

**The Political Economy of Amazon Deforestation
Subnational Development and the Uneven Reach of the Colombian State**

Javier Revelo-Rebolledo
Universidad del Rosario

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Abstract

Radical changes have occurred in the Colombian Amazon region as a result of the relatively successful peace process between the Colombian government and the Revolutionary Armed Forces of Colombia (FARC). While the amount of violence has decreased, deforestation has increased, suggesting that good things do not always come together. My dissertation project studies this problem empirically and theoretically by assuming a long-term historical perspective. This paper—a condensed summary of three chapters of the dissertation—examines the political economy of deforestation in Caquetá and Putumayo, two Amazonian departments that, while otherwise similar, have experienced very different levels of cumulative deforestation. The paper provides evidence to support the claim that different levels of cumulative deforestation in the Colombian Amazon region are the result of different state-building strategies pursued by the Colombian state between 1948 and 1980.

Introduction

In September 2016, the Colombian government and the FARC guerrilla movement finally reached a peace agreement after a four-year peace process. When the agreement was still under negotiation, the United Nations Development Program (UNDP) and Colombia's National Planning Office (DNP) organized a public forum to debate "The Environmental Dividends of Peace." Former Colombian president Juan Manuel Santos was invited and, as expected, delivered a talk highlighting the benefits of peace. In addition to promoting economic development and public safety, Santos argued, "will give us the greatest environmental dividends." The logic of his presentation was simple: since violence was a cause of environmental degradation, peace would restore the environment to health. The environment was presented as a casualty of violence; one whose misery was about to end. Without violence, Santos added, peasants would not clear land to cultivate coca, insurgents would become guardians of the forest, the army would allocate additional resources to fighting environmental degradation, and the government would eradicate coca crops, develop marginalized areas, and protect additional lands. Colombia would flourish.

Santos' optimistic appraisal of the relationship between peace and the environment is not unique. In fact, it reflects a common view according to which a virtuous cycle links peace, development, and environmental protection. The Rio Declaration on Environment and Development is perhaps the most prominent example. Warfare, the Declaration asserts, is "inherently destructive" of sustainable development, and state capacity is necessary for environmental protection (The United Nations Conference on Environment and Development, 1992, Principles 15 and 24). This view presents a consolidated modern territorial state as a crucial means to resolving most social problems, including environmental ones.

Soon after the FARC demobilized, however, deforestation increased. The Colombian Institute for Hydrology, Meteorology, and Environmental Studies (IDEAM) has repeatedly shown that deforestation has accelerated in Colombia and particularly in Amazonia, a region where the FARC was once very influential (e.g., Ramírez, 2011; Vásquez, Vargas, & Restrepo, 2011). Contemporary dynamics of Amazonian deforestation may be revealing the *Janus* face of an otherwise successful peace process, one that could result in environmental degradation rather than conservation. The idea of a virtuous cycle of state consolidation and environmental protection has limited purchase in explaining countries like Colombia, where environmental

degradation is still relatively low and the state has historically been weak.¹ If environmental issues were problems of state consolidation, as the common view assumes, one would expect worse results in places like Colombia, the only Latin American country afflicted by an ongoing armed conflict. How, then, is it possible that a historically weak state like Colombia defies this popular understanding?

The aim of my dissertation project is to explore this question both theoretically and empirically by linking political science research on the modern territorial state with environmentalist knowledge about tropical deforestation. My project focuses on the socio-political drivers of Amazon territoriality deforestation, an environmental issue that touches on two defining features of the modern state: and violence (e.g., Foucault, 1991; Spruyt, 1994; M. Weber, 1968). Max Weber famously defined the state as “the form of human community that (successfully) lays claim to the *monopoly of legitimate physical violence* within a particular territory – and this idea of “territory” is an essential defining feature” (2004, p. 33). Accordingly, my research investigates the role of politics in explaining variation in levels of Amazon deforestation across different regions in Colombia. Existing literature on Amazon deforestation tends to emphasize economic and demographic explanations (e.g., Andrade, 1992; Armenteras, Rudas, Rodriguez, Sua, & Romero, 2006; Cabrera, Vargas, Galindo, & Ordoñez, 2011). Political variables have not only been understudied but marginalized within academic debates. For this reason, my dissertation represents one of the first book-length contributions by a political scientist to the study of the political economy of Amazon deforestation.

Although deforestation usually happens where the state is weakest, the clearance of land for farming has been closely associated with the economic and political integration of particular regions into the Colombian rural market and state project (LeGrand, 1986). This paper employs *Comparative Historical Analysis*² to advance an empirically-grounded and politically-oriented explanation for differential levels of cumulative Amazon deforestation in Colombia at the subnational level. Using a contextualized paired comparison between Caquetá and Putumayo, the two most similar Amazonian departments in Colombia,³ I provide historical evidence that these

¹ Colombia has usually been mentioned as a clear example of state weakness in Latin America and the third world. See, for instance, (Centeno 2002; Saylor, 2014; Soifer, 2015).

² See, among many others, Mahoney & Rueschemeyer (2003); Mahoney & Thelen (2015).

³ I am conducting a paired comparison (Tarrow, 2010) by benefiting from the Subnational Comparative Method (Snyder, 2001).

provinces were largely similar until the mid-1950s, when their development trajectories, and corresponding levels of deforestation, began to diverge as a result of the different state-building strategies promoted by the Colombian state between 1948 and 1980—that is, during the so-called developmental era.⁴ This paper is a short synthesis of three chapters from a book-length work in progress; as such, feedback is welcome.

Besides this introduction, the paper is divided into five main sections. The first provides a general overview of Amazon deforestation in Colombia. It emphasizes the existence of subnational variation and highlights the limitations of purely economic and demographic explanations for deforestation. The second section presents historical data on the Amazonian foothills in order to depict the long-standing ecological similarities between Caquetá and Putumayo. The third, fourth, and fifth sections describe how the trajectories of these provinces began to diverge during the developmental era. I then summarize my findings in a brief conclusion.

1. Amazon deforestation in Colombia

The Colombian Amazon region is an ecological region that does not perfectly coincide with political divisions. For example, Nariño, Cauca, Vichada and Meta departments have only a small percentage of their territories inside the Amazon region. These partially Amazonian departments are excluded from the analysis, because their development trajectories are very different. Thus, my research project is focused on those departments that are totally Amazonian, that is to say, Caquetá, Putumayo, Guaviare, Guainía, Vaupés, and Amazonas. These entirely Amazonian departments exhibit very different levels of cumulative historical deforestation.⁵ How can we explain different levels of cumulative deforestation among entirely Amazonian departments?

