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Essays on the Underlying Capacity of the State and its Effects on Economic Development

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by

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APPROVAL OF THE DISSERTATION COMMITTEE

This dissertation has been duly read, reviewed, and critiqued by the Committee listed below, which hereby approves the manuscript of Alma Alicia Bezares Calderón as fulfilling the scope and quality requirements for meriting the degree of Doctor of Philosophy in Economics and Political Science.

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Abstract

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Alma Alicia Bezares Calderón

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This dissertation focuses on three main topics: state capacity, conflict and development. During my progress in my program, I have become more interested in these issues as I have seen how closely linked they are and how they help to explore questions related to prosperity, or the lack of thereof. In particular, my research, and more precisely this dissertation, concentrates on the connection among these three issues in low- and middle-income countries.

In the first chapter, titled *"How Strong is your Shield? Subnational State Capacity and Violence in Mexico"* I center the analysis on the case of Mexico, a middle-income country that has been characterized by high levels of drug-related violence in the last few years. I explore how violence directly affects economic and social prosperity, and how does subnational state capacity can mitigate these effects. I then look at how persistent violence deteriorates state capacity. Overall, I find that high levels of capacity isolate the population from the negative effects of high violence. However, persistent violence deteriorates capacity, thus leaving less room for policymakers to react to violence.

The second and third chapter of the dissertation focus on the Democratic Republic of Congo (DRC), a fragile state that underwent a decentralization process in which the country passed from having 11 provinces to 26. Chapter 2 of the dissertation, titled *"Is Local Governance a Possibility after Decentralization? The Case of the DRC"*, explores the role that patronage plays in extending the horizons of the local governments and what does this mean for the investment on local capacity, in a place where there is a degree of zero capacity. This chapter is a modified version of a working paper written in collaboration with Pierre Englebert. He has largely contributed to the development of the theoretical argument of the paper and I am highly indebted to him for his immense assistance. I am also grateful to my colleague Lisa Jené and to Balthazar Ngoy

Kimpulwa, Georges Kasongo Kalumba and Eric Ndai Nonga, who were crucial collaborators in the research on decentralization in the DRC. This research was made possible by the Secure Livelihoods Research Consortium (SLRC) of the Overseas Development Institute through funding provided by the United Kingdom's Department for International Development (DFID).

Finally, Chapter 3, titled *Découpage and Conflict in the DRC* also looks at the découpage process in the DRC but searches to find how, if at all, this process affected the levels of conflict that persist in the country. My findings indicate that découpage in the DRC helped to isolate the areas with lower levels of conflict from those that show a higher number of conflict events. In addition, I show how more ethnic heterogeneity leads to higher instability and that these effects are more persistent in places with lower levels of wealth.

Overall, the three papers help to shed some light on the effects that violence, fragility and a predatory regime have on prosperity at the subnational level. With this, I expect to contribute to the literature on economic development, political economy and comparative politics.

To my Mom

Acknowledgements

Firstly, I would like to thank my committee members, Dr. Melissa Rogers, Dr. Pierangelo de Pace and Dr. Pierre Englebert. They are the best committee someone could wish for. Their continuous support has made an impact in my research and in my life. They have been with me through all this process and they have made it more fun and stimulating. They have introduced new worlds to me and have helped me to reach new horizons. I sincerely thank each one of them.

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To my brothers, for always inspiring me with all the wonderful things they do and for pushing me to be a better individual; for always being there when I need them, for their advice and company. To my dad, for trusting in me and in my dreams. To Ali, for cheering me up and believing in me whenever it was harder for me to do so, and for having been my travel buddy, for all the adventures we were able to live together.

To Sergio, my dearest partner of greatness. For not letting me to fall down. For staying next to me, even when it has been hard. For going beyond borders and for helping me to take care of the rest my life while I was doing this. For his infinite love.

But most of all, to my mom. She is the reason I am here, she made this possible. I miss you...

Contents

Chapter 1

How Strong is your Shield?
Subnational State Capacity and Violence in Mexico

Abstract

The effects of violence go beyond the loss of human lives. An increase in violence may reduce the quality of life of the population by limiting education and unemployment opportunities. This, in turn, impacts long term economic development. Still, these negative outcomes are not homogeneous across the population, but they depend on the capacity of the state to limit the effect of violence on citizens, which differs under different contexts. To examine these dynamics, I first develop a formal model of capacity and violence. I then use mediation analysis on data for Mexico's municipalities between 1990 and 2016 to explore how the capacity of the state can mitigate the effect of drug-related violence on a range of socioeconomic outcomes and how persistent violence, in turn, affects state capacity. Additionally, I conduct a difference-in-differences estimation of President Felipe Calderón's "War On Drugs" to analyze the detrimental effect of persistent violence during that period.

1.1 Introduction

Organized crime and its related violence generates victims across the full spectrum of society. The most immediate and tragic cost is related to the loss of lives, but the effects hardly stop there. Violence reduces economic productivity and efficiency, decreases social capital among inhabitants, and limits the well-being of the society (Blattman and Miguel, 2010, Mihalache-O'Keef and Vashchilko, 2010). Still, the effects are not equally distributed. A stronger state can spare the population from the negative effects of violence. This study uses the case of Mexico to provide robust evidence about the role that the state plays to limit the effects of drug-related violence.

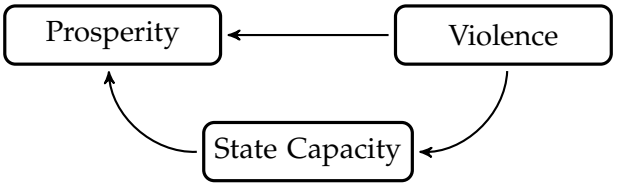
Mexico represents a pertinent case to examine this issue. In 2017, a controversial report from the International Institute for Strategic Studies placed Mexico as one of the most violent countries in the world that is not engaged in civil war.[1] Since the administration of former president Felipe Calderón started its campaign against drug cartels in 2006, the country has seen a continuous increase in the number of murders. For example, between January and May 2018, violence in Mexico took the lives of 13,298 victims. Although it is not possible to verify the share of these deaths that is directly related to organized crime, calculations indicate that about one third to one half of the total homicides in the country are linked to organized crime (Heinle et al., 2017). Furthermore, violence in Mexico has also escalated in brutality and in its geographic spread. Drug cartels seem to have become more aggressive in their fight for new territories, permeating different layers of the society. According to Trejo (2018), the war against drug cartels led to their fragmentation and to the diversification of their activities to include extortion, illegal natural resource extraction, human trafficking, oil smuggling, and gaining control of the municipalities across the country (Institute for Economics and Peace, 2018).

Still, not every region in the country has been affected to the same degree. Whereas levels of violence have steadily increased across many parts of the country, in certain areas the effects seem more apparent than in others. Areas of rising violence have experienced declining well-being of the population, such as lower educational attainment and reduction of health-care access. My contribution with this paper is to disentangle how the strength of the state at the local level can explain some of these differences in outcomes.

I conjecture that the effect of drug-related violence in Mexico affects prosperity in two ways. First, it generates an overall direct negative impact that mostly depends on the

[1] The Mexican government, as well as different national and international journalistic sources, criticized the methodology used by the Institute in their calculation of deaths linked to organized crime.

location of drug-related activities. Second, it generates an indirect effect that depends on the strength of the state at the local level, with a stronger state able to limit the negative effects of violence. Furthermore, I argue that persistently high violence will negatively affect state capacity. This is, since fighting high levels of violence requires enormous state effort, this may in turn reduce the resources available to and the incentives of the government to invest in capacity moving forward. This makes state capacity endogenous to high levels of persistent violence.



Effects of Violence on Prosperity

Scholars frequently argue that the lack of state capacity and prosperity are at the origin of increasing violence.[2]. Still, as Ríos (2012) and Dube et al. (2013) demonstrate, drug-related crime in Mexico is also related to factors other than the lack of institutional capacity at the sub-national level. They argue that violence has been the result of the increase in political competition at the municipality level, particularly in areas with high drug trafficking activity and gun trafficking (Dube et al., 2013, Rios, 2013, Robles et al., 2015).

Previous work has already looked at some of the effects of drug-related violence on socioeconomic outcomes in Mexico. Ríos (2016) analyzes the costs of violence on the number of economic sectors and finds that an increase of 9.8% in the number of criminal organizations eliminates one economic sector at the municipal level. Robles et al. (2015) also look at the economic consequences of violence. More precisely, they examine how violent crime affects labor participation and energy consumption, finding that in areas where violence spiked, energy consumption decreased substantially. Brown et al. (2018) use longitudinal survey data to verify that there is an increase in risk aversion across the population as violent crime increases. Márquez-Padilla et al. (2015) do not find any effect of violence on human capital accumulation. They verify their claim using schooling enrollment and retention levels, as well as student performance data. Still, the literature largely ignores the role of the state in mitigating the effects of violence on the population.

[2]See Moscona et al. (2018), Blattman and Miguel (2010), Dimico et al. (2012) on how violence appears in the context of imperfect markets

I posit that taking the level of violence as exogenous, its effects on socioeconomic outcomes (which I label *prosperity*) depend on the strength of the state. I explore this possibility in a formal model adapted from (Besley and Persson, 2014). To test my argument, I present several pieces of evidence drawn from a large dataset that examines 2,456 municipalities in Mexico for the period 1990 to 2016. This temporal and geographic scope allows me to assess the local conditions before and after the "War On Drugs" began in 2006.

To test the endogenous effects of violence on state capacity, I use a mediation model (Imai et al., 2010). I also employ a number of estimation strategies to verify the robustness of the results, including the use of diverse thresholds of state capacity and interaction effects. To measure state capacity, I use a range of measures and specifications, such as collection of municipal taxes per capita, collection of property taxes, number of local institutions, and number of bureaucrats working in the local government.[3] To avoid concerns about reverse causality, and to show the effects of persistent violence, I use the lag of 5-year averages of homicides and employ an instrumental variable specification. Furthermore, a central element in my analysis is to treat 2006 as the year in which violence begins to directly impact state capacity. In that year, president Felipe Calderón arrived in power and declared the beginning of the War On Drugs as a central element in his presidency. I argue that high levels of violence have the power to affect governance, such as investments in and maintenance of capacities.

I capture prosperity with a range of measures, such as the number of firms present in a given municipality, educational attainment and health outcomes, among others. Since different political parties had different political objectives and different constituencies, it became more difficult to negotiate a common action towards drug cartels. Whereas before, drug cartels could reach an agreement with one level of the government and it was respected by the lower levels of government, more diversification reduced collective action and led to different strategies that many times opposed each other, leading to an increase in violence. Thus I include this diversification of political parties between different levels of government and look at the effect this has on state capacity and prosperity. As Ríos (2013) and Dube et al. (2012) expose, more diversification of political parties at the subnational level reduced the leverage of drug cartels.

The rest of the paper is divided as follow. In the next section, I give an overview of the drug-related violence situation in Mexico. Then, Section 1.3 introduces the intuition behind the formal model on capacity and prosperity. Section 1.4 develops the mechanisms throughout which state capacity, violence and prosperity interact in the

[3] I expect that the effect of the number of bureaucrats on prosperity to have an inverse-U shape, with a larger number of bureaucrats than a given threshold mostly related to patronage and not to state capacity

specific context of the model. The empirical specification and the data are introduced in sections 1.5 and 1.6, respectively. Results are presented in section 1.7. Section 1.8 concludes.

1.2 The Context of Mexico

Since the mid 2000s, Mexico has experienced a dramatic increase in violence. After the arrival of President Felipe Calderón to power, the number of homicides skyrocketed and, although there was a slight decrease of murders between 2012 and 2014, since 2015 the number has again increased (see Figure 1.1).

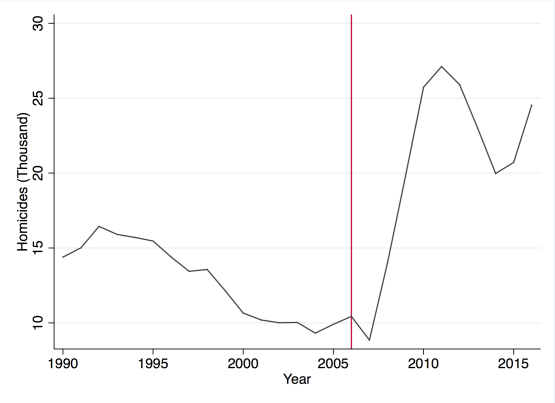


FIGURE 1.1: Homicides 1990-2016

INEGI, 2018

This increase in violence is closely related to the expansion of drug trafficking and organized crime across the country. Although the Mexican drug trade started in the 1950s, marijuana and opium production largely increased during the 1990s (Dube et al., 2016). The drug organizations started to fight over the control of territory. As Dell et al. (2018) show, violence across Latin America is mostly concentrated in cities along the drug routes. This fight started since the 1990s, when the country was transitioning towards democracy and informal networks of sub-national protection began to fade away (Rios, 2013, Trejo and Ley, 2018). However, the "War On Drugs" initiated during Calderón's administration and continued during the presidency of Peña Nieto, exacerbated this loss of informal alliances and increased the confrontation between trafficking organizations and the authorities. This led to the fragmentation of criminal organizations and the subsequent fight for territories in the areas with concentrated drug production and trafficking routes (Rios, 2013, Magaloni et al., 2014, Dell, 2015, Dell et al., 2018). This explains why in the last few years, violence has indeed evolved in parallel ways to the presence of drugs across the country (see Figures 1.2 and 1.3). Importantly, during these administrations Mexican drugs increased their share in the U.S. market (Dell, 2015).

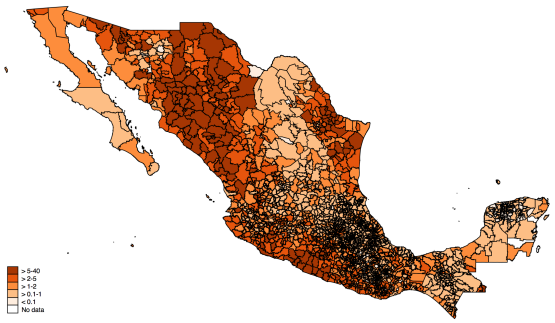


FIGURE 1.2: Average annual homicides per 10,000 inhabitants, 2007-2016

Elaborated with data from INEGI, 2018

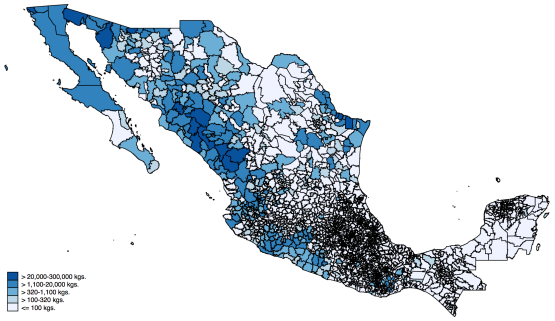


FIGURE 1.3: Average annual marijuana eradicated between 2007-2016

Elaborated with data from SEDENA, 2018

In addition to an increase in contestation for territories across the country and the fragmentation of the major drug cartels, there has been an increase in the number of illegal activities of these organizations, such as extortion, kidnappings, and human trafficking (Magaloni et al., 2014, Institute for Economics and Peace, 2018). This, in turn, has generated adverse consequences for the population. It is widely recognized that drug trafficking organizations extort businesses, individuals, and even churches (Aristegui Noticias, 2013). These activities are frequently orchestrated from within prison, as some of the leaders of these cartels have already been captured, but they have been able to extend their operations in different communities (see Table 1.1).[4]

These organizations follow different strategies to co-opt the population. Whereas *Los Zetas* are known for their violent methods and their use of extensive extortion and kidnapping, other groups and drug lords have, at least at some point during their existence, created close ties with the population. In 2016, the BBC reported about the close relationship of the population in the municipality of Badiguarato with drug lords, such as Joaquín, *"el Chapo Guzmán,"* who was born in this region. In these cases, the drug

[4]This situation is not unique to Mexico. Lessing and Denyer Willis (2018) portrait how the Primeiro Comando da Capital (PCC) gang has been able to operate attacks against civilian targets from within prisons in Brazil

Cartel	Captured	Dead	Free
Cartel Arellano Felix	4		
Cartel Carrillo Fuentes	1		
Cartel de Juárez	8	1	2
Cartel de Los Beltrán Leyva	9	4	1
Cartel Los Zetas	41	10	2
Cartel del Golfo	8	3	
Cartel del Pacífico	23	5	5
Cartel del Poniente	17		
Jalisco Nueva Generación	4	1	2
La Familia Michoacana	5	2	1
Los Caballeros Templarios	4	2	
Los Rojos		1	2

TABLE 1.1: Drug Kingpins and Drug Organizations, 2018

Elaborated with Data from PGR

cartels become a substitute of the state, establishing churches, health clinics and schools (BBC World, 2016).

According to Magaloni et al. (2014), and drawing from Olson (1993), criminal organizations will look to construct a cooperative relationship with the population whenever they plan to keep control of the region in the long-run. Otherwise, they will extract resources from the population via extortion or kidnapping. This may explain why the situation has become more violent across the country. As different organizations fight for the control of a region and have lost the cooperation mechanisms with the local authorities, they become more violent to extract resources, given the difficulty of creating long-term relationships.

Still, it is important to emphasize that these criminal organizations are not looking to overthrow the government. This is a crucial condition that makes this violence different from civil war-type of conflicts, as the main objective for these organizations is to conduct their operations without government meddling. Accordingly, civil war combatants are more likely to supply needed public goods to avoid government interaction.

Regions where the local government has low capacity to isolate the population from cartels are more susceptible to suffering the side-effects of violence. This is mostly the case of poor, isolated, rural areas, where low state capacity exists. This may explain why, since the "War on Drugs" started, most of the illegal graves of cartel victims have been located in rural areas, even if the number has increased in urban areas as well (see Figure 1.4).

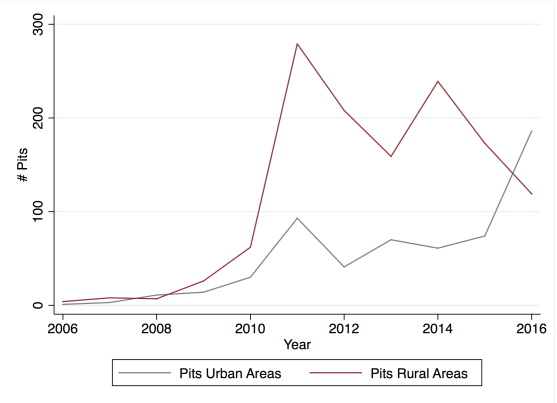


FIGURE 1.4: Clandestine graves, 2006-2016

Elaborated with data from *¿A dónde van los desaparecidos?*[5]

1.3 Model on Capacity and Prosperity

In this paper, I make two interrelated arguments. First, I argue that even if violence is pervasive across regions where drug cartels are present, the size of the impact on the local population depends on the strength of the state in the region. Second, I argue that, while drug-related violence is not completely dependent on state capacity, as many scholars have pointed out, persistent violence has the potential to weaken capacity over time.

To see that, I adapt the formal model of Besley and Persson (2009, 2010, 2011a,b) to understand how an incumbent can isolate the local population from violence and how this may, in turn, result in higher levels of prosperity. In this section, I include the basic intuition of the model. A more detailed version of the model is included in the Appendix A.0.1.

The main idea behind the model is that investment in state capacity depends on the utility that the incumbent expects to derive from it. The model uses two periods in which the incumbent decides either to redistribute private transfers (mostly to his own group, but very likely to the opposition as well), or to provide public goods. This decision is based on how valued public goods are among the population. Among these public goods is the degree of protection that the government provides to the population from gang-related violence. Furthermore, the provision of these public goods leads to higher levels of prosperity.

Public goods and private transfers are funded through local taxes and through transfers from the central and state governments. In the core model, local taxes are the only element that depends on state capacity: fiscal capacity is needed to extract the taxes and legal capacity to create sufficient property rights for entrepreneurs to invest. Transfers

from higher levels of governments can affect capacity in two directions. On the one hand, if they depend on the level of economic development of the subnational unit, they can motivate an increase in state capacity, particularly of legal capacity that attracts more investment. On the other hand, if they do not require any effort from the local government, they may prove a detriment to local development of capacity.

In each period, the incumbent is expected to fully deploy capacity in order to extract all possible resources, ensuring thereby that the maximum possible amount goes to private transfers or towards public good provision. While Besley and Persson consider the probability of the incumbent staying in power in period 2 to be exogenous, it is possible to make this probability endogenous (see Appendix A.0.1). Depending on the political salience of the incumbent's group and of the opposition, the incumbent will feel more or less restrained to redistribute.

The incumbent should thus weigh the net benefits to invest in capacity in period 1 based on the probability to remain in power in period 2. If the cost of the effort to improve governance is larger than the benefits that she can retrieve from providing either transfers or public goods, there is low incentive to invest in capacity. In the context of this paper, this situation is clearly salient when drug-related violence increases. First, as mentioned above, drug-related violence in Mexico can be seen as an exogenous shock that emerges irrespective of the initial level of capacity of a given municipality. This is because violence occurs along drug-growing zones and trafficking routes determined by geology and geography, and is prompted by external demand for drugs. Second, in areas with higher levels of conflict, it may be the case that the cost of investing in more protection increases to a level that it becomes less attractive to invest in more capacity, as the net benefits become negative.

Figure 1.5 simulates this dynamic. In the figure, I assume that the cost of effort function is concave, with early efforts having a larger cost that decrease as more capacity is acquired. On the top figures, net benefits do not surpass the cost of effort by much. This in turn suggests that once violence increases, the cost of investment in capacity rises and quickly surpasses the benefits of prosperity (and/or private transfers). The figures on the bottom indicate the case in which net benefits are much higher than the cost of effort. Under this scenario, it may be easier to protect the population, up to the point in which the net benefits become negative.

These of course, are just possible scenarios. One may argue that the cost of effort increases at a faster rate at lower levels of capacity before decreasing at a lower rate.[6] In that case, it is possible to posit that for lower levels of capacity, violence acts as a shock

[6] Areas with no presence of the state require large investments, whereas the cost of effort never reaches zero

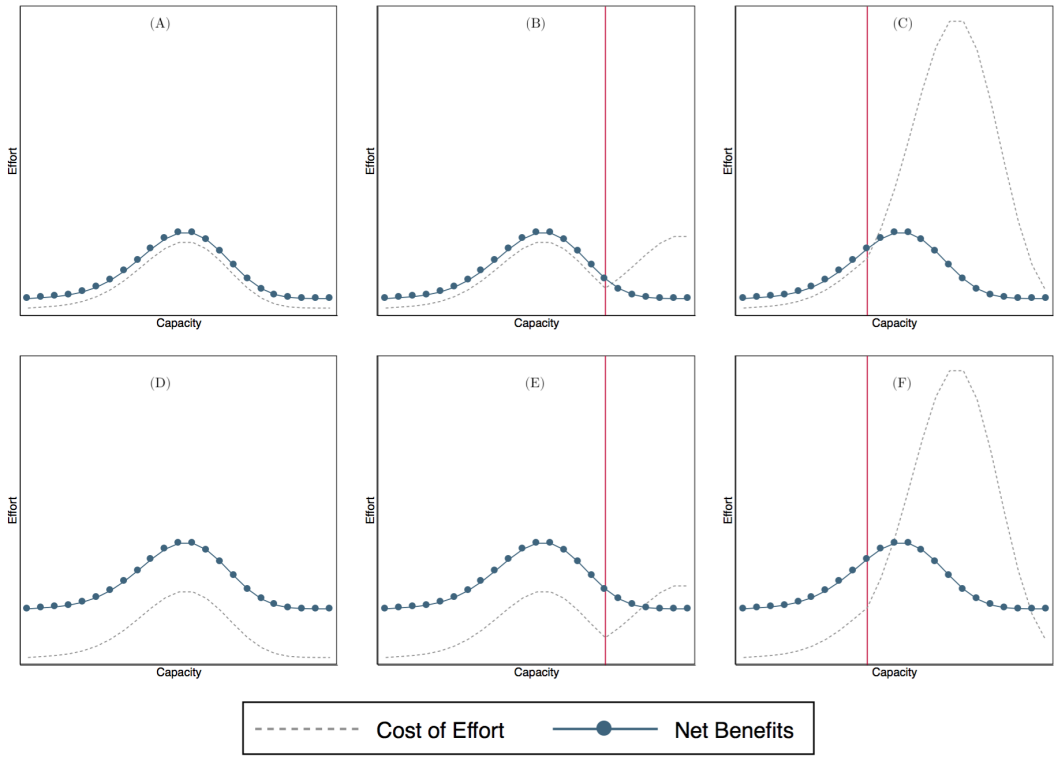


FIGURE 1.5: Violence Shocks

(A), (B), and (C) represent cases where the difference between net benefits and cost of effort is not large. (D), (E), and (F) show the cases where this difference is larger.

that generates a higher impact than when a certain degree of capacity has been reached. This in turn will negatively impact prosperity, mostly in areas with higher preference for public goods.[7]

1.4 Mechanisms

In this section, I develop my argument for the case in Mexico, and show the mechanisms through which violence, state capacity, and prosperity interact.

1.4.1 The State and Prosperity

While there are many different factors that could contribute to the prosperity of a given municipality, state capacity plays a key role. More precisely, I conceptualize state capacity using the representation of what Mann (1984) calls the *"infrastructural power"* of the state. More infrastructural power facilitates the provision of public goods and has the potential to improve the livelihoods of the population (Centeno, 2002, Luna and Soifer,

[7] Although clientelism and patronage are still very common practices in Mexico, the increase in political competition has motivated an increase in the distribution of public goods.

2017, Saylor, 2014). As shown in the model above, as long enough support exists for public goods (i.e., more political competition that leads to more support towards public goods), the state will provide as many public goods as capacity allows. Yet, in Latin America, the reach of the state is uneven across the territory (O'Donnell, 1993, Soifer, 2012, Luna and Soifer, 2017). This is why in my measurement, I focus on the reach of the state at the municipal level.

Whenever the local and/or the national government decide that investing in state capacity in a given municipality increases their utility, there will be more provision of public goods, higher investment in human capital and a better setting that will create incentives for firms to invest in that location (i.e., more prosperity). This decision may be affected by contemporaneous factors and specific traits of the municipality, such as distance to the border or agricultural suitability. But it is also affected by historical elements. Garfias (2018), for instance, shows how historical events led to higher investments in state capacity that persist to the present.

Therefore, capacity, which I denote as k_i, is the product of historical (c_i) and contemporaneous (x_i) characteristics of the municipality, and of its political (d_i) relationship with the central government. It can also be affected by shocks, such as an increase in violence (v_i).

$$k_i = f(c_i, \mathbf{x_i}, \mathbf{d_i}, v_i) \tag{1.1}$$

1.4.2 Violence and Prosperity

Different scholars have looked at the effects of violence on different socioeconomic outcomes. Mihalache-O'Keef and Vashchilko (2010), for instance, examine how violence affects foreign direct investors' decision to operate in a country. They find that political violence has lesser effects in the primary and tertiary sectors, with the industrial sector being the most affected. Using the case of Nepal, Pepinsky et al. (2017) find that high levels of violence affect the perceptions about the national government, whereas Oto-Peralías (2015) finds that, in the case of Spain, political violence has long-term effects on political participation. In the case of Mexico, negative effects have also been found on economic outcomes and on individual's aversion to risk (Rios, 2016, Robles et al., 2015). However, Padilla-Márquez et al. (2016) find no effect of the violence related to organized crime on human capital accumulation.

However, to the extent of my knowledge, no study has looked at the role of state capacity in mediating the impact of violence on prosperity. I argue that the effects of violence are twofold. First, violence directly impacts prosperity. In the case of Mexico, violence

is closely related to organized crime. Drug trafficking cartels have expanded across the national territory, reducing the general welfare. This is more so in places closer to the border with the United States, with higher concentration of drug production, and with more transit of guns (Dube et al., 2013, Dell et al., 2018, Rios, 2013).

The second effect is indirect and it is the one that constitutes the central element of this paper. I conjecture that the indirect effects of violence depend on the strength of state capacity. As drug-trafficking organizations have spread across the territory, they have also increased their range of illegal activities. In areas where the state has less infrastructural power, the effects of violence will be more pervasive, with these groups looking to extract resources from the population via extortion or kidnapping. This is particularly the case in areas and periods with higher levels of competition vis-à-vis other groups and the government.

Furthermore, if no safety net exists to isolate the population from the violence, they become direct targets. According to a study of the University of San Diego, poor young men are the most direct victims of criminal organizations (Heinle et al., 2017). With the exception of 2011 and 2016, in Mexico, rural males are most likely to suffer from violence, even if violence tends to be more persistent in urban areas (see Figure 1.6).

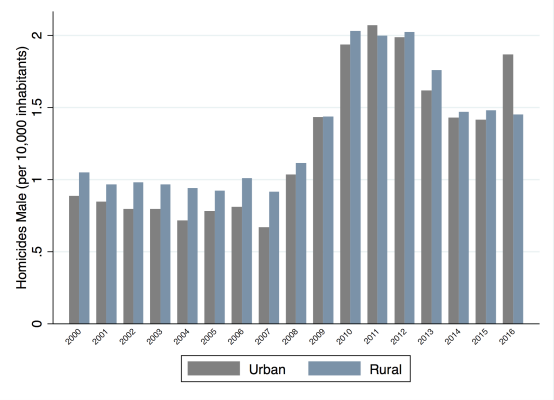


FIGURE 1.6: Male Homicides per 10,000 Inhabitants: Urban vs. Rural

Elaborated with data from INEGI, 2018

Therefore, I envision four different scenarios that I describe in Table 1.2. In the first two, violence is low. Therefore, prosperity is mostly the effect of state capacity and contemporaneous characteristics of the region. The two other scenarios present high levels of violence and in every case, this condition will have a detrimental effect over prosperity. However, the effects in the third scenario are limited by the high local capacity that exists. In the fourth scenario, the effects are the most detrimental, as no capacity to limit the effects of violence exists.

		Capacity	
		High	Low
Violence	Low	(1) High effect of state capacity on prosperity	(2) Low effect of state capacity on prosperity
	High	(3) State Capacity shields from violence	(4) No shield from violence

TABLE 1.2: Effect of Violence and Capacity on Prosperity

1.4.3 The Effects of Violence on Governance

In addition to the effects on prosperity that I mentioned in the previous section, violence also impacts the livelihoods of the population by deteriorating the capacity of the state. This is because the effort needed to increase the level of capacity rises, reducing the net benefits that the incumbent receives.

The moment in which violence reduces the incentives for the government to keep investing in capacity are in turn determined by the initial levels of capacity. As mentioned above, at higher levels of capacity the incentives to maintain capacity are, in average, larger than at lower levels of infrastructural power[8]. Figure 1.7 and Table 1.3 show this for the case of Mexico's municipalities. Figure 1.7 shows how persistent violence (i.e., violence in the previous five years) affects taxation at different levels of taxation. Whereas persistent criminal activity is negatively correlated with taxation, this situation changes as the level of taxation increases. At medium levels of capacity, governments are able to retain tax revenues despite high levels of violence. At the highest levels of capacity, tax revenue appears to increase at the highest levels of violence. These revenues can provide the basis for investments in capacity to combat violence moving forward.

Table 1.3 shows the results of a simple linear regression that measures the initial effects of persistent criminal activity on state capacity. I use three measures of local capacity: (1) tax performance, which I measure by looking at the relative position of the municipality in tax collection per 10,000 inhabitants; (2) the natural logarithm of the number

[8]In the model, I assume that the initial costs of effort decrease as capacity increases. This implies that the net benefit is larger for the incumbent at higher levels of capacity. This in turn creates an incentive to use the 'profit space' to invest more in capacity when violence threatens to reduce it.

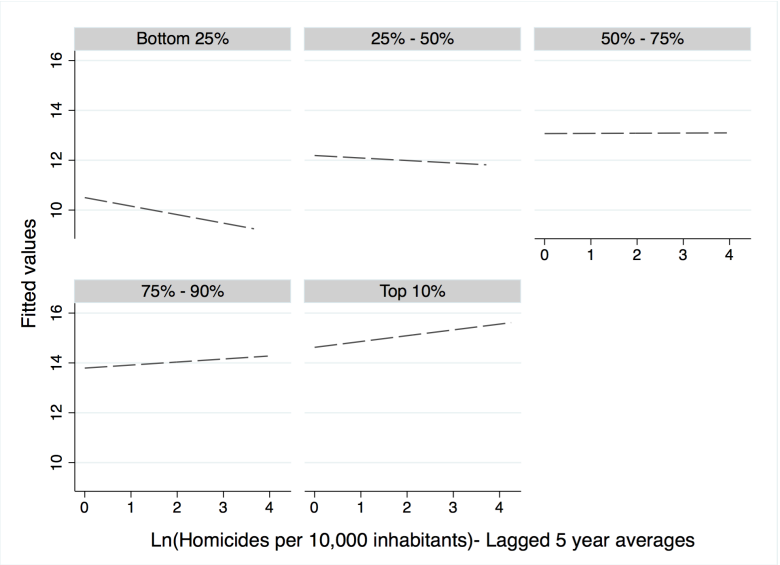


FIGURE 1.7: Effect of persistent violence on taxation by taxation level

Elaborated with data from INEGI, 2018

of institutions of the municipal government per 10,000 inhabitants; (3) the natural logarithm of personnel of the municipal government per 10,000 inhabitants. In the three cases, the effect is negative, which means that persistent violence has a detrimental effect over the contemporary level of infrastructural power. An increase of persistent violence by 10% reduces the number of bureaucrats per 10,000 inhabitants by 4.4%, while it reduces the number of institutions per 10,000 inhabitants by 15.8%. It also has a negative effect over the tax performance of a municipality, decreasing its score by 7%.

TABLE 1.3: Effect of persistent violence on state capacity

	(1) Tax Performance	(2) ln(Institutions/ 10,000 inhab.)	(3) ln(Bureaucrats/ 10,000 inhab.)
Persistent Violence	-0.071***	-0.158***	-0.044**
	(0.012)	(0.025)	(0.018)
Constant	3.086***	2.458***	4.602***
	(0.030)	(0.028)	(0.021)
Observations	53,966	9,611	9,353
R-squared	0.178	0.338	0.214
State FE	YES	YES	YES
Year FE	YES	YES	YES

Robust standard errors in parentheses

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

1.5 Empirical Specification

The strategy that I use has multiple components. First, I examine how state capacity is formed. To do so, I expand Equation 1.1 and follow Garfias (2018) argument on the historical effects of capacity in Mexico. I verify how early state presence has reshaped the effort needed to invest in subsequent capacity and how this in turn has translated into more prosperity. This is a good exercise that allows to estimate state capacity using exogenous variables. I argue that early levels of infrastructural power are not related to current prosperity, except through their impact on current capacity.

Then, I introduce violence and use a mediation analysis to explore how violence impacts prosperity. I also explore how persistent levels of violence can deteriorate the infrastructural power of the state. Finally, I use a difference-in-differences design to verify whether the War on Drugs that started in 2006 represents a break that affected state capacity and prosperity.

1.5.1 The Formation of Capacity

In the analysis, a major complication is that state capacity is endogenously determined. As mentioned before, persistent violence hurts capacity.

To deal with this issue, I rely on historical variation of capacity. As argued by Acemoglu et al. (2015), this represents a valid strategy, since current prosperity outcomes are likely to be uncorrelated with historical variables, except through the effect of state capacity. This will provide us with something similar to the initial levels of capacity in the model. I also consider that state capacity at the local level depends on whether the central and local government are co-partisans. I expect that in municipalities where the mayor is from the same party that the state's governor and/or the president, issues related to collective action decrease, increasing the capacity of negotiation both across levels of governments and even between the government and other stakeholders. Finally, I consider capacity as the result of contemporary characteristics, such as area, agricultural suitability, distance to a highway, and population.

I estimate Equation 1.1 as a linear function of the form:

$$k_i = a + \theta \mathbf{c_i} + \mathbf{x_i}\beta + \mathbf{d_i}\gamma + \zeta_i^s + \mu_i \tag{1.2}$$

Where ζ_i^s represents specific state effects and μ_i indicates unobserved heterogeneity.

Table 1.4 confirms that the number of bureaucrats in 1930 from Garfias (2018), which I use as my measure of historical capacity, as well as the current political configuration

(same party at the national and sub-national levels) are not highly correlated with the access of different public goods.

TABLE 1.4: Correlation Historical and Contemporaneous Measures of Capacity and Prosperity

Variables	Bureaucrats 1930	Same party State-Mun.	Same party Central-Mun	Water	Electricity	No Access Health-care	No Access School 10-14
Bur. 1930	1.000						
State-Mun.	-0.004	1.000					
Central-Mun.	0.017	0.531	1.000				
Water	0.019	0.091	0.063	1.000			
Electricity	0.014	0.029	-0.032	0.548	1.000		
No HC	-0.017	-0.113	-0.173	-0.163	-0.043	1.000	
No School	-0.023	-0.022	0.063	-0.212	-0.318	0.187	1.000

Thus, historical capacity is a good exogenous predictor of current levels of state capacity. In fact, as Figure 1.8 shows, most of the country had very low levels of bureaucrats per 1,000 inhabitants in 1930, with only a few regions showing higher concentrations of public servants.

