | Busbanzá |
| Socha | San Eduardo | Corinto | Caldas |
| Sogamoso | San Luis de Gaceno | Mercaderes | Cerinza |
| Tasco | Aranzazu | Valledupar | Chinavita |
| Pensilvania | Chinchiná | Aguachica | Chitaraque |
| Riosucio | Filadelfia | Agustín Codazzi | Chivatá |
| Supía | Marquetalia | Chiriguaná | Ciénega |
| Cartagena del Chairá | Neira | Curumaní | Cómbita |
| Curillo | Pácora | El Copey | Coper |
| El Doncello | Victoria | La Gloria | Corrales |
| La Montañita | Albania | La Jagua de Ibirico | Covarachía |
| Milán | Bosconia | San Diego | Cucaita |
| Puerto Rico | Chimichagua | Montería | Cuítiva |
| San José del Fragua | El Paso | Montelíbano(1)(3) | Chíquiza |
| San Vicente del Caguán | González | Tierralta | Firavitoba |
| Solano | Pailitas | Facatativá | Floresta |
| Solita | Pelaya | Paratebueno | Gachantivá |
| Popayán | Pueblo Bello | Quibdó | Guacamayas |
| Almaguer | San Alberto | Bahía Solano | Iza |
| Argelia | San Martín | Bojaya | Jenesano |
| Bolívar | Valencia | Condoto | Jericó |
| Caldono | Caparrapí | El Carmen de Atrato | La Capilla |
| Caloto(1)(3) | Guaduas | Nóvita | La Victoria |
| El Tambo | La Palma | Riosucio(2) | Villa de Leyva |
| Guapi | Puerto Salgar | San José del Palmar | Macanal |
| Inzá | Ubalá | Tadó | Maripí |
| Jambaló | Yacopí | Riohacha | Monguí |
| La Sierra | Acandí | Barrancas | Moniquirá |
| La Vega | Alto Baudo | Dibulla | Motavita |
| López | Istmina | Fonseca | Muzo |
| Miranda | Juradó | Maicao | Nobsa |
| Morales | Nuquí | Uribia | Nuevo Colón |
| Paez | Unguía | Villanueva | Oicatá |
| Patía | Pital | Santa Marta | Otanche |
| Piamonte | Ariguaní | Ciénaga | Pachavita |
| Piendamó | Cerro San Antonio | Fundación | Panqueba |
| Puerto Tejada | Chivolo | Plato | Quípama |
| Puracé | El Banco | Zona Bananera | Ramiriquí |
| Rosas | El Retén | Acacías | Ráquira |
| San Sebastián | Pivijay | El Castillo | Rondón |
| Santander de Quilichao | Remolino | El Dorado | Saboyá |
| Santa Rosa | Sitionuevo | Granada | Sáchica |
| Silvia | Barranca de Upía | Mapiripán | Samacá |
| Sotara | Cabuyaro | Puerto Concordia | San José de Pare |
| Suárez | Guamal | Puerto Gaitán | San Mateo |
| Sucre | San Carlos de Guaroa | Puerto López | San Miguel de Sema |
| Timbío | El Peñol | Puerto Lleras | San Pablo de Borbur |
| Timbiquí | Leiva | Puerto Rico | Santana |
| Toribio | Cachirá | San Juan de Arama | Santa María |
| Totoró | La Esperanza | San Martín | Santa Rosa de Viterbo |
| Becerril | Puerto Santander | Pasto | Santa Sofía |