I suggest that cumulative Amazonian deforestation in Colombia depends on different *degrees* of economic and political integration of entirely Amazonian departments to the internal market and the Colombian state project. Put simply, high cumulative deforestation is the result of both higher economic as well as political integration. Different degrees of territorial integration

⁴ My research project is based on rigorous revision of secondary sources, more than ninety in-depth interviews with regional and rural leaders, and careful revision of three historical archives on regional development.

⁵ By *deforestation* I mean “the permanent clearance of a forest, usually rapidly, by cutting or burning over a large area, without replanting or natural regeneration” (Lanly, 2003, 15).

could be captured by three empirical strategies, whose results are summarized in Table 1. The first strategy measures the distance of each Amazonian capital city to the Andean mountain range (the nearest point to 900 meters above sea level). This very crude measurement is able to capture the spatial distance of each Amazonian capital city to the most integrated regions of the country.⁶ The second strategy measures if Amazonian capital cities could be reached by land and/or air.⁷ The objective is to identify available means of transportation connecting the most integrated parts of the country and the region of interest. The third strategy is about political integration and it is measured by the percentage of municipalized area of each Amazonian department.⁸ Table 1 and Map 1 present contemporary information on both territorial integration and forest cover.

Table 1. Integration and Forest Loss in the Colombian Amazon Region

Department	Capital City	Integration			Cumulative Forest Loss		
		Distance to the Andes (km)	Connection with Bogotá	Municipalized Area (%)	Lost Forest 2014 (ha)	Lost Forest (% of Total Loss)	Lost Forest per Population
Caquetá	Florencia	4.6	Land / Air	100%	2.342.521,2	49%	5,57
Putumayo	Mocoa	0.8	Land / Air	100%	731.938,9	15%	2,36
Guaviare	San José del Guaviare	184.8	Land / Air	100%	703.834,4	15%	7,36
Guainía	Puerto Inhírida	516.63	Air	22%	492.842,6	10%	13,98
Amazonas	Leticia	880.14	Air	7%	282.940,8	6%	4,17
Vaupés	Mitú	480.36	Air	53%	182.212,3	4%	4,63

Table 1 is useful to illustrate how high levels of historical deforestation are associated with different levels of both economic and political integration (measured by the spatial distance to the Andes, the type of connection with Bogotá, and the percentage of municipalized area). These three measures that capture the *degree* of territorial integration are able to divide the entirety of Amazonian departments into two groups that coincide with high (Caquetá, Putumayo, and Guaviare) or low (Guainía, Amazonas, Vaupés) levels of cumulative deforestation. Among

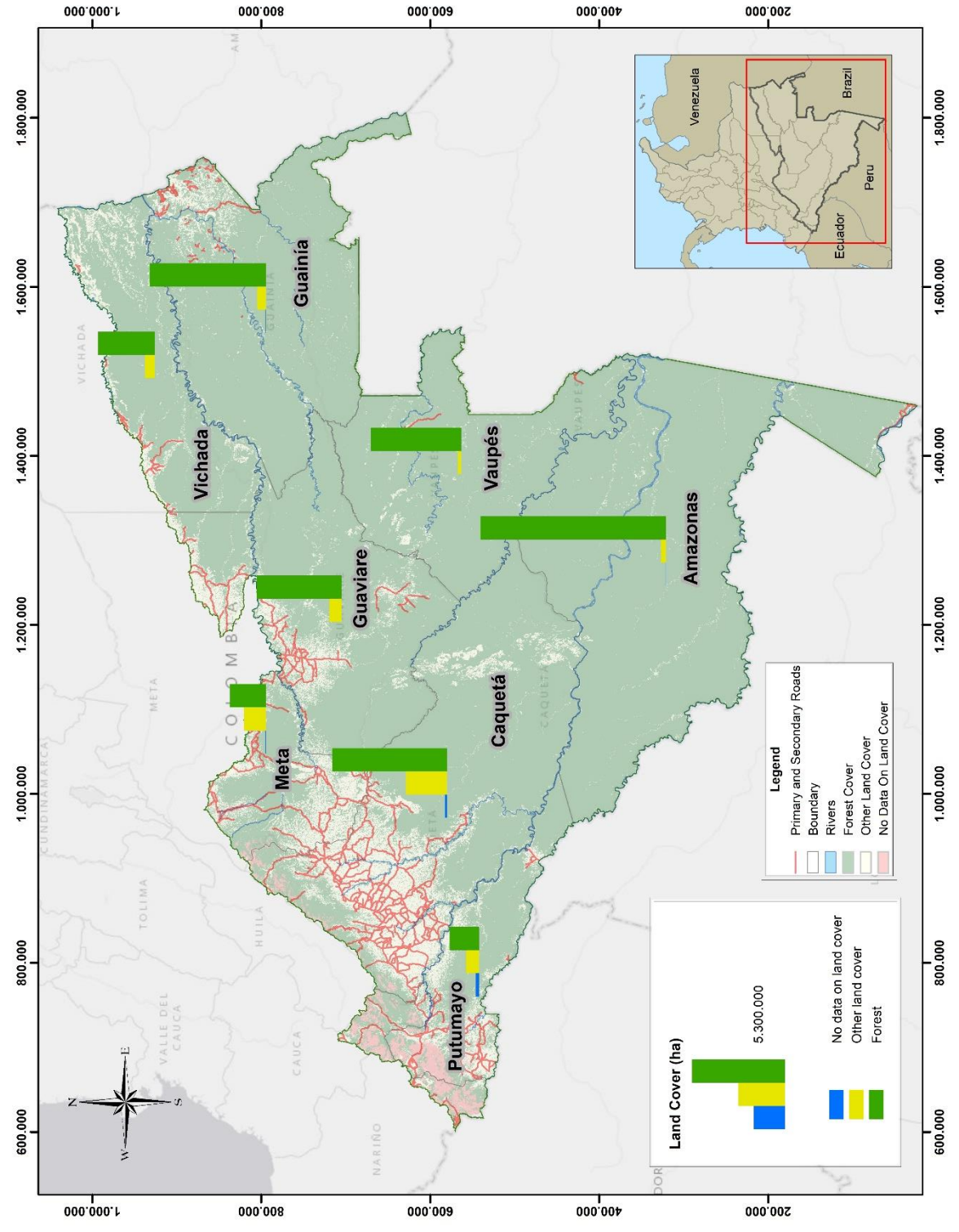
⁶ This strategy does not consider the particular characteristics of terrain, which make easier or harder to connect each capital city with the most integrated centers of the country. If terrain “friction” is taken into account, *time* and not space will be a much better measurement of distance. However, if time was measured, the difference between more or less integrated provinces will be wider than basic spatial distance.