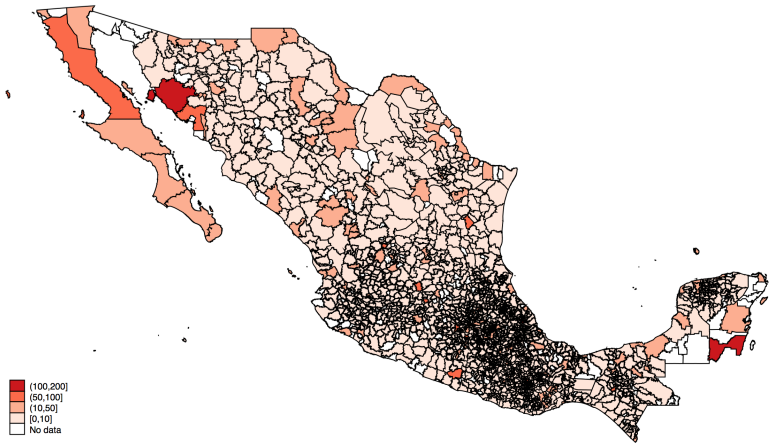


FIGURE 1.8: Number of bureaucrats per 1,000 inhabitants, 1930

Elaborated with data from Garfias, 2018

1.5.2 Prosperity

In the absence of violence, I conjecture that prosperity in municipality i is a function of the infrastructural power of the state. However, in contexts of high violence, as is the case of many regions in Mexico, the scenario changes and violence directly and indirectly impacts prosperity measures.

Therefore, I calculate prosperity using Equation 1.3, in which I consider both capacity and violence affecting state capacity[9]. The general specification is[10]:

$$p_i = \alpha + \beta_1 k_i + \beta_2 v_i + \mathbf{x_i}\beta_3 + \epsilon \tag{1.3}$$

Since I consider that state capacity shields the effect of violence, I rely on a different strategy that I explain in the following section.

1.5.2.1 Mediation Effects

To circumvent the challenge that Equation 1.3 presents, I draw upon *mediation analysis*. This method, first introduced by Baron and Kenny (1986), and advanced by Greenland (1992), Pearl (2001) among others, has been used in different areas of natural sciences, but it has just been recently adopted in political science and economics. This approach uses a *mediator* to mitigate the effects that a given independent variable produces on a dependent variable. This approach has been improved over the years and its application in different statistical software (R and Stata) is quite robust (Imai et al., 2010, Hicks and Tingley, 2011)

In the case of this paper, state capacity works as the mediator that mitigates the effect that violence (*the treatment*) has over prosperity. Because the level of protection from the state will vary by the presence of violence, there are two potential values $M_i(1)$ and $M_i(0)$, and only one will be observed: $M_i(T_i)$. In the presence of violence (T_i=1), we will observe $M_i(1)$, but no $M_i(0)$. Therefore, P_i(t,m) denotes the potential outcome that result given the treatment and mediator values equal to t and m, respectively. More specifically, since the level of mediator depends on the treatment status, P_i equals $P_i(T_i, M_i(T_i))$.

Thus, following Pearl (2001), I consider that the natural direct effect is given by:

$$\mathrm{Y}_{i,direct} = P_i(1, M_i(T)) - P_i(0, M_i(T)) \tag{1.4}$$

This is the direct effect of violence on prosperity, while holding the level of state capacity constant at a level that would be realized under different levels of violence.

The indirect or *causal mediation* effect is given by:

[9] I assume drug-related violence to be exogenously determined and predict that the effect of violence becomes more relevant after the War On Drugs campaign started to be implemented, since the number of homicides skyrocketed.

[10] In Appendix A.0.9, I consider a more complex specification using earmarked and non-earmarked transfers from the central government.

$$Y_{i,indirect} = P_i(T, M_i(1)) - P_i(T, M_i(0)) \tag{1.5}$$

For each treatment status (T=0,1). This effect asks the question: what would happen if the mediator effect changes from the value that would be realized under violence (T=1) to the value observed under a non-violence scenario (T=0), while holding the treatment status constant at t?

The total causal effect is represented by:

$$Y_{i,total} = P_i(1) - P_i(0) = Y_{i,direct} + Y_{i,indirect} \tag{1.6}$$

In causal mediation analysis, the focus is on the average causal mediation effect (ACME) among all municipalities, which is represented by:

$$\overline{Y_{i,indirect}} = \mathbb{E}[P_i(T, M_i(1))] - \mathbb{E}[P_i(T, M_i(0))] \tag{1.7}$$

Whereas the average direct effect is represented by:

$$\overline{Y_{i,direct}} = \mathbb{E}[P_i(1, M_i(T))] - \mathbb{E}[P_i(0, M_i(T))] \tag{1.8}$$

And the average total effect is:

$$\overline{Y_{i,total}} = \overline{Y_{i,direct}} + \overline{Y_{i,indirect}} \tag{1.9}$$

Where Y_i is the effect of high levels of violence,[11].

1.5.2.2 Sensitivity Analysis

To validate the results obtained in mediation analysis, it is important to verify that there are no unmeasured pretreatment or posttreatment covariates that confound the relationship between the levels of violence and prosperity. This is, two different ignorability assumptions must be made: (i) given the observed covariates, the treatment

[11]To facilitate the explanation, Y_i may be considered as a dichotomous variable that would represent the period of the War On Drugs. However, most of the analysis uses a continuous *treatment*, equal to the lagged value of homicides per 10,000 inhabitants. This is because in some cases the outcome variable is only available for periods after 2006, and because violence did not affect every region in the country equally

assignment is assumed to be statistically independent of potential outcomes and potential mediators; (ii) the observed mediator is statistically independent given the actual treatment status and pretreatment confounders.

In the context of this paper, the first assumption indicates that after a set of different characteristics have been taken into account, the level of violence in a municipality is essentially random. The second assumption asks that the level of taxation is random once historical and current characteristics of the municipality have been taken into account.

Since these ignorability assumptions cannot be tested using the observable data Imai et al. (2010), I conduct a sensitivity analysis of the robustness of the results to potential violation of these assumptions. This sensitivity analysis examines the exact degree to which the identification assumptions must be violated for the conclusion to be reversed.

1.5.3 The Effect of Persistent Violence on State Capacity

In addition to the effects that violence has on prosperity, I argue that persistent levels of violence negatively impact state capacity. This transforms Equation 1.2 to become:

$$k_i = a + \theta \mathbf{c_i} + \mathbf{x_i}\beta + \mathbf{d_i}\gamma + \phi h_i + \zeta_i^s + \mu_i \tag{1.10}$$

Where h_i is a variable that represents high levels of persistent violence and takes the following values:

$$\begin{cases} 1, & \text{for } v_{av} \geq V_{av} \\ 0, & \text{otherwise} \end{cases} \tag{1.11}$$

With v_{av} representing municipality i's 5-year average homicide rate (homicides per 10,000 inhabitants) and V_{av} represents the national 5-year average homicide rate.

1.5.3.1 Difference-in-Differences

Using a difference-in-differences approach, it is also possible to verify if the *War On Drugs* campaign affected differently areas with high persistent violence[12]:

[12] In the Appendix

$$k_i = a + \phi h_i + \lambda_t + \lambda_t \times h_i + \theta \mathbf{c_i} + \mathbf{x_i}\beta + \mathbf{d_i}\gamma + \zeta_i^s + \mu_i \tag{1.12}$$

Where λ represents the drug-war effect and looks at the differential effect of this policy in areas with high versus low levels of persistent violence. Theoretically, the implementation of this policy represents an exogenous shock that generated heterogeneous effects across the country. In areas with already higher levels of violence[13], the state became more vulnerable than in areas that are not located on the drug-trafficking network (and therefore have lower crime rates).

1.6 Data

For the empirical implementation, this study uses data on multiple dimensions of prosperity p_i, violence v_i, historical capacity c_i, current levels of capacity k_i, political distance d_i, and municipality characteristics x_i.

The data was obtained for the period 1990-2016 whenever possible. To do this, multiple sources were used. For data on violence, I mostly rely the number of homicides per 10,000 inhabitants, which was obtained from the Mexican Institute of Statistics and Geography (INEGI). To avoid reverse causality issues, I follow two different alternatives: (a) I use the lagged value of the homicide rate (per 10,000 inhabitants) in municipality i; (b) I use the average homicide rate in municipality i during the five years preceding year j. In both cases, I use the logarithmic transformation: $\ln(v_i + 1)$, because I consider values equal to zero as providing important information about criminal activity in municipality i[14].

I also use an instrumental variable technique to check the robustness of my results. Different scholars have shown that violence is closely related to drug production (Rios, 2016, Garcia-Ponce et al., 2018, Dube et al., 2013, Dell, 2015). Since marijuana is the main illegal crop in Mexico, I use marijuana eradication from 1995 to 2005 as an instrument that is highly correlated with violence but not with certain measures of prosperity, such as economic activity. This data was obtained from the Secretariat of National Defense (SEDENA) [15]. Following Ríos (2016), I also use homicide rates during the nineties as a second instrument.

To measure prosperity, I use several indicators. First, I assess access to public goods by looking at the coverage rate of water, electricity, access to health care, and access to basic education. Information for these variables was obtained from INEGI, the Ministry

[13] Or more presence of drug cartels

[14] I also conduct a robustness check using an hyperbolic sine transformation: $\ln(x_i+(x_i^2+1)^{1/2})$

[15] Information requirement folio: 0000700085618 and 0000700071018.

of Health in Mexico and from the National Commission for the Knowledge and Use of Biodiversity (CONABIO). I also look at economic activity using information from the economic censuses of 2004, 2009, and 2014. Data on school retention is also used and was obtained from INEGI.

To proxy historical capacity, I use data on the number of bureaucrats per 1,000 inhabitants in 1930 from Garfias (2018). I use three measures of current state capacity: (a) number of bureaucrats per 10,000 inhabitants in municipality i; (b) number of institutions that are part of the municipal public administrations per 10,000 inhabitants in municipality i [16]; (c) tax collection per 10,000 inhabitants in municipality i (in real terms). This information was obtained from the administrative registry of municipal finances and from the government census of 2011, 2013, 2015, and 2017. To measure party cooperation, I verified the political party of the mayor of municipality i and compared that with the governor in the state where the municipality is located, as well as with the party of the president. I also measure the degree of support for the party of the president at the state level.

To gauge the characteristics of the municipality, I use the geodesic distance from the centroid of municipality i to a road, minimum distance of the centroid of municipality i to the U.S. border (Euclidean distance), altitude, area, average agricultural suitability, and population. I conduct multiple robustness checks, including centering the analysis in rural vs. urban areas. Table 1.5 contains the descriptive statistics for the variables included in the analysis.

1.7 Empirical Analysis

1.7.1 The Formation of State Capacity

The first step in the analysis is to examine how capacity is formed without the effects of persistent violence. To do so, I examine the effect that historical capacity, political variables, as well as municipality characteristics have on contemporary state capacity. Table 1.6 shows the results of Equation 1.2. As anticipated, historical capacity is a predictor of current infrastructural power. An increase of 10% in the number of bureaucrats per 1,000 inhabitants in 1930 generates an increase of 3.3% in tax collection (per 10,000 inhabitants) and 1.41% more bureaucrats. Figure 1.9 shows how tax capacity changes in settings with different historical levels of capacity. Whereas places with no presence of bureaucrats in 1930 currently have very low levels of taxation, there is a large increase as the number of bureaucrats rise. Still, the most important change appears in the top

[16] These institutions are divided in the following way: i) Mayor's office; ii) city councils; iii) government affairs; iv) public services; v) public works and infrastructure; and vi) urban development.

TABLE 1.5: Summary statistics

Variable	Mean	Std. Dev.	Max.	Min.	N
State Capacity (in Ln. per 10 th. inhabitants. ^{o} In real (2013) MXN)					
Taxes^{o}	11.31	2.41	18.44	0.13	55,806
Bureaucrats	4.66	0.81	7.68	-1.81	9,357
Institutions	2.46	1.34	6.80	-2.57	9,615
State Capacity (in Ln. per 1 th. inhabitants)					
Ln(bureaucrats 1930)	1.05	0.85	12.37	0.00	59,751
Drug-related violence ($^{+}$in Ln. per 10 th. inhabitants)					
Homicides^{+}	0.61	0.71	5.41	0.00	66,258
5-yr average homicides^{+}	0.71	0.60	4.25	0.00	53,966
Ln(marijuana)	0.73	2.05	13.20	0.00	66,501
Political distance					
Same party state-mun.	0.29	0.45	1.00	0.00	62,400
Same party central-mun.	0.24	0.43	1.00	0.00	62,400
Transfers from central government (in Ln per 10 th. inhabitants. In real (2013) MXN)					
Earmarked	9.23	7.62	20.27	0.00	66,258
Non-earmarked	12.89	4.97	19.63	0.00	66,258
Prosperity measures					
Water access	0.83	0.20	1.00	0.00	12,230
Electricity	0.93	0.11	1.00	0.00	12,230
Primary retention	96.06	7.28	200.70	0.00	48,539
Share student achievement	93.31	8.04	100.00	0.00	48,823
Expected school yrs.	5.77	1.83	13.64	1.06	2,455
Education index	0.68	0.14	0.97	0.21	7,349
Health index	0.80	0.08	1.00	0.32	7,349
No health care access	49.31	30.12	100.00	1.00	9,798
Share no access health-care	37.28	17.22	96.64	1.26	2,454
Social vulnerability	3.25	1.03	9.00	1.00	2,456
Social backwardness	1,223.18	709.04	2,456.00	0.00	7,368
Hospitals	3.28	20.93	993.00	0.00	39,408
Economic prosperity measures (in Ln.)					
Firms	5.46	1.77	11.19	1.39	5,602
Manuf. firms	3.93	1.57	9.23	1.10	6,576
Retail firms	4.99	1.68	10.54	1.10	7,220
Wholesale firms	2.95	1.38	8.56	1.10	4,623
Personnel	6.38	2.03	13.19	1.61	5,602
Manuf. personnel	5.19	2.04	12.35	1.10	6,576
Control variables					
Rural	0.29	0.45	1.00	0.00	66,501
Area (km^2)	801.72	2,108.14	53,199.79	1.47	66,501
Population (Th.)	0.16	1.51	5.22	-4.72	66,258
Elevation	1,300.98	822.42	3,013.39	0.86	66,501
Suitability (Majority)	4.27	1.46	7	1	66,339
Distance road (km)	3.34	4.90	72.16	0.00	66,339
Distance post-office (km)	14.00	13.61	151.89	0.07	66,339
Min. dist. U.S. (km)	470.41	165.44	837.35	2.29	66,501

decile. In municipalities with more than 6.75 bureaucrats per 1,000 inhabitants in 1930, current average real taxes attains 1.1 million Mexican pesos, which represents an increase of almost 500 thousand Mexican pesos (in average) from municipalities in the 9th. decile.

The effect of sub-national co-partisanship is not entirely clear, and it may be conditional on other factors. Intuitively, distance to a road increases infrastructural power, with more isolated municipalities presenting lower capacity, although the effect is not very strong. Population size seems to be quite relevant for capacity. However, whereas it has a positive effect for tax capacity, the number of personnel and institutions does not increase at the same rate. Agricultural suitability has a large and statistically significant negative effect over taxes, an intuitive result considering that most of the agricultural labor is informal. An increase one standard deviation in agricultural suitability generates a decrease of 32.12% in average taxation per 10,000 inhabitants.

TABLE 1.6: Formation of Capacity

	(1) ln(Taxes/ 10,000 in.)	(2) ln(Institutions/ 10,000 in.)	(3) ln(Bureaucrats/10 10,000 in.)
Ln(Bureaucrats 1930/1,000 in.)	0.327***	0.016**	0.141***
	(0.030)	(0.008)	(0.015)
Same party State-Municipality	-0.065**	-0.016	-0.007
	(0.033)	(0.014)	(0.017)
Same party Central-Municipality	-0.715***	0.024*	0.019
	(0.034)	(0.013)	(0.017)
Min. Distance U.S.	-0.002***	0.000**	0.001***
	(0.000)	(0.000)	(0.000)
Distance Road	-0.012**	-0.004***	-0.001
	(0.005)	(0.001)	(0.002)
Agric. Suitability	-0.220***	-0.003	-0.007
	(0.019)	(0.005)	(0.008)
Elevation	0.000***	-0.000	0.000
	(0.000)	(0.000)	(0.000)
Area (in Th. km)	0.000*	0.000	-0.000
	(0.000)	(0.000)	(0.000)
Ln(Population Th.)	0.196***	-0.858***	-0.391***
	(0.020)	(0.005)	(0.010)
Constant	13.164***	2.560***	4.291***
	(0.209)	(0.057)	(0.099)
Observations	47,530	8,663	8,432
R-squared	0.295	0.911	0.525
State FE	YES	YES	YES

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

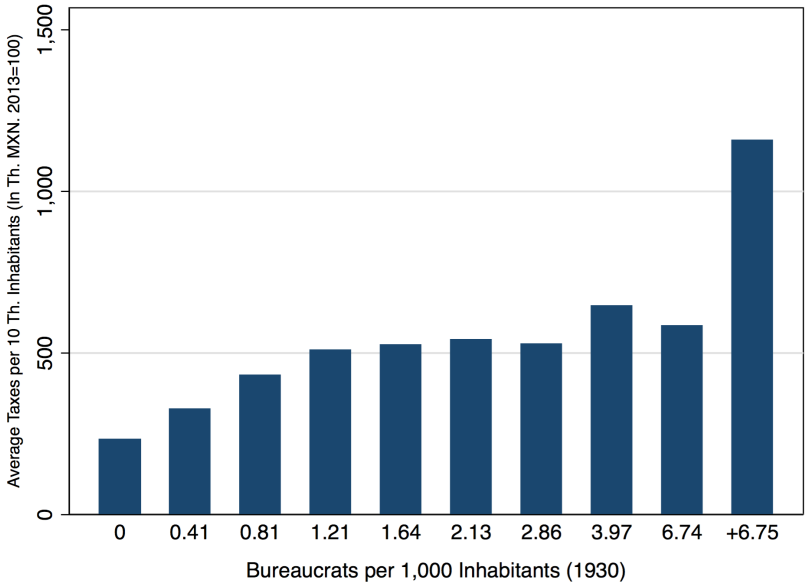


FIGURE 1.9: Average Taxation by Deciles of Historical Capacity Levels

Since it is not clear if the results are driven by different types of municipalities, I separate the analysis to verify if these results differ in rural versus urban municipalities[17]. Table A.2 in the Appendix includes the results, which remain similar, but show that historical capacity has a larger effect in rural areas (which, according to the classification used comprise two thirds of the municipality-year observations). In addition, the results confirm the negative effect that having the same party at the municipal and central level has on the collection of taxes. Still, it may be the case that this effect is mostly related to the fact that during the 1990s there was almost no shift in the political party in power and that this does not carry any explanatory power.

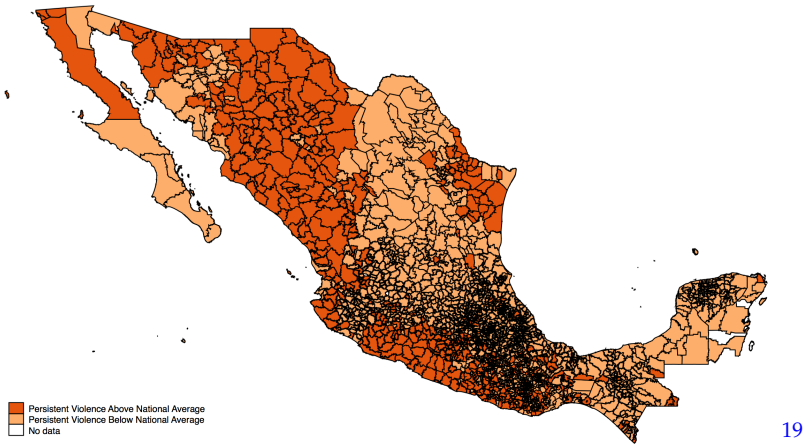
This is why, I also run the analysis for different periods (see Table A.3 in the Appendix). In fact, it seems that the effect of having the same party at different levels within the federation might change at different points in time, during the periods of government alternation and during the initial years of the war against drugs policy.

1.7.2 The Effects of Persistent Violence on State Capacity

One of the main arguments in this article is that places that have endured persistent violence will suffer from a decrease in their state capacity. To verify this hypothesis, I followed different strategies. The first step was to measure the effect that the number of homicides in the previous five years has on overall taxation.

[17]Urban areas are defined as those identified as *metropolitan zones* by INEGI. Other measures, such as considering those areas with less than 100 thousand inhabitants per locality were also considered, but generate a bias towards rural areas

Still, as mentioned above, the effect that persistent violence has over capacity depends on the initial strength of the state. Figure 1.10 shows how above national averages of persistent violence are concentrated in certain areas of the country, mainly along the Pacific and in areas closer to the border. Furthermore, compared to national averages, places with high persistent violence present much higher homicides rates (per 10,000 inhabitants) and although this gap started to become narrower during the first years of the 2000s, after the "War Against Drugs" campaign started, this gap became wider[18]. (see Figure 1.11).



[19]

FIGURE 1.10: High versus Low Persistently Violent Areas

Elaborated with data from INEGI, 2018

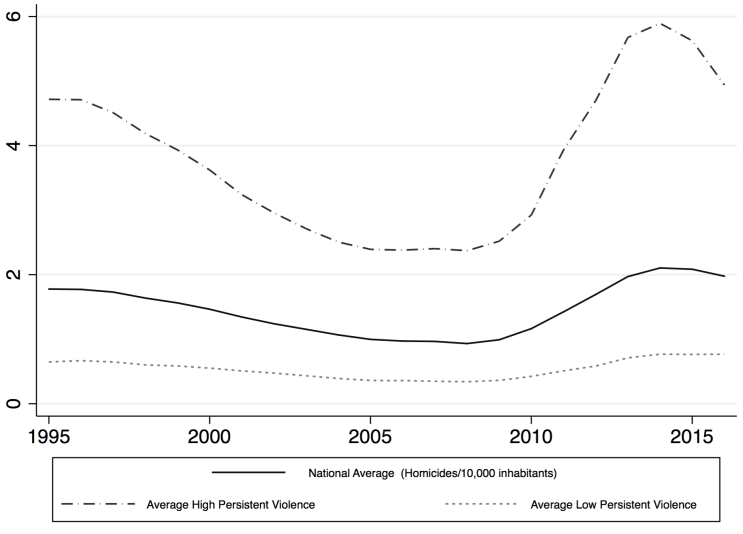


FIGURE 1.11: Evolution of Persistent Violence

Elaborated with data from INEGI, 2018

[18]High persistent violence is represented by having 5-year average levels of violence above national averages.

To verify this differential effect, I then measures the impact that persistent violence has on state capacity[20], first, for the country as a whole, and then, I examine four different scenarios: (a) high violence-high capacity; (b) high violence-low capacity; (c) low violence-high-capacity; and (d) low violence-low capacity [21]. I classify places with high violence, as having above national averages levels of homicide rates during the year *j*. In the same way, high capacity represents places in which the average level of taxation is above the national level. Table 1.7 includes the results.

TABLE 1.7: Effect of Persistent Violence on State Capacity

	(1)	(2)	(3)	(4)	(5)
	All	High Violence High Capacity	High Violence Low Capacity	Low Violence High Capacity	Low Violence Low Capacity
Ln(Lagged 5yr. av. homicides)	-0.242***	0.450***	-0.314***	0.359***	-0.167***
	(0.036)	(0.076)	(0.050)	(0.075)	(0.042)
Ln(Bureaucrats 1930/1,000 in.)	0.345***	-0.145***	0.413***	-0.129**	0.348***
	(0.030)	(0.050)	(0.047)	(0.051)	(0.034)
Same party State-Municipality	-0.225***	-0.297***	-0.234***	-0.284***	-0.183***
	(0.030)	(0.083)	(0.048)	(0.061)	(0.033)
Same party Central-Municipality	-0.576***	-0.446***	-0.640***	-0.549***	-0.556***
	(0.029)	(0.086)	(0.050)	(0.073)	(0.033)
Min. Distance U.S.	-0.002***	0.002*	-0.003***	0.001	-0.001***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Distance Road	-0.009**	-0.010	-0.005	0.002	-0.020***
	(0.005)	(0.008)	(0.006)	(0.008)	(0.006)
Agric. Suitability	-0.221***	-0.112***	-0.255***	-0.022	-0.194***
	(0.020)	(0.043)	(0.028)	(0.049)	(0.021)
Elevation	0.000***	-0.000	0.000***	-0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Area (in Th. km)	-0.000	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Population Th.)	0.183***	0.173***	0.196***	0.139***	0.112***
	(0.020)	(0.029)	(0.030)	(0.030)	(0.024)
Constant	13.646***	13.956***	14.258***	14.051***	13.085***
	(0.211)	(0.378)	(0.307)	(0.328)	(0.244)
Observations	40,746	1,381	10,564	3,059	25,742
R-squared	0.386	0.241	0.423	0.205	0.318
State FE	YES	YES	YES	YES	YES

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

Overall, it seems that persistent violence deteriorates state capacity, reducing taxation by 2.42% for a 10% in homicides in the previous 5 years. The effect is driven mostly by places characterized by high levels of violence and low capacity. Under this scenario, an increase in persistent violence of 10% will lead to a reduction of taxation of 3.14%. This impact is quite important if we consider that the average level of taxation in low-tax capacity areas is of $328,577.4 MXN ($25,275 USD), compared to $2,572,995 ($197,923 USD) in high capacity regions. On the other hand, places with high capacity will isolate the population from the effects of persistent violence, by increasing taxation levels.

[20] I use tax capacity as the dependent variable, as bureaucratic capacity data is only available for selected years after the War on Drugs started.

[21] I used different specifications to identify low and high levels of capacity and violence with no important change in the conclusions.

It may be the case that it is not only until violence has become persistent that it starts affecting state capacity, but that any increase in violence or violence in general affects state capacity. Table A.4 in the Appendix shows different specifications that indicate that in fact, it is persistent violence that have a negative effect on state capacity. Additionally, in the Appendix, I also modify the variable of persistent violence to look at the effect that above-national average levels of persistent violence may have on taxation, with similar conclusions than the ones shown in Table 1.7.

1.7.2.1 Difference-in-Differences Design

Are the results on capacity affected by the War Against Drugs? Since the start of this campaign, the gap between the most and least violent places in the country widened (see Figure 1.11). This may generate a differential effect that I analyze by using a difference-in-differences specification, in which I measure Equation 1.12. Table 1.8 reports the results. In places with high capacity, the persistent violence had a detrimental effect over the years after the War against Drugs policy started, irrespective of their level of initial violence. For instance, in places with above-average levels of taxation, high persistent violence decreased taxation 33%.

As mentioned before, marijuana is correlated with violence in Mexico. Therefore, I also conducted an analysis to verify if places with higher than the national average presence of marijuana were more affected by the war against drugs. To do that, I compared places that had higher levels of marijuana eradication between 1990 and 2016 than the national average and verified the effect of the war against drug in these areas on tax capacity. The results are in Table 1.9.

1.7.3 Prosperity

In this section, I estimate the results of Equation 1.9 using mediation analysis. I separate the analysis, by looking at different dimensions of prosperity.

1.7.3.1 Access to Public Goods

First, I focus on access to public goods. Even if poverty levels in Mexico are high, the country provides wide access to public goods such as electricity or water access. Therefore, I do not expect a large effect of violence on access to certain public goods. Results are presented in Table 1.10. These results are based on 10,000 replications. Sensitivity analysis is shown in Appendix A.0.4.

TABLE 1.8: Effect of War Against Drugs Policy on Tax Collection in Places with Different Types of Persistent Violence

	(1)	(2)	(3)	(4)	(5)
	All	High Violence High Capacity	High Violence Low Capacity	Low Violence High Capacity	Low Violence Low Capacity
High Persistent Violence	-0.043	0.331***	-0.147***	0.281***	0.094**
	(0.038)	(0.077)	(0.051)	(0.088)	(0.046)
Drug-war years	1.728***	2.073***	1.746***	1.932***	1.726***
	(0.019)	(0.076)	(0.042)	(0.039)	(0.021)
HPV * Drugwar	0.007	-0.332***	0.064	-0.203**	-0.145***
	(0.039)	(0.092)	(0.059)	(0.100)	(0.052)
Ln(Bureaucrats 1930/1,000 in.)	0.346***	-0.053	0.379***	-0.053	0.347***
	(0.030)	(0.038)	(0.045)	(0.039)	(0.032)
Same party State-Municipality	-0.018	-0.061	-0.016	-0.136***	-0.002
	(0.026)	(0.059)	(0.040)	(0.041)	(0.028)
Same party Central-Municipality	-0.309***	-0.218***	-0.407***	-0.191***	-0.303***
	(0.025)	(0.063)	(0.043)	(0.052)	(0.027)
Min. Distance U.S.	-0.002***	0.001	-0.003***	0.001**	-0.002***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
Distance Road	-0.012***	0.000	-0.007	0.003	-0.022***
	(0.004)	(0.004)	(0.006)	(0.005)	(0.006)
Agric. Suitability	-0.209***	-0.120***	-0.237***	0.001	-0.186***
	(0.019)	(0.032)	(0.026)	(0.038)	(0.020)
Elevation	0.000***	-0.000	0.000***	-0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Area (in Th. km)	-0.000	-0.000	-0.000	-0.000	0.000*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Population Th.)	0.129***	0.083***	0.160***	0.065***	0.047**
	(0.019)	(0.020)	(0.026)	(0.021)	(0.022)
Constant	12.663***	13.604***	13.135***	13.143***	12.144***
	(0.206)	(0.245)	(0.277)	(0.214)	(0.236)
Observations	40,746	1,381	10,564	3,059	25,742
R-squared	0.559	0.659	0.581	0.604	0.519
State FE	YES	YES	YES	YES	YES

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

From the results, it is clear that violence has a negative effect over prosperity. In the case of social backwardness, for instance, a 10% change in the persistent homicide rate causes a movement on the ranking towards more severe social backwardness in the country of 14 places. Also, more persistent violence reduces health access by 2.2.%.

Importantly, the effect of violence is not only direct, but it also depends on how much persistent violence reduces the infrastructural power of the state. In the case of social backwardness, for instance, 25% of the final effect is related to the negative impact that persistent violence has on tax capacity. Something similar happens for the different public goods variables. The effect usually goes from 11% to 25%, except from social vulnerability, which seems to get the less robust results (see Table A.3).

Table 1.11 examines the effect that infrastructural power has on limiting the effect of violence on prosperity. To do so, instead of examining the effect that average homicides over the last five years have, I look into the effects that homicides in the previous year have on violence and on capacity. Looking at these effects, it is possible to notice that

TABLE 1.9: Effect of War Against Drugs Policy on Tax Collection in Places with Different Types of Persistent Violence- Marihuana

VARIABLES	(1) All
Large eradication marijuana	-0.047
	(0.072)
Drug-war years	2.307***
	(0.017)
Marijuana* drug-war	-0.097**
	(0.040)
Ln(Bureaucrats 1930/1,000 in.)	0.337***
	(0.029)
Same party State-Municipality	0.127***
	(0.028)
Same party Central-Municipality	-0.327***
	(0.028)
Min. Distance U.S.	-0.002***
	(0.000)
Distance Road	-0.011***
	(0.004)
Agric. Suitability	-0.197***
	(0.018)
Elevation	0.000***
	(0.000)
Area (in Th. km)	-0.000
	(0.000)
Ln(Population Th.)	0.136***
	(0.019)
Constant	12.009***
	(0.200)
Observations	47,530
R-squared	0.525
State FE	YES

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

some of the effects that violence has on prosperity are reduced by the presence of the state[23].

1.7.3.2 Education Outcomes

I also look at the effects that persistent violence has on educational outcomes (see Table 1.12). Contrary to what other authors have found (Padilla-Márquez et al., 2016), I do

[23]Similar effects are found if I use the lagged value of marihuana erradication (in ln.) as a proxy for violence.

TABLE 1.10: Effects of Violence on Prosperity

[22]

	(1) Water Access	(2) Electricity Access	(3) Health Access	(4) Social Vulnerability	(5) Nal. Ranking Social Backwardness
Ln(homicide rate) 5yr av.	-0.034***	-0.037***	-0.022***	0.113***	-140.009***
	(0.003)	(0.002)	(0.002)	(0.033)	(11.987)
Ln(taxes per 10 Th. inhab.)	0.033***	0.022***	0.021***	-0.275***	182.993***
	(0.001)	(0.001)	(0.001)	(0.013)	(4.457)
Min. Distance U.S.	-0.000***	0.000***	0.000***	0.000***	-0.789***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.045)
Distance Road	-0.002***	-0.002***	-0.000***	0.004	4.975***
	(0.000)	(0.000)	(0.000)	(0.004)	(1.440)
Agric. Suitability	-0.007***	-0.011***	-0.002***	0.025*	-62.785***
	(0.001)	(0.001)	(0.001)	(0.013)	(4.905)
Elevation	0.000***	0.000***	0.000*	0.000***	-0.081***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.016)
Area (in Th. km)	0.000*	0.000	0.000	-0.000***	0.076**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.030)
Ln(Population Th.)	-0.008***	-0.001*	0.006***	-0.002	63.472***
	(0.001)	(0.001)	(0.001)	(0.013)	(5.015)
Constant	. 0.504***	0.712***	0.553***	6.189***	-193.041***
	(0.016)	(0.009)	(0.009)	(0.218)	(71.355)
ACME	-0.007	-0.004	-0.005	0.004	-46.669
Direct Effect	-0.034	-0.038	-0.021	0.112	-140.156
Total Effect	-0.041	-0.042	-0.027	0.117	-186.823
Share Total Effect Mediated	0.176	0.111	0.201	0.035	0.249
Observations	9,213	9,213	5,678	1,812	5,679
R-squared	0.168	0.273	0.317	0.379	0.521

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

find that persistent violence has a negative effect on school enrollment. This is particularly true for students ages 15 to 19, for who an increase in persistent violence induces a decrease on school attendance. This effect is intuitive, as it is at this age that students are more vulnerable to violence: either they join a drug-related gang or they migrate, which in both cases reduces human capital available in the municipality. Also, even if most of the effects are direct, the presence of a strong state may reduce up to certain degree the effects that violence has. This is again the case of older students that are the most vulnerable target of criminal organizations, where state capacity mediates 15.4% of the total effect of persistent violence on school enrollment (see Figure 1.12). The sensitivity analysis that shows the robustness of these result is included in Figure A.2 in Appendix A.0.4.

Table 1.13 shows the results of the effect of violence on capacity conditional on the shield that state capacity provides. Interestingly, when violence is not persistent, it

TABLE 1.11: Effects of Violence on Prosperity: State Capacity Shield

	(1) Water Access	(2) Electricity Access	(3) Health Access	(4) Social Vulnerability	(5) Nal. Ranking Social Backwardness
Lag Ln(homicide rate)	-0.007***	-0.014***	-0.006***	0.015	-14.093
	(0.002)	(0.001)	(0.001)	(0.021)	(8.782)
Ln(taxes per 10 Th. inhab.)	0.034***	0.023***	0.022***	-0.276***	188.420***
	(0.001)	(0.001)	(0.001)	(0.013)	(4.502)
Min. Distance U.S.	-0.000***	0.000***	0.000***	0.000***	-0.825***
		(0.000)	(0.000)	(0.000)	(0.000)
(0.045)					
Distance Road		-0.002***	-0.003***	-0.001***	0.006*
-7.845***					
	0.000)	(0.000)	(0.000)	(0.004)	(1.446)
Agric. Suitability	-0.006***	-0.010***	-0.002**	0.022*	-59.433***
	(0.001)	(0.001)	(0.001)	(0.013)	(4.955)
Elevation	0.000***	0.000***	0.000***	0.000***	-0.068***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.016)
Area (in Th. km)	0.000*	0.000	0.000	-0.000***	0.064**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.030)
Ln(Population Th.)	-0.005**	0.005***	0.009***	-0.008	67.356***
	(0.002)	(0.001)	(0.001)	(0.018)	(6.866)
Constant	. 0.475***	0.681***	0.531***	6.278***	-330.698***
	(0.016)	(0.009)	(0.009)	(0.218)	(71.222)
ACME	0.001	0.001	0.002	-0.033	16.460
Direct Effect	-0.007	-0.014	-0.006	0.015	-14.200
Total Effect	-0.005	-0.012	-0.004	-0.018	2.260
Share Total Effect Mediated	-0.323	-0.098	-0.426	1.023	1.04
Observations	9,213	9,213	5,678	1,812	5,679
R-squared	0.158	0.241	0.298	0.375	0.510

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

mostly affects children ages between 5 to 9. Here, it is interesting to see that the presence of the state can reduce the negative impact that recent violence has on school enrollment.