| FARC | AUC | Disputed | State |
|---|---|---|---|
| Manaure | Villa del Rosario | El Rosario | Sativasur |
| La Paz | La Virginia | Policarpa | Siachoque |
| Puerto Libertador | Quinchía | Taminango | Soatá |
| Agua de Dios | Santuario | San Andres de Tumaco | Somondoco |
| Albán | Betulia | Abrego | Sora |
| Anolaima | Charalá | Convención | Sotaquirá |
| Arbeláez | El Carmen de Chucurí | El Carmen | Soracá |
| Beltrán | El Playón | El Tarra | Susacón |
| Bituima | Florián | El Zulia | Sutamarchán |
| Cabrera | Güepsa | Ocaña | Sutatenza |
| Caqueza | La Belleza | Tibú | Tenza |
| Chaguaní | Puerto Parra | Armenia | Tibaná |
| Chipaque | Puerto Wilches | Cimitarra | Tibasosa |
| Choachí | San Gil | Lebríja | Tinjacá |
| El Colegio | Santa Helena del Opón | Rionegro | Tipacoque |
| El Peñón | Simacota | Sabana de Torres | Toca |
| Fomeque | Socorro | San Vicente de Chucurí | Togüí |
| Fosca | Suratá | Sincelejo | Tópaga |
| Fusagasugá | Vélez | Corozal | Tota |
| Gachala | Zapatoca | San Onofre | Tununguá |
| Gachetá | Coloso | San Pedro | Turmequé |
| Gama | Galeras | Chaparral | Tuta |
| Girardot | Guaranda | Espinal | Tutazá |
| Granada | Sucre | Guamo | Umbita |
| Guasca | Santiago de Tolú | Honda | Ventaquemada |
| Guatavita | Tolú Viejo | Líbano | Viracachá |
| Guayabal de Siquima | Ambalema | Ortega | Zetaquira |
| Guayabetal | Armero | San Luis | Manizales |
| Gutiérrez | Fresno | Buenaventura | Belalcázar |
| Jerusalén | Herveo | Bugalagrande | La Merced |
| Junín | Lérida | Calima | Marmato |
| La Calera | Mariquita | Ginebra | Palestina |
| La Mesa | Saldaña | Pradera | Risaralda |
| La Peña | Valle de San Juan | San Pedro | San José |
| Macheta | Roldanillo | Tuluá | Villamaría |
| Medina | Trujillo | Arauca | Viterbo |
| Nariño | Chameza | Cravo Norte | Florencia |
| Nimaima | Monterrey | Tame | Guachené (1) |
| Venecia | San Luis de Palenque | Yopal | Padilla |
| Pacho | La Primavera | Aguazul | Villa Rica |
| Pandi | Monterrey | Hato Corozal | Astrea |
| Pasca | San Luis de Palenque | Maní | Gamarra |
| Pulí | La Primavera | Orocué | Río de Oro |
| Quebradanegra | | Paz de Ariporo | Tamalameque |
| Quetame | | Pore | Ayapel |
| Quipile | | Sabanalarga | Buenavista |
| San Bernardo | | Tauramena | Canalete |
| San Juan de Río Seco | | Trinidad | Cereté |
| Sasaima | | Villanueva | Chimá (1) (3) |
| Sibaté | | Mocoa | Chinú |
| Silvania | | Orito | Ciénaga de Oro |
| Soacha | | Puerto Asís | Cotorra |
| Tibacuy | | Puerto Caicedo | La Apartada |
| Tocaima | | Puerto Guzmán | Lorica |
| Topaipí | | Valle del Guamuez | Los Córdobas |
| Une | | Villagarzón | Momil |
| Útica | | San José del Guaviare | Moñitos |

| FARC | AUC | Disputed | State |
|---|---|---|---|
| Vergara | | Cumaribo | Planeta Rica |
| Vianí | | | Pueblo Nuevo |
| Villagómez | | | Puerto Escondido |
| Villeta | | | Purísima |
| Viotá | | | Sahagún |
| Atrato | | | San Andrés Sotavento (1) (3) |
| Bagadó | | | San Antero |
| Carmen del Darien | | | San Bernardo del Viento |
| Medio Atrato | | | San Carlos |
| Sipí | | | San José de Uré(1) |
| Acevedo | | | San Pelayo |
| Aipe | | | Tuchín (1) (5) |
| Algeciras | | | Anapoima |
| Altamira | | | Bojacá |
| Baraya | | | Cachipay |
| Campoalegre | | | Cajicá |
| Colombia | | | Carmen de Carupa |
| Garzón | | | Chía |
| Gigante | | | Chocontá |
| Guadalupe | | | Cogua |
| Hobo | | | Cota |
| Iquira | | | Cucunubá |
| Isnos | | | El Rosal |
| La Argentina | | | Funza |
| La Plata | | | Fúquene |
| Nátaga | | | Gachancipá |
| Palermo | | | Guachetá |
| Palestina | | | Guataquí |
| Pitalito | | | La Vega |
| Rivera | | | Lenguazaque |
| Saladoblanco | | | Madrid |
| San Agustín | | | Manta |
| Santa María | | | Mosquera |
| Suaza | | | Nemocón |
| Tarqui | | | Nilo |
| Tesalia | | | Nocaima |
| Tello | | | Paime |
| Teruel | | | Apulo |
| Timaná | | | Ricaurte |
| Villavieja | | | San Antonio del Tequendama |
| Yaguará | | | San Cayetano |
| Albania | | | San Francisco |
| Distracción | | | Sesquilé |
| El Molino | | | Simijaca |
| La Jagua del Pilar | | | Sopó |
| San Juan del Cesar | | | Subachoque |
| Urumita | | | Suesca |
| Aracataca | | | Supatá |
| Tenerife | | | Susa |
| Castilla la Nueva | | | Sutatausa |
| Cubarral | | | Tabio |
| Cumaral | | | Tausa |
| El Calvario | | | Tena |
| Fuente de Oro | | | Tenjo |
| Mesetas | | | Tibirita |
| La Macarena | | | Tocancipá |
| Uribe | | | Ubaque |