⁷ It focuses on land and air means of transportation and excludes rivers, since the Andean mountains prevent *direct* fluvial communication between most important centers of population and Amazon departments. Naturally, it is possible to combine land and river transportation to access some of these capital cities. This crude measurement is designed to capture direct access. It does not mean that rivers are meaningless in the Amazon region.

⁸ In theory, every part of the Colombian territory needs to belong to a municipality. However, there are several territories in the Amazon region that are not part of a municipality and have not been recognized as such.

the three most integrated Amazonian departments, Caquetá is clearly an extreme case: it is the department with the highest cumulative deforestation. However, since Putumayo and Guaviare have also high levels of economic and political integration, the question on different levels of cumulative deforestation remains partially unanswered. In this context, by comparing the two most similar frontier regions in the Amazon region -Caquetá and Putumayo– with different levels of historical forest loss one may be able to explain the complex linkage between forest loss and the *type* of integration to the internal market and the state project.

Map 1. Integration and Cumulative Forest Loss in the Colombian Amazon



2. The Amazonian Foothills Before Divergence

Caquetá and Putumayo are very similar cases that yet have different outcomes with regard to cumulative deforestation. They have never been crucial centers of government nor development in Colombia. Less than 2% of Colombians live in these departments, which together produce less than 1% of the national GDP (Meisel, Bonilla, & Sánchez, 2013). They are part of the historical peripheries of the Colombian state, whose very condition could be traced back to pre-colonial times when a centralized political order and economy was barely formed. The peripheral condition of this region has continued during colonial and post-colonial times. Furthermore, Caquetá and Putumayo are not only part of the same ecological region but also share the most fundamental ecological and geographical characteristics. The territories of Caquetá and Putumayo are located on the eastern Andes, the foothills of the Andean mountain range and the large plains of the Amazon region (see Map 1). Their shape follows the basic course of most Andean-Amazonian rivers, which arise on the highlands and flow to the great Amazon river in Brazil. Therefore, Caquetá and Putumayo are similar in terms of their only enduring development characteristics and their ecological, geological and geographical endowments.

There are some historical development differences between Caquetá and Putumayo. However, these differences suggest that Putumayo used to have higher levels of economic and political development than Caquetá. There is some historical evidence to argue that Putumayo was more influenced by European colonizers that were interested in gold and Indian labor.⁹ Early developments, nonetheless, were less consequential than one may think at first, because they followed typical boom-bust cycles (Gómez López, 2015). After the independence from the Spanish empire, for example, most missionaries of the Colombian Amazon region left the zone, which promoted the disappearance of several towns. Therefore, both regions were still very similar at the beginning of the nineteenth century, because early differences did not leave profound long-standing legacies.

The second half of the nineteenth century brought similar influences to both regions. Two very consequential extractive booms –the quinine and the rubber booms- influenced the two regions of interest at roughly the same time. During these booms, the entrance of merchants, the exploitation of indigenous peoples, the foundation of new towns and the construction of different

⁹ Indigenous populations were, in fact, higher in Putumayo compared to Caquetá (Pineda Camacho, 1987).

trails to connect their more developed neighbors in the Andean region markedly augmented (Zárate, 2001). Despite these general similarities, scholars have mentioned some differences between Caquetá and Putumayo during these booms. While the Putumayo river is completely navigable, the Caquetá river is not: an apparently minor difference with important consequences. Thanks to this difference, the rubber boom was more consequential in Putumayo. This was so as most commerce flowed to Brazil through the Putumayo river (Ciro, 2008). Trade and transportation networks are powerful development forces even under extractive economies. It is not random that widely known abuses of rubber merchants' against indigenous groups occurred on the Putumayo river basin (e.g., Taussig, 1986). Despite these differences, it seems that extractive booms had similar impacts on both regions. However, if the legacies of extractive booms are emphasized, it is worth noting that their influence points to a different direction: integration in Putumayo was much higher when compared to Caquetá.

In political terms, both regions were also very similar. During the nineteenth century, Caquetá and Putumayo were part of the same political unit, which first belonged to Cauca and then to the great territory of Caquetá. Politically, at the end of the nineteenth century and during the first decades of the twentieth century, both regions were influenced by the Capuchin missionaries, who were promoting "civilization" in both regions. State-like functions were formally delegated to the Catholic Church, which soon became the political, civic and religious authority of the Colombian Amazon region (e.g., Bonilla, 2006; Serje, 2011; Uribe, 2017). Differences among Caquetá and Putumayo were, once again, a matter of degree and point in a different direction. The Church was more interested in Putumayo than Caquetá because controlling the international border was necessary to protect Colombian sovereignty from the Peruvian threat.¹⁰ Victor Bonilla (1968) famously argued that Capuchin monks were not only serving god but also governing indigenous peoples. The Capuchin monks were projecting Colombian state power in the Amazon region, and Putumayo was not only the headquarter of the mission but also a border territory. Caquetá was, so to speak, a periphery of the Capuchin mission.

¹⁰ Amazon territories only became an object of international dispute between Colombia and Peru during the rubber boom. Merchants from both countries reached the region, and claim for additional government support. Peruvian merchants prospered quicker and moved further north. The Peruvian government in turn favorably responded to their claims and projected its territorial claims (e.g., Weinstein, 1983). Several disputes occurred during the first decades of the century, which finally ended in 1932 with a limited war between both countries.