1.7.3.3 Economic Outcomes

Another dimension closely related to prosperity is the availability of productive opportunities. In Table 1.14, I examine if and how violence has deteriorated the economic context. It is clear that persistent violence has a negative effect on the behavior of firms in Mexico. Interestingly, the effect seems to be more intense for the manufacturing industry, rather than for the retail sector, something that does not seem very intuitive, and may need further analysis. When measuring the shielding effect that state capacity has, the results do not seem very clear either (see Table 1.15). It appears that, in the short term, violence has the effect of increasing economic activity, and that this effect is

TABLE 1.12: School Enrollment

	(1) No School 5-9	(2) No School 10-14	(3) No School 15-19
Ln(homicide rate) 5yr av.	2.434***	1.666***	3.304***
	(0.117)	(0.131)	(0.303)
Ln(taxes per 10 Th. inhab.)	-1.292***	-1.089***	-3.430***
	(0.043)	(0.049)	(0.113)
Min. Distance U.S.	-0.000	0.000	-0.013***
	(0.000)	(0.000)	(0.001)
Distance Road	0.033**	0.018	0.091**
	(0.014)	(0.016)	(0.036)
Agric. Suitability	-0.039	-0.325***	-1.023***
	(0.047)	(0.053)	(0.124)
Elevation	0.000	-0.000**	-0.000
	(0.000)	(0.000)	(0.000)
Area (in Th. km)	0.001***	0.000	-0.001
	(0.000)	(0.000)	(0.001)
Ln(Population Th.)	0.255***	0.056	-0.987***
	(0.049)	(0.055)	(0.127)
Constant	20.977***	23.000***	105.625***
	(0.693)	(0.779)	(1.806)
ACME	0.317	0.270	0.875
Direct Effect	2.433	1.664	3.300
Total Effect	2.750	1.934	4.175
% Total Effect Mediated	0.115	0.140	0.209
Observations	5,595	5,640	5,679
R-squared	0.248	0.136	0.204

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

somewhat 'intensified' by state capacity. It may be that in places that start presenting an increase in violence, the government and the private sector search for ways to avoid crime, and that this is particularly true in places where the state is more present.

Finally, I look at the effects that persistent violence may have on migration. Particularly, I look at the percentage of households with at least one member that has migrated. The results are large and robust (Table 1.16). When persistent violence increase by 10%, there is an increase in migration of 5.67%. The results seem to be more relevant in rural areas, where migration seems to be higher. Still, this effects are mostly present when violence becomes persistent (Table 1.17). Before, the results are quite small and not statistically significant. These results are important because, just as it happens with education, persistent violence reduces the human capital and labor that exist in a region, thus reducing the opportunities for long term growth.

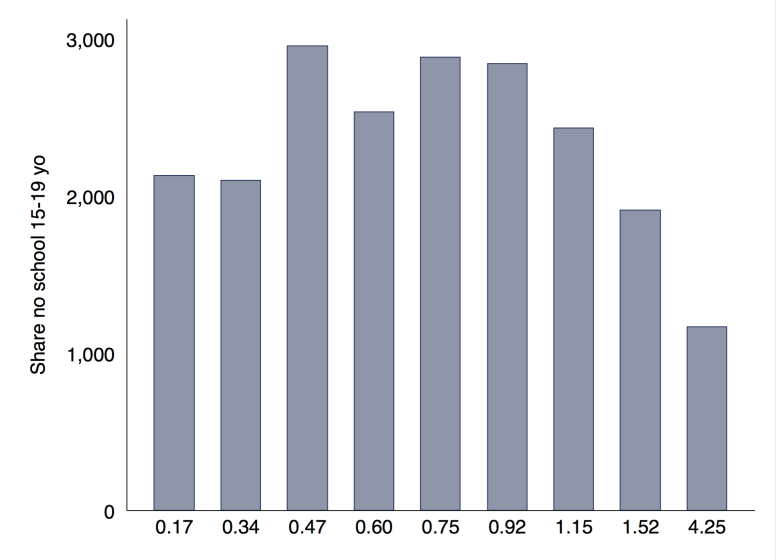


FIGURE 1.12: Share of population 15-19 that do not attend school

Elaborated with data from INEGI, 2018

1.8 Concluding Remarks

In the last decade, Mexico has presented a very steep increase in the level of violence. Still, the effects of this spike in criminal activities are not homogeneous across the country. Whereas certain areas have been successful in isolating the population from the effects that violence generates, even in the presence of drug-related violence, other areas across the country have not been quite successful in this attempt.

In this paper, I adapted a simple model to show that violence increases the cost of effort that a local government has to exert to isolate the population and keep the current levels of public good provision. If these costs surpass the net benefit that the incumbent receives from investing in capacity or if she thinks that the probability of staying in power is too low, she will reduce the investment in new capacity.

In the case of Mexico, I showed how this heterogeneity explains the different socioeconomic outcomes that we perceive. I used a mediation effects analysis to verify how violence affects both, state capacity and prosperity measures. The findings indicate a clear negative effect of persistent violence on the level of infrastructural power that the government has. In addition, although in areas with more infrastructural power, the government has been able to isolate the population from the negative effects of drug-related activities, violence has had a generally detrimental effect for the prosperity of the population across the country.

These results lead the way to potential areas of policy implementation, such as finding new ways of cooperation across different levels of government to ensure that the

TABLE 1.13: School Enrollment: State Capacity Shield

	(1) No School 5-9	(2) No School 10-14	(3) No School 15-19
Lag Ln(homicide rate)	0.916***	0.096	-0.246
	(0.086)	(0.096)	(0.222)
Ln(taxes per 10 Th. inhab.)	-1.401***	-1.149***	-3.537***
	(0.044)	(0.049)	(0.114)
Min. Distance U.S.	0.000	0.001	-0.012***
	(0.000)	(0.000)	(0.001)
Distance Road	0.066***	0.055***	0.172***
	(0.014)	(0.016)	(0.037)
Agric. Suitability	-0.097**	-0.364***	-1.099***
	(0.049)	(0.054)	(0.125)
Elevation	-0.000	-0.001***	-0.001
	(0.000)	(0.000)	(0.000)
Area (in Th. km)	0.001***	0.000	-0.000
	(0.000)	(0.000)	(0.001)
Ln(Population Th.)	-0.186***	0.043	-0.773***
	(0.069)	(0.076)	(0.174)
Constant	23.266***	24.597***	108.825***
	(0.703)	(0.780)	(1.800)
ACME	-0.094	-0.084	-0.309
Direct Effect	0.915	0.095	-0.248
Total Effect	0.820	0.011	-0.558
% Total Effect Mediated	-0.115	-0.460	0.548
Observations	5,595	5,640	5,679
R-squared	0.205	0.111	0.187

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

population is isolated from violence, or reducing areas of social, political and economic vulnerability.

TABLE 1.14: Economic Outcomes: State Capacity Shield

VARIABLES	(1) UE Total	(2) UE Manufacturing	(3) UE Retail	(4) Personnel Total	(5) Personnel Manufacturing	(6) Personnel Retail
Ln(homicide rate) 5yr av.	-0.148***	-0.259***	-0.085***	-0.181***	-0.366***	-0.100***
	(0.020)	(0.026)	(0.016)	(0.022)	(0.033)	(0.017)
Ln(taxes per 10 Th. inhab.)	0.169***	0.123***	0.156***	0.234***	0.198***	0.190***
	(0.008)	(0.009)	(0.006)	(0.009)	(0.012)	(0.006)
Min. Distance U.S.	0.001***	0.002***	0.001***	0.001***	-0.000	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Distance Road	-0.008***	-0.004	-0.005***	-0.004	-0.001	-0.004**
	(0.002)	(0.003)	(0.002)	(0.003)	(0.004)	(0.002)
Agric. Suitability	-0.040***	-0.061***	-0.034***	-0.016*	-0.067***	-0.015**
	(0.008)	(0.010)	(0.006)	(0.009)	(0.013)	(0.007)
Elevation	0.000	0.000***	0.000***	0.000**	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Area (in Th. km)	0.000**	0.000	0.000	0.000***	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Population Th.)	0.977***	0.859***	0.983***	1.090***	1.093***	1.055***
	(0.008)	(0.011)	(0.006)	(0.009)	(0.013)	(0.007)
Constant	3.014***	1.604***	2.484***	3.268***	2.647***	2.697***
	(0.123)	(0.153)	(0.095)	(0.139)	(0.190)	(0.103)
ACME	-0.003	-0.005	-0.012	-0.004	-0.008	-0.015
Direct Effect	-0.148	-0.259	-0.085	-0.181	-0.367	-0.101
Total Effect	-0.152	-0.264	-0.097	-0.186	-0.375	-0.115
% Total Effect Mediated	0.021	0.019	0.124	0.024	0.211	-0.128
Observations	4,076	4,716	5,183	4,076	4,716	5,183
R-squared	0.864	0.674	0.879	0.866	0.704	0.882

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

TABLE 1.15: Economic Outcomes: State Capacity Shield

VARIABLES	(1) UE Total	(2) UE Manufacturing	(3) UE Retail	(4) Personnel Total	(5) Personnel Manufacturing	(6) Personnel Retail
Lag Ln(homicide rate)	0.030**	0.042**	0.034***	0.039**	0.004	0.052***
	(0.015)	(0.018)	(0.011)	(0.017)	(0.022)	(0.012)
Ln(taxes per 10 Th. inhab.)	0.167***	0.120***	0.154***	0.232***	0.199***	0.187***
	(0.008)	(0.010)	(0.006)	(0.009)	(0.012)	(0.006)
Min. Distance U.S.	0.001***	0.002***	0.001***	0.001***	-0.000	0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Distance Road	-0.011***	-0.010***	-0.008***	-0.008***	-0.008**	-0.008***
	(0.002)	(0.003)	(0.002)	(0.003)	(0.004)	(0.002)
Agric. Suitability	-0.036***	-0.058***	-0.034***	-0.011	-0.062***	-0.015**
	(0.008)	(0.010)	(0.006)	(0.009)	(0.013)	(0.007)
Elevation	0.000	0.000***	0.000***	0.000**	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Area (in Th. km)	0.000**	-0.000	0.000	0.000***	0.000	0.000*
	0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Population Th.)	0.959***	0.828***	0.964***	1.066***	1.081***	1.027***
	(0.011)	(0.015)	(0.009)	(0.012)	(0.018)	(0.009)
Constant	2.924***	1.461***	2.434***	3.160***	2.410***	2.644***
	(0.123)	(0.154)	(0.095)	(0.139)	(0.192)	(0.102)
ACME	0.047	0.027	0.034	0.065	0.044	0.042
Direct Effect	0.030	0.042	0.034	0.038	0.003	0.052
Total Effect	0.077	0.069	0.068	0.104	0.047	0.093
% Total Effect Mediated	0.614	0.388	0.503	0.628	0.910	0.446
Observations	4,076	4,716	5,183	4,076	4,716	5,183
R-squared	0.862	0.668	0.879	0.864	0.696	0.881

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

	(1) % HH Migrant
Ln(homicide rate) 5yr av.	0.567***
	(0.169)
Ln(taxes per 10 Th. inhab.)	-0.447***
	(0.063)
Min. Distance U.S.	-0.001
	(0.001)
Distance Road	-0.044**
	(0.021)
Agric. Suitability	-0.799***
	(0.072)
Elevation	0.001***
	(0.000)
Area (in Th. km)	-0.001
	(0.000)
Ln(Population Th.)	-0.386***
	(0.074)
Constant	13.893***
	(1.001)
ACME	0.124
Direct Effect	0.570
Total Effect	0.694
% Total Effect Mediated	0.179
Observations	3,775
R-squared	0.063

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

TABLE 1.16: Migration

	(1) % HH Migrant
Lag Ln(homicide rate)	0.014
	(0.140)
Ln(taxes per 10 Th. inhab.)	-0.469***
	(0.062)
Min. Distance U.S.	-0.001
	(0.001)
Distance Road	-0.031
	(0.021)
Agric. Suitability	-0.810***
	(0.072)
Elevation	0.001***
	(0.000)
Area (in Th. km)	-0.000
	(0.000)
Ln(Population Th.)	-0.371***
	(0.074)
Constant	14.480***
	(0.992)
ACME	0.038
Direct Effect	0.017
Total Effect	0.055
% Total Effect Mediated	0.20
Observations	3,775
R-squared	0.060

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

TABLE 1.17: Migration: State Capacity Shield

Bibliography

Baron, R. and Kenny, D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, 51(6):1173–1182.

Besley, T. and Persson, T. (2009). The Origins of State Capacity: Property Rights, Taxation and Politics. *American Economic Review*, 99(4):1218–1244.

Besley, T. and Persson, T. (2010). State Capacity, Conflict and Development. *Econometrica*, 78:1–34.

Besley, T. and Persson, T. (2011a). Fragile States and Development Policy. *Journal of the European Economic Association*, 9(3):371–398.

Besley, T. and Persson, T. (2011b). The Logic of Political Violence. *Quarterly Journal of Economics*, 126(3):1411–1445.

Besley, T. and Persson, T. (2014). Why Do Developing Countries Tax So Little? *Journal of Economic Perspectives*, 28(4).

Blattman, C. and Miguel, E. (2010). Civil War. *Journal of Economic Literature*, 48(1):3–57.

Centeno, M.-A. (2002). *Blood and Debt: War and the Nation-State in Latin America*. The Pennsylvania State University Press, University Park PA.

Dell, M. (2015). Trafficking Networks and the Mexican Drug War. *American Economic Review*, 105(6):1738–1779.

Dell, M., Feigenberg, B., and Teshima, K. (2018). The Violent Consequences of Trade-Induced Worker Displacement in Mexico.

Dimico, A., Isopi, A., and Olsson, O. (2012). Origins of the Sicilian Mafia: The Market for Lemons.

Dube, A., Dube, O., and Garcia-Ponce, O. (2013). Cross-Border Spillover: U.S. Gun Laws and Violence in Mexico. *American Political Science Review*, 107(3):397–417.

Dube, O., Garcia-Ponce, O., and Thom, K. (2016). From Maize to Haze: Agricultural Shocks and the Growth of the Mexican Drug Sector. *Journal of the European Economic Association*, 14(5):1181–1224.

Garcia-Ponce, O., Young, L., and Zeitzoff, T. (2018). Anger and Support for Punitive Justice in Mexico's Drug War.

Garfias, F. (2018). Elite Competition and State Capacity Development: Theory and Evidence from Post-Revolutionary Mexico. *American Political Science Review*, 112(2):339–357.

Heinle, K., Ferreira, O. R., and and David A. Shirk (2017). Drug Violence in Mexico. Technical report, University of San Diego.

Hicks, R. and Tingley, D. (2011). Causal Mediation Analysis. *Stata Journal*, 11(4):605–619.

Imai, K., Keele, L., and Tingley, D. (2010). A General Approach to Causal Mediation Analysis. *Psychological Methods*, 15(4):309–334.

Institute for Economics and Peace (2018). Mexico Peace Index 2018: Mapping the Evolution of Peace and its Drivers. Technical report, Institute for Economics and Peace.

Luna, J. P. and Soifer, H. D. (2017). Capturing Sub-National Variation in State Capacity: A Survey-Based Approach. *American Behavioral Scientist*, 61(8):887–907.

Magaloni, B., Matanock, A. M., Romero, V., and D\'\iaz-Cayeros, A. (2014). Living in Fear: The Dynamics of Extortion in Mexico's Criminal InsurgencyLiving in Fear: The Dynamics of Extortion in Mexico's Criminal Insurgency. Technical report, Center on Democracy, Development, and the Rule of Law, Stanford.

Mann, M. (1984). The autonomous power of the state: its origins, mechanisms and results. *European Journal of Sociology*, 25(2):185–213.

Mihalache-O'Keef, A. and Vashchilko, T. (2010). Chapter Seven: Foreign Direct Investors in Conflict Zones. *Adelphi Series*, 50:137–156.

Moscona, J., Nunn, N., and Robinson, J. A. (2018). Social Structure and Conflict.

O'Donnell, G. (1993). On the State, Democratization, and Some Conceptual Problems. *World Development*, 21(8):1355–1369.

Olson, M. (1993). Dictatorship, Democracy, and Development. *The American Political Science Review*, 87(3):567–576.

Oto-Peralías, D. (2015). The Long-Term Effects of Political Violence on Political Attitudes: Evidence from the Spanish Civil War. *Kyklos*, 3:412–442.

Padilla-Márquez, F., Pérez-Arce, F., and Rodríguez-Castelán, C. (2016). The (Non-) Effect of Violence on Education: Evidence from the "War on Drugs" in Mexico.

Pearl, J. (2001). Direct and Indirect Effects. Technical report.

Pepinsky, T. B., Pierskalla, J., and Sacks, A. (2017). Bureaucracy and Service Delivery.

Rios, V. (2013). Why did Mexico become so violent? A selfreinforcing violent equilibrium caused by competition and enforcement. *Trends in Organized Crime*, 16(2):138–155.

Rios, V. (2016). The impact of crime and violence on economic sector diversity.

Robles, G., Calderón, G., and Magaloni, B. (2015). The Economic Consequences of Drug Trafficking Violence in Mexico.

Saylor, R. (2014). *State Building in Boom Times: Commodities and Coalitions in Latin America and Africa*. Oxford University Press.

Soifer, H. D. (2012). Measuring State Capacity in Contemporary Latin America. *Revista de ciencia política*, 32(3):585–598.

Trejo, G. and Ley, S. (2018). Why Did Drug Cartels Go to War in Mexico? Subnational Party Alternation, the Breakdown of Criminal Protection, and the Onset of Large-Scale Violence. *Comparative Political Studies*, 51(7):900–937.

Chapter 2

Is Local Governance a Possibility after Decentralization? The Case of the DRC

This chapter is a modified version of a working paper written in collaboration with Pierre Englebert. He has largely contributed to the elaboration of the theoretical argument behind it

Abstract

In fragile environments, decentralization has been approached as a way to increase governance. By bringing the government closer to the people, decentralization can increase the legitimacy of the state, facilitate the extraction of resources and reduce the transaction costs to provide public goods. This study uses the case of the Democratic Republic of Congo (DRC), a fragile country that decentralized in 2015, to verify if this process has led to the desired outcomes. I show that, under certain specific circumstances, governance and development may emerge, but the general outcome from decentralization in the DRC has led to an increase and an unstable context that remains controlled by the central government.

2.1 Introduction

With public-sector and security-sector reforms, decentralization reforms have been at the center of the good-governance agenda in development for more than a decade. The main assumption behind decentralization programs is the expectation that proximity to the people might increase institutional accountability and capacity (**?**). In Africa, reformists also hope that decentralization can help prevent excessive predatory personal rule and give rent-seeking regimes greater opportunities and incentives for providing public goods (**?**). Similar sentiments prevailed in the DR Congo when it adopted decentralization as part of its 2006 Constitution.

Still, whether decentralization actually produces more capable governing entities remains an empirical question. The term has been used ambiguously to refer to different levels of subnational autonomy, from a simple deconcentration of certain activities to delegation and devolution of powers and responsibilities to local authorities (**?**). Furthermore, capacity also entails a broad set of definitions. It can refer to the capability to design and implement policies (Centeno, 2002), to organize resources (Mann (1984) "infrastructural power"), extract them (**?**), and even to penetrate and reshape societies (**?**). Similarly, the origins of capacity and its relationship with decentralization are the subject of debate: Does capacity arise as a function of human capital (Besley and Persson, 2009), an exogenous event like war (Centeno, 2002, **?**, **?**), (lack of) natural resource endowment or some other cause?

All these questions matter in the context of decentralization. If we believe that decentralization can lead to greater capacity, the causal mechanism should conform to some theoretical specification or suggest a new one. Either way, although it is rarely explicated in pro-decentralization policy documents, the logical path from devolution to capacity cannot be take granted and must be articulated as part of any effort to empirically test the effects of decentralization.

Irrespective of the definitions of capacity and decentralization, there are reasons to question the expectation that decentralization will necessarily produce pockets of capacity. First of all, local elites may have other goals rather than strengthening local governance. In addition, even in situations where local elites they are truly accountable, such accountability might be more clientelistic than universalist, which can affect the production and distribution of public goods. Also, even under conditions of local autonomy, the relationship between local and central governments, and between local and national elites, may facilitate or hinder local governance (see **?** for the example of Uganda). Furthermore, decentralization may be at times little more than a window-dressing policy to allure international donors **???**. Finally, even when decentralization

is adopted, the lack of resources may impede the emergence of local state capacity. As **?** argues, decentralization is a highly complex process that requires the transformation of multiple system, and thus is met by several challenges. All these issues are particularly acute in sub-Saharan Africa, where governance quality remains generally lower than elsewhere around the world, for a variety of reasons (**???**Moscona et al., 2018, **?**, **?**).

In this paper, I focus on the case of the Democratic Republic of Congo (DRC)[1], a particularly weak state with a long history of decentralization efforts. Already since the colonization era, the country, which is the size of continental Europe, was divided into four provinces. Then, after independence, the country followed a rapid expansion of provinces that was also expeditiously reversed at the arrival of Mobutu to power. Although a symbolic process of decentralization was conducted in 1988, this merely consisted in the division of the Kivu region into three provinces without real devolvement to the local authorities. It was only until the negotiation for the 2006 Constitution that Congo adopted a decentralized system, endowing its 11 provinces with a significant degree of political, administrative and fiscal devolution. In 2015, 8 years after the initial set date, the country broke up six of the existing provinces into 21 new ones (a process known as découpage because of its translation from French "to break down"), for a total of 26.

I investigate some of the opportunities and challenges that the country faces in the implementation of decentralization and I examine how does this translate into a more effective governance and development. Congo is a particularly insightful case because of the profound duality of its rule. To a large extent, Congolese elites have formal recognizable governance roles and operate within recognizable formal institutions whose performances can be evaluated. To an equally large extent, they also function in parallel structures, as members of networks where clientelism and ethnicity matter, the goals of which are largely acquisitive and redistributive. It is hard to conceptualize, ex ante, what outcomes the formal decentralization of such a dual system can produce. I start, however, from a few important assumptions.

The first assumption is that capacity does not arise out of the blue but results from investments in physical, human and institutional infrastructure. Increased capacity might not be the goal but variations in capacity result from variations in such investments, which can in turn follow other motivations (Saylor, 2014). The second assumption is that such investments are made rationally within the logic of the specific utility of the actors. If a local actor perceives a larger gain from maintaining the status-quo, he will decrease the amount of effort that is required to invest in capacity[2].The third

[1] Along the text, I use DRC and Congo interchangeably

[2] I use masculine pronouns throughout the text given the power structure in Congo, mostly dominated by men.

assumption is that the informal linkages set the constraints and the direction of accountability within the system. Central in the argument are the demands for redistribution of different actors and their political weight. These demands usually take place in the informal and the degree in which these demands are fulfilled will determine the longevity expectations of the local leaders, which in turn determine the possibilities to invest in capacity.

Therefore, by looking at the different motivations and constraints in the formal and informal sphere, it is possible to verify whereas decentralization creates the conditions that facilitate investment in capacity or if instead, just adds another layer of *'institutional bricolage'* in which the sub-national units perpetuate the prevailing predatory behavior of the central government **?**. Congo is a patrimonial state (**?**), characterized by a deeply clientelistic mode of rule (**?**) [3].

However, contrary to what authors such as **?** argue, in this scenario patronage is not an obstacle that prevents the government to function, but it is an intrinsic characteristic of the system. Its ability to work within the formal system and the variation in the strength of patron-client relationships will determine how this translates into more ore less investment in capacity. As local governments get caught in a two-level game of clientelistic redistribution, first towards their benefactors in Kinshasa and, second towards their local provincial clients, the local government weights the expected returns that investment in capacity may provide. If these returns are positive, the local incumbent will find that investment in capacity increases his utility. Otherwise, he will prefer not to exert any effort to improve governance.

The empirical section of the paper is based on the evidence gathered during four field visits between 2017 and 2017 in Kinshasa, and three provinces of former Katanga: Haut-Katanga, Lualaba and Haut-Lomami. I also rely on secondary data coming from the **?** and on satellite data. In places characterized by endemic low capacity, the amount of data available is scarce, but the qualitative and quantitative material gathered will provide preliminary evidence of the patterns that start to emerge after découpage.

The rest of the paper is structured as follows. Next section does an overview of the literature of decentralization, with particular emphasis on the case of decentralization history in the DRC and on the specific characteristics of the decentralization process of 2015. Section 2.3 looks into the capacity literature and establishes a degree of capacity zero as a starting point in the analysis of subnational capacity in the DRC. I then examine how patronage could affect governance after découpage in Section 2.4. Section

[3] Patrimonialism implies the private appropriation of public office and personalized patron-client relations among elites and their followers. In this paper, patronage, clientelism and patron-client relations are used interchangeably.

2.5 does an initial exploration on the variables that explain how patronage and state capacity interact within this formal-informal system and affect the functioning of the decentralization process in the DRC. Then, section 2.6 does a basic empirical analysis looking for some correlations among these variables. Given the small sample that exists as découpage was implemented in 2018, these results should be analyzed with care. I show that, in most cases, the informal system dominates and it is only in few cases where the design of the process can lead to better governance and development. Section 2.7 summarizes the findings and concludes.

2.2 Decentralization

2.2.1 Different Ideas on Decentralization

Decentralization can take on different shapes. In its mildest form, deconcentration, it involves the transfer of authority from central to local branches of the state that are managed by unelected appointees (**?**). Delegation transfers management authority to semi-autonomous agents. Finally, devolution is the "most complete form of decentralization" (**??**), as it displaces power and decision-making to the local level, and is typically accompanied by a transfer of resources to an independent elected local authority. Devolution can be administrative, political and fiscal.

With donor agencies and civil-society organizations pushing for decentralization as part of good-governance packages for over a decade, many low-income and African countries have adopted at least a degree of decentralization. In Africa, ethnic minorities and underrepresented groups have tried to use decentralization as a way to improve their lot and seize control over certain sectors of the economy (**?**). But, as often with reforms adopted under donor pressure that go against the immediate interests of ruling elites (**?**), African decentralization reforms have often appeared to be more signaling than substance, and governments have found ways to manipulate their implementation (**?**). For example, some governments retain control of local politics by manipulating the resource flow from the center (**?**). **?** go so far as to argue that national governments always look to make decentralization reforms favorable for themselves. Hence, whereas most of the countries in the region have followed decentralization policies on paper, a large majority barely reaches deconcentration (**???**).

Even when implemented to the extent of effective devolution, decentralization is no panacea. Decentralization reforms are often predicated upon the unstated assumption that local elites are more likely to represent collective interests than national ones, but they are as likely to seek to capture local government and local resources, and undermine local governance (**?**). The success of decentralization may also be affected by the

lack of material and human resources. New regions may lack the expertise and the material resources necessary to improve governance. Even if the newly elected authorities are intent on increasing local capacity, they may soon lose traction as the level of effort needed exceeds the potential benefits (**?**). Decentralization can also exacerbate disparities across regions within a country, generating new spaces for conflict to access resources. While certain areas may have the adequate context to improve governance, other regions may develop a more predatory behavior, intensifying social and economic differences (**?**). Also, decentralization can be implemented in such a way that there is no clear division of responsibilities between the local and national level, thus decreasing the autonomy of the subnational government (**?**).

2.2.2 Decentralization History in Congo

Congo has had a mixed historical experience with decentralization. Already during the colonial period, four provinces (and then six) were created to administer the country. The first few years of independence saw rapid and largely endogenous decentralization, with provinces going from six in 1960 to 21 in 1964. This process was reversed during the takeover of power by Mobutu, who started a period characterized by intense centralization and personalization of power. Provinces decreased to a total of 8 in 1966. It was until 1988 that a largely symbolic decentralization exercise took place (**??**), in which the Kivu region was separated in three provinces: Sud-Kivu, Nord-Kivu and Maniema. Still, no devolution was granted to these provinces, with governors still being directly imposed by Kinshasa. As the country broke down and Mobutu's power dwindled, a phase of widespread conflict started between 1997-2003. As part of the negotiations, a decentralization process was negotiated, driven mostly by political motivations (**?**).

The Constitution of 2006 gives special status to the provinces, which contrary to the rest of local jurisdictions[4], are not deconcentrated units but are given a decentralized status. The provinces are provided with their own legislative and executive powers, with a government composed by a provincial assembly with elected and imposed members [5], which elects a governor and a vice-governor, who in turn form the provincial government with a maximum of 10 ministers[6]. According to the Constitution, provinces have

[4]The *villages*, the *communes*, the *secteurs* and the *chefferies*

[5]The traditional chiefs are allowed to participate as members of the provincial assemblies

[6]In practice, each province selects the 10 ministries he wants to create and creates other offices that have the same rank as ministries but are not called as such, but serve to extend patronage.

autonomy to administer their material and financial resources, and are granted significant devolution in the areas of health, education, agriculture and rural development[7], as well as shared responsibility with the central government in many other areas, such as the mining sector. Still, the national government has the capacity to reverse this decentralization process if that serves the interests of "national unity".

The Constitution of the Third Republic also provided that, within 3 years, six of the existing 11 provinces would be broken down into 21 new ones, a process known as découpage or cutting up (see Figure 3.1). The vagaries of Congolese politics delayed the implementation of découpage by a few years. The new provinces were promulgated in 2015. Lacking governments, they were assigned *general commissioners* by Kinshasa in contradiction with the Constitution and in defiance of local autonomy. In April 2016, new governors were elected by the new provincial assemblies, many of whom had been the previous commissioners.

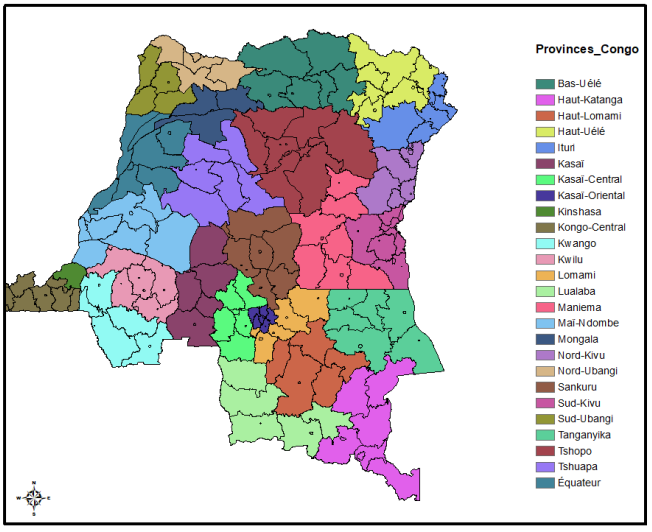


FIGURE 2.1: Territories and the 26 provinces

Source: Elaborated by the author

To some extent, the Constitution did not care about the viability of provinces as it was animated by a political spirit to prevent the return of centralized dictatorship. In addition, when the regime decided to finally implement découpage, it did so without further consideration of readiness as it sought to undermine Moïse Katumbi, the governor of Katanga, who had switched to the opposition and announced he would run for president. It might also have calculated that découpage would multiply opportunities for patronage and give the regime an edge in the coming presidential race

[7]The health sector was already decentralized since the Mobutu era, when the provinces became the reference units and they became further divided in different health zones that are in charge of their own administration.

(which was then scheduled for 2016). Indeed, for each new province, executives and administrations were set up and staff hired. But no new resources were created and no additional ones allocated. Thus, although on paper, Congolese decentralization was deemed rather far-reaching at the time by African standards, in practice it looked rather different, with a movement towards an increase of centralized power, coordinated indirectly by informal networks.

2.3 State Capacity

State capacity has not a single connotation. Its interpretation has changed across time and space. In its more basic interpretation, **?** mentioned the need of a social contract and rule of a Leviathan that could reduce the state of nature of "the war of all against all" (*"Bellum omnium contra omnes"*). This idea was extended by **?**, who introduced the concept of the 'monopoly of violence' that the state uses to legitimize its power in a given territory. In turn, **?** uses this monopoly of violence concept to explain the formation and legitimization of the state as a protection racket that served the population in times of war in exchange of taxes. Then, as argued by Centeno (2002) and **?**, if external war is what is needed to create a state, then this may explain why regions such as Africa and Latin America have not been capable to develop strong states that are capable to serve as those protection rackets, with solid taxation systems.

Other interpretations have been considered to expand from the basic perception of the state as a source of 'despotic power'. This is the case of Mann (1984)'s definition of 'infrastructural power' of the state, understood as the *"capacity to actually penetrate civil society and to implement logistically political decisions throughout the realm"* (pp.189). This interpretation is nowadays the most recognized connotation of state capacity, as it goes beyond the extractive capacity of the state (**?**), but it acknowledges that state capacity requires the ability to make and enforce rules and to deliver services (**??**Soifer, 2012). This interpretation of state capacity requires both, the ability to reach and extract resources in the different corners of the territory and to deliver services to them. Although international organizations such as the World Bank and scholars such as **?** acknowledge this interpretation of capacity as governance, and recognize it as the goal that governments should reach to serve the population, they fall short in providing an explanation of the elements that facilitate its development.

In fact, much of the capacity literature takes for granted that some capacity, some functional institutions exist. This is, however, an empirical question. In Congo, the state has historically deployed as a coercive actor (**?**), but if one looks at the reach of the state across the country at the time of the 2015 découpage, some provinces did not even have the physical rudiments of local statehood. There is certainly not a monopoly of violence

in certain regions of the country, a prerequisite in many ways to statehood and capacity **?**. Plus, the population in many areas of the country has never been close to the local government . Provincial assemblies may not know how to function within the formal framework and there may not be proper infrastructure to guarantee the development of government functions. Hence, under certain environments, it is fundamental to consider a degree zero of capacity and find signals of minimal improvements in governance. However, within the Congolese environment, the development in governance is not only a matter of looking at the formal networks and increasing the capacity of formal representatives and structures. It is equally or more critical to examine the informal networks that persist in the country and that define the constraints and direction of accountability and the amount of redistribution that needs to be allocated, even before an investment in local capacity is envisioned.

2.4 Patronage and Capacity

2.4.1 A Tale of Two Provinces

In the process of découpage, the former province of Katanga disappeared to be replaced by four new units: Haut-Katanga, Haut-Lomami, Lualaba, and Tanganyika. While both Haut-Katanga and Lualaba inherited the part of the province that is richest in mineral resources and had most infrastructure, their fortunes have nonetheless greatly differed since 2015. Despite hosting the former provincial capital and major city of Lubumbashi, and a relatively wealthy and well-educated population, Haut-Katanga has struggled with political instability and ineffective provincial institutions. Lualaba, in contrast, has displayed stability despite resistance from some segments of its population, and its government has managed to function, extract local resources, and even engage in some infrastructural development. The two provinces also differ significantly in their elite's relations with Kinshasa and the local redistributive demands they face.

On the one hand, the local authorities in Haut-Katanga have had a hard time creating strong bonds with the local elites and with Kinshasa. The special commissioner appointed by the central government was not able to establish strong bonds with the local elite, even if he was considered autochthonous from the province, an important dimension in Congo that determines who deserves redistribution as a native of the region. He was then retired by the political party of the president, the PPRD. In response, Jean-Claude Kazembe Musonda, a candidate rather unknown, but also autochthonous, was presented for the elections. [8]

[8] For an extensive discussion on the importance of autochthony in Congo's provincial politics, see **?**

The new governor lacked strong connections in Kinshasa and also had a hard time establishing strong linkages with the elites of other important ethnic groups in the province. In addition, he ignored recommendations from Kinshasa on the configuration his government and cabinet, a rather unusual practice in the informal networks in the country, thus weakening even more his connection with Kinshasa. He also seemed reluctant to play the game of patronage, especially in terms of redistributing provincial resources upwards to his patrons in Kinshasa and downwards to his potential clients in Lubumbashi. Instead, he tended to "eat alone" as when he deposited a $27m tax payment from a mining company into his own private bank account **?**. He also fired many civil servants from the previous Katanga province and appeared to do so partly along lines of autochthony. He did invest in infrastructure but it was mostly to build a new governorate building and the financing allegedly went largely to his own companies.

As a result, Haut-Katanga suffered from a significant degree of paralysis and controversy under his leadership. Few if any edicts were taken and the province did not elaborate any development or investment plan, despite its tremendous mining potential. Struggles between the governor and the provincial assembly, as well as between him and Kinshasa elites, resulted in a successful vote of no-confidence against him in the assembly (at the instigation or at least with the support of Kinshasa) in April 2017 and his subsequent but protracted dismissal. He was eventually replaced by Célestin Pande Kapopo, another PPRD politician. The new governor, also autochthonous from the province, has managed to calm things down in Lubumbashi, the province has continued to underperform compared to its potential. Although the province inaugurated its first large commercial mall (see Figure 2.3 and a new government building to host the governorship and all the ministries in 2017 (see Figure 2.2), the province still lags behind in terms of public good provision. For instance, the average walk time to access water is of 25 minutes (compared to 9 an average of 9 minutes in Kinshasa) (**?**).

Neighboring Lualaba province is a study in contrast with Haut-Katanga. There, the special commissioner appointed by Kinshasa was none other than the national minister of interior and security, with oversight over decentralization, Richard Muyej, a close collaborator of the president and a senior member of the PPRD. As a Lunda, Muyej belongs to Lualaba's largest ethnic group (35%) and in coalition with the Tshowkwe and other smaller connected group, he is part of the largest ethnic majority in the province. Muyej was easily elected governor of the province in 2016 and has remained steady at its helm since then. The province has known no constitutional crisis and has displayed political stability. It has passed a large number of edicts compared to other provinces (more than 10, according to our estimations), raised new taxes, managed to redistribute road tolls and other mining taxes to its benefit, produced a provincial development plan, inaugurated an annual "Mining Week" courting investments from around the

FIGURE 2.2: Governorate Haut Katanga

Source: Fieldwork 2018

FIGURE 2.3: Mall Haut Katanga

Source: Fieldwork 2018

world, started and has maintained a fairly elaborate and transparent web site, and has engaged in some infrastructural projects such as road paving and the development of some tourist sites (see Figure 2.4).