| FARC | AUC | Disputed | State |
|---|---|---|---|
| Lejanías | | | Villa de San Diego de Ubate |
| Restrepo | | | Villapinzón |
| San Juanito | | | Zipacón |
| Vistahermosa | | | Zipaquirá |
| Albán | | | Bajo Baudó |
| Arboleda | | | El Cantón del San Pablo |
| Barbacoas | | | Cértegui |
| Belén | | | El Litoral del San Juan |
| Buesaco | | | Lloró |
| Colón | | | Medio Baudó |
| Córdoba | | | Medio San Juan |
| Cumbal | | | Río Iro |
| Cumbitara | | | Río Quito |
| El Charco | | | Unión Panamericana |
| El Tablón de Gómez | | | Neiva |
| Funes | | | Agrado |
| Guachucal | | | Elías |
| Guaitarilla | | | Oporapa |
| Ipiales | | | Paicol |
| La Cruz | | | Hatonuevo |
| La Llanada | | | Manaure |
| La Tola | | | Algarrobo |
| Linares | | | Concordia |
| Los Andes | | | El Piñon |
| Magüi | | | Guamal |
| Mallama | | | Nueva Granada |
| Olaya Herrera | | | Pedraza |
| Potosí | | | Pijiño del Carmen |
| Puerres | | | Puebloviejo |
| Ricaurte | | | Sabanas de San Angel |
| Roberto Payán | | | Salamina |
| Samaniego | | | San Sebastián de Buenavista |
| Sandoná | | | San Zenón |
| San Pablo | | | Santa Ana |
| Santa Bárbara | | | Santa Bárbara de Pinto |
| Santacruz | | | Zapayán |
| Tangua | | | Villavicencio |
| Túquerres | | | Aldana |
| Arboledas | | | Ancuyá |
| Bucarasica | | | Consaca |
| Chitagá | | | Contadero |
| Cucutilla | | | Cuaspud |
| Hacarí | | | Chachagüí |
| La Playa | | | El Tambo |
| Pamplona | | | Gualmatán |
| Salazar | | | Iles |
| San Calixto | | | Imués |
| Santiago | | | La Florida |
| Sardinata | | | La Unión |
| Teorama | | | Mosquera |
| Toledo | | | Nariño |
| Calarca | | | Ospina |
| Córdoba | | | Francisco Pizarro |
| Génova | | | Providencia |
| La Tebaida | | | Pupiales |
| Montenegro | | | San Bernardo |
| Pijao | | | San Lorenzo |