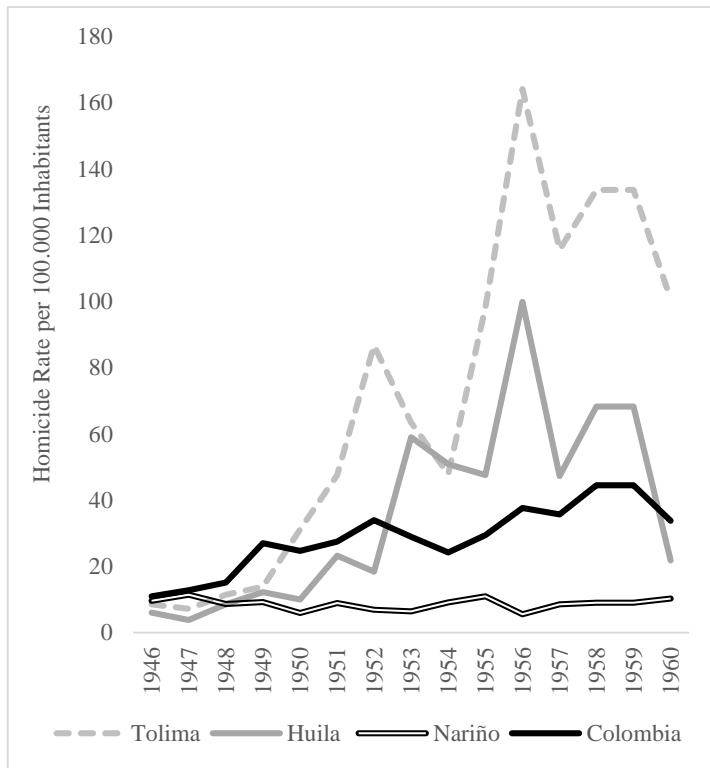
When the international war between Colombia and Peru finally broke out in 1932, the Colombian state quickly implemented infrastructure projects that configured a circuit to defend its territories in the Amazon region. The effects of the war are a typical example of a war that makes the state or, put simply, a state that deploys power to face an international threat (e.g., Thies, 2005; Tilly, 1992). The international dispute between Peru and Colombia was a means to deploy power by building infrastructures that not only allowed the army to reach the region quickly but also promoted settlement of more or less reliable people. In particular, the Colombian army continued and finished two roads: one to connect Caquetá with neighbor Huila and other to link Putumayo with neighbor Nariño (Uribe, 2017). The army also opened new military bases and hospitals. Many soldiers were supported to settle in boundary regions (Uribe Ramón, 1998), who became reliable peasants along the Putumayo river.

3. Two Roads Diverged

Until the onset of the international war, Caquetá and Putumayo had followed two very similar paths. As a result, no substantial long-standing difference among these Amazonian departments is crucial for explaining different levels of cumulative forest loss. However, after the war, the tenuous integration of the Amazonian foothills to the Colombian state project started to change.

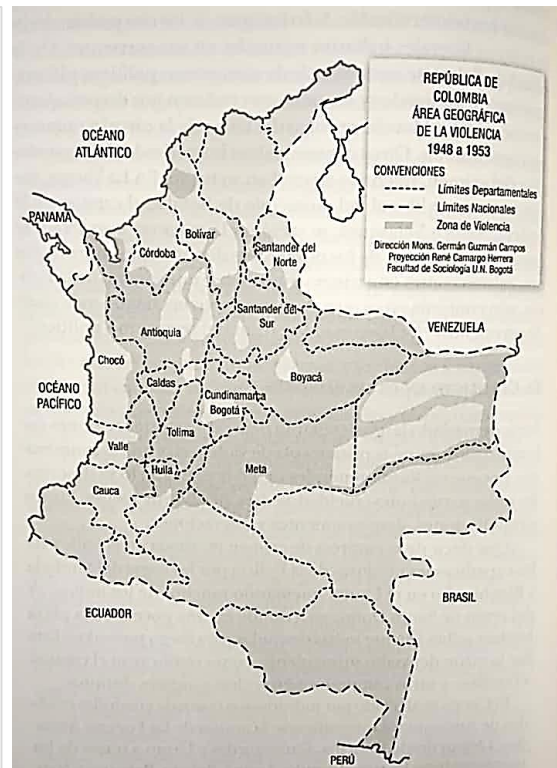
Divergence among these regions is closely related to settlement dynamics. At this moment, it is important to highlight the formative role of political violence in the most integrated parts of Colombia. *La Violencia* is the name that historians use to talk about political violence between 1946 and 1960. During this time, forced displacement from violent regions increased, which end up populating several peripheries of Colombia (e.g., González, 2014; Guzmán Campos, Fals Borda, & Umaña Luna, 2005; Oquist, 1980). Although the population grew in both Caquetá and Putumayo, the *timing* and *scope* of this migration were different. Different levels of violence in neighbor departments (Nariño, Huila, and Tolima) explain varied patterns of internal migration towards the Amazonian foothills. Partisan violence in Huila and Tolima was much higher than Nariño, which were respectively above and below the national average (see graph 1 and map 2).

Graph 1. Homicide Rate in Neighbor Regions (1946-1960)



Source: Chacón (2004) based on Colombian Police

Map 2. La Violencia (1948-1953)



Guzman et al (1964) based on Departamento de Información y Estadística Criminal de la Policía Nacional

There is no specific information about forced displacement during this time. However, one could reasonably assume that higher homicide rates in Huila and Tolima, from where most of Caquetá's settlers arrived, was an important reason behind not only earlier but also higher migration towards Caquetá. Migration to Putumayo that resulted from political violence was less prevalent. Caquetá, unlike Putumayo, started to become a serious concern for national leaders interested in preventing the reproduction of violence in the Amazonian foothills (Marsh, 1983). Table 2 presents a brief summary of these divergent paths of territorial integration, which will be further explained in parts four and five of this paper.

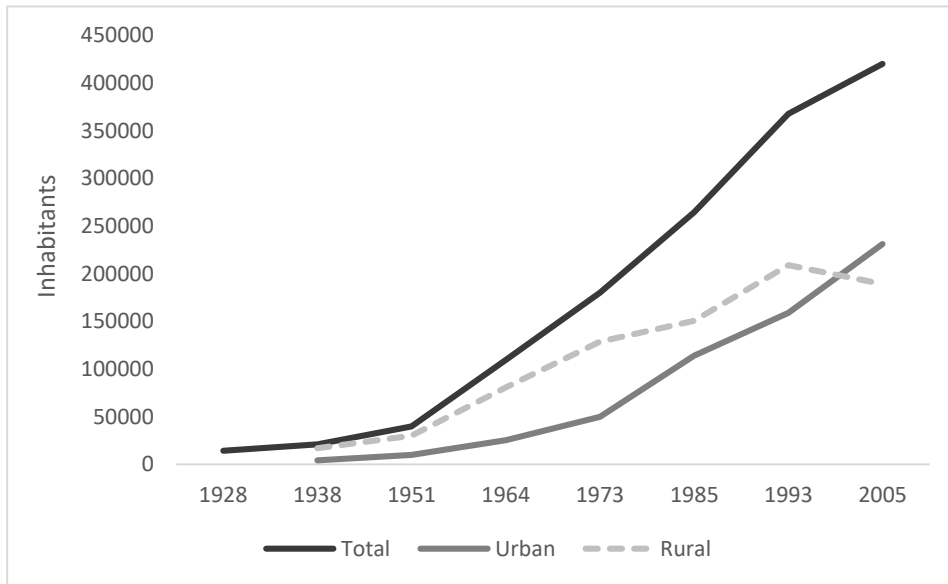
Table 2: Comparative historical analysis of the Amazonian foothills