The contrast between Haut-Katanga and Lualaba, so similar in terms of natural endowments, illustrates the variations in provincial capacity that exist across the country. They hint that the ethnic profile of a province and ethnic relations among its elites might matter. But more importantly, they suggest that that relations between provincial elites and Kinshasa matter, but are constrained by the necessities of local embeddedness and/or clientelistic redistribution.

FIGURE 2.4: Website Lualaba

Source: http://www.lualaba.gouv.cd/

2.4.2 Patronage Relations between Provincial and National Elites

The stories of Haut-Katanga and Lualaba hint at the extent to which Congolese governance offers a particularly extreme case of the duality of rule that characterizes much of Africa (**?**). On the one hand, Congolese elites have formal recognizable governance roles and operate within recognizable formal institutions whose performance can be evaluated. On the other hand, they also function in parallel structures, as members of fairly vertical and centralized networks where clientelism and ethnicity matter, the goals of which are largely acquisitive and redistributive.

Schematically, patron-client relationships take place at three levels. First, they unfold within ethnic groups. Members of ethnic communities want their elites in government so they can find the resources with which they will take care of their community, whether in the form of employment, material assistance, or local development projects. Second, they develop among elites within specific regions. Important regional actors, who derive their influence from their formal position, their ethnic status, their wealth or from a particular connection with even higher authorities, act as patrons towards lesser regional elites with whom they exchange resources and positions for loyalty. Finally, patron-client relations also prevail in the rapport between provincial/regional elites and national ones. Kinshasa elites, organized as networks that straddle formal institutions around the president, systematically seek to control provincial elites as a tool to control the allocation of resources across the country.

One particular feature of Congolese patronage is the extent to which the flow of resources goes both ways, from the local to the national and vice versa. In its simplest form, patronage involves the exchange of resources by the patron for the political support or loyalty of the client. At times, when the resource is a position (a "prebend" in Weberian terminology), the beneficiary might be expected to share some of the material benefits with the patron, almost as a form of tribute. In Congo, however, this

latter practice appears unusually developed, and provides the context for very significant extraction by patrons of the resources mobilized by clients. The Congolese refer to such upward transfers as *opération retour*, *rapportage* (as in reporting to one's superior) or *retrocession*, a reference to public funds officially returned to their source.

The prevalence of *rapportage* cannot be overstated, nor can the unusual ways in which it binds patrons and clients together. In their study of the national police in Kinshasa and Bukavu, **?** have shown that a large part of the illegal fines extracted by police agents "[...]are transferred upward in the hierarchy" (pp.228). Obtaining and staying in a lucrative post "involves making arrangements with higher ranking commanders, with certain agreements being made with regard to percentages of income or fixed amounts that are to be transferred upward in the system" with the understanding that keeping one's position depends on one's "ability to feed superiors". Similarly, **?** have shown how high-ranking political interests based on kinship and family and rising all the way to the presidency control the informal extraction of revenue from Kinshasa markets. During fieldwork, personnel from deconcentrated services in provinces reported that they send regular payments back to their Kinshasa's benefactors[9].

The evidence suggests that the same principles apply to provincial governors. Although they are elected by provincial assemblies, candidates from the (now former) presidential majority or from Kabila's ruling party (PPRD) are largely picked by Kinshasa, following local consultations, and are then obligated to their Kinshasa patrons and expected to use the power of their office to generate and informally redistribute resources upwards[10].

The two-way traffic of resources in this system appears to create a different bond between patron and client than in more conventional patron-client relations. Normally, the client is the one in the more vulnerable and dependent position. But in a *rapportage* setting, the patron is also rather dependent on the client. For the patron to wield his power, he needs at least in part the resources that are sent up from his clients. Kinshasa's dependence for resources on politically-appointed personnel was illustrated by a letter sent in September 2018 to all the administrators of state-owned enterprises by the secretary-general of the Presidential Majority (MP) requesting their support in organizing for the electoral campaign of MP candidate Emmanuel Ramazani Shadary and reminding each one of them of their obligation to send $1,500 monthly to the MP [11]. As long as they can pay up, Kinshasa's dependence on these elites provides them with a degree of stability.

[9] Information gathered during fieldwork

[10] Information gathered during fieldwork

[11] https://afrique.lalibre.be/25208/rdc-la-mp-appelle-ses-mandataires-a-passer-a-la-caisse/, accessed Oct 2 2018

However, while local elites might want to maximize the strength of their patronage relation with Kinshasa in order to make themselves indispensable to them, they must do so under the significant local constraints that their own provincial clients also expect resource redistribution. They are thus engaged in a two-level game. The relative strength of other local elites, like members of provincial assemblies and leaders of mutuelles, and these other elites' own relative compliance with Kinshasa will help determine the success of governors. A number of variables are likely to affect both the strength of rapportage and the power relations between the governor and other provincial elites. As a result, however dominant it is in Congolese politics, patronage does not map out constantly across the territory. As discussed in the next section, dimensions such as co-ethnicity, resource endowment, provincial wealth, the degree of political hierarchy of provinces, local political preferences and others are likely to affect the calculus of provincial governors and of Kinshasa in their reciprocal relations and to create circumstances of varying propitiousness for the development of rapportage.

2.4.3 Patronage, Time Horizons, and Capacity

It is commonly expected that decentralization can bring about improvements in local governance. However, the capacity of decentralized units to provide effective governance, while constrained by endowments of human, social and physical capital, derives in part from the willingness of their elites to invest in governance. This willingness is, in turn, partly a function of the time horizons faced by these provincial elites. At least since Olson (1993), we know that rulers build time into their governance. Specifically, the longer their time horizons, that is, their expectation to stay in office, the more likely they are to turn from roving to stationary banditry or, the more likely they are to develop capacity and produce some degree of governance. The underlying argument is that, with time, rulers can accrue more resources over the long run by fostering their productive base than by looting all assets at once. Stories of Congolese ministers stealing even the curtains of their office as they are removed from their position after a mere few months provide dramatic illustrations of Olson's logic. Although Olson developed his argument with national elites in mind, it applies equally to sub-national ones. It is possible then to expect Congolese provincial governors to invest in their province's capacity as a function of their expectations of political longevity.

Expectations of longevity derive from the governor's ability to service upward patrons under the constrain of taking care of downward clients. The basic functionality and subsequent capacity of the provincial government derive from the resolution of this initial conundrum, and the sustained reproduction of the arrangements it entails. Thus, newly elected provincial governors typically spend weeks if not months trying to form their ten-member provincial cabinets in a delicate first iteration of their two-level game.

Before they can invest in capacity, they face the trade-off of competing *rapportage* and patronage transfers.

This is similar to the trade-off identified by Besley and Persson (2009), **?** in their study of the origins of capacity. Nonetheless, while, for Besley and Person, potential capacity builders face a trade-off in the use of their disposable resources between providing public goods and redistributing their resources as private patronage transfers, provincial governors in Congo face the more basic dilemma of balancing the demands of their resource claimants, that it is assumed will always exist. It is the resource sharing in this first period that will increase the possibilities for the governor to stay in power and increase capacity. Therefore, I consider that the local incumbent should always consider that he will have to attend negotiate the demands of the different actors that may affect his stay in power. [12]

In short, a basic degree of functional capacity requires extending the expectations of political longevity of the governor. These expectations are in turn a function of his success in resolving the double-patronage game or in maximizing his utility to Kinshasa without alienating his local clients. This is not to say that solving this game will automatically lead to better governance (not a sufficient condition), but that solving it is necessary to even consider the possibility to invest in some degree of capacity. After this conundrum is solved, other factors will influence the possibility for a local government to increase its capacity. This idea suggest the opposite outcome from **?** who showed that patronage reduced district capacity in Uganda because it made local politicians vulnerable. In this case, however, the strength of the relationship with the central government determines the degree of local stability.

2.4.4 What determines Patronage?

As the resolution of this two-level game depends on a multitude of variables that modulate the respective influences of the central government and of other provincial elites, understanding capacity variations becomes partly a question of understanding the regional distribution of these variables.

[12] While capacity is the dependent variable of the resolution of the patronage conundrum, I nevertheless embrace a similar approach to Besley and Person (2008) to the extent that I recognize the rationality of investments in capacity and the extent to which self-interest and power maximization condition the behavior of local elites. The lack of direct importance of capacity-building in Congo comes from the lack of local accountability of provincial authorities, which is partly a function of the highly centralized informal norms of provincial-central relations in Congo, of the constitutional provisions that establish a strong oversight of provinces by the central government, of the fact that the elections of governors is by indirect suffrage of a handful of provincial assembly members, and, finally, of the fact that local voters might not actually expect and thus might not actively demand universal public goods.

2.4.4.1 Rapportage towards Kinshasa

First among the variables that would facilitate the relationship with Kinshasa is whether a governor is politically affiliated with the ruling party (PPRD) or the presidential majority. Such affiliation would predispose a governor to more longevity from the perspective of Kinshasa compared to an independent or an opposition governor, who would be an unreliable source of *rapportage*. Similarly, whether a governor comes from a mostly national or provincial professional trajectory could be a significant variable. Provincially embedded governors might be more likely to privilege their provincial clients over their Kinshasa patrons, and vice versa.

How well a province is represented in the distribution of ministerial portfolios in national government might be an indication of the strength of that province's elites' patronage relation with Kinshasa (**?**). In Congo, the necessity to have collective representation of provinces and/or ethnic groups in government is a well-established norm (**???**). But in the implementation of this norm some provinces or groups tend to do better than others, a difference that is likely to reflect political and/or patronage influence.

Furthermore, not all provinces are similar in terms of their political culture or degree of informal political centralization. Some provinces are endowed with ethnic groups that have long traditions of statehood, like the Bakongo of Kongo-Central or the Lubakat of Haut-Lomami. Others, like the Mongo of Equateur or the Ngbandi of Nord-Ubangi had less centralized political cultures. **?** has shown that the more centralized a precolonial culture and the more established and recognized its chiefs, the easier it is for a central government to develop relations of patronage with local elites. It is, however, again an empirical question whether this would benefit Kinshasa or not. One can imagine that strong informal chiefdoms would increase the pressures on governors to redistribute as it would raise the number and profiles of redistributive claimants.

2.4.4.2 Rapportage to the Local Elites

Variables that could increase the necessity to take care of local clients might include first the degree of ethnic heterogeneity of a province. Since, at the provincial level, representation is largely on an ethnic basis **?**, the more groups there are in a province the more distinct interests will demand access to positions and resources. Alternatively, provincial representation might also take place at the level of territories, the administrative unit immediately below the province. This might particularly be the case when provinces are more ethnically homogeneous. In such instances, groups might seek representation along territorial lines. Territories often overlap with sub-ethnic dimensions

like clans. In this case, the more territories a province has, the more local demands, presumably. Territories range from three in Mongala to twelve in Kongo Central.

Congolese provinces also vary in the extent to which they host people who cannot claim autochthonous status to their province of residence. Although there is no official or legal foundations for such a claim, every province had groups that are deemed *originaires* from this province, meaning that they can allegedly trace some ancestry to a location in the province. But with internal migration, about 20% of the Congolese are *non-originaires* of their province of residence. *Non-originaires* carry less political weight than their autochthonous counterparts.

Finally, although Congolese politics is much more complex than a government-opposition dichotomy and the opposition is more "managerial" (**?**) than political, in the sense that it wishes to replace the incumbents rather than offer new policies, it is possible to expect that provinces where the opposition is strong might make more local redistributive demands as they would conceive of less coincidence between their interests and those of the Kinshasa elite than in pro-government provinces.

Finally, the wealth of a province and its endowment with mineral resources plays a fundamental role in the construction of capacity. First, it determines the expectations of Kinshasa for *rapportage*. Second, it increases the demands of local elites to access those resources. Third, more wealth translates into a higher chance to improve capacity and therefore generates more incentives to invest in it.

2.5 Patronage and Capacity after Decentralization in the DRC

Congo only has 26 provinces and 21 of them have only existed since 2015 and have had governors and provincial governments only since 2016. As a result, any quantitative analysis of capacity variations among provinces must rely on very few degrees of freedom and cannot (yet) include variations over time. By and large, 2017 is the only year so far for which there was a full year of provincial governance (governors were first elected in April 2016).

In addition, as is often the case in Congo, quality data is very difficult to come by. Data was collected during four field trips in former Katanga and Kinshasa in 2017 and 2018 and with the help of Congolese colleagues. Although this data is new and useful, many of the indicators remain nevertheless somewhat haphazard. Given all these limitations, it is not possible to properly test the argument and do not I do not seek to do so. Instead, the paper explores and seek patterns that might be suggestive of underlying dynamics. To do so, some innovative techniques are introduced with the objective of finding the

variables that provide the best prediction accuracy, taking into account the small simple size.

2.5.1 The Degree Zero of Capacity

As explained above, studying capacity variations among Congo's provinces calls both for a basic and inclusive definition of the term. This paper seeks to address this degree zero of capacity by looking at basic indicators of functionality, such as whether provincial authorities do anything beyond obstructing each other, or the extent to which a province is rocked by political violence. Yet, it also seeks to go beyond these indicators by looking, for example, at extractive and budgetary capacity, as well as virtual projection and internet presence.

2.5.1.1 Effectiveness of Provincial Assemblies

In order to assess if provinces 'work', that is, if they display elements of functionality, the number of edicts passed by each province since April 2016 is counted, focusing mostly on the financial and administrative edicts issued by the provincial assemblies. In a basic way, this measure allows to examine the infrastructural power of the state and its ability to make rules, in the way that Michael Mann and Francis Fukuyama explore it (Mann, 1984, **?**). Edicts are passed by provincial assemblies but must be promulgated by governors. As such, they also measure the capacity of assemblies and governors to work together.

2.5.1.2 Revenue Generation and Budget Management

Constitutionally and legally, there are three ways for provinces to obtain revenue. First, provinces are supposed to keep 40 per cent of the national income raised at the provincial level. Not only has Kinshasa never allowed provinces to keep these resources but it has also retroceded much less than this share to them over the years (**?**). This affects the day-to-day functioning of the provinces and hurts the possibilities of success of the decentralization process. Retrocession is not included among the measures of capacity as it derives from a complicated calculus involving provincial wealth and resources, as well as provincial influence in Kinshasa.

The second source of income was expected to come from the *Caisse Nationale de Péréquation*, an equalization fund with the objective of "reducing the disequilibrium across provinces". The fund was meant to take 10% of the total national revenue and redistribute it to provinces according to need. As of 2018, the law setting up the Caisse has yet to be promulgated.

Finally, provinces are allowed to raise their own taxes and a 2013 law identifies what taxes can be raised by provinces versus other levels of government. The provinces have not hesitated to seize upon this authority and the main legislative activity of their assemblies has been tax creation by far. In every province, the first decree was usually the setting up of a tax agency and in some provinces, it is the only one. Yet, the revenue from these taxes vary largely as a function of the wealth of the province. For most of them, while the burden on citizens is considerable, the effects on the budget can be trivial. Nonetheless, it is possible to obtain a standardized measured of provincial taxation, by doing a linear regression of provincial budgets on transfers and use the residual as a proxy for local tax revenue. The resulting figure will not actually represent local taxes but the variations in it among provinces should approximate the variations in their fiscal capacity.

The paper also looks at budget-making as well as the execution rates of budgets, and the share of budgets that come from local sources as further measures of financial capacity. In a 2010 report, the IMF had predicted that only two of Congo's provinces would be financially viable: Haut-Katanga and Lualaba (**?**).

2.5.1.3 Internet Presence and Transparency

While institutional and physical capacity might be particularly arduous to develop, virtual capacity is more manageable. It is still, however, a tool of governance, particularly as it offers opportunities for transparency, courting investments, and projecting messages about the province. I look at the capacity of provinces to project their existence and display transparency on the internet by assessing whether they have a web presence and the content of their web site if they have one. There is a very large range of performance in this respect with some provinces having no internet presence at all, others having a Facebook page with different degrees of maintenance, still others having a proper web page but again with large variations in maintenance from apparent neglect to daily updates and uploading of policy documents, as in Lualaba, from which the example below comes from (See Figure 2.5 that illustrates the team's visit to the Vice-Governor in October 2017).

2.5.2 Measuring Time Horizons

The vagaries of Congolese provincial politics provide for ready-made measures of longevity expectations for governors. Since 2016, there have been no fewer than 17 votes of no-confidence of governors by provincial assemblies, 14 of which resulted in the impeachment of the governor. Some of these motions were initiated by provincial assemblies

FIGURE 2.5: Regional Government Index, Selected African Countries, 2016

Source: http://www.lualaba.gouv.cd/

pushing back against governors imposed from Kinshasa. Others were initiated by Kinshasa to rein in governors from opposition parties or who showed too much autonomy. And some resulted from the joint activism of Kinshasa and provincial assemblies. Figure 2.6 below shows their distribution by province. There were additional motions that did not pass and which we did not include, as well as some motions against vice-governors and against provincial assembly presidents.

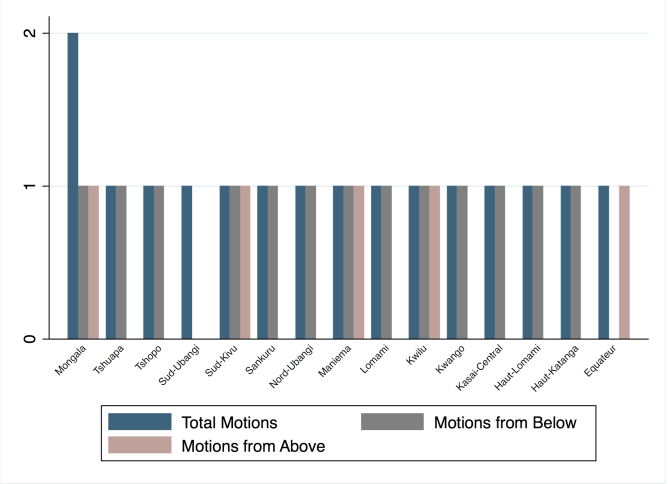


FIGURE 2.6: No-Confidence Motions against Provincial Governors, 2016-17

Source: Elaborated by the authors with fieldwork data

Most governors who suffered from no-confidence motions were eventually impeached and lost their jobs. Some were able to resist, usually with Kinshasa's assistance. At times, the constitutional court struck down some motions for procedural flaw or other reason. Whether a governor who is the subject of a no-confidence motion ends up impeached or not seems to be partly a function of Kinshasa's support for this governor,

and therefore impeachments are measured separately from motions. Also included are several estimates of expectations of longevity by governors based on the average time they serve until a motion is introduced.

2.5.3 Covariates of Patronage

It is not possible to directly observe rapportage or downward patronage in a systematic way. One can, however, conceive of variables that are likely to correlate with patronage and might thus proxy for its presence. Gina Lambright (2011) measured central government patronage towards Ugandan districts by counting the number of national cabinet members from each district. A similar measure here with a few variations. In addition to the percentage of cabinet members from each province, also measured is the ratio of that percentage to the percentage of the country's population that comes from that province as a way to determine whether a region is over- or under-represented. Because national-level politics resulted in a government inclusive of opposition defectors in 2017, the paper accounts for the ethnic and provincial origins of ministers in the 2018 Tshibala government (which includes opponents) and in the Matata II government (2014-16), which was composed mostly of Presidential majority (MP) politicians.

Political parties and groupings are the first structure through which patronage relations take place **?**. For the Kabila regime, it is the MP and subsidiarily the PPRD which play this role. Therefore, it is possible that governors affiliated with the MP or the PPRD are more embedded in patronage relations than independent or opposition ones. Similarly, politicians who have spent most of their careers in Kinshasa or in nationally-appointed positions might be more connected to national patronage networks than those who are principally provincial politicians. Thus, based on biographical information gathered during fieldwork, it is possible to code whether a governor is mostly a national or a provincial politician.

Although patronage reports tend to include upwards payments and are quite different from official transfers from Kinshasa to the province, official "retrocession" transfers could give some measure on patronage. Specifically, bearing in mind that retrocession transfers are a function of the amount of national revenue produced in each province, they are regressed on provincial wealth. Then, the residual of the regression is used as an estimate of patronage rewards for provincial authorities, bearing in mind that one would expect this residual to be 0 under no other influence. In this respect, different types of transfers are considered, such as transfers for personnel costs, functioning costs, and public investments.

Finally, using **?** insight that regions with more traditional chiefs are easier for governments to bring into patronage networks than those without, a measure on the degree of

pre-colonial political centralization by province is calculated by coding ethnic groups along the 3-point scale developed by **?** and compiled by Moscona et al. (2018) and weighing it by the relative population weights of each group in the province. The hypothesis is that the more centralized, the more patronage there will be between the governor and his provincial elites.

2.5.4 Other Determinants of Capacity

It is highly plausible that some of the variables identified in the previous section might have their own independent effects on capacity. Pre-colonial centralization, for example, to use the latter one, might also have a direct capacity effect by creating a greater disposition to statehood (**?**). Similarly, while possibly proxying for the strength of patronage bonds, financial transfers also feed provincial budgets and facilitate governance. When possible, the direct effect of these variables is identified.

2.5.4.1 Physical and Human Capital

The conditions at the time of découpage varied greatly across the provinces. Whereas the provinces where former provincial capitals were located benefited from the relatively large share of human capital they had attracted over the years, most new provinces lacked the material and human resources necessary to install a functioning bureaucracy. Although the découpage law called for new provinces to divide the resources of the province from which they emanated, it was practically complicated to share and transport existing assets, and many personnel were unwilling to relocate to provinces that often appeared as backwaters. Finally, fixed assets like buildings were mostly nonexistent in many newly created provinces. Even in a place like Kolwezi, the capital of Lualaba, where there has historically been significant development because of mining activity, we were told that "All the experienced people stayed in Lubumbashi. Certain financial resources were distributed, but not the expertise"[13]. In some of the new provinces where no government building existed, such as Haut-Lomami, the government settled in former private residences dating back to the colonial era or in buildings that belonged to the former mining parastatal Gécamines (and which date back to its colonial predecessor, the Union Minière). By and large, the best physical and human capital is available in Haut-Katanga and Lualaba, Tshopo (Kisangani), Equateur (Mbandaka), Kasai-Oriental (Mbuji-Mayi) and Kasai-Central (Kananga). Kwango and Kwilu also benefit from their proximity to Kinshasa and access by paved road.

As an illustration, Table 2.1 shows the difference in human resources in two provinces of former Katanga. Lubumbashi, the previous capital of Katanga is now the capital

[13] Fieldwork notes.

Province	Political Personnel	Administrative Personnel	Support Personnel
Haut-Katanga	136	657	994
Haut-Lomami	72	96	48
Ratio HK: HL	1.89	6.84	20.84
Ratio Population	1.5		

TABLE 2.1: Government Personnel Provinces Haut-Katanga and Haut-Lomami

of Haut-Katanga. The city is quite cosmopolitan due to the arrival of workers from other parts of Katanga (and the Kasais), many of whom worked for the government. In contrast, Haut-Lomami's capital is Kamina, a remote city in a landlocked province with arduous access by land and a diminutive airport. After découpage, Haut-Katanga has still a much higher ratio of government employees than Haut-Lomami. Although the population ratio is 1.5:1 to the benefit of Haut-Katanga, the ratio of government employees is 8.3:1. Moreover, many of the Haut-Lomami provincial hires were locals with significantly less experience than public servants in Haut-Katanga.

The baseline conditions at the time of decentralization define the amount of effort that the regional government needs to exert to improve governance in the province. This moment of decentralization represents, to put it in words of **?**, a critical juncture that occurred in different ways in different provinces, according to the context of the province. Therefore, it is possible that these differences in the initial context play a central role in determining the decision to invest or not in capacity **?**. After all, the amount of effort that needs to be exerted in a province with low physical and human capital is higher than the effort needed to improve governance in a place with more capital.

Physical capital is also lacking in most provinces. Figure 2.7 displays night lights' intensity, a proxy of economic development (**??????**). As the map makes clear, only Kinshasa, Lubumbashi and the copper belt into Lualaba show some concentration of night lights. Much of the rest of the country is in the dark.

The road situation is not much better than electrification (see Figure 2.8). The country has fewer than 2,548 miles of paved roads in a territory of 905,400 square miles, concentrated mostly around Kinshasa (Kongo Central, Kwango and Kwilu provinces), from Kasumbalesa on the border with Zambia to Kolwezi in Lualaba, and a few more segments near Goma, Bukavu and Kisangani. Access to the rest of the country is difficult, particularly during the rainy season. In June 2018, during the dry season, it took us 22 hours to drive the 282 miles from Likasi, Lualaba, to Kamina, Haut-Lomami on "National Road 1".

FIGURE 2.7: Night Time Lights Congo, 2013

Source: Elaborated with data from the National Center for Environmental Information

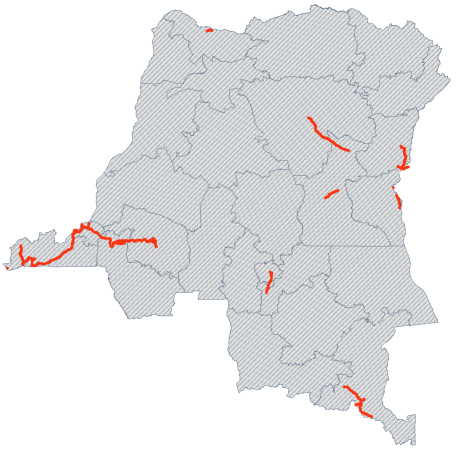


FIGURE 2.8: Paved Roads Congo, 2016

Source: Elaborated with data from the Open Street Map data of the World Food Program

2.5.4.2 Wealth

Most new provinces are exceedingly poor and under-developed. In 2011, the IMF anticipated that only two of them would be economically viable (**?**). To some extent, the

Constitution writers did not care about the viability of provinces as they were animated by a political spirit to prevent the return of centralized dictatorship. In addition, when the regime decided to finally implement découpage, it did so without further consideration of readiness as it sought to undermine Moïse Katumbi, the governor of Katanga, who had switched to the opposition and announced he would run for president. Thus, variations in readiness in terms of physical and human capital were compounded by widespread poverty and income inequality. Estimates captured by **?** show significant wealth inequality across Congo's provinces. This wealth index captures access to basic public goods, housing conditions (toilet facilities, material of principal floor, walls and roof, cooking fuel, among others), and ownership of selected assets. The index assigns each household to a quantile with 0 the "lowest level of wealth, poorest" and 5 the "richest level". This information is weighted according to the household weights to get the wealth index by province (Table 2.2).

This index shows a ratio of about 3:1 in terms of provincial wealth before découpage, with Kinshasa the richest and Tshuapa the poorest. It is often but not always the case that provinces where capitals of the former provinces were located became relatively wealthier after découpage, while new provinces became poorer in average. This situation might be exacerbated for landlocked provinces, with no exit either to the sea or to an international border, and for provinces with little or no minerals available. This is the case of the provinces of Lomami and Haut-Lomami, where minerals are not abundant and whose little agricultural product cannot easily be sent to other provinces or abroad, for lack of decent roads. These provinces then have limited opportunities to develop, which reduces their taxing potential. Without sufficient transfers from Kinshasa, the local governments might turn fiscally predatory with little intention to increase capacity, as the effort to do this may be larger than the potential benefits.

2.5.5 Natural Resources

The effects of natural resources on state capacity and economic development are likely multiple and contradictory. A country like Congo is usually deemed to suffer from a resource curse where abundant resources provide low-effort sources of income, reducing the incentive to reach deeper into society for revenue and endangering both the administrative apparatus of the state, the social contract, and the development of property rights **??**. At the same time, the availability of natural resources attracts provincial investments, which bring about taxes as well as infrastructure developments.

At the provincial level in Congo, many of the dimensions of the resource-curse argument do not hold. Terms of trade (**????**) are broadly the same across provinces, although smuggling might affect effective exchange rates. Dutch-disease types of arguments (**?**)

Province	Wealth Index
BANDUNDU	2.44
Kwango	2.09
Kwilu	2.50
Mai-Ndombe	2.69
EQUATEUR	2.18
Equateur	2.49
Tshuapa	1.74
Mongala	2.10
Nord-Ubangi	2.26
Sud-Ubangi	2.23
ORIENTALE	2.61
Tshopo	2.60
Ituri	2.65
Bas-Uele	2.40
Haut-Uele	2.78
NORD-KIVU	3.29
SUD-KIVU	3.35
MANIEMA	2.67
KATANGA	3.36
Haut-Katanga	4.21
Lualaba	3.37
Haut-Lomami	2.45
Tanganyika	2.14
KASAI-ORIENTAL	2.96
Kasai-Oriental	3.81
Lomami	2.67
Sankuru	1.84
KASAI-OCCIDENTAL	2.52
Kasai	2.09
Kasai Central	2.86
KINSHASA	4.97
KONGO-CENTRAL	3.55

TABLE 2.2: Wealth Index by Province

Source: Elaborated with data from DHS Congo- USAID, 2013-2014

also do not hold as there is everywhere a large labor surplus. Things are somewhat more ambiguous with **?**'s argument which saw state capacity as sustained by the implied fiscal contract that existed between the racketing government and the population, during war times. **?** has forcefully argued that the lack of inter-state war is behind the underdevelopment of capacity in Africa. Centeno (2002) argues something similar for the case of Latin America. The existence of a low-cost source of income may therefore appear as another source of low capacity as it reduces the incentive for the government to create a fiscal contract with the population (**?**). Furthermore, this dependence could create a rentier state in which public expenditure increase during commodity booms

and shrink during price busts (**?**), a pattern seemingly validated by Congo over the last few years.

The institutional connections between resources and low capacity are probably the most interesting when it comes to Congo but they do not necessarily apply to provinces given their lack of direct jurisdiction over the mineral sector. **?** argument about the negative effects of oil on institutions and **?**'s broader claim on the rentier effects of any resources cannot directly apply to provinces as the latter do not control the management or the taxation of the extractive sector (which is actually under the direct authority of the president). While provinces do not control their own natural resources, they can indirectly tax them, as did Katanga when it adopted a tax on exports of raw copper or as do most provinces with the adoption of road tolls, for which trucks from mining companies are the main payers. Mining companies might be easy target for indirect taxation but doing so still requires a degree of provincial projection which, while lesser than it would be with taxes on households, still calls for some degree of capacity. Therefore, it might be the case that the availability of natural resources might generate different opportunities for the provinces. In principle, provinces with mineral endowments could use these rents to provide public goods and increase the reach of the state.

Although this paper does not argue that the presence of minerals will immediately bring an increase in state capacity, it is reasonable to think that an absence of mineral rents might complicate the context for the new provincial governments. The presence of rents reduces the cost of investment in capacity and may facilitate the development of the province. This argument on the potential positive effects of commodity rents has been previously advanced by Saylor (2014) who states that whenever the government has a direct stake on increasing capacity during commodity booms, it will do so. **?** and **?** also posit that commodities have the potential to play a positive role in state capacity formation.

The distribution of minerals in Congo is definitely not random. As Figure 2.9 makes clear, cobalt and copper can be found in the former Katanga provinces, mainly in Lualaba and Haut-Katanga, where there is also some coltan (and other minerals like uranium), although coltan is mostly found in the eastern Kivu provinces. Diamonds cut more of a south-west to north-east axis, covering the Kasais and former Orientale province. However, the near total breakdown of MIBA industrial mining in the Kasais, and the artisanal nature of diamond exploitation in Orientale, reduce the impact of this resource on local capacity.

While virtually every Congolese province holds mineral resources, not all do in the same quantity and not everywhere are the resources systematically or industrially exploited. Figure 2.10 shows that industrial mining (which means the presence of firms

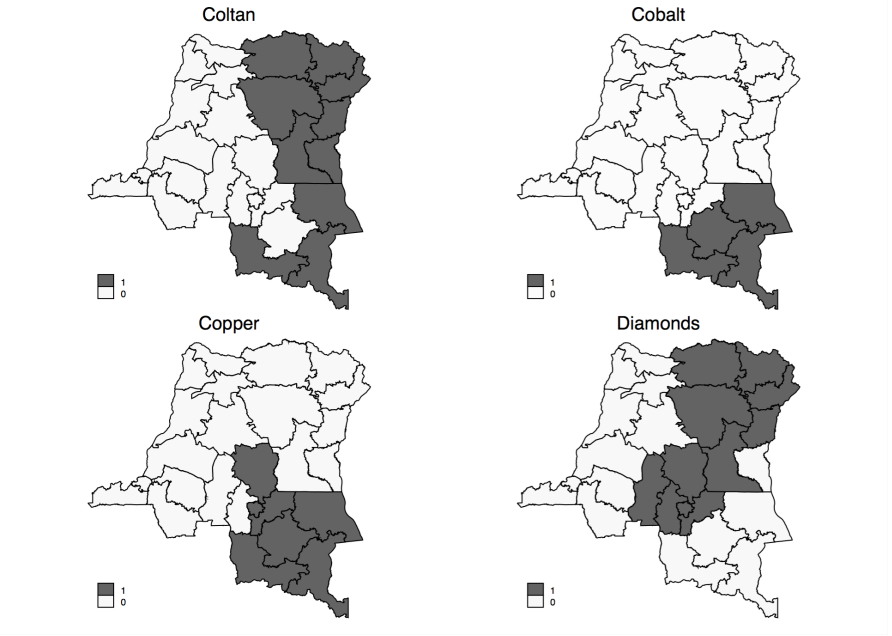


FIGURE 2.9: Mineral presence

Source: Elaborated with data from Congo Mines, 2018

to tax) happens mostly in former Katanga (copper, cobalt), Kasai-Central (diamonds) and Maniema and the Kivus (gold). Artisanal mining is widespread around the whole mineral belt of the country, with peaks in largely the same regions as industrial mining plus diamonds in Tshopo.

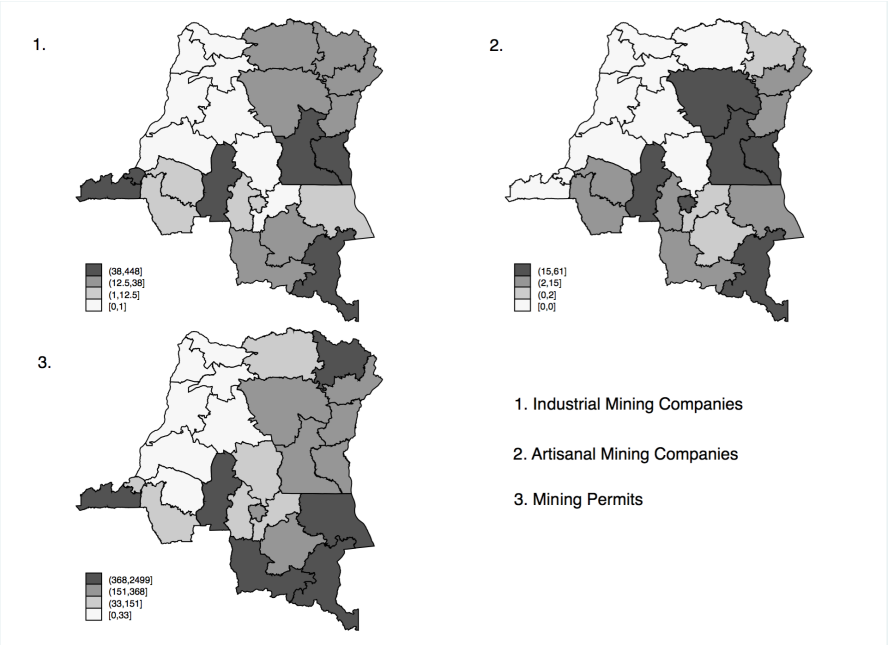


FIGURE 2.10: Mining Companies and Permits, Congo

Source: Source: Elaborated with data from the Ministére des Mines, Congo 2018

Of course, the benefits of mining could be undone by the possibility that the presence of natural resources may lead to conflict **?**. In Eastern Congo, the lack of official control across the years has motivated the formation of a difficult environment full of corruption and patrimonial networks that look for immediate enrichment and prevent the formation of a strong regional state (**?**) . **?** analyzes this case in mineral-rich areas in Eastern Congo, where armed groups replace a weak state to serve as monopolies of violence, provide local goods and create taxation systems.

2.5.5.1 Ethnicity and Institutional Congruence

Découpage had for principal effect to create more ethnically homogeneous provinces (**?**). **?** find that eleven of Congo's provinces now have one majority ethnic group and all provinces see the relative size of their main ethnic group increase compared to before découpage. Furthermore, the authors also found that, at least in former Katanga, provincial governments amplify the demographic homogenization with a tendency for dominant groups to monopolize government agencies to their benefit, with the consequence that some ethnic groups find themselves under- or unrepresented. While this exclusion might make some groups more vulnerable, there are also arguments that ethnic homogeneity predisposes public entities to better governance (**??**) and better infrastructure (**??**). From this paper's perspective, ethnic homogeneity might reduce the pressure for local redistribution and facilitate the identification of clients by Kinshasa. Provincial homogenization may facilitate collective action and capacity building. Incumbents in more homogeneous areas may be more willing to invest in capacity if they believe their group will be able to keep most of the gains. Furthermore, they might also improve governance if the probability of being removed from power is low.

As Table 2.3 shows, with the exception of Haut-Katanga and Kasai, every new province has less ethnic diversity than the larger province to which it belonged before. At the same time, however, there is widespread variation across provinces with some, like Kongo-Central or Sankuru showing minimal heterogeneity while others, usually with large towns, displaying heterogeneity indices in the upper 80s.