| FARC | AUC | Disputed | State |
|------|-----|----------|-------|
| Salento | | | San Pedro de Cartago |
| Apía | | | Sapuyes |
| Belén de Umbría | | | Yacuanquer |
| Guática | | | Cúcuta |
| La Celia | | | Bochalema |
| Mistrató | | | Cácota |
| Pueblo Rico | | | Chinácota |
| Barbosa | | | Durania |
| Bolívar | | | Gramalote |
| California | | | Herrán |
| Capitanejo | | | Labateca |
| Cerrito | | | Los Patios |
| Concepción | | | Lourdes |
| Contratación | | | Mutiscua |
| El Peñón | | | Pamplonita |
| Guaca | | | Ragonvalia |
| Guavatá | | | San Cayetano |
| Landázuri | | | Silos |
| Málaga | | | Villa Caro |
| Matanza | | | Buenavista |
| Puente Nacional | | | Circasia |
| Sucre | | | Filandia |
| Chalán | | | Quimbaya |
| El Roble | | | Pereira |
| Los Palmitos | | | Balboa |
| Majagual | | | Dosquebradas |
| Morroa | | | Marsella |
| Ovejas | | | Santa Rosa de Cabal |
| Palmito | | | Bucaramanga |
| San Benito Abad | | | Aguada |
| San Juan de Betulia | | | Albania |
| San Luis de Sincé | | | Aratoca |
| Alpujarra | | | Barichara |
| Alvarado | | | Barrancabermeja |
| Anzoátegui | | | Cabrera |
| Ataco | | | Carcasí |
| Cajamarca | | | Cepitá |
| Casabianca | | | Charta |
| Coello | | | Chima |
| Coyaima | | | Chipatá |
| Cunday | | | Confines |
| Dolores | | | Coromoro |
| Icononzo | | | Curití |
| Melgar | | | El Guacamayo |
| Murillo | | | Encino |
| Natagaima | | | Enciso |
| Planadas | | | Floridablanca |
| Prado | | | Galán |
| Purificación | | | Gambita |
| Rioblanco | | | Girón |
| Roncesvalles | | | Guadalupe |
| Rovira | | | Guapotá |
| San Antonio | | | Hato |
| Santa Isabel | | | Jesús María |
| Venadillo | | | Jordán |
| Villahermosa | | | La Paz |
| Villarrica | | | Los Santos |

| FARC | AUC | Disputed | State |
|---|---|---|---|
| Guadalajara de Buga | | | Macaravita |
| Caicedonia | | | Mogotes |
| Candelaria | | | Molagavita |
| Cartago | | | Ocamonte |
| Dagua | | | Oiba |
| El Cerrito | | | Onzaga |
| Florida | | | Palmar |
| Guacarí | | | Palmas del Socorro |
| Jamundí | | | Páramo |
| Restrepo | | | Piedecuesta |
| Riofrío | | | Pinchote |
| Sevilla | | | San Andrés |
| Arauquita | | | San Benito |
| Fortul | | | San Joaquín |
| Puerto Rondón | | | San José de Miranda |
| Saravena | | | San Miguel |
| La Salina | | | Santa Bárbara |
| Nunchía | | | Suaita |
| Recetor | | | Tona |
| Sácama | | | Valle de San José |
| Támara | | | Vetas |
| Colón | | | Villanueva |
| Leguízamo | | | Buenavista |
| Sibundoy | | | Caimito |
| San Francisco | | | Coveñas |
| San Miguel | | | La Unión |
| Santiago | | | Sampués |
| Leticia | | | San Marcos |
| Inírida | | | Ibagué |
| Barranco Minas (CD) | | | Carmen de Apicalá |
| Calamar | | | Falan |
| El Retorno | | | Flandes |
| Miraflores | | | Palocabildo |
| Mitú | | | Piedras |
| Caruru | | | Suárez |
| Puerto Carreño | | | Cali |

*Source:* Own elaboration from Table 5.1 and Figures 5.1 and 5.2.

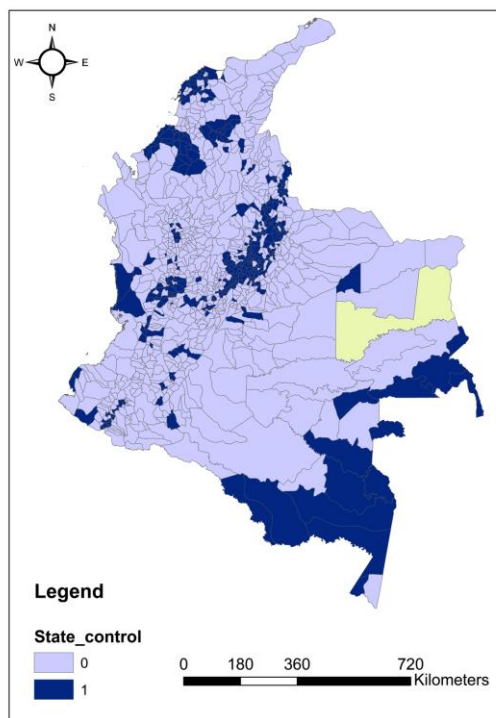*Figure A.1. State controlled areas*

*Source:* Own elaboration from Table 5.1.