Period	Domain	Farming integration path (Caquetá)	Extractive integration path (Putumayo)
Pre-conditions	Strategic interests	From low to high importance (internal threat)	From high to low importance (external threat)
Developmental Era (1958-1980)	State-led agenda	Agrarian	Extractive
	Commercial farming consolidation	High	Low
	Commercial farming democratization	High	N/A
Post-Developmental Era (1980-	Capital investments	Constant, stable and unlimited demand for farming products	Interrupted, unstable and limited local demand for farming products
	Coca cultivation	Complemented and facilitated transition to legal farming. <i>Mid influence</i>	Became dominant. <i>High influence</i>
Cumulative deforestation		High	Mid

4. Caquetá During the Developmental Era: Defining a Farming Path

Peasant settlement and cattle farming not only consolidated but also democratized between 1948 and 1980 in Caquetá. Although population had slowly increased before the fifties, it is worth noting that Caquetá's population rocketed during the second half of the twentieth century. Graph 2 illustrates population growth over time in Caquetá. The graph shows how the most important demographic change occurred between 1951 and 1964 when the population increased by 175%. During this time, livestock farming not only consolidated as a dominant economic sector but also became somewhat available to poor settlers. It was, so to speak, an authentic demographic and developmental *Big Push*.

Graph 2. Population in Caquetá (1928-2005)



Source: Colombia's National Statistics Department (DANE). Historical censuses

In 1952 colonel Juan B. Córdoba published a *Geographical Compilation of the Intendance of Caquetá*, which provides a complete baseline to understand the economic and political situation of Caquetá at the beginning of the Big Push.¹¹ Roads and trails are useful starting points to this end. Córdoba's book emphasizes that Caquetá had only two proper roads at that time. The first one, from Florencia to Gabinete (63km) in neighbor Huila, was built during the international war with Peru. The second one, from Florencia to Montañita (36km), connected Caquetá's capital city with *Larandia* (the farm of the Lara Family). Therefore, Florencia and Montañita were the two most integrated towns of the moment. Apart from these two roads, Caquetá's population had to use trails of varied quality and rivers to move throughout the region (Brucher, 1974).¹² This tenuous integration was about to change during the next years.

State intervention. Although commercial livestock farming had already been introduced to Caquetá before the developmental era by private investors from neighbor Huila, the Colombian state played a crucial role during this time: it decisively contributed to the consolidation of the sector and, more importantly, made livestock accessible to less established

¹¹ In 1952 Puerto Leguízamo was part of Caquetá. However, general information of this municipality is excluded from this section, because it nowadays belongs to Putumayo.

¹² One week of travelling was necessary to reach Huila. Because Caquetá's towns were poorly connected among them, it was more efficient to cross the Andes twice in order to move up or down (Melo Rodríguez, 2016).

settlers. In 1959 the *Caja Agraria* (the *Caja*) was legally authorized to invest part of its resources on leading settlement projects in different regions of the country (Law 20 of 1959). Three settlement projects were implemented in Caquetá: La Mono (in Belén de los Andaquíes), Maguaré (in El Doncello) and Valparaiso. The *Caja* assigned a plot of land of around 50 hectares to every selected settler and fed them during the first years.¹³ Despite mixed results, it is worth mentioning that state-directed colonization in Caquetá, compared to Putumayo, was more prevalent,¹⁴ because the *Caja* did not implement a similar project in Putumayo.

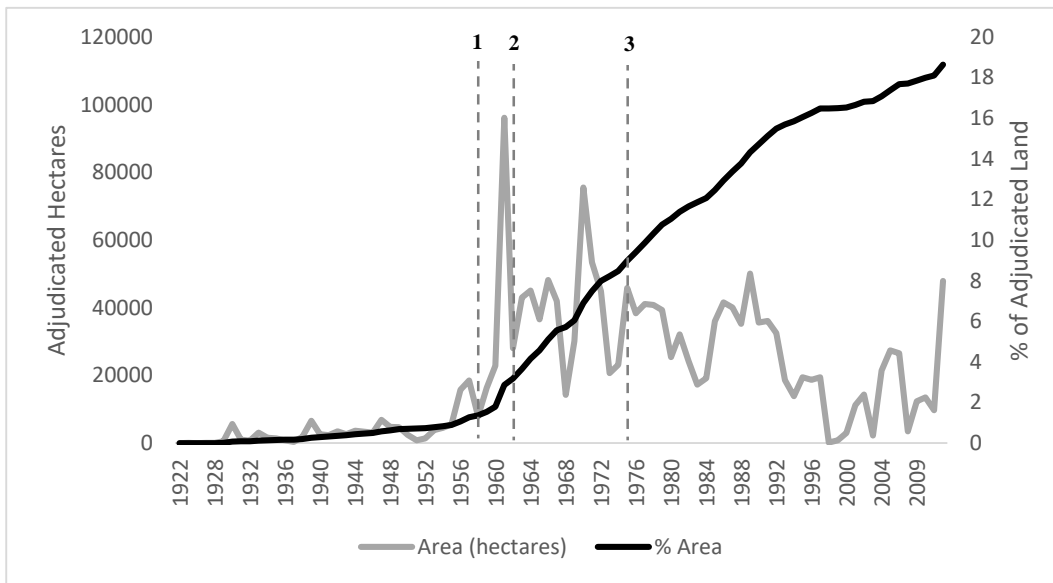
The majority of settlers in Caquetá, as in the case of Putumayo, was not state directed. The Colombian state has historically moved “behind” settlers (Salgado, 2012). State action was mostly focused on supporting settlers that had moved to the region without state support (a phenomenon that is usually known as spontaneous colonization). The allocation of public land to landless peasants has been one of the main instruments used by the Colombian state to this end (graph 3). In other words, the privatization of the “commons” (so-called public land) has been a frequent historical answer to pervasive land inequality. However, land allocation did not always occur due to bureaucratic slowness, conflicting interests, and/or institutional limitations.¹⁵

¹³ By 1962 The Agrarian Bank had promoted the settlement of around 500 families (Marsh, 1983).