While ethnic homogeneity might facilitate capacity by lowering redistributive pressure to multiple groups, it is also possible that ethnically homogeneous environments find themselves divided by newly salient alternative socio-cultural distinctions. In Haut-Lomami, for example, where almost everyone is a Lubakat, and ethnic heterogeneity stands at 0.36, the province was destabilized in 2017 when its assembly impeached the governor in part because he was seen as privileging his territory of origin within the

Province	Herfindahl Index
BANDUNDU	0.88
Kwango	0.39
Kwilu	0.85
Mai-Ndombe	0.68
EQUATEUR	0.85
Equateur	0.80
Tshuapa	0.14
Mongala	0.68
Nord-Ubangi	0.59
Sud-Ubangi	0.66
ORIENTALE	0.94
Tshopo	0.87
Ituri	0.82
Bas-Uele	0.82
Haut-Uele	0.80
NORD-KIVU	0.65
SUD-KIVU	0.78
MANIEMA	0.81
KATANGA	0.85
Haut-Katanga	0.88
Lualaba	0.80
Haut-Lomami	0.36
Tanganyika	0.63
KASAI-ORIENTAL	0.75
Kasai-Oriental	0.33
Lomami	0.73
Sankuru	0.40
KASAI-OCCIDENTAL	0.71
Kasai	0.84
Kasai Central	0.41
KINSHASA	0.90
KONGO-CENTRAL	0.12
NATIONAL	0.97

TABLE 2.3: Estimates of Ethnic Fractionalisation by Province

province over others[14]. **?** similarly found that, although more homogeneous subnational units reduced intra-region conflict in Indonesia, they increased conflict among newly polarized units.

Closely related to the issue of ethnic identity is the question of the degree of organizational complexity of pre-colonial ethnic institutions. **?** show that pre-colonial institutions in Africa are significantly correlated with contemporary economic development.

[14]Fieldwork notes.

They suggest that it may be the case that accountability increases in centralized societies (**??**). Second, large ethnic groups were able to form organized bureaucracies that provided policing and other public goods (**??**). Third, more centralized societies facilitated the formation of property rights that still remain (**?**). Fourth, Western colonizers collaborated more with more complex ethnic groups (**??**). Fifth, stronger ethnic groups were able to obtain concessions from colonial powers and after independence. In addition, although there exists a theoretical role of pre-colonial centralization in patronage relations, it is necessary to also recognize the possibility that it might have different and more direct effects on capacity. Figure 3.4 illustrates the geographical distribution of provinces and pre-colonial political entities **?**.

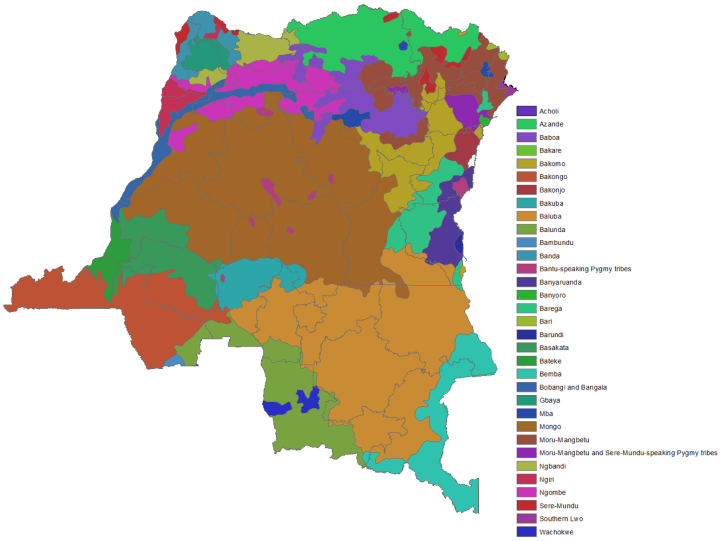


FIGURE 2.11: Historical Major Ethnic Composition- Congo

Source: Elaborated by the author with data from **?**

Although the map only shows the location of historical groups, Figure 2.12 shows the weighted average of each province's "level of jurisdictional hierarchy beyond the local community", which measures the number of political jurisdictions above the household level for each ethnicity. A zero indicates a stateless society, a 1 designates a chiefdom, a 2 represents paramount chiefdoms, while 3 and 4 indicate groups that were part of a larger state. Similar exercises have been performed Africa-wide by **?**, **?** and **?**.

With their large Lubakat populations, the provinces of Haut-Lomami and Tanganyika seem to have the highest indices of jurisdictional hierarchy. In contrast, Mongala is at the opposite end. A forested province of former Equateur, its populations like the Ngala, Bwaka and Poto organized mostly as chiefdoms whereas the Ndoko and Ngbandi were acephalous, not an uncommon situation among forest people where the

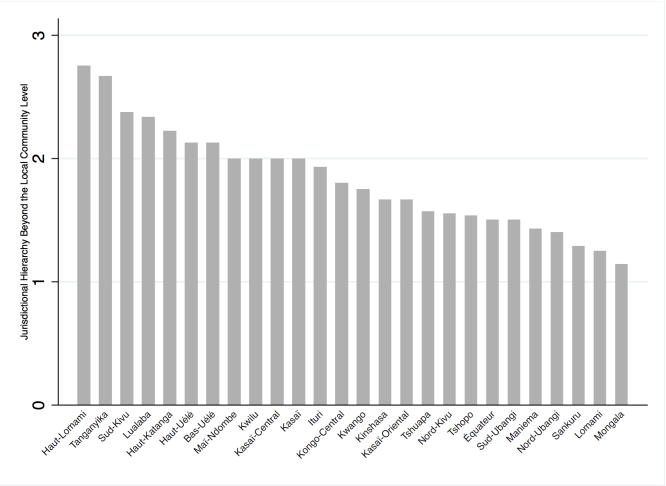


FIGURE 2.12: Jurisdictional Hierarchy Beyond the Local Community Level

Source: Murdock; Nunn, 2018

scale and agriculture called for by statehood are hard to come about (**?**). The effect of these pre-colonial configuration on current governance is hard to assess. Looking at previous literature, it is plausible that there will be a positive correlation between pre-colonial political institutions and contemporary local state.

2.6 Empirical Analysis

This section describes the different patterns that observed and see how they relate to the main argument. As mentioned before, the few degrees of freedom, as well as the characteristics of the data, make a clear-cut analysis an impracticable task. Instead, the paper looks at the correlation between the different variables and their direction. With this, the objective is to elicit certain initial factors that could help to predict the longevity of the provinces' governors and see how does that translate into more or less capacity.

Empirically, the main specification can be written as:

$$Capacity_i = \beta_o + \beta_1 Longevity_i + \beta_2 Economic\_Context_i + \beta_3 \mathbf{X_i} + \varepsilon \tag{2.1}$$

Longevity, the variable of intered, is proxied by looking at the different patronage measures mentioned above .$\boldsymbol{X}_i$ represents a series of controls unique to each province. To avoid multicollinearity, these variables are first regressed on longevity.

2.6.1 Empirical Strategy

Given the characteristics of the data, being conservative in the analysis represents the best strategy. This is why, each independent variable is analyzed, to identify those that best predict the behavior of the dependent variable. This is done using the *least absolute shrinkage and selection operator* (Lasso), introduced by Tibshirani (1996) which helped to select the regressors that best predict the dependent variable[15]. We also used a variant of Lasso that facilitates causal inference (PDS Lasso).

In addition, linear regressions with the variables selected by Lasso are used. Given the small degrees of freedom of the sample, there is still a large inference problem and the specification may have to cope with overfitting issues. This is why, even if multiple techniques are used to verify the robustness of the results, these must be taken with a grain of salt and as impressionistic rather than causal findings.

2.6.2 First Stage: Longevity

2.6.2.1 No-confidence Motions

Section 2.5.2, explains that votes of no-confidence have originated either in Kinshasa or within the provinces. Since the factors behind these motions may be caused by different underlying factors, is is necessary to first analyze all motions together, and then separate the analysis, using *motions from above* to identify motions of no-confidence originated in Kinshasa and *motions from below* to describe those votes of no-confidence that were promoted from within the province. In the three cases, the objective is to see how measures for patronage and the initial conditions of the province affect the longevity.

To measure patronage, the following dependent variables are used: (a) background of the governor; (b) province's share in the national government, standardized by population size; (c) political party of the governor; (d) local support for the opposition in the province; and (e) transfers from Kinshasa, standardized by population size; (f) ethnic heterogeneity; (g) proportion of the population considered 'non-autochthonous'; and (h) number of territoires in the province. In the case of transfers, all the transfers are examined together first and then, they are desegregated to verify if certain types of transfers tend to be more prone to patronage.

[15]More information about lasso and how to use it in Stata can be found in their GitHub page: https://statalasso.github.io/docs/lassopack/. For implementation in R, information can be found on https://www.rdocumentation.org/packages/HDCI/versions/1.0-2/topics/Lasso

To examine how the initial conditions of the provinces affect longevity, the effect of the following variables is examined: (a) number of artisanal and industrial mining permits; and (c) wealth.

All Motions

When analyzing all motions together, the results are not significant. Looking at the correlation between patronage-related variables,there is no variable that is highly and significantly correlated with the all-motions variable. Still, looking at the variables that best predict the total of motions, patronage related to transfers for personnel costs, Murdock's variable signaling a more hierarchical structure beyond the local community, and the number of territories, provide the best prediction of the dependent variable (see Table 2.4). Having more territories or a more decentralized ethnic structure, negatively predicts the total number of motions within a province, whereas more patronage in the personnel compensation transfers increases the total number of motions.

	(1)	(2)
SELECTED	Lasso	Post-est OLS
Personnel Comp. Transfers (res).	0.079	0.20
Hierarchy beyond	-0.102	-0.229
Territoires	-0.085	-0.204
Partialled-out*		
Constant	1.3	2.212

TABLE 2.4: Prediction Variables: All Motions

Searching for a causal relationship, only patronage related to Kinshasa's transfers for personnel costs seems to have a consistent and significant effect over the total number of motions (see Table 2.5).

This lack of clear effects may be related to the fact that motions entrusted by Kinshasa and those motions originated within the province are motivated by different mechanisms. This is why each of the types of votes of no-confidence is examined.

Motions from Above

Examining the correlation between the different patronage proxies and longevity of the provincial governor, a more straightforward pattern is found.

First of all, motions from above seem to be related to patronage linked to transfers for personnel cost , which goes in line with the findings above. In addition, belonging to the MP seems to be negatively correlated to the number of motions coming from Kinshasa, signaling some party discipline. The level of local hierarchy, from Murdock's World Ethnographic Sample also is negatively related with the number of motions from Kinshasa. Among local variables, the share of non-autochthonous population in the

Total motions	(1) OLS	(2) PDS Lasso
Personnel Comp. Transfers (res).	0.174***	0.198***
	(0.0413)	(0.0593)
Hierarchy beyond	-0.181	-0.229
	(0.293)	(0.233)
Territoires	-0.112	-0.204***
	(0.0836)	(0.0558)
Constant	1.511**	2.212***
	(0.695)	(0.400)
Observations	26	25
R-squared	0.280	

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

TABLE 2.5: Effect of patronage and local context on the total number of motions in a province

province, as well as local support for the opposition is negatively correlated with the number of votes of no-confidence orchestrated by Kinshasa. More ethnic diversity is positively related to the number of votes of no-confidence from above.

SELECTED	(1) Lasso	(2) Post-est OLS
MP member	-0.064	-0.225
Personnel Comp. Transfers (res).	0.074	0.094
Hierarchy local	-0.065	-0.443
Opinion opposition	-0.593	-0.912
Herfindahl Index	0.33	0.433
Non-autochthonous	-0.003	-0.009
Partialled-out*		
Constant	1.212	2.473

TABLE 2.6: Prediction Variables: Motions from Above

Looking at what variables could predict the model better, the same variables as before appear as relevant (see Table 2.6). Doing a causal analysis using both OLS and PDS Lasso (Table 2.7), two variables stand out. Patronage related to salary transfers has a positive effect over no-confidence motions. This might signal that, although money is sent, Kinshasa has the power to use it when the local incumbent does not fulfill his role, according to the interests of the the national elite. In addition, the local opinion towards the opposition has a significant effect on the number of motions of no-confidence that come from Kinshasa. Interestingly, the effect is negative, indicating that a more favorable opinion towards the opposition within a provinces reduces the number of motions that Kinshasa start. This variable is highly correlated with the population's trust in the

local institutions (correlation approximately equal to 0.7, significant at the 5% significance level). Therefore, it might be the case that the population serves as a deterrent for Kinshsasa. If a local incumbent belongs to the MP, but a strong, favorable opinion exists about the opposition, Kinshasa might want minimize the struggles with other provinces.

	(1)	(2)
Motions Above	OLS	PDS Lasso
MP member	-0.222	-0.225*
	(0.203)	(0.137)
Personnel Comp. Transfers (res).	0.0893*	0.0936***
	(0.0432)	(0.0264)
Hierarchy local	-0.391	-0.444**
	(0.253)	(0.188)
Opinion opposition	-0.921***	-0.912***
	(0.307)	(0.206)
Herfindahl Index	0.372	0.433*
	(0.335)	(0.246)
Non-autochthonous	-0.00273	-0.00896**
	(0.00262)	(0.00402)
Constant	2.391**	2.473***
	(1.110)	(0.699)
Observations	26	25
R-squared	0.680	

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

TABLE 2.7: Effect of patronage and local context on motions from Kinshasa

Motions from Below

Looking at what variables are correlated with the motions initiated from within the province, the factors seem rather clear. Having a background linked to politics in Kinshasa, a strong local support for the presidential majority parties and receiving more patronage linked to remunerations from Kinshasa is positively correlated with motions. The correlation becomes negative for provinces with more territoires (although the relation is rather weak), and for provinces with ethnic groups with a hierarchical local organization.

Using Lasso to identify the variables that can predict motions from below, the same variables remain (Table 2.8). In addition, the level of ethnic heterogeneity becomes relevant for the prediction (although the effect is not robust across different specifications of Lasso).

	(1)	(2)
SELECTED	Lasso	Post-est OLS
National Background	0.313	0.4344
Remunerations (res).	0.094	0.157
Hierarchy local	-0.277	-0.563
Opinion MP	-0.036	-0.36
Herfindahl Index	-0.015	-0.376
Territoires	-0.049	-0.13
Partialled-out*		
Constant	1.174	3.083

TABLE 2.8: Prediction Variables: Motions from Below

When doing a linear regression and using PDS Lasso for causal inference, these results hold. Having a national background and patronage in the form of remuneration transfers positively affects the number of motions that are initiated by the local government. The local hierarchical structure of the ethnic groups, as well as the number of territories reduce the number of votes of no-confidence. This might be a signal of lack of collective action in places where more territoires or hierarchical levels exist.

	(1)	(2)
VARIABLES	OLS	PDS Lasso
National Background	0.463***	0.434***
	(0.153)	(0.130)
Personnel Comp. Transfers (res).	0.149***	0.157***
	(0.0467)	(0.0439)
Hierarchy local	-0.616**	-0.563**
	(0.250)	(0.224)
Opinion MP	-0.364	-0.360*
	(0.252)	(0.209)
Herfindahl Index	-0.454	-0.376
	(0.340)	(0.290)
Territoires	-0.101**	-0.130***
	(0.0395)	(0.0431)
Constant	3.004***	3.083***
	(0.848)	(0.809)
Observations	26	25
R-squared	0.608	
Number of groups		0

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

TABLE 2.9: Effect of patronage and local context on motions from below

2.6.2.2 Impeachments

Even if there is a motion of no-confidence against the governor of a province, this does not automatically translate into an impeachment. On the contrary, there have been cases in which governors are able to save their job and remain in the position. However, this only happens when votes of no-confidence are originated within the province (from below), which means that every time Kinshasa orchestrates the no-confidence vote, the governor gets impeached. This strengthens the argument that, even after decentralization, Kinshasa has strict control over what happens in the provinces. However, when no-confidence votes are organized within the province, there is a probability that it can be fought. Given this, only *impeachments from below* are examined. [16]

Impeachments from Below

Looking at what covariates of patronage correlate with impeachment from below, no strong nor significant correlation that is found. The same happens when looking at other variables related to economic development or to the specific configuration of the province.

Predicting what covariates predict impeachment from below, generates the same findings: no covariate seems to clearly predict impeachments when they originate within the provinces (see Table 2.10). Given this information, fitting a model using a linear regression or suggesting causal inference is not accurate. Still, Table 2.11 provides the results of OLS and PDS Lasso, just for comparison. These results show the little evidence that exists about what covariates explain impeachments from below

	(1)	(2)
SELECTED	Lasso	Post-est OLS
Partialled-out*		
Constant	0.44	0.44

TABLE 2.10: Prediction Variables: Impeachment from Below

2.6.3 Second Stage: Capacity of the Province

As explained in section 2.5.1, in the analysis we are clearly more interested in looking at capacity as an inclusive, yet basic term. We are more interested in how certain elements can facilitate the functioning of the provincial government, rather than at looking for a more integrated and complex term.

[16] Since all the governors that got a no-confidence vote promoted by Kinshasa were impeached, the results parallel those of *motions from above*. This in turn distort the results for the total number of impeachments. So instead, we just focus on *impeachments from below*.

VARIABLES	(1) OLS	(2) PDS Lasso
National Background	0.122	0.122
	(0.275)	(0.275)
Personnel Comp. Transfers (res).	0.0931*	0.0931*
	(0.0532)	(0.0532)
Hierarchy local	-0.645*	-0.645*
	(0.378)	(0.378)
Opinion opposition	-0.476	-0.476
	(0.416)	(0.416)
Herfindahl Index	-0.399	-0.399
	(0.495)	(0.495)
Non-autochthonous	0.00624	0.00624
	(0.00809)	(0.00809)
Constant	2.327*	2.327*
	(1.407)	(1.407)
Observations	25	25

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE 2.11: Effect of patronage and local context on impeachment from below

To do so, we look at capacity from different approaches. We look at how patronage and the initial context of a province at the time of decentralization affect different dimensions of capacity.

2.6.3.1 Internet Presence and Transparency

The first measure used to examine government functioning is internet presence and transparency. Table 2.12 shows the results of the linear regression and of the causal inference analysis using PDS Lasso. Since the dependent variable is binary, a Probit regression is also included. In these models, we use the most parsimonic specification, to avoid overfitting issues.

Interestingly, the patronage-related variables do not seem significant. In addition, they have opposite signs. Whereas motions directed by Kinshasa seem to reduce transparency, locally driven motions have a positive effect. Using the results from the linear regression and the PDS Lasso specification, wealth and natural resources have a significant effect over internet presence. However, whereas wealthier provinces seem to be more visible online (which may indeed be a proof of economic development), the presence of natural resources seems to have a negative, although quite small effect. This may be some signal of the resource curse, in which provinces with more endowments receive more investment and visibility regardless of the presence of a website.

VARIABLES	(1) LPM	(2) PDS Lasso	(3) Probit
Motions from above	-0.221	-0.237	-0.222
	(0.308)	(0.232)	(0.202)
Motions from below	0.121	0.165	0.124
	(0.239)	(0.189)	(0.176)
Wealth index	0.407**	0.611***	0.594***
	(0.150)	(0.198)	(0.133)
Mining: Industrial	-0.029***	-0.004***	-0.005
	(0.000)	(0.001)	(0.004)
Mining: Artisanal	0.001	-0.000	0.001
	(0.007)	(0.006)	(0.006)
Observations	26	25	26
R-squared	0.288		

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

TABLE 2.12: Internet Presence and Transparency

2.6.3.2 Budget Execution Rate

A more interesting measure on capacity is to look at the execution rate of the annual budget. This data, obtained during fieldwork, is rather suggestive and the results, shown on Table 2.13 should taken with care. This specially true since certain coefficients look rather different among the two specifications. Still, it seems that motions from above improve the rate of execution of the budget, whereas motions coming from the local elite seem to reduce the effectiveness of the government.

2.7 Analysis and Conclusion

Although the results on this paper are merely informative and do not try to make any claim of causal relations, certain elements can be examined.

For the first stage of the analysis, it is clear that motions orchestrated by Kinshasa have different catalysts than motions of no-confidence originated within the provinces. Particularly, patronage related to the transfers for salaries has a positive and significant effect on motions from above. As explained above, this effect might be related by the fact that Kinshasa has a strident control over the salaries of the local personnel. If more money is sent, actions are expected in return. If deliveries are not fulfilled, Kinshasa might decide to remove the governor from power.

Local support towards the opposition decreases the probability of facing a motion from Kinshasa. This result is somewhat counter-intuitive taking into account the little space

VARIABLES	(1) LPM	(2) PDS Lasso
Motions from above	43.252***	38.272***
	(13.418)	(21.315)
Motions from below	-28.752*	-23.945***
	(14.075)	(10.510)
Wealth index	-4.919	20.018
	(6.929)	(5.658)
Mining: Industrial	0.058*	-.0518
	(0.031)	(3.899)
Mining: Artisanal	-0.116	0.352
	(0.345)	(0.501)
Observations	18	18
R-squared	0.288	

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

TABLE 2.13: Budget Execution

that the opposition has. Still, this effect is siginificative at the one percent significance level. We believe that the effect might be explained thinking that in provinces where there is stronger support for the opposition, but that are governed by a MP member, the central government tries to avoid conflict that may result in a non-MP member arriving to power in the province.

Regarding, motions from below, the linkages between the governor with Kinshasa increase the probability of facing a vote of no-confidence. This is represented by the variables: national background and transfers for personnel compensation. On the other hand, having ethnic groups with more hierarchical local jurisdictions, as well as the presence of more territories within a province reduces the number of motions from below. Although one could expect that the number of territories would increase the probability of impeachment, it may be the case that more layers added to the system make collective action more difficult, reducing the probability of a motion. Still these results should be taken as showing correlation patterns, rather than causality relations.

In the second stage of the analysis, it seems that motions are not important for the decision of a province to have a virtual presence. Instead, it is wealth that positively affects the decision of having a an internet platform for the province. Therefore, it might be the case that this decision is mostly a question of development, rather than capacity. In the case of budget execution, both motions from above and from below seem to have a large and significant effect, although the effect goes in opposite direction. This effect is rather tentative and should be examined with extreme care. But it may give

some clues on what elements contribute to increase the stability and performance of the subnational governments in the DRC. In an Olsonian way, if governors are able to stay in power longer than a few months, they can focus on the construction of a system in which they can become stationary bandits (Olson, 1993).

Bibliography

Baron, R. and Kenny, D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, 51(6):1173–1182.

Besley, T. and Persson, T. (2009). The Origins of State Capacity: Property Rights, Taxation and Politics. *American Economic Review*, 99(4):1218–1244.

Besley, T. and Persson, T. (2010). State Capacity, Conflict and Development. *Econometrica*, 78:1–34.

Besley, T. and Persson, T. (2011a). Fragile States and Development Policy. *Journal of the European Economic Association*, 9(3):371–398.

Besley, T. and Persson, T. (2011b). The Logic of Political Violence. *Quarterly Journal of Economics*, 126(3):1411–1445.

Besley, T. and Persson, T. (2014). Why Do Developing Countries Tax So Little? *Journal of Economic Perspectives*, 28(4).

Blattman, C. and Miguel, E. (2010). Civil War. *Journal of Economic Literature*, 48(1):3–57.

Centeno, M.-A. (2002). *Blood and Debt: War and the Nation-State in Latin America*. The Pennsylvania State University Press, University Park PA.

Dell, M. (2015). Trafficking Networks and the Mexican Drug War. *American Economic Review*, 105(6):1738–1779.

Dell, M., Feigenberg, B., and Teshima, K. (2018). The Violent Consequences of Trade-Induced Worker Displacement in Mexico.

Dimico, A., Isopi, A., and Olsson, O. (2012). Origins of the Sicilian Mafia: The Market for Lemons.

Dube, A., Dube, O., and Garcia-Ponce, O. (2013). Cross-Border Spillover: U.S. Gun Laws and Violence in Mexico. *American Political Science Review*, 107(3):397–417.

Dube, O., Garcia-Ponce, O., and Thom, K. (2016). From Maize to Haze: Agricultural Shocks and the Growth of the Mexican Drug Sector. *Journal of the European Economic Association*, 14(5):1181–1224.

Garcia-Ponce, O., Young, L., and Zeitzoff, T. (2018). Anger and Support for Punitive Justice in Mexico's Drug War.

Garfias, F. (2018). Elite Competition and State Capacity Development: Theory and Evidence from Post-Revolutionary Mexico. *American Political Science Review*, 112(2):339–357.

Heinle, K., Ferreira, O. R., and and David A. Shirk (2017). Drug Violence in Mexico. Technical report, University of San Diego.

Hicks, R. and Tingley, D. (2011). Causal Mediation Analysis. *Stata Journal*, 11(4):605–619.

Imai, K., Keele, L., and Tingley, D. (2010). A General Approach to Causal Mediation Analysis. *Psychological Methods*, 15(4):309–334.

Institute for Economics and Peace (2018). Mexico Peace Index 2018: Mapping the Evolution of Peace and its Drivers. Technical report, Institute for Economics and Peace.

Luna, J. P. and Soifer, H. D. (2017). Capturing Sub-National Variation in State Capacity: A Survey-Based Approach. *American Behavioral Scientist*, 61(8):887–907.

Magaloni, B., Matanock, A. M., Romero, V., and D\'\iaz-Cayeros, A. (2014). Living in Fear: The Dynamics of Extortion in Mexico's Criminal InsurgencyLiving in Fear: The Dynamics of Extortion in Mexico's Criminal Insurgency. Technical report, Center on Democracy, Development, and the Rule of Law, Stanford.

Mann, M. (1984). The autonomous power of the state: its origins, mechanisms and results. *European Journal of Sociology*, 25(2):185–213.

Mihalache-O'Keef, A. and Vashchilko, T. (2010). Chapter Seven: Foreign Direct Investors in Conflict Zones. *Adelphi Series*, 50:137–156.

Moscona, J., Nunn, N., and Robinson, J. A. (2018). Social Structure and Conflict.

O'Donnell, G. (1993). On the State, Democratization, and Some Conceptual Problems. *World Development*, 21(8):1355–1369.

Olson, M. (1993). Dictatorship, Democracy, and Development. *The American Political Science Review*, 87(3):567–576.

Oto-Peralías, D. (2015). The Long-Term Effects of Political Violence on Political Attitudes: Evidence from the Spanish Civil War. *Kyklos*, 3:412–442.

Padilla-Márquez, F., Pérez-Arce, F., and Rodríguez-Castelán, C. (2016). The (Non-) Effect of Violence on Education: Evidence from the "War on Drugs" in Mexico.

Pearl, J. (2001). Direct and Indirect Effects. Technical report.

Pepinsky, T. B., Pierskalla, J., and Sacks, A. (2017). Bureaucracy and Service Delivery.

Rios, V. (2013). Why did Mexico become so violent? A selfreinforcing violent equilibrium caused by competition and enforcement. *Trends in Organized Crime*, 16(2):138–155.

Rios, V. (2016). The impact of crime and violence on economic sector diversity.

Robles, G., Calderón, G., and Magaloni, B. (2015). The Economic Consequences of Drug Trafficking Violence in Mexico.

Saylor, R. (2014). *State Building in Boom Times: Commodities and Coalitions in Latin America and Africa*. Oxford University Press.

Soifer, H. D. (2012). Measuring State Capacity in Contemporary Latin America. *Revista de ciencia política*, 32(3):585–598.

Trejo, G. and Ley, S. (2018). Why Did Drug Cartels Go to War in Mexico? Subnational Party Alternation, the Breakdown of Criminal Protection, and the Onset of Large-Scale Violence. *Comparative Political Studies*, 51(7):900–937.

Chapter 3

Découpage and Conflict in the DRC

Abstract

Decentralization has been considered as a tool that could reduce the levels of conflict in diverse societies. By bringing the government closer to the population, the idea is that groups would find their interest represented and reduce the levels of conflict. In this paper, I develop a simple model to demonstrate that decentralization would reduce the levels of certain types of conflict if political mobilization becomes a more effective tactic to obtain access to economic, political and social resources. I then empirically test this model for the Democratic Republic of Congo, using conflict data from 2011 to 2018 and data collected during fieldwork conducted in 2017 and 2018. I find that although découpage did not reduce the number of conflict events, it did help to isolate the more pacific regions in the country.

3.1 Introduction

Since the end of the Cold War, internal conflict has become the major source of conflict across the world. The consequences of conflict include the loss of human life, but they hardly stop there. They reproduce systems of low or null capacity and development. The sources of these conflicts are multiple, but they are often linked to ethnic or religious grievances and are sparked by opportunity, either in the way of opportunity cost or feasibility (**???**)

Political and administrative decentralization has been suggested as a developmental priority (**??**) and a mechanism capable to prevent or stop conflicts, under certain circumstances (**?????**). The rationale behind is utilitarian: by bringing the government closer to the people, underrepresented groups could become more salient in smaller administrative areas, thus getting access to political, social and economic resources and reducing the sources of grievances. In African countries, decentralization has become part of the developmental agenda in the last few years (**?????**).

However, some scholars argue that in fact, decentralization could increase conflict by reinforcing ethnic identities and creating discriminatory practices (**??**). For many others, decentralization in non-democracies and in places with low institutional capacity, it is not completed and therefore it does not bring the expected governance results (**???**). This is particularly the case of low-income countries, where decentralization has been seen as a set of window-dressing policies that are partially implemented to keep receiving flux of aid and negotiate with certain elites but that do not increase governance nor empower local citizens (**?**). In addition, decentralization is a rather wide term that is used to encompass from deconcentration of certain administrative operations to devolution of power of all local service to semi-autonomous authorities (**?**).

This paper contributes to the debate by examining the case of the Democratic Republic of Congo (DRC) [1]. The country has experienced a series of cycles of decentralization and centralization along its history as an independent country. In the four years after independence in 1960, the country quickly decentralized with provinces increasing from 6 to 21. During the decades of a predatory and ruthless regime by Mobutu, the country, which is the size of continental Europe, saw a period of centralization and personalization of power (**?**) even if a figurative decentralization exercise took place during the 1980s, with the decentralization of the Kivus (**???**)[2]. After a call for a federal system by the National Sovereign Conference in 1992 and the exit of Mobutu from power in

[1] I use Congo and DRC interchangeably.

[2] Although the region separated in three provinces, the governors still remained elected by the national government, which led to full control by Kinshasa over the new provinces

1997, the country went through turbulent years of conflict that extended beyond the frontiers.

In the 2003-2006, the transition regime set as part of the negotiations to reduce conflict (**?**) adopted decentralization (découpage, for its translation in French of "to break down") as a middle point between federalism and unitarism (**??**). The 2006 Constitution indicated that in the following three years, the 11 provinces should divide into 26. More precisely, six provinces would divide into 15 new provinces, following the lines of the decentralization process that took place in the years after independence (**?**) (see Figure 3.1 for the new configuration of territories and provinces).

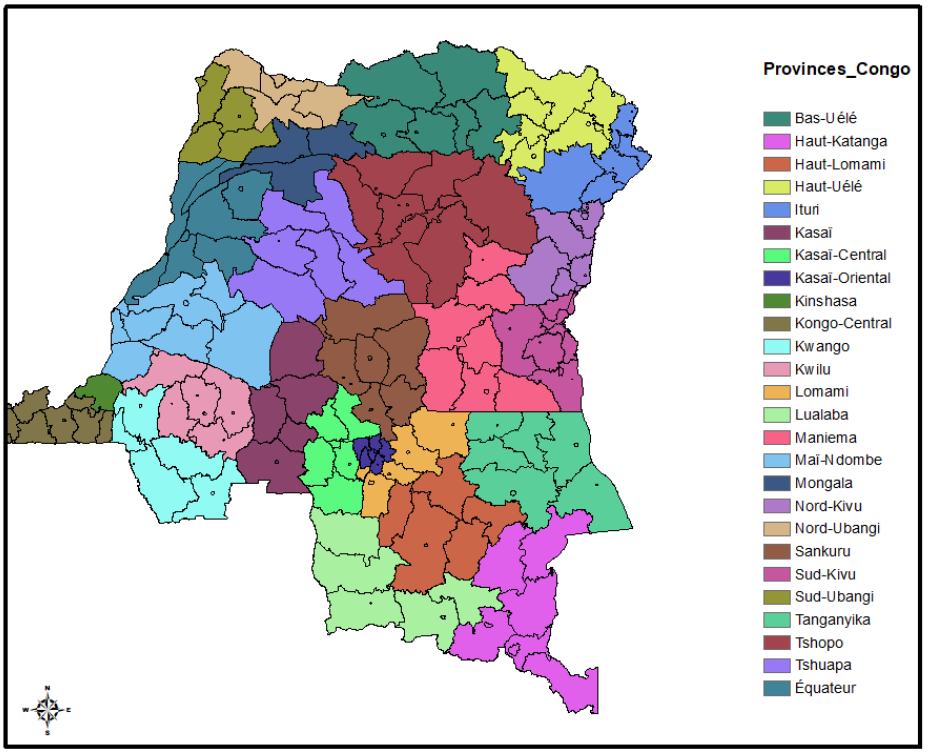


FIGURE 3.1: Territories and the 26 provinces

Source: Elaborated by the author

The central government delayed the implementation of découpage on the grounds of the lack of capacity and resources of these areas, even if little to nothing was done to make them viable (**??**). In 2015, the new provinces were promulgated. The region has remained quite volatile, with conflict events responding to the fragility and instability of the state across the years. In the meantime, the number of fatalities has fluctuated since the Congo Wars, with a spike in 2009 (see Figure 3.2), mostly related to violence

in Ituri and Sud-Kivu [3] These events have been reported to be closely linked to the territorial distribution among the different ethnic groups [4].

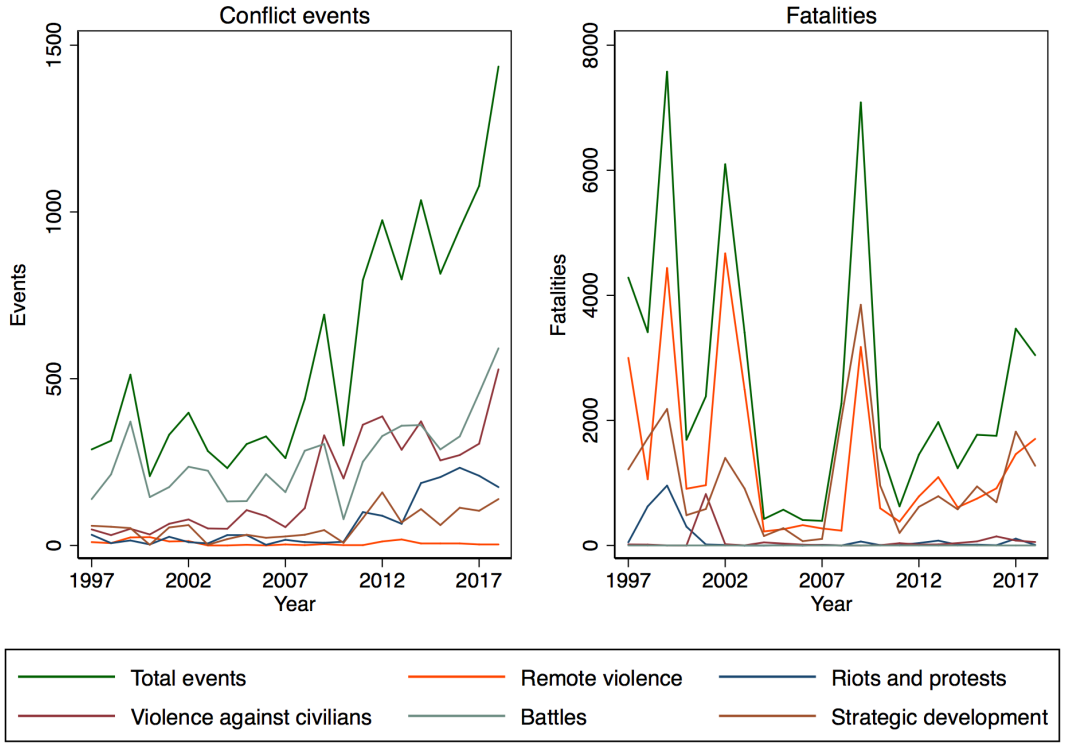


FIGURE 3.2: Conflict Events and Fatalities DRC, 1997-2018

Source: Elaborated by the author with data from ACLED

Considering that conflict and violence in the DRC are driven by a convoluted combination of factors that include ethnic and social grievances, poverty, access to land and to highly valued natural resources, corruption and predation, and hostile relations among actors, important questions are raised: how has découpage affected these elements? What has been the impact of découpage on conflict and violence in Congo? Have the effects been different in the provinces that break down from the ones that did not? Has découpage provided a mechanism to reduce conflict or, for the contrary, has it increased tensions among groups?

To answer these questions, I develop a simple model that builds upon (**?**) and on (**??**)'s previous work to identify under what circumstances conflict is a preferred alternative than lobbying to attain political goals. Then, I exploit the fact that not all the provinces

[3] In Ituri, there was an increase in the attacks from the Front for Patriotic Resistance of Ituri (FRPI), while in Sud-Kivu, there was an intensification of the operation of the *Forces démocratiques de libération du Rwanda* (FDLR).