# 9 Appendix B

*Table B.1. F test of Table 5.2*

| | |
|---|---|
| (1) FARC control = State control | (2) FARC control = State control |
| $F(1, 1042) = 25.61$ | $F(1, 1042) = 37.10$ |
| Prob > F = 0.0000 | Prob > F = 0.0000 |
| | |
| (1) AUC control = State control | (2) AUC control = State control |
| $F(1, 1042) = 25.86$ | $F(1, 1042) = 31.80$ |
| Prob > F = 0.0000 | Prob > F = 0.0000 |
| | |
| (3) FARC control  = State control | (4) FARC control = State control |
| $F(1,  1042) = 20.96$ | $F(1,  1042) = 21.46$ |
| Prob > F = 0.0000 | Prob > F = 0.0000 |
| | |
| (3) AUC control = State control | (4) AUC control = State control |
| $F(1, 1042) =   31.24$ | $F(1, 1042) = 20.41$ |
| Prob > F = 0.0000 | Prob > F = 0.0000 |
| | |
| (5) FARC control = State control | (6) FARC control = State control |
| $F(1, 1042) = 11.26$ | $F(1,  1042) = 12.31$ |
| Prob > F = 0.0008 | Prob > F = 0.0005 |
| | |
| (5) AUC control = State control | (6) AUC control = State control |
| $F(1, 1042) = 8.90$ | $F(1, 1042) = 9.48$ |
| Prob > F = 0.0029 | Prob > F = 0.0021 |

*Note:* The numbers between parentheses refer to the regressions in Table 2 for which the F test is used

*Source:* Table 5.2.

*Table B.2. F test of Table 5.3*

| | |
|---|---|
| (1) FARC control = State control | (2) FARC control = State control |
| $F(1, 970) = 5.75$ | $F(1, 1088) = 17.99$ |
| Prob > F = 0.0167 | Prob > F = 0.0000 |
| | |
| (1) AUC control = State control | (2) AUC control = State control |
| $F(1, 970) = 1.35$ | $F(1, 1088) = 7.97$ |
| Prob > F = 0.2461 | Prob > F = 0.0048 |
| | |
| (3) FARC control = State control | (3) AUC control = State control |
| $F(1, 528) = 5.36$ | $F(1, 528) = 5.39$ |
| Prob > F = 0.0210 | Prob > F = 0.0207 |

*Note:* The numbers between parentheses refer to the regressions in Table 3 for which the F test is used
*Source*: Table 5.3.

*Table B.3. F test of Table 5.5*

| | |
|---|---|
| (1) FARC control = State control | (2) FARC control + State control = 0 |
| $F(1, 1042) = 0.06$ | $F(1, 1042) = 0.23$ |
| Prob > F = 0.8053 | Prob > F = 0.6344 |
| | |
| (1) AUC control = State control | (2) AUC control = State control |
| $F(1, 1042) = 1.06$ | $F(1, 1042) = 0.29$ |
| Prob > F = 0.3021 | Prob > F = 0.5889 |
| | |
| (3) FARC control = State control | (4) -FARC control + State control = 0 |
| $F(1, 1042) = 0.06$ | $F(1, 1042) = 0.10$ |
| Prob > F = 0.8093 | Prob > F = 0.7568 |
| | |
| (3) AUC control = State control | (4) AUC control = State control |
| $F(1, 1042) = 0.10$ | $F(1, 1042) = 0.10$ |
| Prob > F = 0.7555 | Prob > F = 0.7505 |
| | |
| (5) FARC control = State control | (5) AUC control = State control |
| $F(1, 1042) = 2.43$ | $F(1, 1042) = 0.00$ |
| Prob > F = 0.1191 | Prob > F = 0.9542 |

*Note:* The numbers between parentheses refer to the regressions in Table 5 for which the F test is used
*Source:* Table 5.5

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