¹⁴ It has been said that settlers lacked agrarian experience, which made the adaptation to the new environment more difficult (Centro Nacional de Memoria Histórica, 2017).

¹⁵ One of the main historical constrains to allocate public land to landless peasants is the existence of a forest reserve, which was created in 1959 (Law 2nd). However, this reserve has been repeatedly redrawn in order to allow the allocation of public land to landless peasants.

Graph 3. Allocated Public Land Area in Caquetá



1 Caja Agraria / 2 INCORA / 3 Nestlé

Source: INCODER

Credits were an additional instrument to support peasant settlement in Caquetá. At the end of the fifties, the *Caja* was not only the first financial institution in the region but also the first public agency whose main goal was to consolidate settlement. Most credits were meant to support livestock farming by providing money and animals to settlers. Thanks to the *Caja*, several settlers were able to find the start-up capital that was necessary to raise cattle. The *Caja Agraria* lent 4.5 million Colombian pesos in 1959 and 17.7 million in 1963: an increase of 394%.¹⁶

State-directed settlement, allocation of public land and credits for the rural sector continued during the sixties, when a new state agency was created: the Colombian Agrarian Reform Institute (INCORA) (Melo Rodríguez, 2016; Tovar Zambrano, 1995).¹⁷ Law 135 of 1961 explicitly promoted peasant settlement as a way to facilitate access to land without challenging

¹⁶ AGN, Ministerio de Gobierno, INCORA, 1967, p. 268.

¹⁷ State-led internal migration also brought to Caquetá indigenous groups that were initially treated as if they were landless peasants. In 1964, for example, the Colombian army and the Agrarian National Federation (Federación Agraria Nacional) promoted the migration of indigenous groups from Tolima (*Pijaos*) and recognized an indigenous reservation in San Vicente del Caguán (Yaguará II). Not surprisingly, several indigenous peoples have adopted production techniques that are similar to those used by peasants in the region (Marsh, 1983).

the land tenure system in other regions of Colombia (Albertus, 2015).¹⁸ INCORA allocated public land, built roads,¹⁹ schools, and health care centers, gave credits and technical assistance, promoted peasant organizations, and invested in preventing malaria. A former director of INCORA in Caquetá explained to me that the agency “promoted livestock farming by giving credits to peasants, credits that were characterized by low-interest rates and four years of grace period” (interview 6). An official report of the time explained that 16.410 families were benefited and that around 400.000 female cows and 11.000 bulls were financed.²⁰ Not surprisingly, INCORA became the most important state agency in Caquetá. A retired politician explained that, during the sixties and seventies, being the regional director of INCORA was more important than being the governor of the province (interview 11).

State intervention during the late fifties and sixties was definite to consolidate livestock farming by promoting upward mobility of some landless peasants that were able to become cattle ranchers. Livestock farming was somewhat democratized during this time, and raising cattle became an economic activity implemented by both rural elites and an emerging rural middle class.

Legal market intervention. State agencies and institutions were not the only actors that intervened to consolidate and democratize cattle farming in Caquetá. In 1974, Nestlé arrived and not only built the first pre-condensing plant but also started to buy milk from Caquetá’s ranchers. The company quickly configured the so-called dairy district of Caquetá. Nestlé also lent money to settlers to promote genetic innovation that improved productivity and to facilitate the acquisition of cooling facilities (Vásquez, 2015). Nestlé also started to pay for ranchers’ product every fifteen days (Tovar Zambrano, 1995). In this sense, the very entrance of a relatively constant demand for milk contributed to consolidate a flexible farming system in which cattle were used to produce both meat and milk (*ganadería doble propósito*). Those without the

¹⁸ Caquetá’s INCORA branch was created in 1963 (resolution 25) and it quickly became one of the three most important branches in charge of promoting colonization (in addition to Arauca and Ariari).

¹⁹ With the aim of connecting most important fluvial ports (along Caquetá, Caguán and Orteguzaza, Pescado and Peneya rivers) with the road (marginal de la selva), the INCORA built the following roads: El Doncello – Maguaré – Río Negro – La Esmeralda – Puerto Manique – Maguaré, Albania – Curillo, Morelia, Valparaiso-Solita, Paujil-Cartagena, Libano-La unión Peneya, km5-San Antonio de Getuchá, Lusitania-Tres Esquinas del Caguán. INCORA’s investments were important because, until the early fifties, settlement had followed a linear pattern from the west to the east. Settlement followed rivers’ shape because they were the most important means of transportation. Thanks to state, rivers were substituted by roads and settlement started to follow a north-south pattern (Brucher, 1974).

²⁰ AGN, Ministerio de Gobierno. INCORA, 1970, Report.

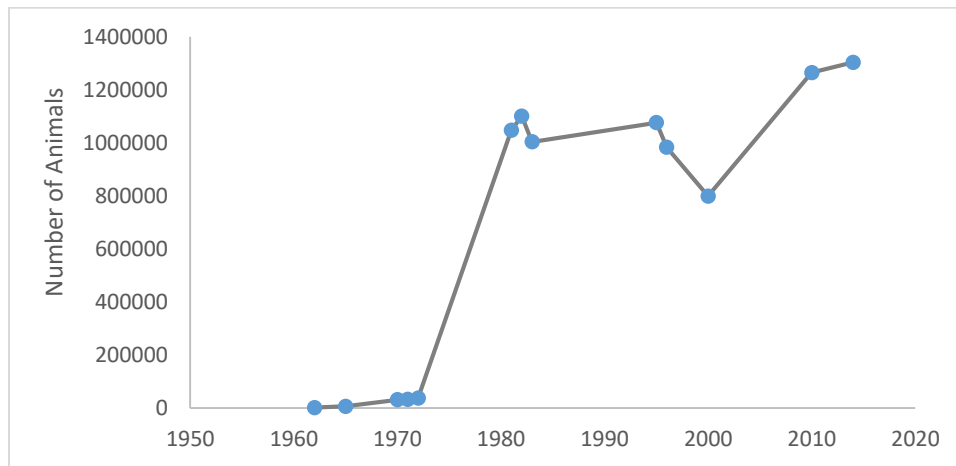
capacity to raise cattle and to wait for long periods until animals get their full weight, found the alternative of selling milk. The milk district made livestock farming more accessible, which also contributed to the consolidation of small and mid-size ranchers.