[4] **?** explains how, in the case of the territory of Uvira, in Sud-Kivu, conflict is closely related to the fight for recognition of different groups, such as the Bafuliiru et les Bavira.

broke down to look at the probability of conflict in a given month in a region that separated ("treated area") versus one that did not ("comparison area") using a difference-in-difference estimation strategy. I use data from the Armed Conflict Location and Event Data (ACLED) at the third administrative level (territory) which facilitates a more fine-grained analysis as conflict is localized in certain territories. By examining conflict prevalence by month between January 2011 and December 2018 across all the territories in the DRC, I am able to rely on asymptotic assumptions, as treatment is distributed across territories. I also use rich qualitative data gathered during fieldwork in three provinces of the former Katanga province (Haut-Katanga, Haut-Lomami and Lualaba). This fieldwork took place between 2017 and 2018.

To my knowledge, this is the first comprehensive evaluation of the effects of découpage on conflict in the DRC. The literature on the effects of decentralization in reducing grievances across the population presents mixed evidence **???**. I empirically evaluate these claims for the recent decentralization in Congo. Although one may argue that decentralization is still a very recent process, certain trends have started to appear and this paper provides preliminary evidence of them.

In addition, I introduce some suggestive evidence of the mechanisms driving the effects of découpage process on conflict. More precisely, I look into how different mechanisms linked to the presence of opportunity (feasibility) and calculation of opportunity costs, as well as the lack of existence of redistribution mechanisms across different ethnic groups and conflicts at the interior of the government may spark conflict in the new created provinces.

Moreover, even if découpage had slightly decreased the number of certain conflict events in the DRC, the effect is endogenous at least to some extent: découpage separated the regions in the provinces with lower levels of conflict and created new provinces. This in turn created an environment in which the population in the new provinces were able to create new mechanisms of representation, beyond the continuous junctures of conflict. I use empirical evidence to consider how decentralization policies could be successful in reducing conflict and strengthening local governance.

However, this is not to say that these new provinces are going to be able to avoid conflict directly, but several risks still exist. If local governments are not able to respond to the needs of the groups in the population that could organize and confront the government, there is a latent threat of conflict within the country. This is particularly the case in regions where groups believe they can grasp the benefits of power, in a zero-sum game.

The structure of this paper is as follows. Next section introduces the context of violence and decentralization in the DRC. After this, a conceptual framework is introduced. Section 3.4 introduces a simple model on decentralization and conflict. Section 3.5 presents a qualitative analysis, with data obtained during fieldwork in 2017 and 2018. The empirical framework is introduced in Section 3.6. The paper ends with a discussion on the potential policy implications and the conclusion.

3.2 Violence and Decentralization in the Congo Context

To talk about the causes of violence in the context of the DRC requires to analyze how a series of complex factors interact with each other: poverty, predation, natural resources, geopolitical issues, ethnic cleavages, among others. This is not the goal of this article. Instead, the objective of this article is much modest. It intends to verify how découpage in Congo has impacted the amount of conflict and violence events, if at all. After all, découpage was initially seen as a public sector reform that might be able to reduce conflict by empowering local groups and bringing the government closer to them (**??**).

Across the developing world, the effects of decentralization are mixed. **?** indicates that decentralization is only genuine in democracies, with nondemocracies establishing regional politicians that do not challenge the national authority. This argument is supported by **?**, who argue that autocrats in African countries use decentralized systems to serve their own interests, even if certain avenues for contestation and participation become possible.

The link between decentralization and conflict in Africa is closely related to the ethnic diversity that exists in the countries across the continent. Creating more administrative units facilitates the construction of more homogeneous units, where collective action is easier and creating a sense of more control over the local affairs (**?**). **?** explores the case of Uganda, where decentralization has been signaled as one of the most far-reached in the region (**?**). **?** argues that although decentralization indeed decreased the level of national-level conflict, it replaced it with local-level conflict within the newly created units, as it has altered the relation between different ethnic groups.

This argument supports **?**'s statement on the presence of conflict whenever there are changes in the relation among groups. Decentralization creates new dimensions of conflict, as the battle for resources exacerbates. The most relevant dimension in multi-ethnic countries is how resources are distributed towards each group. This dimension is rather fluid, as it changes according to the context and the possibilities it creates for maximizing the use of the political structures. By developing more homogeneous regions, conflict may decrease, but it is also possible that new dimensions will emerge.

3.2.1 Découpage in the DRC

In the case of Congo, découpage was conceived as a middle-ground agreement to be included in the 2006 Constitution to reduce the large levels of violence (**?**). The country, whose boundaries were artificially created by Belgium during colonization, has experienced multiple rounds of decentralization. Already during the colonial time, the country was divided into six provinces in 1932. After independence, an intense period of decentralization ensued as provinces (known as *provincettes*) passed from 6 originally set in the *Loi Fondamantale* of 1960 to 21 in 1964 (**?**).

At the arrival of Mobutu, a period of intense centralization and personalized rule followed, with a rapid decrease of the total number of provinces to a total of 8. In 1988, a rather symbolic experiment of decentralization was tried. The Kivu region divided into three provinces: Maniema, Sud-Kivu and Nord-Kivu. It was until the negotiations to end of conflict in the first half of the 2000s that decentralization was again considered as a possibility to reduce violence and satisfy the local elites, while avoiding federalism (**?**). Out of the 11 provinces that existed, six of them were set to divide into 15 new provinces, following the structure of the *provincettes*.[5]

The process of découpage gave provinces substantial devolution (in theory, but not in practice) in areas of health, education, agriculture and rural development. A redistribution system across provinces was also created, with 10% of the provincial budget allocated to a national equalization system that would then help to sustain the development of the poorest provinces.

Although the official process indicated a three-year period for découpage to be implemented, the process did not take place until 2015. Still, the delay did not help to increase capacity in the provinces that would separate. Instead, découpage followed political motivations and was implemented amid political struggles between provincial and national elites. General commissioners were first appointed by Kinshasa, allowing it to keep control of the subnational politics. It was until 2016 that new governors were elected by the provincial assemblies. In most cases, the general commissioners stayed in power, reducing the effect of the increase in autonomy of the provinces, and allowing the central government to keep the control.

3.2.2 Conflict and Découpage

How has découpage impacted conflict? To see this, it is important to first acknowledge that the causes for conflict in the DRC are manifold and that they are not linked to

[5] Article 9 of the Constitution states that to become a province, the territorial entity needs to have a land area of at least 50,000 km2 and a population of at least 800,000 inhabitants (even when no census has taken place since 1984) and be self-sufficient economically.

a single cause. Yet, is it possible that découpage could solve, at least to some degree, certain problems connected to conflict? Or, on the contrary, is it the case that découpage will intensify certain type of conflicts by, for instance, creating new spaces to protest or generating new inequalities.

In this paper, I focus the analysis on the period after the contested elections of 2011, which created a context of increased conflict by generating new dissidents from the presidential majority and by increasing the amount and intensity of social movements, such as Lucha or Filimbi (**?**). In fact, Figure 3.3 does a linear prediction of the different types of conflict across time. Whereas battles show the steepest slope in the period between 2011 and 2018, riots and protest show the second largest predicted increase across time.

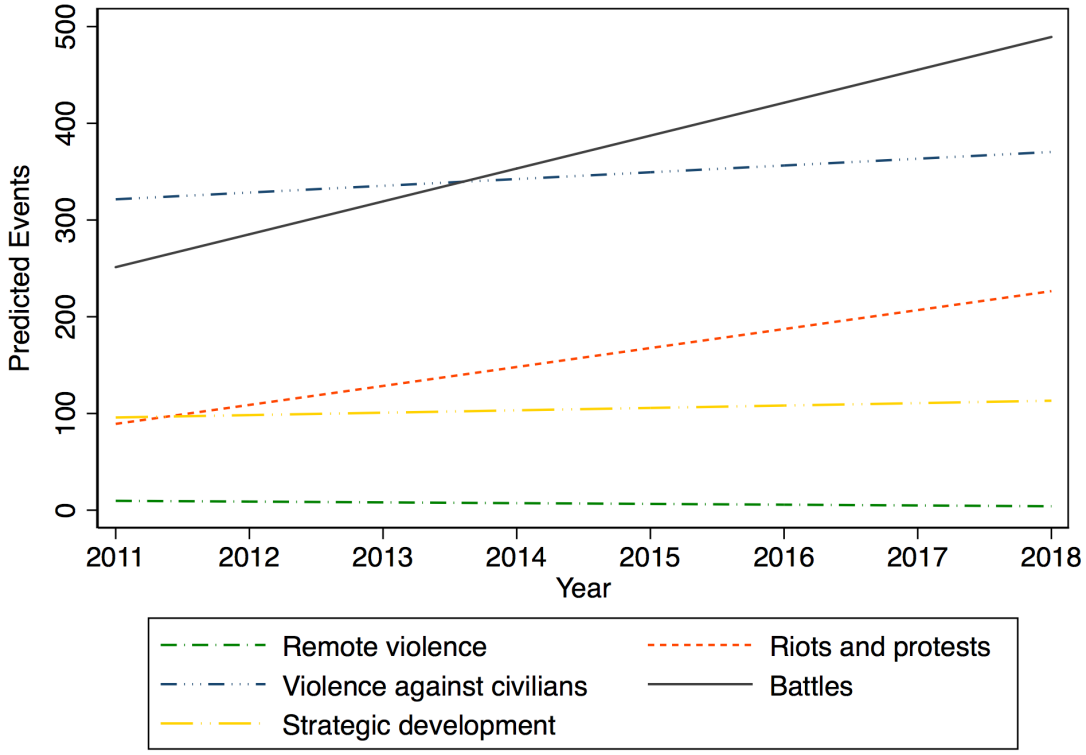


FIGURE 3.3: Linear Prediction Conflict Events, 2011-2018

Source: Elaborated by the author with data from ACLED

In addition, the fact that governors had surpassed their mandate, after elections did not happen in 2012, due to budget limitations and to the heated political context, created a more troubled environment. These combination of factors, larger opposition and an uneasy situation at the provincial level, forced the central government to resort to découpage by first imposing the provincial special commissioners in the new provinces, which in most cases continued as governors after their election by the provincial assemblies.

A series of sources of conflict emerged after découpage. The lack of resources in many of the new provinces, the absence of redistribution from the central government and the absence of capacity after découpage, are just a few of the subnational elements that created tensions within the provinces. Initially, the plan was for the former provinces to redistribute material resources and human capital to the new provinces, but this became practically a challenge. With a large differential of resources between the former and the new provinces, it became hard to convince government bureaucrats to move to some of the new provinces, showing that labor was not very mobile, and creating major challenges for the development of the new provinces. Although some equipment was transferred to the new provinces, the lack of capacity created sources for tension. While the government was closer to the population, the fact that officials were not technically nor materially prepared to respond to their needs generated strains that reflected by an increase in the number of protests and riots [6].

The idea of who should had access to the new opportunities that emerged after découpage was another area for tension. The dimension of autochthony became relevant as people in the newly created provinces tried to find themselves represented. As **?** show, this generated tensions as some groups became more represented than others, creating inequalities. In a context of scarce resources, this dimension becomes even more salient as different groups try to find themselves represented.

However, even if new risks for the emergence of conflict emerged, it is also true that découpage increased the possibilities for the government to increase control of the territory and respond to the population needs. In a country of the dimension and geographical characteristics of the DRC, different groups, often marginalized, could become better represented and new opportunities for them may emerge (**???**). This in turn reduces the grievances that exist or finds alternative ways to canalize them. Plus, in terms of the literature related to the causes of civil war, it disrupts some of the opportunities for conflict that exists, by reducing the distance between the government and the population and the amount of terrain isolated (**??**).

3.3 Conceptual framework

The narrative behind decentralization and conflict is that bringing the government closer to the population, cleavages could decrease and former isolated groups could see themselves represented. Furthermore, with local governments, asymmetric information decreases, and therefore there is a higher chance to implement policies that respond to the needs and preferences of the population (**???**).

[6] Information gathered during fieldwork.

Considering the diversity of ethnic groups that exists in Congo[7], this underrepresentation looks like a salient characteristic that can increase inequalities across groups and lead to cleavages and conflict (**??**). Using information compiled by **?** and compiled by **?**, Figure 3.4 shows some of the major ethnic groups that are present in the country. Of course, this map is not comprehensive as more than 400 tribes have been reported **????**, but it gives an idea on the major ethnic groups that search for representation in the country.

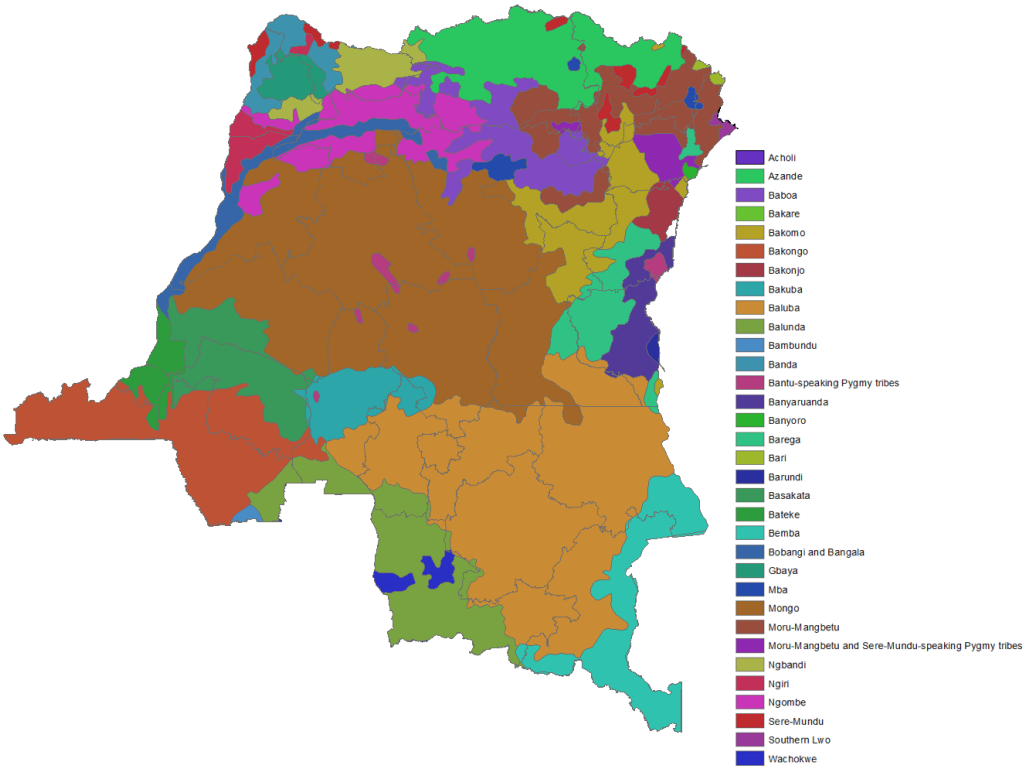


FIGURE 3.4: Historical Major Ethnic Composition- Congo

Source: Elaborated by the author with data from **?**

Yet, conflict in Congo does not follow one dimension, but it is the result of the combination of multiple effects. Research on the relationship between decentralization and conflict has shown different avenues and possibilities. Although some authors have supported the idea that decentralization decreases conflict **??**, many others have proven that the outcome is unclear, with certain sources of conflict decreasing, whereas others emerge **??**.

First, decentralization will not automatically ensure the promotion of the interests of different groups. **?** develops a model that shows how decentralization dampens conflict if groups that are underrepresented at the national level become a majority at the subnational level. However, the author shows how decentralization may fuel violence

[7]See **?** for a more complete description of this

coming from groups that remain a minority at the subnational level and find themselves not represented.

Second, decentralization does not automatically translate into more representation of the local population. Instead, it may be used as a patronage mechanism to redistribute government posts and strengthen local elites. In fact, **?** show that decentralization in the DRC has increased the patronage networks among the provincial elites and Kinshasa and that these networks are highly centralized, thus offsetting all the autonomy that the provinces may have to genuinely represent the local population. Decentralization may transform into into a window-dressing type of policy (**?**) that serves the interests of the central government.

Third, even if decentralization is intended to benefit the local population, the new subnational units may not have the material and human resources to do so (**?**). This generates tensions among the population as they do not see their situation improved. In the case of the DRC, découpage took place amid political turmoil and was the response from the central government to reduce the power of local elites. Even if the process took place six years after initially planned, this extra time was not used to increase the capacity of the provinces, so many of them did not even have proper infrastructure to set up the government. This, in turn led to complications, as the population started to be more saturated with taxes but with little if at all tangible gains in their livelihoods. In Haut-Lomami, for instance, whereas new taxes were created, the government did not even have proper infrastructure to set up the government but was using instead buildings that dated from colonization times. The few resources that the government was able to collect were used to build a symbolic sculpture, as paving roads required resources that the government did not expect to obtain. [8].

Fourth, while conflict may help decrease certain types of conflict, it may also intensify some others. For instance, **?** found that decentralization in Burkina Faso led to an increase in protests and riots across municipalities. After all, the new subnational units became new avenues for contestation. Decentralization, places the government at a shorter geographical and cultural distance and promotes more community engagement and, at least in the urban centers, provides opportunities to the population to manage their affairs and contest government decisions. According to **?**, these protests and demonstrations do not have to be directed necessarily to the local government, but they respond to the situation at the national level, as citizens demand for the authorities to hear and respond to their claims.

[8] Information gathered during fieldwork in the region in 2018

Fifth, it may be the case that decoupage is endogenous to conflict. Conflict in the DRC is localized in certain areas across the country and, as stated above, is linked to multiple causes. It may be the case that new provinces were created in the areas where conflict was lower than the average. If this is the case, we would see that new provinces present lower levels of conflict, but this is probably just linked to the fact that 'good' territories are moving away from 'bad' territories. In fact, looking at Figure 3.5, it is possible to notice that before and after découpage, different types of conflict events are located in specific regions of the country. Still, even if more peaceful territories are separating for more problematic ones, it is still necessary to verify how new subnational units respond to the demands of the local population and how does that translate into a decrease or increase in conflict.

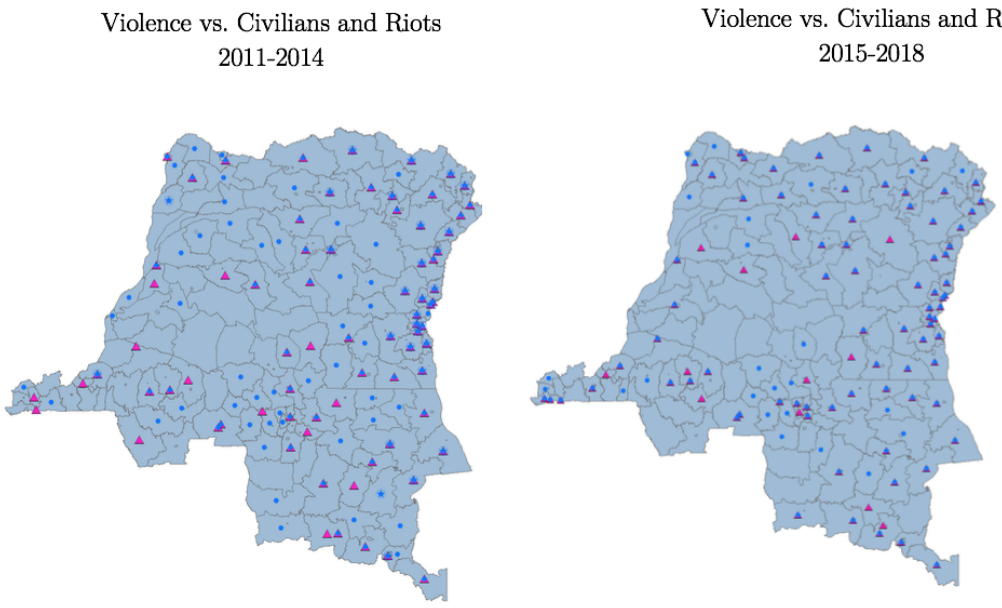


FIGURE 3.5: Conflict Events Before and After Découpage: Violence against Civilians and Riots

Source: Elaborated by the author with data from ACLED

Analyzed together, there are multiple possibilities on the evolution of conflict after decoupage in the DRC. This paper does an initial analysis on the evolution and then on the distribution of conflict before and after découpage in Congo. This could then introduce some insights on the mechanisms throughout which découpage has affected conflict in the country.

3.4 Theoretical argument

Above, I mentioned different mechanisms throughout which découpage could contribute to a decrease in conflict. Here, I develop the theoretical argument to verify

under what circumstances, decentralization leads to a decrease in conflict in fragile areas.

Different sources establish that decentralization reduces conflict at the national level if it empowers local majority groups that are able to organize and get access to political, social and economic resources (**????**). Building on this line of thought, I argue that, decentralization will reduce conflict if at least one of the following three conditions is satisfied: (1) it is able to create homogeneous and organized groups that gain control over the political, social and economic resources; (2) if the costs of conflict outweigh the benefit obtained by any group; (3) if the costs to have access to resources through a different mechanism decrease. Of course, many times these mechanisms act together, so they are not mutually exclusive. Furthermore, by considering these three mechanisms, I also take into account the different sources usually included in the literature that lead to an increase in conflict, such as the access to resources and the opportunity cost of joining an armed group (**???**).

To illustrate the mechanisms of the theoretical argument, I develop a simple model based on an adaptation of the **??** and on the **?** models.

3.4.1 A simple Model of Decoupage and Conflict

Assume a country composed by G groups, where each group is indexed as i=1,2,..., G and J subnational units. The population is normalized to one and n_{ij} represents the proportion of the population of group i in the subnational unit j. I assume that $\sum_{i=1}^{I}$ n_{ij}= n_j and $\sum_{i=1}^{I} \sum_{j=1}^{J} n_{ij}$=1

The outcome of policies and transfers received by group i is represented as a vector q. In a country characterized by a weak state with a rapacious centralized control, it is reasonable to think that the divisions between local and central distribution of resources are blurred. The utility of an individual is based on the redistribution received by its group within the subnational unit, with no utility gained by the redistribution to other group, which entails a zero-sum, winner-takes-all game (**?**): $U(q_{gj}) = 0 \; \forall \; i \neq g$. The utility of group i in the subnational unit j can be represented as:

$$W(q_{ij}) = \pi_{ij}(q_{ij}) * q_{ij} - c_{ij} \tag{3.1}$$

Where π_{ij} represents the probability of group i in the subnational unit j to get access to the resources q_{ij}. Following (**?**) and (**?**), π_{ij} can be written as a simplified version of a Contest Success Function:

$$\pi_{ij}(r_{ij}, r_{-ij}) = \frac{n_{ij}r_{ij} - \sum_{gj \neq ij} n_{gj}r_{gj} + \bar{e}}{G\bar{e}} \tag{3.2}$$

In this equation, r_{ij} represents the lobbying effort made by group i in the region j to get access to resources. $\bar{e}$ is the luck factor and is uniformly distributed over the interval $\left[-\frac{1}{2}, \frac{1}{2} \right]$. The marginal return to the lobbying effort is constant with $\frac{\partial \pi_{ij}}{\partial r_{ij}} = \frac{n_{ij}}{G\bar{e}}$, increasing with the size of the group and decreasing with the luck factor and the number of groups in the region G. However, implementing lobbying requires effort that has a cost c and that has the following form:

$$c_{ij}(r_{ij}) = \frac{1}{\alpha} r_{ij}^{\alpha} * q_{ij} \tag{3.3}$$

This cost equation is increasing and convex with effort, with $\alpha > 1$.

The objective function is:

$$W_{ij} = q_{ij} * \frac{n_{ij}r_{ij} - \sum_{gj \neq ij} n_{gj}r_{gj} + \bar{e}}{G\bar{e}} - \frac{1}{\alpha} r_{ij}^{\alpha} * q_{ij} \tag{3.4}$$

Group i in region j maximizes its utility by choosing the optimal r_{ij}*. The FOC is:

$$\frac{\partial W_{ij}}{\partial r_{ij}} = \frac{n_{ij}}{G\bar{e}} * q_{ij} - r_{ij}^{\alpha-1} * q_{ij} = 0 \tag{3.5}$$

Given the functional form, the SOC is satisfied. Solving for r_{ij}* gets:

$$r_{ij}^{\star} = \left[\frac{n_{ij}}{G\bar{e}} * q_{ij} \right]^{\frac{1}{\alpha-1}} * q_{ij} \tag{3.6}$$

Lobbying efforts depend on the size of the group, the number of groups, luck and on the size of the gains. Assuming that conflict is driven by low political participation, it ensues that conflict will emerge when the cost-benefit analysis of conflict represents a superior equilibrium than the one obtained by lobbying. This is, when the probability of accessing the resources λ_{ij} given a certain cost k_{ij} is higher than accessing them through lobbying π_{ij} that entails cost c_{ij}.

The level of benefits obtained by group i in region j during decentralization are obtained by writing the differentiation of W_{ij} with respect to q_{ij}:

$$\frac{\partial W_{ij}}{\partial q_{ij}} = \frac{n_{ij}r_{ij} - \sum_{gj \neq ij} n_{gj}r_{gj} + \bar{e}}{G\bar{e}} - r_{ij}^{\alpha-1} \tag{3.7}$$

As the number and weight of other groups rise, the benefits obtained by decentralization decrease. Equally, as the cost of lobbying increases, the benefits obtained go down, thus raising the probability for conflict.

This simple model has many limitations. The model does not consider the complexity of the issues linked to conflict in an environment such as the one seen in Congo. It does not look at the geopolitical reasons linked to conflict or at the stakes that other actors have in conflict. In addition, the model does not take into other different ways in which actors can obtain access to benefits, and considers that there is a way in which benefits can be gained through lobbying. Furthermore, the model does not look into the endogeneity of decentralization as a political process planned by political actors that expect to obtain certain benefits.

Still, the model provides a very simple design that predicts how decentralization, or découpage, can lead to a reduction or reconfiguration of conflict and empower certain groups.

3.5 Qualitative analysis: The Katanga Region

The region of the former Katanga province is economically and politically important in the DRC. Thanks to the presence of minerals, such as coltan, cobalt and copper, the region has profited from higher levels of development than other areas in the country. Still, these minerals are concentrated in certain areas of the former province, mostly in Haut-Katanga and in the area surrounding Kolwezi, the capital of the now-province Lualaba. In turn, this region has presented moderate levels of conflict, that are mostly located in the urban area of Lubumbashi and in areas closer to the border.

After découpage, the region separated in four new provinces: Haut-Katanga, Haut-Lomami, Lualaba and Tanganyika. This translated into a redistribution of resources that created an inequality across the region. Haut-Katanga and Lualaba have the largest reserves of minerals, plus Lubumbashi, the former capital of Katanga, is located in Haut-Katanga. Thus, must of the human capital is located in these areas, with Tanganyika and Haut-Lomami having reduced levels of material and human capital. Particularly, Haut-Lomami is enclaved, with no access to an international border and no paved roads. The trip from Lubumbashi to Kamina, the capital of Haut-Lomami, takes about 24 hours for a distance of approximately 400 miles. After accessing Lualaba, the road is not paved and is inaccessible during the rainy season. Therefore, the only way to access or exit is by using the railroad which is not in good condition either. The province has no infrastructure, which obligated the provincial assembly to locate in a former building of the cultural association of railroad workers (see Figure 3.6).

FIGURE 3.6: Kamina, Haut-Lomami (2018)

Note: (1) and (4) are pictures of the provincial assembly of Haut-Lomami. (2) and (4) are images from the city of Kamina.

However, the new provinces have different levels of ethnic diversity. Haut-Katanga shows the highest level of diversity, with an heterogeneity index of 0.88 (**?**), due to the cosmopolitan effect of Lubumbashi, although there is still a larger prevalence of the Lubakat, the Bemba and the Sanga-Yeke (**?**). Still, no group seems to have an absolute ethnic majority. With a heterogeneity index of 0.80, Lualaba is also diverse. However, five groups led by the Lunda (Lunda, Tshokwe, Ndembo, Lwena and Minungu) have joined to become a single major group that controls the province. They are opposite to a local group in the surroundings of Kolwezi, the Sanga, that demands more access to resources but is not willing to become part of the larger group. Haut-Lomami is a largely homogeneous province led by the Lubakat. It is interesting, however, that in this province, dimension that becomes salient to claim access to resources is the territory of origin, showing how ethnicity is a fluid concept whose utility changes depending on the possibilities it provides to extract resources. Tanganyika also shows some level of ethnic homogeneity, with the Lubakat and the Tabwa-Tumbwe accounting for 85% of the local population (**???**).

By separating the Katanga province, most of the conflict was grouped in Haut-Katanga and Tanganyika. Still, the combination of resources and diversity has led to different outcomes in each province (see Figure 3.7).

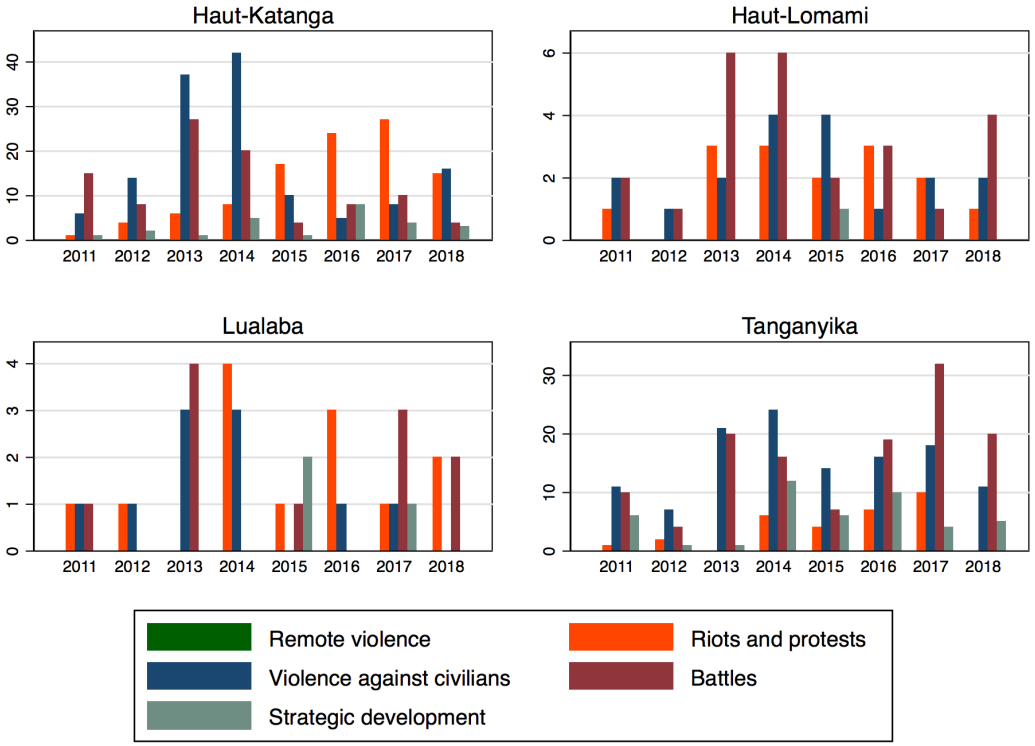


FIGURE 3.7: Conflict Events, Katanga Region 2011-2018

Source: Elaborated by the author with data from ACLED

Haut-Katanga has valuable economic and political resources that different groups want to access. The struggle for power led to the impeachment of the governor elected after découpage. Still, the province has seen a decrease in the level of violent conflict, such as battles and violence against civilians, and has instead seen an increase in the number of riots and protests. Since most of the riots are concentrated in Lubumbashi, it is possible to consider that this is a way of lobbying in which citizens located in urban areas can claim access to resources.

In Lualaba, the situation is much calmer, with low levels of violence before and after decoupage. Still, it is interesting to see a decrease in the number of riots. Some clashes have been reported, but these are mostly located at the border with Lomami and Kasai-Central, in the territory of Kapanga. Still, there are certain cleavages that need to be taken into consideration. The fact that the certain groups feel isolated may contribute to the increase in cleavages that may lead to an increase in conflict if resources are not well redistributed across key actors.

In Haut-Lomami, there has also been a decrease in the number of events, with the largest effect in the number of battles. The lack of resources and infrastructure complicates collective action, which reduces the prevalence of riots and other types of civilian

outbreaks. Plus, the region is ethnically homogeneous. Tanganyika, however, has seen an increase in the number of conflict events. Battles have increased in the region, while other levels of violence have remained at levels similar to those previous to découpage. The situation is hardly explained solely by découpage. Being just south of the Kivus and next to the border to Rwanda, the region is not very stable and has struggled with the presence of Mayi Mayi forces, as well as from battles with the Batwa and the Bantu ethnic militias.

Thus, whereas it seems that after découpage the number of conflict events has somewhat decreased across the four province of the former Katanga region, there are still sources of potential conflict that remain latent. In some cases, these sources are linked to the multiple dimensions that explain conflict in the DRC as it is the case of Tanganyika, in other cases découpage has increased the salience of dimensions linked to the redistribution of resources, especially in provinces where these are abundant.

3.6 Empirical Framework

Research on the effect of decentralization on conflict is abundant. Mainly, two different types of studies have been conducted on this topic. The first type comprehends studies that use rich, detailed anthropological data that examines the subtleties of this issue. The second type of study on this topic does a cross-country comparative analysis that allows to find certain patterns across different countries. Whereas the first type of analysis does not provide the opportunity to quantitatively measure the effects of découpage, the second type provides a wide dispersion that many times does not adapt to non-democratic contexts.

This paper uses the case of the DRC to quantitatively show the effect of découpage on the presence of conflict. To my knowledge, this is the first study done in this area, as most of the research on conflict in the DRC has mostly focused on the role of minerals (**???**) and on the geopolitical reasons behind conflict (**??**). Still, given that one important source of conflict in the country is linked to the access of resources and this is in turn closely related to the ethnic configuration of the provinces, it remains important to look at the effect that a reconfiguration of physical spaces may have on the presence of conflict in the region.

3.6.1 Data

The analysis is performed using data at the territory level, which is the third administrative level in the DRC and uses data on the level of conflict by month from January 2011 to December 2018. This allows for a detailed analysis that uses April 2016 as the

period in which electoral découpage took place. I also use February 2015 as the moment in which découpage was promulgated. I use this as a robustness measure that verifies if the population reacted to this policy from the moment its imminent implementation was announced and special commissioners were appointed [9].

The primary source data in the analysis comes from **?**, a dataset that contains geocoded information on conflict in countries in Africa, South Asia, the Middle East, Europe, and Latin America. Although data for the Congo is available from 1997, I focus on the period after 2011 to circumvent the effects of other events, such as the Congo Wars and the 2006 election. ACLED separates conflict events data into six categories: (1) remote violence, (2) riots (3) protests (4) violence against civilians (5) battles and, (6) strategic development. Given the closeness of riots and protests, I join them as one category. Table 3.1 shows summary statistics of the prevalence of conflict before and after conflict[10].

	(1) Before Découpage		(2) After Découpage		T-test Difference
Variable	N/[Clusters]	Mean/SE	N/[Clusters]	Mean/SE	(1)-(2)
Conflict events	10,688	0.440	5,345	0.594	-0.154**
	[26]	(0.184)	[26]	(0.239)	
Remote violence	10,688	0.004	5,344	0.002	0.003
	[26]	(0.004)	[26]	(0.001)	
Riots & protests	10,688	0.066	5,344	0.105	-0.039***
	[26]	(0.019)	[26]	(0.031)	
Violence vs. civilians	10,688	0.164	5,344	0.190	-0.026
	[26]	(0.063)	[26]	(0.081)	
Battles	10,688	0.157	5,345	0.240	-0.083**
	[26]	(0.078)	[26]	(0.115)	
Strategic dev.	10,688	0.049	5,345	0.057	-0.008
	[26]	(0.025)	[26]	(0.019)	

Notes: The value displayed for t-tests are the differences in the means across the groups. Standard errors are clustered at the province level. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

TABLE 3.1: Prevalence of Conflict Before and After Découpage

In addition to conflict prevalence and intensity, I look at the mechanisms behind conflict. As mentioned above, opportunity, seen as the presence of feasibility mechanisms and the the calculation of opportunity costs, as well as the presence of multiple groups

[9] Since the results do not provide a different conclusion than the results included in this paper, they are not included but are available upon request to the author.

[10] Table B.1 in Appendix B.0.1 includes the balance table grouping by provinces that separated and those that remained together, showing that there is no statistical difference in the number of conflict events among them.

to redistribute and the lack of resources to do so, may increase conflict in the new created provinces. I use different sources of data to verify this.

Data on the population comes from projections estimated by **?**, whereas I also use data on the size of the electorate, according to the electorate institute of Congo, **?**. Data on the percentage of autochthonous population and on ethnic heterogeneity comes from **?** and was calculated using the **?** of 2012. To measure wealth within the territory, I use two different sources. First, I use the weighted wealth estimation from the DHS Survey of 2013 (**?**). This index goes from 1 to 5, with 1 representing the minimum wealth level and 5 the wealthiest households [11] I also estimate night light intensity at the territory level using satellite data coming from the **?**. Poverty figures are calculated at the territory level using the **?**, 2012. Data on the monthly commodity price index comes from **?**. Political data, such as the execution rate of the budget and data on impeachment and governance was collected from primary sources during the fieldwork that took place between 2017 and 2018. Table 3.2 shows the summary statistics for these variables.