In the late seventies, Nestlé was the only buyer of milk with a clear market monopoly. Although people complained about unfair prices and payment delays, the social importance of the company is widely recognized (Marsh, 1983). Although Nestlé's demand for milk increased over time, two economic transformations have further developed Caquetá's livestock economy. First, the initial monopoly of the company was diminished during the eighties when local companies started to emerge.²¹ Second, milk is no longer the only dairy product that is being demanded. During the last three decades, cheese has slowly become a promising economic alternative for local populations, because it does not perish as quickly as milk and it does not need to be cooled (interviews 22, 30). The meat market has always been important, but it is mainly developed by large cattle ranchers who are able to wait for long periods. Small ranchers rarely sell their animals. A small-scale rancher explained in an interview that "having a cow is like having a bank account: anyone will buy it" (interview 3).

As a consequence of both early state action and late market developments, cattle farming consolidated and somewhat democratized in Caquetá between 1948 and 1980. Graph 4 illustrates the amount of livestock that is raised in Caquetá over time.

²¹ There are also intermediaries that buy the milk from cattle ranchers and sell it to Nestlé.

Graph 4. Total Livestock in Caquetá (1960-2015)



Source: Caquetá's Governor Office. Historical Archive.

The consolidation and somewhat democratization of the livestock economy is, thus, the historical baseline to explain high cumulative deforestation in Caquetá. The next paragraphs quickly illustrate the strong link between livestock farming and forest loss.

Soils in the Amazon region are highly acidic and, by Western standards, are poorly suited for commercial agriculture. The Colombian Geographic Institute Agustín Codazzi (IGAC) has argued that farming is not the “vocation” of Caquetá’s soils.²² The fact that most soil in Caquetá is used for raising cattle creates a typical land-use conflict in which local populations have a different idea of “vocation”. It unveils a profound disagreement about the productive vocation of the region. Agrarian agencies do recognize this structural limitation when adjusting the Family Agricultural Unit (UAF), which is formally defined by the minimum amount of land that a family, given the agro-ecological conditions of a region, needs in order to make its living.²³ While one UAF in the Andean region is around 5 hectares, in the Amazon region it ranges from 80 to 1000 hectares (Vásquez, 2015). An implication of this recognition is that the size of land by itself does not mean much given varied agro-ecological conditions. Large land area is institutionally conceived to compensate for acidic soils. In this context, livestock farming in Caquetá has become extensive farming, because one or two hectares are used to raise one animal.

²² Soils are not only old, but also constantly washed by rainfall.

²³ Law 160 of 1994, art. 38. A similar idea had been recognized in 1961 (Law 135), which introduced the concept of a UAF for the first time.

However, the amount of land area is not the only alternative to compensate for soil quality. In theory, it is still possible to improve soil quality by investing capital in machinery and fertilizers. Since the alternative is costly, it is more profitable to buy, rent or clear additional land.²⁴ Wealthy ranchers tended to buy or rent additional land where access to the market and state services is easier. Settlers with less economic capacity have faced strong incentives to sell their lands. If they are young enough and violence allows it, starting a new farm is always an option where roads and state services are lacking (Tovar Zambrano, 1995). Either cheap or even “free” public land has always been available. Extensive livestock farming in addition to low capital investments, has promoted an informal market of recently-cleared (formally) public land.

Roads are a crucial part of the story because they facilitate the interaction between buyers and cattle ranchers, who have access to both the market and basic state services (Moreno Guerra, 2015). Not surprisingly, being close (or not) to a road makes a substantive economic difference. Roads are a limiting condition to enter the dairy market, because buyers have routes to collect a product that is perishable.²⁵ Peasants and ranchers do understand how the market works and the clear difference between having a road or not. As a result, they tend to promote the construction of roads. Some of these roads were built by the state itself. However, others were built by local populations, which are naturally proud of their effort. State support is demanded to keep, improve, enlarge and pave their roads. Roads are perhaps the most important public good that communities in Caquetá have both demanded and built.²⁶

Livestock farming produces milk, cheese, meat or skin, thanks to the consolidation and democratization of a free dairy market, in which buyers –international, national and local- are

²⁴ The use of fire is a modified version of the ancestral slash-and-burn agriculture system that has been used by indigenous peoples in the Amazon region and rural populations in the tropics.

²⁵ Although the meat and cheese markets would also benefit from a road (transportation costs will be low), its existence is not a necessary condition (Tovar Zambrano, 1995). Animals are usually sold alive, and animals can walk (and lose weight-price on their way). Curled cheese could also be produced without being close to a road, although transportation costs tend to be higher. Unlike milk, cheese is able to resist Amazonian temperatures and humidity for a long time. For this reason, cheese could be produced even in distant places where coca is also produced. Perhaps for this reason, coca growers do tend to employ terms of cheese production when explaining cocaine production.

²⁶ Communities have solved a collective action problem because most people collaborate to build and keep roads working. *Mingas* and collective efforts are promoted to solve this problem, but –as far I have listened in the region- it is still a problem. In some cases, the role of the FARC was crucial in organizing local populations and sanctioning free riders. Roads do not connect two markets, which means that one side is usually much more developed than the other. As a consequence, communities that are located in the last parts of the road are interested in guarantying that the road works from the beginning (interview 3). By contrast, those that are close to the main market tend to be less interested in the road that is further away.

constantly reaching new suppliers. Producers themselves, who are constantly expanding the agricultural and livestock frontier, make sure to be reachable by building and maintaining a complex road network. The successful collective action of local populations in building and keeping roads has made this marriage between demand and supply possible.

Illegal market intervention. Caquetá is a department where coca has been cultivated and cocaine has been produced since the late seventies (Ciro Rodríguez, 2016). Not surprisingly, milk and coca have become the only two rural products with an assured demand.²⁷ Well-established buyers do reach the farm or at least the zone to buy the product. While the milk market is highly dependent on the existence of proper roads, the cultivation of coca and the production of cocaine is not. Coca cultivation and production is most profitable when it is implemented beyond the most integrated areas, which are usually covered by forests. In these places, the product could not be easily discovered and stopped.