	Obs	Min	Max	Mean	Std. Dev.
Population (Thousand)	15,552	73.04	8,259.13	550.24	736.93
Electorate (Thousand)	16,032	29.95	4,457.02	239.11	362.54
% Non-originaire	16,033	0.76	97.8	8.75	11.64
Herfindahl index	16,033	0.12	0.90	0.63	0.24
Poverty share	13,344	0	1	0.72	0.23
Wealth index	16,033	1.67	4.96	2.64	0.61
Night light (majority)	15,841	0	12	0.18	1.25
Commodity Index	16,032	92.23	102.42	98.11	2.67
Execution rate budget	14,593	0.01	0.96	0.53	0.24

TABLE 3.2: Summary Statistics

3.6.2 Identification Strategy and Estimation

3.6.2.1 Prevalence of Conflict

I first empirically estimate the effect of découpage over the prevalence of conflict in the territories across the DRC. This is, I verify if découpage increased or decreased the probability that a conflict event occurs in a given territory. More formally, I specify the following linear probability regression model:

$$y_{jt} = \alpha + \gamma_t \cdot Postdec + \phi \cdot Separated + \beta \cdot 1\{j = decoupage\} \cdot 1\{t \geq \text{April 2016}\} + \epsilon_{jt} \tag{3.8}$$

[11] I use the weights from the dataset to calculate the wealth index by province

In the regression, y_{jt} is a binary variable where y_{jt}= 1 represents the presence of at least one conflict event. To measure this, I created a variable to examine the prevalence on any type of conflict event and I also disaggregate the analysis to examine the different types of conflict that **?** reports. In the equation, γ_t is the coefficient of the dummy variable *Postdec* that takes the value of one for periods after April 2016; ϕ_j is the coefficient of the dummy variable *Separated* that is equal to one for provinces that separated at the time of découpage. The coefficient of interest in the equation is β, which (β) represents the difference-in-difference effect of the prevalence of conflict of découpage in provinces that separated. Standard errors are clustered at the territory level.

The fact that certain provinces separated while others remained with their previous configuration allows to conduct a difference-in-difference analysis, given that "treatment" and "control" occur in different territories across the country, and thus, we can rely on the asymptotic assumptions necessary for a difference-in-difference specification (**?**) Results of equation 3.8 can be found on Panel A of Table 3.3. Column (1) shows the results for all conflict events, whereas columns (2) to (6) dissagregate the analysis. From the results, it seems that découpage slightly decreased the probability of the presence of different types of conflict events. Particularly interesting is the effect of découpage on the probability of having a riot or a protest event in the provinces that broke down, as the probability decreases and the average probability of a conflict event after découpage in areas that separated decreased by 5%.

Still, the effect seems to be driven by the conflict existing in specific parts of the country. To see this, I remove Nord-Kivu and Sud-Kivu from the analysis. These provinces have for a long time struggled with the presence of conflict. Particularly, during 2012 and 2013, the movement M23 became quite active along the Kivu region. Results can be found on Panel B of Table 3.3. As it becomes evident, the effect of découpage on the probability of conflict prevalence is quite small and insignificant. Table B.2 in Section B.0.2 in the Appendix implements a probit model for robustness purposes.

As it may be expected, découpage did not have a large nor significant effect on the probability of conflict in any of the provinces. This is intuitively correct as conflict in the region is linked to many other causes that it may be hard to go from no conflict to conflict or vice versa. Still, the focal point of this paper is mostly on the intensity of conflict, understood as the number of conflict events per region each year. I explore this in the next section.

3.6.2.2 The Intensity of Conflict

In addition to the presence of conflict, I also examine how découpage affected the number of conflict events. In an unstable environment such as the one that prevails in

VARIABLES	(1) Total Events	(2) Remote Violence	(3) Riots & Protests	(4) Violence vs. Civilians	(5) Battles	(6) Strategic Development
A. All Provinces						
Period after découpage	0.046**	-0.007**	0.047***	0.034**	0.043**	-0.008
	(0.020)	(0.003)	(0.015)	(0.014)	(0.018)	(0.012)
Decentralization	-0.222***	-0.013**	-0.058**	-0.128***	-0.149***	-0.089***
	(0.057)	(0.005)	(0.025)	(0.037)	(0.039)	(0.022)
Effect découpage	-0.022	0.007**	-0.032**	-0.028*	-0.032	0.020
	(0.023)	(0.003)	(0.016)	(0.016)	(0.020)	(0.013)
Observations	16,033	16,033	16,033	16,033	16,033	16,033
R-squared	0.069	0.008	0.021	0.043	0.063	0.034
B. No Kivus						
Period after découpage	0.022	-0.000	0.017*	0.014	0.005	0.010
	(0.022)	(0.000)	(0.009)	(0.012)	(0.013)	(0.009)
Decentralization	0.001	0.000	-0.017	0.011	0.008	-0.007
	(0.044)	(0.000)	(0.030)	(0.021)	(0.012)	(0.014)
Effect découpage	0.002	0.000	-0.003	-0.008	0.005	0.002
	(0.024)	(0.000)	(0.011)	(0.014)	(0.015)	(0.010)
Observations	14,400	14,400	14,400	14,400	14,400	14,400
R-squared	0.001	0.000	0.002	0.000	0.001	0.002

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

TABLE 3.3: Presence of conflict

Congo, a complete change in the direction of conflict (going from no-conflict to conflict or vice-versa) is not a typical expectation. A more interesting analysis is to see whether the number of conflict events significantly changed after découpage. If the gains from separation do not exceed the previous status-quo, the behaviour of the population is not expected to change in a statistically significant way. To see this, I estimate the following difference-in-difference equation:

$$y_{jt} = \alpha + \gamma_t \cdot Postdec + \phi \cdot Separated + \beta \cdot 1\{j = decoupage\} \cdot 1\{t \geq \text{April 2016}\} + \epsilon_{jt} \tag{3.9}$$

In equation 3.9, y_{jt} represents the outcome of interest, either the total number of conflicts events in a given territory j during month and year t or one of the specific types of conflict categories. Given that the variables of interest show a non-Gaussian distribution, with long right tails, I use an inverse hyperbolic sine transformation. This transformation, similar to the logarithmic transformation, allows to retain multiple zero values. I use **?** to interpret the coefficients. The variable of interest is β, which shows the difference-in-difference effect of découpage in the provinces that separated. The

results, shown on Panel A of Table 3.4, consider how conflict events have changed after découpage, with Panel B showing the results without considering the Kivus.

VARIABLES	(1) Total Events	(2) Remote Violence	(3) Riots & Protests	(4) Violence vs. Civilians	(5) Battles	(6) Strategic Development
A. All Provinces						
Period after découpage	0.114***	-0.009**	0.063***	0.053*	0.083**	-0.013
	(0.043)	(0.004)	(0.021)	(0.028)	(0.041)	(0.014)
Decentralization	-0.425***	-0.013**	-0.075**	-0.183***	-0.231***	-0.100***
	(0.112)	(0.006)	(0.034)	(0.055)	(0.064)	(0.026)
Effect découpage	-0.073	0.010**	-0.047**	-0.049	-0.063	0.027*
	(0.047)	(0.004)	(0.022)	(0.029)	(0.042)	(0.015)
Observations	16,032	16,032	16,032	16,032	16,032	16,032
R-squared	0.092	0.008	0.024	0.047	0.070	0.033
B. No Kivus						
Period after découpage	0.048	0.000***	0.031	0.018	0.007	0.013
	(0.036)	(0.000)	(0.022)	(0.015)	(0.015)	(0.011)
Decentralization	-0.007	0.000	-0.033	0.016	0.011	-0.007
	(0.072)	(0.000)	(0.046)	(0.026)	(0.014)	(0.015)
Effect découpage	-0.007	0.000	-0.014	-0.014	0.012	0.001
	(0.040)	(0.000)	(0.024)	(0.018)	(0.018)	(0.012)
Observations	14,400	14,400	14,400	14,400	14,400	14,400
R-squared	0.002	0.000	0.005	0.000	0.002	0.002

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

TABLE 3.4: Intensity of conflict

The magnitude of the effect of the difference-in-difference variable (*Effect découpage*) on the number of conflicts is calculated in column (1) of Table 3.4 [12]. Provinces that separated have a 7.3% lower intensity of conflict. The decrease in the number of riots and protest in provinces that separated is of 4.59% after découpage.

Still, this effect seems to be mostly driven again by the Kivus, where conflict remains high. Without considering this region, the coefficients of the difference-in-difference variable becomes insignificant in every specification. As it was the case before, riots and protest seem to be lower in provinces that separated, with a 3.22% decrease of conflict in these areas.

This represents additional evidence of the results of découpage in the DRC. They did not increase the opportunities for the local population to grasps the benefits of this new geographical configuration. There has not been an increase in devolution and autonomy of the provinces, leading to a stalemate of the situation.

[12] The percentage change in the outcome variable with dummy independent variables is approximated as $\frac{\hat{P}}{100} \approx \exp(\beta\text{-}0.5\ Var(\beta))\text{-}1$

3.6.3 Robustness Check

3.6.3.1 Conflict Change

In a country of the dimension of Congo, there are many areas that are not densely populated or are not populated at all. In fact, most of the population is concentrated in certain parts of the country, close to economic or government centers. This in turn leads to the presence of a large number of combinations territory-year with no conflict events.

In this section, I limit the analysis to areas that experienced at least one conflict event in the whole period of analysis. I implement Equation 3.9, but I restrict it to areas with at least one episode of the conflict event. Results are included on Table 3.5.

VARIABLES	(1) Total Events	(2) Remote Violence	(3) Riots & Protests	(4) Violence vs. Civilians	(5) Battles	(6) Strategic Development
A. All Provinces						
Period after découpage	0.114***	-0.035**	0.086***	0.060*	0.098**	-0.018
	(0.044)	(0.012)	(0.027)	(0.031)	(0.048)	(0.019)
Decentralization	-0.406***	-0.045**	-0.091**	-0.190***	-0.263***	-0.125***
	(0.113)	(0.018)	(0.044)	(0.060)	(0.073)	(0.032)
Effect découpage	-0.067	0.049***	-0.057*	-0.053	-0.069	0.047**
	(0.048)	(0.015)	(0.030)	(0.034)	(0.050)	(0.022)
Observations	14,496	1,344	9,888	12,384	11,616	8,544
R-squared	0.083	0.011	0.027	0.045	0.075	0.033
B. No Kivus						
Period after découpage	0.048	0.014	0.059	0.023	0.098***	0.023
	(0.036)	(0.010)	(0.041)	(0.018)	(0.029)	(0.018)
Decentralization	0.012		-0.068	0.027	-0.263***	-0.008
	(0.073)		(0.084)	(0.032)	(0.015)	(0.025)
Effect découpage	-0.001		-0.030	-0.016	-0.069**	0.007
	(0.041)		(0.043)	(0.023)	(0.030)	(0.021)
Observations	12,864	384	8,256	10,752	11,616	7,008
R-squared	0.002	0.004	0.011	0.001	0.075	0.004

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

TABLE 3.5: Change in Conflict Events in Areas with at Least One Conflict Episode

Even when we limit the analysis to areas with presence of conflict events, the effects seem to be absorbed by Nord-Kivu and Sud-Kivu. Still, this is not the case of battles, which seem to have gone down after découpage in areas that separated, with a reduction of 6.75%. Furthermore, areas that separated seem to have 23.16% less conflicts than areas that did not separate.

The analysis shown in these sections shows that découpage has per se no major effects on the presence of conflict events in the DRC. On the contrary, by looking at the magnitude of ϕ, it is plausible to think that découpage helped to isolate the territories that already presented lower levels of conflict. This has important policy implications as it seems that by separating these areas, it may be easier to establish mechanisms that increase the representation of the population through other channels. I look into these effects in the next section.

3.6.4 Endogenous Découpage

As shown by the different specifications above, découpage does not seem to have had a significant effect on the prevalence of conflict in the DRC. Here, I look at the different trends in conflict among the provinces that separated, before and after April 2016. The analysis in this section requires to compare the propensity of conflict before and after découpage.

First, I group provinces by "old province": the province they belong before découpage. This allows me to get an initial idea on the composition of conflict by former province. Figure 3.8 shows the results of a linear regression that look into the propensity of conflict for each "old province".

Overall, the propensity of conflict for each of these provinces increased or remained at the same level as before, with the provinces belonging to the former Kasai Occidental showing the largest increase in the propensity of conflict.

To see what provinces are driving this effect, I do the same exercise but separating the analysis by new province. Figure 3.9 reports the results.

This figure clearly shows that découpage separated regions with higher propensity to conflict from those that show a smaller probability to have conflict events. The only cases where there has been an increase in the propensity of conflict are Kasai Central, Ituri and Tanganyika. Thus, découpage rather than having a direct effect on the prevalence of conflict, has helped to isolate the provinces with lower prevalence of conflict. It remains to be seen if certain elements linked to the new configuration of the provinces is the source (at least partially) of the increase in the propensity of conflict in certain provinces after découpage.

3.6.5 Sources of Conflict

In Section 3.4.1, I stated that conflict will emerge whenever its net benefit surpasses the net benefit obtained from lobbying. The probability for this to happen depends on the political size of the groups and on the number of groups available. As the number

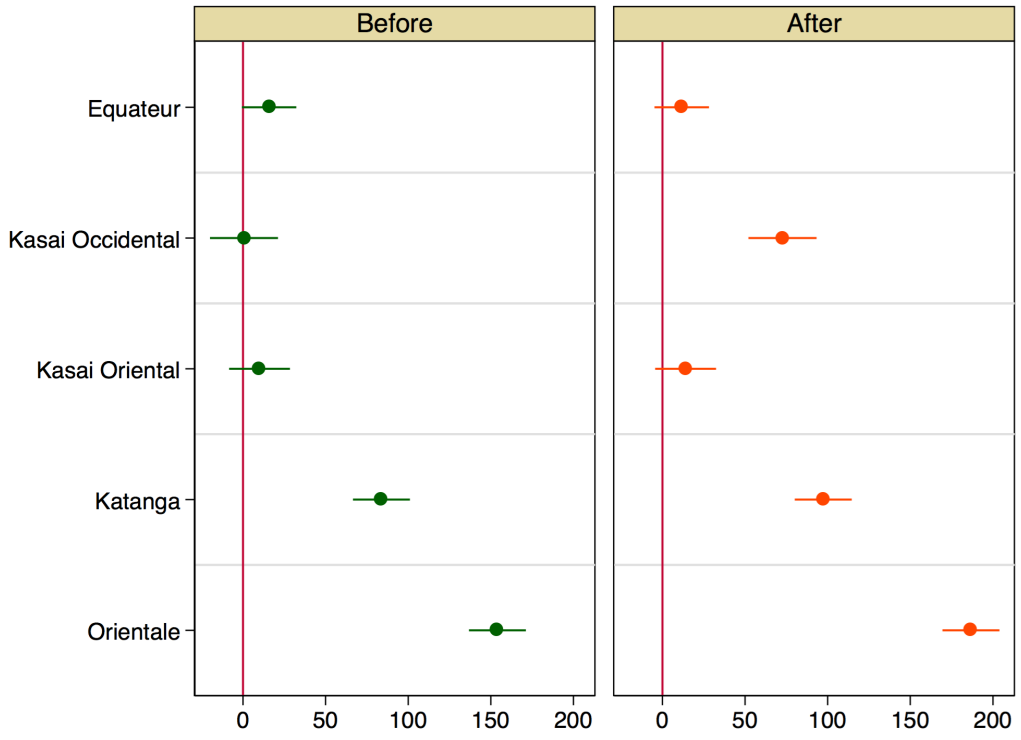


FIGURE 3.8: Propensity of Conflict by Old Province

Source: Elaborated by the author with data from ACLED

of groups increases and more groups are perceived as a threat for the acquisition of resources, the probability of conflict will increase. This will also depend on the amount of resources that can be accessed, although I expect an inverse-U form for this effect: after a threshold is reached, the probability of conflict should decrease. I empirically test the following model:

$$y_{jt} = \alpha + \beta * Divers. + \gamma * Non - Autocht. + \delta_1 * Wealth + \delta_2 * Wealth^2 + \phi * \mathbf{x} + \epsilon_{jt} \tag{3.10}$$

In this equation, y_{jt} represents the hyperbolic sine transformation of the outcome of interest, either the total number of conflicts events in a given territory j during month and year t or one of the specific types of conflict categories. β represents the main variable of interest, as it refers to the diversity of the population in the province, measured by the Herfindahl Index. I also estimate the effect γ of the percentage of non-autochthonous population. δ_1 and δ_2 estimate the effect of the amount of resources available. $\mathbf{x}$ represents a vector of control variables that include the size of the population and the

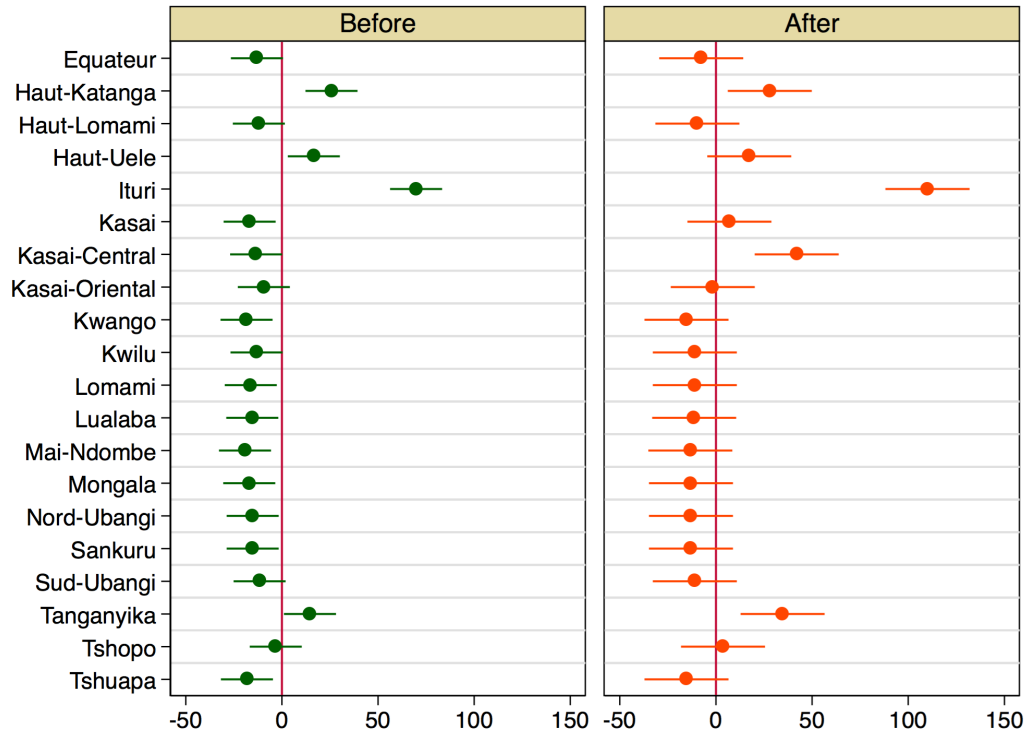


FIGURE 3.9: Propensity of Conflict by New Province

Source: Elaborated by the author with data from ACLED

poverty rate. Errors are clustered at the territory level. Panel A of Table 3.6 includes the results for all the provinces, whereas Panel B excludes the Kivu region.

The effect of ethnic diversity on the prevalence of conflict is represented by the coefficient of the Herfindahl Index. Column 1 shows the results for all the events. The magnitude of the effect is large, representing an increase of 23.18% on the number of events. This effect is driven mostly by the number of battles and the events of violence against civilians. In the case of violence against civilians, more diversity is related to an increase of 12.52% on the number of events. The results on Column (5) indicate that more diversity will lead to an 11.57% increase in battles.

These effects are persistent, although a little bit smaller when the Kivus are not included in the analysis. According to Column (1), an increase in diversity leads to an increase of 9.09% on the prevalence of conflict. The magnitude of the effect on violence against civilians is of 6.29% and on battles of 3.36%.

Interestingly, the proportion of the population that is non-autochthonous is not meaningful in the determination of conflict. Night luminosity has the expected effect, with more luminosity leading to a 17.04% increase of conflict.

VARIABLES	(1) Total Events	(2) Remote Violence	(3) Riots & Protests	(4) Violence vs. Civilians	(5) Battles	(6) Strategic Development
A. All Provinces						
Herfindahl Index	0.248***	0.000	0.001	0.137***	0.132***	0.031*
	(0.079)	(0.002)	(0.019)	(0.038)	(0.045)	(0.016)
Non-autochthonous	-0.004	-0.000	0.001	-0.002	-0.003*	-0.001
	(0.003)	(0.000)	(0.001)	(0.001)	(0.002)	(0.001)
Luminosity	0.238**	0.012	0.131**	0.084*	0.056	0.054
	(0.118)	(0.008)	(0.059)	(0.049)	(0.039)	(0.035)
Luminosity sq.	-0.021**	-0.001	-0.011**	-0.007*	-0.005	-0.005
	(0.010)	(0.001)	(0.005)	(0.004)	(0.003)	(0.003)
Observations	13,152	13,152	13,152	13,152	13,152	13,152
R-squared	0.133	0.008	0.198	0.052	0.031	0.044
B. No Kivus						
Herfindahl Index	0.110**	-0.000	-0.002	0.074***	0.042**	0.010
	(0.046)	(0.000)	(0.018)	(0.026)	(0.018)	(0.008)
Non-autochthonous	0.002	-0.000	0.002*	0.000	0.000	0.000
	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Luminosity	-0.013	0.000	-0.018*	0.008	-0.002	-0.006*
	(0.022)	(0.000)	(0.010)	(0.010)	(0.010)	(0.003)
Luminosity sq.	0.000	-0.000	0.001*	-0.001	-0.000	0.000
	(0.002)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Observations	11,520	11,520	11,520	11,520	11,520	11,520
R-squared	0.151	0.001	0.235	0.047	0.015	0.055

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

TABLE 3.6: Sources of Conflict

3.7 Discussion and Conclusion

In this paper, I explored the effect of découpage on the prevalence of conflict in the DRC. As expected, the results show that this policy did not conduct to a change in the prevalence of conflict in the territories across the country. Whenever effects were found, these were driven by the situation that persists in the provinces located in the east of the country, where conflict is driven by a combination of different factors that are weakly linked to découpage.

This is particularly true since decentralization in Congo has followed a different pattern in paper than in practice. Although provinces were expected to obtain more devolution in key areas of the economic and social lives of the population, in practice the system is still highly centralized. This leads to a small window of opportunity for the different groups to act and increase their influence at the subnational level, if Kinshasa does not agree to it.

The results are in tune with the current literature on decentralization and conflict, indicating that decentralization in non-democracies is dubious and its effects largely depend on the political will at the center to increase participation and influence of the subnational leaders. However, contrary to the findings from **?** and **?**, I do not see a decrease in the number of conflict at the national level. This might be related to the instability that the country has gone through in the last years linked to the postponement of the national elections, that took place in December 2018. It will be interesting to see the evolution of this trend in the following months and years. The same will happen with the evolution of decentralization with the new administration. Already, certain provinces are being able to keep the taxes obtained from the mining sector[13].

What is also evident in the paper is that even if découpage did not reduce the level of conflict, it did isolate the regions that already had low levels of conflict from those that present intense conflict. This might represent an opportunity for donors and international organization. Low levels of conflict translate into more stability, which can be used to increase the capacity of these new provinces without having to deal with a fragile environment.

Finally, the paper also looked at some of the mechanisms that drive an increase in conflict. As it has been acknowledged before (**???**), more ethnic diversity may lead to more instability, as some groups become more represented than others. This paper empirically shows how a higher index of ethnic diversity translates into a higher propensity of conflict.

Overall, this paper provides certain elements on the mechanisms behind conflict and looks into how policies usually supported to increase accountability and reduce the instability of the system may not lead to a significant change. In the case of decentralization, in fragile and highly centralized environments, it is necessary to push for real devolution towards the provinces, but keeping in mind the risks for conflict that exists at the province level. In this paper, I show some of the ways to do that, by taking advantage of the stability that already exist in certain areas of the country.

[13] Although the application of this policy is still quite dubious.

Bibliography

Baron, R. and Kenny, D. A. (1986). The Moderator-Mediator Variable Distinction in Social Psychological Research: Conceptual, Strategic, and Statistical Considerations. *Journal of Personality and Social Psychology*, 51(6):1173–1182.

Besley, T. and Persson, T. (2009). The Origins of State Capacity: Property Rights, Taxation and Politics. *American Economic Review*, 99(4):1218–1244.

Besley, T. and Persson, T. (2010). State Capacity, Conflict and Development. *Econometrica*, 78:1–34.

Besley, T. and Persson, T. (2011a). Fragile States and Development Policy. *Journal of the European Economic Association*, 9(3):371–398.

Besley, T. and Persson, T. (2011b). The Logic of Political Violence. *Quarterly Journal of Economics*, 126(3):1411–1445.

Besley, T. and Persson, T. (2014). Why Do Developing Countries Tax So Little? *Journal of Economic Perspectives*, 28(4).

Blattman, C. and Miguel, E. (2010). Civil War. *Journal of Economic Literature*, 48(1):3–57.

Centeno, M.-A. (2002). *Blood and Debt: War and the Nation-State in Latin America*. The Pennsylvania State University Press, University Park PA.

Dell, M. (2015). Trafficking Networks and the Mexican Drug War. *American Economic Review*, 105(6):1738–1779.

Dell, M., Feigenberg, B., and Teshima, K. (2018). The Violent Consequences of Trade-Induced Worker Displacement in Mexico.

Dimico, A., Isopi, A., and Olsson, O. (2012). Origins of the Sicilian Mafia: The Market for Lemons.

Dube, A., Dube, O., and Garcia-Ponce, O. (2013). Cross-Border Spillover: U.S. Gun Laws and Violence in Mexico. *American Political Science Review*, 107(3):397–417.

Dube, O., Garcia-Ponce, O., and Thom, K. (2016). From Maize to Haze: Agricultural Shocks and the Growth of the Mexican Drug Sector. *Journal of the European Economic Association*, 14(5):1181–1224.

Garcia-Ponce, O., Young, L., and Zeitzoff, T. (2018). Anger and Support for Punitive Justice in Mexico's Drug War.

Garfias, F. (2018). Elite Competition and State Capacity Development: Theory and Evidence from Post-Revolutionary Mexico. *American Political Science Review*, 112(2):339–357.

Heinle, K., Ferreira, O. R., and and David A. Shirk (2017). Drug Violence in Mexico. Technical report, University of San Diego.

Hicks, R. and Tingley, D. (2011). Causal Mediation Analysis. *Stata Journal*, 11(4):605–619.

Imai, K., Keele, L., and Tingley, D. (2010). A General Approach to Causal Mediation Analysis. *Psychological Methods*, 15(4):309–334.

Institute for Economics and Peace (2018). Mexico Peace Index 2018: Mapping the Evolution of Peace and its Drivers. Technical report, Institute for Economics and Peace.

Luna, J. P. and Soifer, H. D. (2017). Capturing Sub-National Variation in State Capacity: A Survey-Based Approach. *American Behavioral Scientist*, 61(8):887–907.

Magaloni, B., Matanock, A. M., Romero, V., and D\'\iaz-Cayeros, A. (2014). Living in Fear: The Dynamics of Extortion in Mexico's Criminal InsurgencyLiving in Fear: The Dynamics of Extortion in Mexico's Criminal Insurgency. Technical report, Center on Democracy, Development, and the Rule of Law, Stanford.

Mann, M. (1984). The autonomous power of the state: its origins, mechanisms and results. *European Journal of Sociology*, 25(2):185–213.

Mihalache-O'Keef, A. and Vashchilko, T. (2010). Chapter Seven: Foreign Direct Investors in Conflict Zones. *Adelphi Series*, 50:137–156.

Moscona, J., Nunn, N., and Robinson, J. A. (2018). Social Structure and Conflict.

O'Donnell, G. (1993). On the State, Democratization, and Some Conceptual Problems. *World Development*, 21(8):1355–1369.

Olson, M. (1993). Dictatorship, Democracy, and Development. *The American Political Science Review*, 87(3):567–576.

Oto-Peralías, D. (2015). The Long-Term Effects of Political Violence on Political Attitudes: Evidence from the Spanish Civil War. *Kyklos*, 3:412–442.

Padilla-Márquez, F., Pérez-Arce, F., and Rodríguez-Castelán, C. (2016). The (Non-) Effect of Violence on Education: Evidence from the "War on Drugs" in Mexico.

Pearl, J. (2001). Direct and Indirect Effects. Technical report.

Pepinsky, T. B., Pierskalla, J., and Sacks, A. (2017). Bureaucracy and Service Delivery.

Rios, V. (2013). Why did Mexico become so violent? A selfreinforcing violent equilibrium caused by competition and enforcement. *Trends in Organized Crime*, 16(2):138–155.

Rios, V. (2016). The impact of crime and violence on economic sector diversity.

Robles, G., Calderón, G., and Magaloni, B. (2015). The Economic Consequences of Drug Trafficking Violence in Mexico.

Saylor, R. (2014). *State Building in Boom Times: Commodities and Coalitions in Latin America and Africa*. Oxford University Press.

Soifer, H. D. (2012). Measuring State Capacity in Contemporary Latin America. *Revista de ciencia política*, 32(3):585–598.

Trejo, G. and Ley, S. (2018). Why Did Drug Cartels Go to War in Mexico? Subnational Party Alternation, the Breakdown of Criminal Protection, and the Onset of Large-Scale Violence. *Comparative Political Studies*, 51(7):900–937.

Appendix A

How Strong is your Shield? Subnational State Capacity and Violence in Mexico

A.0.1 Subnational Model on Capacity and Prosperity

Preliminaries

In the model, there are two periods s=1,2 and two major groups J={A,B}. A represents the group in power, whereas B represents the opposition. Each of this group represents half of the population and total population is normalized to 1. Every individual is assumed to have an income w. At the end of period 1, there is a power transition with exogenous probability γ. The incumbent can generate fiscal (tax collection) and legal (property rights) capacity with an effort c(e)= { $\mathfrak{L}(\tau_2 - \tau_1) + \mathfrak{F}(\pi_1 - \pi_2)$}. These functions are assumed to be increasing and convex, with $\mathfrak{L}'(0)=0$, and $\mathfrak{F}'(0)=0$. In addition, the incumbent receives transfers (c_s) from the higher levels of government, which do not require any particular level of effort.

I further assume that the levels of capacity implemented are not group-dependent, with $t_s^J = t_s$ representing the local tax rates at time s, $p_s^J = p_s$ being the policy on legal support at time s. As in Besley and Persson's model, income w is a function of legal capacity, $w=w(p_s)$, where $w(\cdot)$ is an increasing and concave function, with $p_s \leq \pi_s$.

The government can utilize its resources in two ways. They can either be used to provide public goods g_s or clientelistic transfers, which are targeted to each group J. On

the one hand, the provision of public goods depends on the utility they provide V(g_s) and on their value α_s. For the utility, I assume a linear case where V(g_s)= g_s. α_s can be thought as the value of the public good provided. In the context of this paper, one of the public goods provided is the degree to which the population is isolated from drug gangs and from the violence that surrounds them [1]. This value is stochastic, with distribution α_s $\{\alpha_L, \alpha_H\}$, where $\alpha_H > 2 > \alpha_L > 1$, and probability $[\alpha_s{=}\alpha_H]{=}\ \phi$. The values of α_s determine if public goods are more or less valuable than transfers, depending on the political structure. ϕ is a measure of the demand for these public goods. The value of α_s is known when policy is set.

The provision of transfers r_s^I, on the other hand, depends on the political institutions in place. More specifically, the incumbent needs to provide a fixed share σ to the opposition group, for each unit of transfers it gives to its own group. This σ depends on how 'cohesive' institutions are, which is represented by $\theta{=}\ \frac{\sigma}{1+\sigma}$ $[0, \frac{1}{2}]$. In a fully authoritarian government, θ=0, while in an Utilitarian government, one should expect that the checks and balances of the institutions push for $\theta{=}\frac{1}{2}$. This can also happen if informal institutions ask for a commitment to more redistribution towards the opposition. θ will affect policy decisions.

Capacity and Violence

In the model, I assume that the existence of a violent environment is randomly assigned with probability η. In addition, in period 1 nature decides the initial stock capacity, with a probability ρ of having high levels of initial capacity (K_1). This brings the possibility of four different scenarios (see Table A.1):

		Capacity	
		+	-
Violence	+	HH: (η)(ρ)	LH: (1-η)(ρ)
	-	HL: (η)(1-ρ)	LL: (1-η)(1-ρ)

TABLE A.1: Probability of Four Different Scenarios

The presence of more conflict affects investment in capacity by increasing the cost of effort c(e)= $\{\ \mathfrak{L}(\tau_2 - \tau_1) + \mathfrak{F}(\pi_1 - \pi_2)\}$. Intuitively, areas with more conflict are harder to tax and the incentives are lower to protect the property rights of the population from

[1] In areas with low levels violence, security forces are less valued. In an Olsonian sense (Olson, 1993), this is also the case when drug cartels supply a range of public goods that are valued by the population

the rebels.

Timing

Given the previous setting, the events happen in the following order:

1. Nature determines, the stock of state capacity K_1 (fiscal capacity τ and legal capacity π), the level of transfers from the higher levels of government c_1, the level of violence V_1, the level of the value provided to public goods α_1, and the incumbent group A.
2. The local government chooses the policy vector $\{t_1, p_1, g_1, r_1^A$, and $r_1^B\}$ and the level of investment in state capacity stock for period 2 c(e), subject to the government constraint of the period.
3. Agents consume
4. The incumbent government stays in power in period 2 with probability γ. Value for public goods for period 2 is revealed α_2.
5. The government in period 2 picks its policy vector $\{t_2, p_2, g_2, r_2^A$, and $r_2^B\}$, subject to the government constraint of the period.
6. Agents consume
7. Time ends

To verify how the government will maximize its utility in each period, it is necessary to first look at how it will choose its policy vectors for capacity implementation. This requires to look at the utilities of groups A and B. Assuming that the preferences for the individuals in group J are linear in disposable income, transfers and public goods, the indirect utility for individuals in group J in time=s is:

$$v_s^J = \alpha_s(g_s) + (1-t)w + r_s^J \tag{A.1}$$

As mentioned above, the population for each group A and B is the same. Considering this, the government's budget constraint is:

$$c_s + t_s w(p_s) = g_s + c(e) + \frac{r_s^A + r_s^B}{2} \tag{A.2}$$

where c(e)= 0 if s=2.

Optimal policy

Considering the structure of the model, the group in power needs to choose the policy vector {t_s, p_s, g_s, r_s^A, and r_s^B} that maximize its payoff. For period 1, this is:

$$\alpha g_s + (1 - t_s)w(p_s) + r_s^J + \chi \tag{A.3}$$

where χ represents the expected windfalls considering the opportunity cost of the investment in public funds in period 1. In period 2, the maximization problem is:

$$\alpha g_s + (1 - t_s)w(p_s) + r_s^J \tag{A.4}$$

Both equations are subject to:

$$t_s \leq \tau_s, \;\; p_s \leq \pi_s, \;\; r_s^B \geq \sigma r_s^A \tag{A.5}$$

and to the government budget constraint indicated in (2).

Equilibrium capacity

To determine the optimal capacity to be applied in period 1, it is necessary to first go back to the constraints imposed by the political institutions and to the budget constraints. It is easy to observe that $\sigma = \frac{\theta}{1-\theta}$, r_s^A= 2(1-θ) and r_s^B= 2θ. From now on, β^J is defined such as β^A=2(1-θ) and β^B=2θ.

label=() *Taxes*

The equilibrium tax rate is set to exhaust fiscal capacity, such that $t_s = \tau_s$.

This is because, from the incumbent's point of view, the gain for its group is at least of the size of the transfers received on the margin= 2(1-θ), whereas the loss is equal to w. Therefore, the minimum gains from exhausting capacity will be zero, which occurs when θ=$\frac{1}{2}$.

lbbel=() *Legal capacity*

Equally, legal capacity is fully utilized, as more capacity increases private income through w(p_s, k_s) and also positively affects the budget constraint, as more income generates more taxation.

lcbel=() *Public good provision= Prosperity*

The level of public good provision depends on the value given to these goods, which in turn is determined by α_s and by the fact that V(g_s)=g_s, which leads to two corner solutions:

$$G(\alpha, \pi, \tau) = \begin{cases} c + \tau w(\pi, \tau) - c(e) & \text{if } \alpha_s g_s(\cdot) \text{ - c(e)} \geq 2(1\text{-}\theta) \\ 0 & \text{otherwise} \end{cases} \tag{A.6}$$

Therefore, whenever public goods are more valuable than the transfers received by the incumbent's group, public goods will be provided and no money will be allocated to transfers. No public goods will be provided when their value is lower than the transfers received by the group in power.

ldbel=() *Transfers*

Since transfers are the residual item after spending in public goods and investing in capacity (in period 1), and given the results mentioned above, the value of θ will determine how transfers will be shared among the groups.

Corollary

Given that total capacity will be exerted during period one, one should expect that places with higher potential levels of capacity, irrespective of their levels of violence will collect more taxes and protect more property rights. Nevertheless, the cost of effort in places with higher violence and high capacity will be higher than in places with lower levels of violence.

$$HH > HL > LH > LL \tag{A.7}$$

Optimal investment in state capacity

To determine the optimal investment in state capacity, it is necessary to investigate what are the government expected windfalls in period 1, which will depend on the probability that the incumbent government stays in period 2, and on the utility structure of the two groups.

First, considering the optimal policies implemented, the indirect payoff for group J is:

$$V(\alpha_s, \tau_s, \pi_s, c(e), \beta^J) = \alpha_s G(\alpha, \pi, \tau) + (1-\tau)w(\pi) + \beta^J[\tau w(\pi) - G(\alpha, \pi, \tau) - c(e)] \tag{A.8}$$

In addition, in period 2, the utility function for the incumbent group is:

$$U^A(\tau_2, \pi_2) = [\phi V(\alpha_H, \tau_2, \pi_2, \beta^A) + (1-\phi)V(\alpha_L, \tau_2, \pi_2, \beta^A)] \tag{A.9}$$

while the utility function of the opposition group is:

$$U^B(\tau_2, \pi_2) = [\phi V(\alpha_H, \tau_2, \pi_2, \beta^B) + (1-\phi)V(\alpha_L, \tau_2, \pi_2, \beta^B)] \tag{A.10}$$

These equations depend on the expected value of public goods α and on their demand ϕ, as well as on the amount that an individual receives, given its position in group A or B.

Taking this into account, the expected payoff in period 2, seen from period 1, is:

$$V(\alpha_1, \tau_1, \pi_1, c(e), 2(1-\theta)) + \gamma U^A(\tau_2, \pi_2) + (1-\gamma)U^B(\tau_2, \pi_2) \tag{A.11}$$

for the incumbent, and:

$$V(\alpha_1, \tau_1, \pi_1, c(e), 2(1-\theta)) + \gamma U^B(\tau_2, \pi_2) + (1-\gamma)U^A(\tau_2, \pi_2) \tag{A.12}$$

for the opposition.

This is, for the incumbent, the expected payoff depends on the probability γ the she will stay in power in period 2. Rearranging terms, the incumbent will maximize:

$$V(\alpha_1, \tau_1, \pi_1, [\mathfrak{L}(\tau_2 - \tau_1) + \mathfrak{F}(\pi_2 - \pi_1)], 2(1-\theta)) \\ +\gamma U^A(\tau_2, \pi_2,) + (1-\gamma)U^B(\tau_2, \pi_2) \tag{A.13}$$

To do this, the incumbent will choose to invest in state capacity in such a way that the forgone consumption in period 1 (since funds are instead invested in increasing capacity) equals the gains of increasing the potential funds in period 2 ($MC_1 = MB_2$). This is the same as maximizing the expected windfalls χ:

$$\chi = \gamma U^A(\alpha_2, \tau_2, \pi_2) + (1-\gamma)U^B(\alpha_2, \tau_2, \pi_2) - \lambda_1 c(e) \tag{A.14}$$

Where λ_1= - W(α_1, τ_1, π_1, c(e), 2(1-θ)) = max{α_1, 2(1-θ)}. This is, λ_1 represents the opportunity cost of spending on public funds. If $\alpha_1 \geq$ 2(1-θ), public goods will be provided and when $\alpha_1 <$ 2(1-θ), spending will take the form of transfers.

Since in period 2, the incumbent will also have to decide to devote public funds on public goods or transfers, the expected payoffs become:

$$\chi = w(\pi_2)(1-\tau_2) + E[\lambda_2][\tau_2 w(\pi_2) + c] - \lambda_1 c(e) \tag{A.15}$$

Where E[λ_2]= ϕ α_H + (1- ϕ)λ_2^L is the expected value of period 2 public funds, and λ_2^L= α_L if $\alpha_L \geq$ 2(1-θ) and λ_2^L=2[(1-θ)(γ) + (1-γ)θ] otherwise.

To maximize Equation A.14, the incumbent will trade off the expected benefits of period 2 against the cost of the investment, given the structure of public funds and the probability of holding power in period 2. When $\alpha = \alpha_H$, public goods will be provided. If $\alpha = \alpha_L$, transfers will be provided if $\alpha_L \leq$ 2(1-θ) and the amount received by the period-1 incumbent depends on the probability of being in power or not.

* *Investment in fiscal capacity*

  Maximizing Equation A.14 with respect to τ_2, gives:

$$w(\pi_2, \eta_2)[E(\lambda_2) - 1] \leq \lambda_1 \mathfrak{L}(\tau_2 - \tau_1) \tag{A.16}$$

As long as the future public funds are valuable enough relative to private consumption in period 1 (E[λ_2 - 1) $\geq$0], the period-1 incumbent will invest in fiscal capacity.

$*$ *Investment in legal capacity*

Maximizing equation (23) with respect to π_2, gives:

$$w(\pi_2, \eta_2)[1 + \tau[E(\lambda_2) - 1]] \leq \lambda_1 \mathfrak{L}(\pi_2 - \pi_1) \tag{A.17}$$

The same condition indicated for investment in fiscal capacity applies in this case. Plus, as indicated by Besley and Persson (2010), there is fiscal capacity and legal capacity are complementary investments: an increase in legal capacity will make investment in fiscal capacity more valuable on the margin as private incomes increase if the marginal value of public funds is high enough, since higher tax revenue will be expected.

Parameters and Extensions

Essentially, the results shown above indicate that investment in state capacity depends on the following parameters:

- ϕ: the expected demand of public goods. (P[α=α_H])
- α_H and α_L: the value of public goods
- θ: the level of political inequality
- γ: the probability that the incumbent holds power in period 2.
- w: the income level for a given π
- c: the transfers from higher-level governments
- **c(e): the cost of effort to increase capacity**

A higher value of public goods and a higher expected demand of public goods will increase investment in public goods, as these are equally distributed across the population, irrespective on the fact that the period-1 incumbent is in power in period 2 or not.

This in turn depends on the cohesiveness of institutions. If θ approaches $\frac{1}{2}$, marginal public revenues will be devoted to public goods, irrespective of whether α=α_H or α= α_L

(Since $\alpha_L \geq 2(1\text{-}\theta)$. This setting is what Besley and Persson refer as the 'common-interest state'.

If θ is smaller than $\frac{1}{2}$, investment in capacity is determined in turn by the expected value of public goods and by the probability of holding office in period 2 γ. If $\alpha=\alpha_L \leq 2(1\text{-}\theta)$, transfers will be provided and investment in capacity will depend on how probable is that the high level of clientelistic transfers and patronage will be received by the incumbent group.

So far, I have assumed that γ is exogenous. However, a central feature of this variation of the model is that γ depends on the transfers received by each group and by the weight δ^J each group represent on the probability that the incumbent stays in power in period 2, as well as on a stochastic factor:

$$\gamma = \delta^A(r_1^A) + \delta^B(r_1^B) + \zeta \tag{A.18}$$

As θ approaches 0, the probability that the incumbent stays in power depends on the political weight of its own group. In cases where the opposition is highly divided, it is possible that the political weight of the incumbent increases, increasing the probability that she remains in power, even if she does not provide transfers to the opposition.

Another factor that will facilitate investment in state capacity is the income level of the population. This condition is intuitive as a higher income allows for more taxation, and therefore more public funds available. This will in turn work as an incentive to increase legal capacity.

In addition to this, the conditions that define transfers from the higher-levels of government could also have a direct effect over capacity. If these payments are a function of the level of participation of the subnational region on the country's economy, then these transfers also depend on legal capacity, as this will raise the local income and attract more transfers from the higher levels of government: $c(\pi)$.

If, on the other hand, transfers from the higher levels of government are not conditioned, they will have a negative effect on state capacity. To see this, one can follow Besley and Persson (2009), and consider a given level of income, where $Y_s = c_s + w(\pi_s)$ and a share of transfers from higher levels of government $c = \frac{c_s}{c_s + w(\pi_s)}$. As c increases, there will be less incentive to increase legal and fiscal capacity.

The role of violence in increasing the cost of effort

As seen in the model, investment in state capacity (legal and fiscal) directly depends on the amount of effort needed. This means that if λ_1 c(e) $>$ [γ $U^A(\alpha_2, \tau_2, \pi_2)$ + (1- γ) $U^B(\alpha_2, \tau_2, \pi_2)$], irrespective of the preference for public goods or private transfers, the incumbent will find it too costly to invest in capacity for period 2.

This implies that in places with high levels of violence (HH, LH), it may be the case that the cost of effort becomes higher than the benefits that it can provide to the incumbent, in which case it becomes redundant to invest in capacity. This is not to say that places with high violence will necessarily reduce their investment of capacity, but this scenario is conceivable whenever this cost of effort is higher than the expected benefits.

A.0.2 The Formation of State Capacity

Looking at the formation of state capacity under different contexts, it is noticeable that historical capacity becomes more relevant in areas with lower human concentration. In metropolitan areas (defined by INEGI), historical capacity has a positive and statistically significant effect on the number of bureaucrats at the municipal level and on local taxation. This may be because these areas, although not highly populated, may have the infrastructure that facilitates the municipal government to keep control of the population and have a neat setting for institutions to establish.

	Rural			Urban		
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Ln. Taxes/ 10,000 in.	Ln. Institutions/ 10,000 in.	Ln. Bureaucrats/ 10,000 in.	Ln. Taxes/ 10,000 in.	Ln. Institutions/ 10,000 in.	Ln. Bureaucrats/ 10,000 in.
Ln(Bureaucrats 1930/1,000 in.)	0.242***	0.021**	0.038**	0.104**	0.014	0.123***
	(0.037)	(0.009)	(0.015)	(0.041)	(0.017)	(0.023)
Same party State-Municipality	-0.087**	0.010	-0.009	-0.114**	-0.047*	-0.021
	(0.044)	(0.016)	(0.021)	(0.045)	(0.026)	(0.026)
Same party Central-Municipality	-0.716***	0.004	0.023	-0.697***	0.034	0.049**
	(0.044)	(0.015)	(0.021)	(0.050)	(0.025)	(0.020)
Min. Distance U.S	-0.003***	0.000	0.001***	-0.001	0.000	0.001***
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)
Distance Road	-0.019***	-0.004***	-0.002	-0.002	-0.004	0.003
	(0.006)	(0.001)	(0.002)	(0.006)	(0.002)	(0.003)
Agric. Suitability	-0.229***	-0.004	-0.009	-0.037	0.017	0.011
	(0.021)	(0.005)	(0.008)	(0.035)	(0.013)	(0.017)
Elevation	0.000***	-0.000	-0.000**	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Area (in Th. km)	0.001***	0.000	0.000	-0.000**	0.000	-0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Population Th.)	-0.233***	-0.863***	-0.576***	0.482***	-0.896***	-0.181***
	(0.032)	(0.007)	(0.013)	(0.035)	(0.012)	(0.016)
Constant	13.092***	2.548***	4.193***	12.178***	2.596***	3.934***
	(0.241)	(0.062)	(0.112)	(0.280)	(0.122)	(0.138)
Observations	33,057	6,265	6,106	14,473	2,398	2,326
R-squared	0.283	0.861	0.591	0.262	0.865	0.363
State FE	YES	YES	YES	YES	YES	YES

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

TABLE A.2: State Capacity Formation: Rural vs. Urban

	1990-2000	2001-2016	1990-2006	2007-2016
	(1)	(2)		
	Ln. Taxes/ 10,000 in.	Ln. Taxes2/ 10,000 in.	Ln.Taxes3/ 10,000 in.	Ln.Taxes4/ 10,000 in.
Ln(Bureaucrats 1930/1,000 in.)	0.320***	0.342***	0.331***	0.348***
	(0.029)	(0.031)	(0.029)	(0.033)
Same party State-Municipality	0.235***	-0.126***	0.290***	-0.044
	(0.049)	(0.027)	(0.039)	(0.031)
Same party Central-Municipality	0.159***	0.130***	-0.534***	0.062*
	(0.050)	(0.030)	(0.040)	(0.032)
Min. Distance U.S.	-0.002***	-0.002***	-0.002***	-0.002***
	(0.000)	(0.000)	(0.000)	(0.000)
Distance Road	-0.008*	-0.013***	-0.011**	-0.013***
	(0.004)	(0.005)	(0.004)	(0.005)
Agric. Suitability	-0.152***	-0.224***	-0.182***	-0.236***
	(0.018)	(0.020)	(0.018)	(0.022)
Elevation	0.000***	0.000***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
Area (in Th. km)	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Population Th.)	0.092***	0.154***	0.117***	0.154***
	(0.021)	(0.020)	(0.020)	(0.020)
Constant	10.929***	13.916***	12.010***	14.349***
	(0.205)	(0.216)	(0.203)	(0.225)
Observations	18,659	28,871	30,056	17,474
R-squared	0.363	0.467	0.310	0.508
State FE	YES	YES	YES	YES

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

TABLE A.3: State Capacity Formation: Different periods

In addition, I explored if municipalities with aligned party interests with the state and/or the executive levels could have an effect over state capacity, as political competition increased in the country, and after the War on Drugs policy was implemented. The effect is not entirely clear, which may be intuitively sound, as during the first decade of the 2000s, Mexico underwent a series of structural political and social transformations.

A.0.3 The Effect of Violence on State Capacity

Could it be the case that it is not only persistent violence that affects state capacity, but violence or changes in violence that could have also an effect on state capacity? I use different specifications to measure how violence could affect state capacity to elucidate this question. In fact, it seems that increases in violence tend to raise the levels of

DV: Ln(taxes per 10 th. in)	(1) Lagged Homicides	(2) Growth Homicides
Lag Homicides	1.075***	
	(0.006)	
Growth Homicides		0.057***
		(0.008)
Ln(Bureaucrats 1930/1,000 in.)	-0.024***	0.328***
	(0.005)	(0.030)
Same party State-Municipality	-0.037***	-0.105***
	(0.011)	(0.033)
Same party Central-Municipality	-0.264***	-0.736***
	(0.013)	(0.034)
Min. Distance U.S.	0.000	-0.002***
	(0.000)	(0.000)
Distance Road	0.000	-0.012**
	(0.001)	(0.005)
Agric. Suitability	-0.003	-0.221***
	(0.003)	(0.019)
Elevation	0.000	0.000***
	(0.000)	(0.000)
Area (in Th. km)	-0.000	-0.000
	(0.000)	(0.000)
Ln(Population Th.)	0.021***	0.193***
	(0.003)	(0.020)
Constant	-1.352***	13.211***
	(0.091)	(0.209)
Observations	43,419	47,256
R-squared	0.804	0.302
State FE	YES	YES

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

TABLE A.4: Caption

capacity. In column 2, growth in homicides within the municipality increase taxation by 6.31%. This may be because authorities in areas with an increase in murders look to avoid an increase in criminal rates by exerting immediate actions to increase the control over the municipality.

A.0.4 Sensitivity Analysis

In this section, I introduce the sensitivity analysis of the mediation technique used in Section 1.7.3. As mentioned before, the sensitivity analysis helps to show how robust are the results, as a function of a violation of the sequential ignorability assumptions Imai et al. (2010).

TABLE A.5: Effect of Persistent Violence on State Capacity

	(1)	(2)	(3)	(4)	(5)
	All	High Violence High Capacity	High Violence Low Capacity	Low Violence High Capacity	Low Violence Low Capacity
High Persistent Violence	-0.153***	0.338***	-0.259***	0.419***	-0.058
	(0.038)	(0.104)	(0.050)	(0.089)	(0.042)
Ln(Bureaucrats 1930/1,000 in.)	0.346***	-0.137***	0.418***	-0.124**	0.346***
	(0.030)	(0.050)	(0.048)	(0.051)	(0.034)
Same party State-Municipality	-0.215***	-0.336***	-0.221***	-0.312***	-0.178***
	(0.030)	(0.082)	(0.047)	(0.060)	(0.033)
Same party Central-Municipality	-0.587***	-0.441***	-0.669***	-0.551***	-0.562***
	(0.029)	(0.088)	(0.050)	(0.072)	(0.033)
Min. Distance U.S.	-0.002***	0.002	-0.004***	0.001	-0.001***
	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)
Distance Road	-0.011**	-0.011	-0.007	0.003	-0.021***
	(0.005)	(0.008)	(0.006)	(0.008)	(0.006)
Agric. Suitability	-0.224***	-0.121***	-0.269***	-0.027	-0.195***
	(0.020)	(0.045)	(0.028)	(0.049)	(0.021)
Elevation	0.000***	-0.000	0.000***	-0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Area (in Th. km)	-0.000	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Population Th.)	0.175***	0.172***	0.200***	0.155***	0.107***
	(0.020)	(0.029)	(0.030)	(0.030)	(0.024)
Constant	13.617***	14.319***	14.272***	14.193***	13.046***
	(0.211)	(0.376)	(0.309)	(0.324)	(0.243)
Observations	40,746	1,381	10,564	3,059	25,742
R-squared	0.383	0.218	0.418	0.206	0.317
State FE	YES	YES	YES	YES	YES

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

A.0.5 Access to public goods

According to the sensitivity analysis, most of the results are robust to the estimate of a confounder. Figure A.3 shows how in most cases, the value of ρ (the correlation between the error terms in the mediator and outcome models) for the average casual mediation effect to be zero is higher tan 0.3. Only in the case of social vulnerability, the confidence interval always contains zero, reducing the robustness of this result.

A.0.6 Education Outcomes

I also verify the sensitivity of the results on educational outcomes. The results show that unless correlation between the error term of the mediator and the outcome models is larger than 0.25 (in the case of the share of the population between the ages 10-14 that is not in school), the results will remain robust.

A.0.7 Economic Outcomes

In addition to examining the results on number of firms and personnel in a given municipality, I also look at the effects of persistent violence on investment and sales. Table

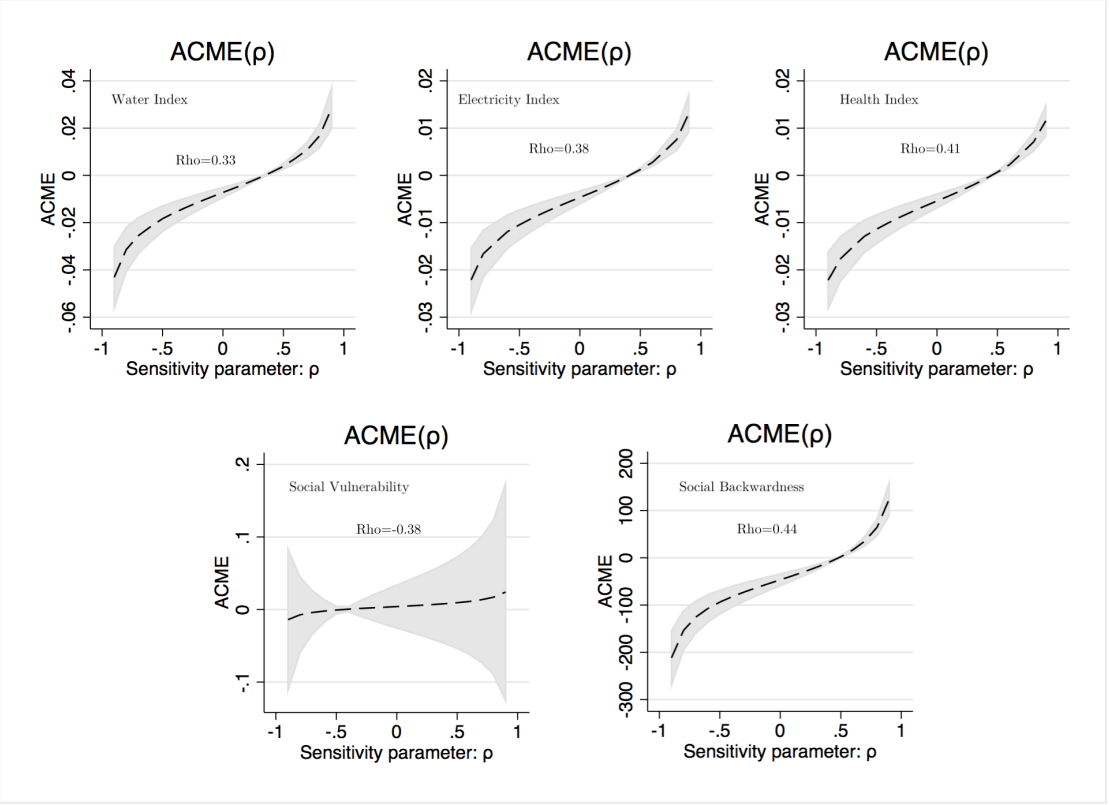


FIGURE A.1: Sensitivity Analysis- Public Goods

Elaborated with data from INEGI, 2018

A.6 includes the results that show that persistent violence reduces investment and sales in the manufacturing sector and overall. However, the results are not very clear for the retail sector, in which investment seem to slightly increase as a result of persistent violence. This parallels the findings introduced in Table 1.14.

A.0.8 Migration-Sensitivity Analysis

As shown in Table 1.16, persistent violence has a large negative effect on migration. This result is robust to changes in the correlation between the error terms in the mediator and outcome models. Figure **??** shows the results of the analysis.

A.0.9 A Model with Transfers

In a federation, there is an intricate economic relationship between the central, the state and the local government. In the case of Mexico, this relationship translates in the form of transfers. The central government is in charge of collecting the most relevant taxes, such as income taxation, whereas the state and municipalities are in charge of the collection of local taxes. The taxes received by the federation are then, in part, distributed across the state and local government as earmarked and non-earmarked transfers. In

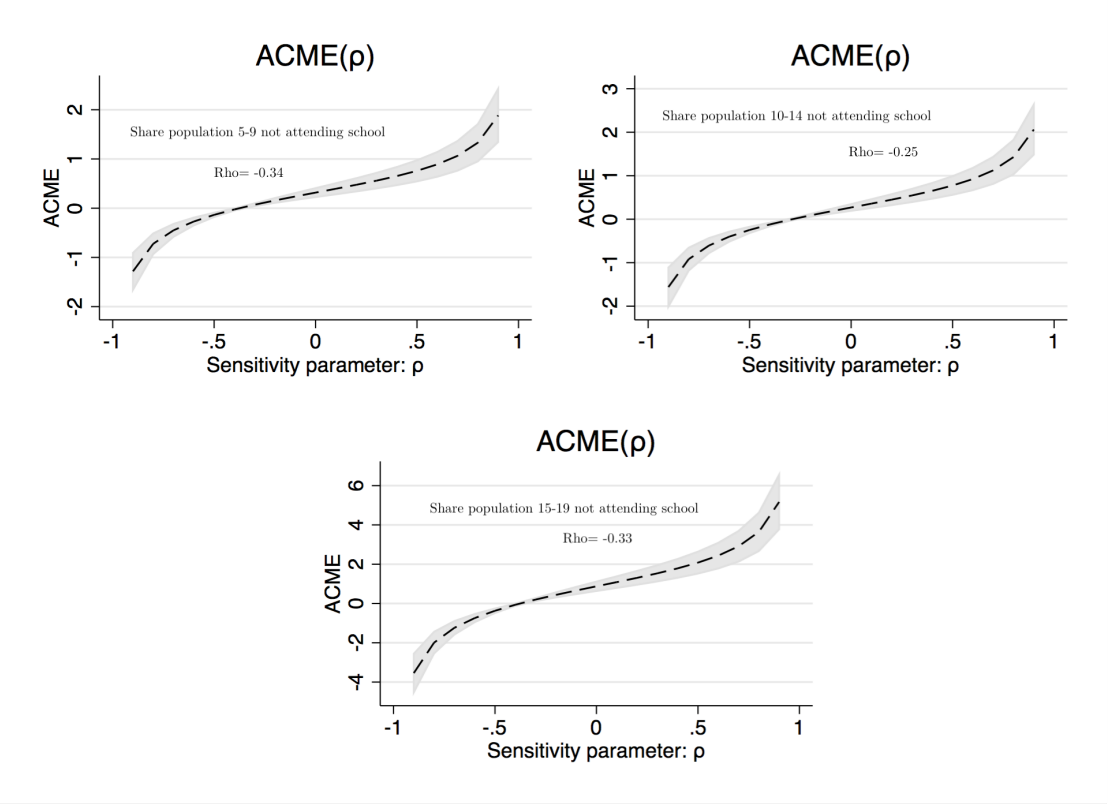


FIGURE A.2: Sensitivity Analysis- Education

Elaborated with data from INEGI, 2018

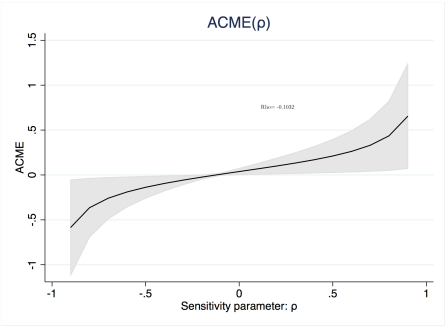


FIGURE A.3: Sensitivity Analysis- Migration

Elaborated with data from INEGI, 2018

the case of the first group, these transfers are distributed according to the poverty levels that prevail in the locality. Non-earmarked transfers are in turn distributed depending on the participation in the national economy of that given area and on the progress of local capacity.

This entails that transfers are, at the same time, the source and result of state capacity. Whereas, places with high capacity are going to receive a larger share of non-earmarked transfers, places with lower infrastructural power will also be supported with earmarked transfers. To address this endogeneity, I included in this Appendix, a

VARIABLES	(1) Investment Total	(2) Investment Manufacturing	(3) Investment Retail	(4) Sales Total	(5) Sales Manufacturing	(6) Sales Retail
Ln(homicide rate) 5yr av.	-0.137**	-0.335***	0.079**	-0.078**	-0.324***	0.002
	(0.058)	(0.069)	(0.035)	(0.032)	(0.043)	(0.022)
Ln(taxes per 10 Th. inhab.)	0.347***	0.381***	0.283***	0.404***	0.390***	0.340***
	(0.021)	(0.025)	(0.013)	(0.012)	(0.016)	(0.008)
Min. Distance U.S. -0.001***	-0.001***	-0.000	-0.000**	-0.001***	-0.000	
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Distance Road	0.023***	0.002	-0.006	-0.006	0.002	-0.003
	(0.008)	(0.004)	(0.004)	(0.005)	(0.003)	
Agric. Suitability	0.055***	-0.102***	0.011	0.001	-0.051***	0.020**
	(0.021)	(0.027)	(0.014)	(0.013)	(0.017)	(0.009)
Elevation	0.000***	0.000***	0.000**	0.000	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Area (in Th. km)	0.000***	0.000	0.000***	0.000***	0.000	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Ln(Population Th.)	1.178***	1.587***	1.396***	1.337***	1.340***	1.242***
	(0.023)	(0.028)	(0.014)	(0.013)	(0.018)	(0.009)
Constant	-3.103***	-5.657***	-4.411***	-0.358*	-1.605***	-0.746***
	(0.326)	(0.398)	(0.212)	(0.203)	(0.252)	(0.137)
ACME	0.052	-0.006	-0.018	-0.008	-0.016	-0.026
Direct Effect	-0.138	-0.336	0.078	-0.079	-0.324	0.002
Total Effect	-0.086	-0.342	0.061	-0.086	-0.340	-0.025
% Total Effect Mediated	-0.533	-0.019	-0.269	0.088	0.046	0.731
Observations	2,447	3,989	4,782	4,076	4,716	5,183
R-squared	0.659	0.593	0.777	0.843	0.701	0.868

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

TABLE A.6: Economic Outcomes

specification in which 5-year average transfers enter the capacity and prosperity equations. Still, these results should be examined with care and taken mostly as indicators of some sort of trend and correlation. I display the results only for taxation capacity, and do not separate the outcome to examine different contexts of violence. To examine prosperity, I examine the effects on selected outcomes that could be mostly affected by transfers. I hypothesize a negative effect of earmarked transfers on capacity and a positive impact of non-earmarked transfers.

Table A.7 shows the results for the formation of capacity. To avoid endogeneity issues, I used the 5-year average of earmarked and non-earmarked transfers previous to the year examined. According to the results, non-earmarked transfers have an important role in state capacity formation. An increase of 10% in non-earmarked transfers generates a 5.14% increase in taxation. The effect on earmark transfers is minimal, although

positive.

VARIABLES	(1) Ln(Real Taxes/ 10,000 in.)
Ln(Non-earmarked tr) 5yr. av.	0.514***
	(0.023)
Ln(Earmarked tr) 5yr. av.	0.044***
	(0.005)
Ln(Bureaucrats 1930/1,000 in.)	0.266***
	(0.028)
Same party State-Municipality	-0.012
	(0.023)
Same party Central-Municipality	-0.049**
	(0.020)
Min. Distance U.S.	-0.002***
	(0.000)
Distance Road	-0.010**
	(0.004)
Agric. Suitability	-0.206***
	(0.018)
Elevation	0.000***
	(0.000)
Area (in Th. km)	-0.000
	(0.000)
Ln(Population Th.)	0.328***
	(0.019)
Constant	5.423***
	(0.343)
Observations	40,746
R-squared	0.642
State FE	YES

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

TABLE A.7: State Capacity Formation- Transfers

When considering the effect of persistent violence on prosperity, I selected social backwardness, school enrollment and migration (see Table A.8. As predicted, non-earmarked transfers increase the levels of prosperity, whereas earmarked transfers have a negative impact on the overall levels of welfare (but, it may be the case that places that receive the highest levels of earmarked transfers are the ones with the lower levels of welfare, to start with). Still, these results indicate that non-earmarked transfers do not generate a significant improvement in the livelihoods of these sectors of the population. The sensitivity analysis of the results is shown in Figure A.4.

VARIABLES	(1) Social Backwardness	(2) No School 5-9	(3) No School 10-14	(4) No School 15-19	(5) Migrants
Ln(homicide rate) 5yr av.	-148.587***	2.195***	1.396***	2.776***	0.377**
	(11.814)	(0.109)	(0.125)	(0.294)	(0.167)
Ln(taxes per 10 Th. inhab.)	205.300***	-0.699***	-0.433***	-2.167***	-0.106
	(5.102)	(0.047)	(0.054)	(0.127)	(0.074)
Ln(Non-earmarked tr) 5yr. av.	13.896*	-0.608***	-1.094***	-2.029***	-1.207***
	(7.735)	(0.071)	(0.081)	(0.193)	(0.102)
Ln(Earmarked tr) 5yr. av.	-22.829***	-0.293***	-0.188***	-0.383***	0.143***
	(1.684)	(0.016)	(0.018)	(0.042)	(0.023)
Min. Distance U.S.	-0.791***	-0.000	0.000	-0.013***	-0.000
	(0.044)	(0.000)	(0.000)	(0.001)	(0.001)
Distance Road	-4.807***	0.034***	0.019	0.093***	-0.043**
	(1.413)	(0.013)	(0.015)	(0.035)	(0.021)
Agric. Suitability	-60.337***	0.051	-0.214***	-0.808***	-0.696***
	(4.840)	(0.045)	(0.051)	(0.121)	(0.071)
Elevation	-0.098***	-0.001***	-0.001***	-0.002***	0.000*
	(0.016)	(0.000)	(0.000)	(0.000)	(0.000)
Area (in Th. km)	0.067**	0.001***	0.000	-0.000	-0.000
	(0.029)	(0.000)	(0.000)	(0.001)	(0.000)
Ln(Population Th.)	66.277***	0.013	-0.349***	-1.754***	-0.839***
	(5.613)	(0.052)	(0.059)	(0.140)	(0.082)
Constant	375.544***	26.604***	33.733***	125.404***	25.646***
	(106.139)	(0.977)	(1.119)	(2.646)	(1.405)
ACME	-15.979	0.052	0.033	0.169	0.009
Direct Effect	-148.98	2.1912	1.392	2.766	0.372
Total Effect	-164.962	2.243	1.425	2.935	0.381
% Total Effect Mediated	0.097	0.023	0.023	0.058	0.024
Observations	5,679	5,595	5,640	5,679	3,775
R-squared	0.540	0.344	0.220	0.257	0.097

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

TABLE A.8: Prosperity with Transfers

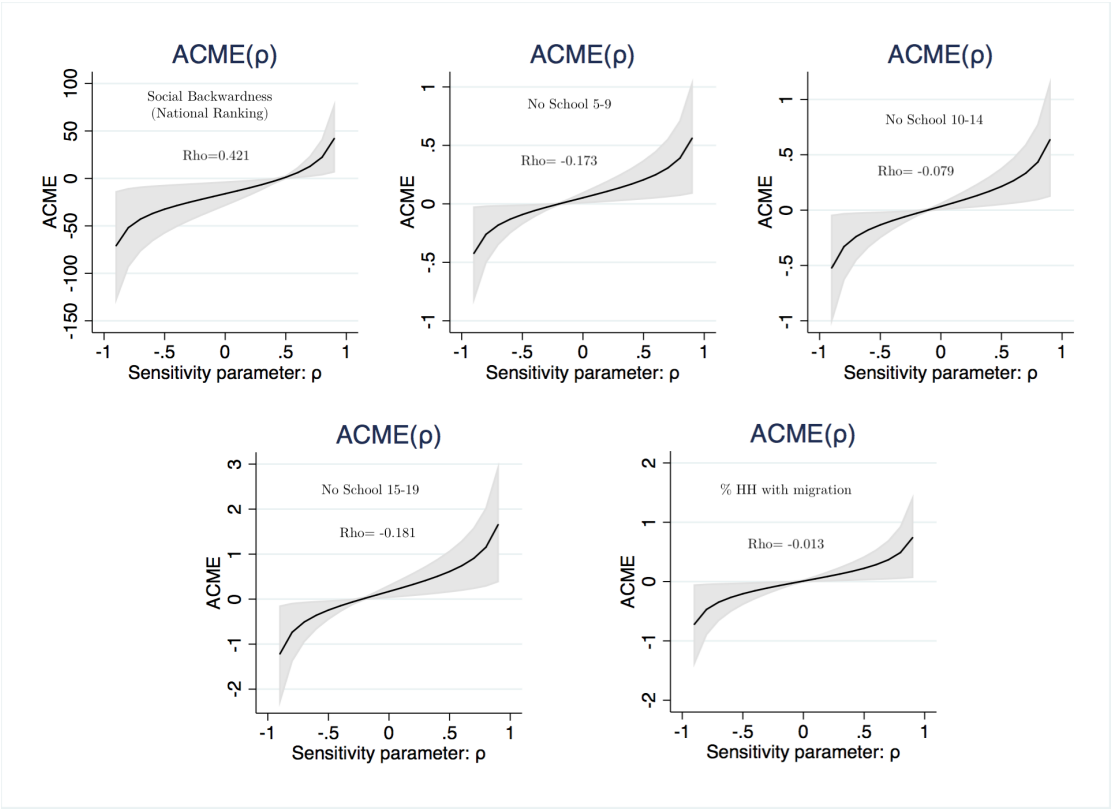


FIGURE A.4: Sensitivity Analysis- Prosperity (transfers)

Elaborated with data from INEGI, 2018

Appendix B

Découpage and Conflict in the DRC

B.0.1 Balance Table

Variable	(1) Not separated N/[Clusters]	Mean/SE	(2) Separated N/[Clusters]	Mean/SE	T-test Difference (1)-(2)
Conflict Events	3649	1.367	12384	0.234	1.134
	[5]	(0.846)	[21]	(0.069)	
Remote Violence	3648	0.014	12384	0.000	0.013
	[5]	(0.012)	[21]	(0.000)	
Riots & Protests	3648	0.189	12384	0.046	0.143
	[5]	(0.103)	[21]	(0.010)	
Violence vs. civilians	3648	0.449	12384	0.091	0.357
	[5]	(0.282)	[21]	(0.029)	
Battles	3649	0.566	12384	0.072	0.494
	[5]	(0.376)	[21]	(0.026)	
Strategic dev.	3649	0.150	12384	0.023	0.126
	[5]	(0.093)	[21]	(0.008)	

Notes: The value displayed for t-tests are the differences in the means across the groups. Standard errors are clustered at variable id_prov. ***, **, and * indicate significance at the 1, 5, and 10 percent critical level.

TABLE B.1: Prevalence of Conflict Before and After Découpage

B.0.2 Prevalence of Conflict: Probit Model

VARIABLES	(1) Total Events	(2) Remote Violence	(3) Riots & Protests	(4) Violence vs. Civilians	(5) Battles	(6) Strategic Development
A. All Provinces						
Period after découpage	0.028**	-0.002**	0.025***	0.018**	0.020**	-0.003
	(0.012)	(0.001)	(0.007)	(0.007)	(0.008)	(0.005)
Decentralization	-0.186***	-0.009**	-0.053***	-0.104***	-0.118***	-0.069***
	(0.040)	(0.004)	(0.019)	(0.026)	(0.026)	(0.015)
Effect découpage	-0.001	0.008	-0.007	-0.010	-0.005	0.026**
	(0.017)	(0.006)	(0.008)	(0.012)	(0.012)	(0.011)
Observations	16,033	16,033	16,033	16,033	16,033	16,033
B. No Kivus						
Period after découpage	0.021	0.000	0.012**	0.015	0.006	0.008*
	(0.021)	(0.000)	(0.005)	(0.012)	(0.014)	(0.004)
Decentralization	0.001		-0.017	0.012	0.009	-0.008
	(0.046)		(0.026)	(0.025)	(0.015)	(0.014)
Effect découpage	0.002		0.002	-0.009	0.004	0.004
	(0.023)		(0.006)	(0.013)	(0.016)	(0.006)
Observations	14,400	14,400	14,400	14,400	14,400	14,400

Robust standard errors in parentheses

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

Note: The coefficients represent the marginal effects of the probit model.

TABLE B.2: Presence of conflict