Certainly, both coca cultivation and cocaine production have an important role in explaining Caquetá's high deforestation. However, since coca is also produced in Putumayo, where cumulative deforestation is lower, the effect of the illegal market needs to be further specified. Although coca cultivation requires some land clearance, direct forest loss is not the main driver of deforestation: coca plantations used to be very rare and are inexistent nowadays (Salgado, 2012). Based on qualitative evidence and several interviews conducted in the region, one could argue that coca cultivation and cocaine production have mainly an indirect impact on forest loss. Furthermore, the indirect impact is even more consequential than the direct one. I suggest that coca cultivation has become an important driver of forest loss in the region, because it has contributed to further consolidate and democratize the livestock economy.

The relationship between the illegal and the legal economy is very fluid. There is no clear division of labor between ranchers and coca growers, that is to say, economic specialization is not always the rule. Some people do produce for both markets at the same time (Ciro Rodríguez, 2016). Coca growers in Caquetá have had the alternative to invest on cattle and pastures and, at the same time, cattle ranchers do have the option to grow coca to sustain a legal farm. Different interviewees have explained how they are able to inhabit both markets over time (interviews 2,

²⁷ Rural products like yucca, plantain, coffee or maize need to be transported to the urban markets by peasants themselves.

10, 22).²⁸ Coca does promote forest loss not only by introducing incentives to clear land but also by speeding the final entrance of pastures.

In conclusion, high cumulative deforestation in Caquetá is the result of a relatively well-established and somewhat democratized livestock system, which is, in turn, the product of early state interventions and late private investments. The entrance of coca at the end of the seventies reinforced and amplified the trend, because it further promoted the establishment and consolidation of the cattle economy.

5. Putumayo During the Developmental Era: Defining the Extractive Path

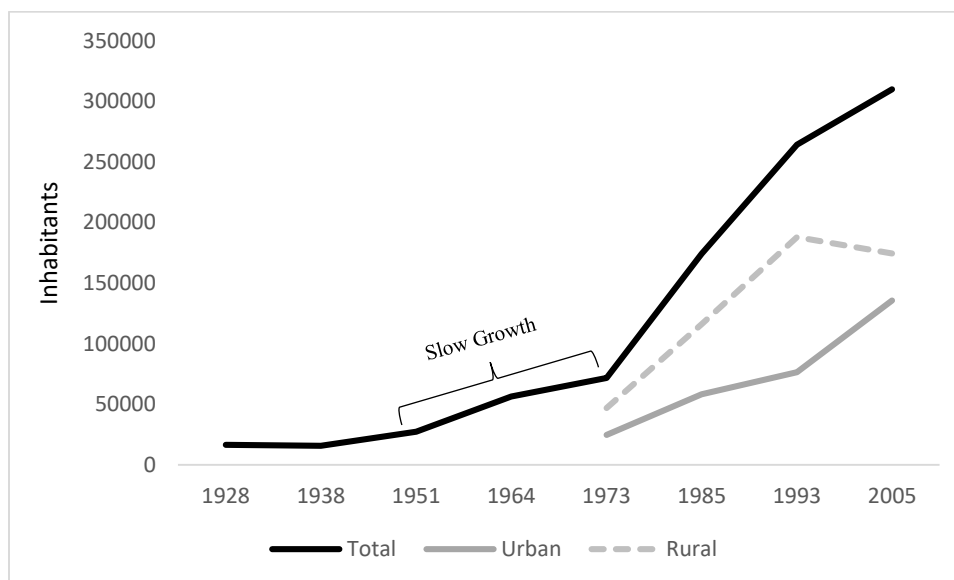
Between 1948 and 1980, Putumayo started to follow a path that, compared to Caquetá, explains lower levels of cumulative deforestation. Economic development and settlement of Putumayo were also promoted during the developmental era. However, state action was different in kind, because oil extraction rather than livestock farming was promoted. As a result, by the end of the developmental era, commercial (legal) farming had barely consolidated in Putumayo.

Population growth in Putumayo was slower than Caquetá. There are at least three reasons that could explain this difference. First, between 1948 and 1960, partisan violence in southern Colombia was low (see graph 1). Violence among the two traditional parties in Nariño, from where most settlers moved to Putumayo,²⁹ was much lower in comparison to Huila and Tolima's violence (Centro Nacional de Memoria Histórica, 2015, p. 72). Second, capital investments from outside were mostly limited to the upper Putumayo region where soils are fertile and transportation is easier. Finally, the Colombian state did not introduce the same incentives to promote massive migration to Putumayo. In comparison to Caquetá, migration to Putumayo was much lower between 1951 and 1973. Graph 5 illustrates population numbers in Putumayo over time and shows an increasing trend that was still moderate until 1973 and very rapid afterward.

²⁸ Sometimes the division of labor exists and people do not produce for only one market. Even in these cases, ranchers and coca growers need to coordinate in order to promote common objectives for rural development.

²⁹ Around 72% of people living in Putumayo was from Nariño in 1964 (Brucher, 1974, p. 86).

Graph 5. Population in Putumayo (1928-2005)



Source: Colombia's National Statistics Department (DANE). Historical censuses

Economic and political integration of Putumayo during the developmental era was mostly linked to the extraction of oil, which was first discovered in the forties and then extracted in the early sixties (Realpe Jiménez, 1992).³⁰ In order to drill Putumayo's oil, the Colombian government signed a contract with the *Texas Petroleum Company*, which allowed the company to build the necessary facilities. In the beginning, Texaco settled on Santana (northern Puerto Asís) and employed helicopters to transport engineers and workers to the future sites of the oil wells. Roads were not built at first and settlers had to use rivers to follow infrastructure investments. However, the initial approach markedly changed in 1966 when the first road to connect Santana and Orito (the camp of the oil wells) was built. The project stimulated migration of settlers that wanted to trade, get hired or colonize new land (Centro Nacional de Memoria Histórica, 2015, p. 105; Devia, 2004). Settlement of the lower Putumayo rapidly increased, although the aggregate population of the province was not high (see graph 5). Texaco also built a pipeline (oleoducto transandino) to transport Putumayo's oil to the Pacific in Tumaco (Nariño). This pipeline was first used in 1969 and its construction also promoted the entrance of new settlers to the area of influence (Centro Nacional de Memoria Histórica, 2012). Finally, Texaco built a refinery and a

³⁰ Texaco's decision to invest in the region came just after the Colombian state finished a road connecting Puerto Asís with Puerto Caicedo in 1957.

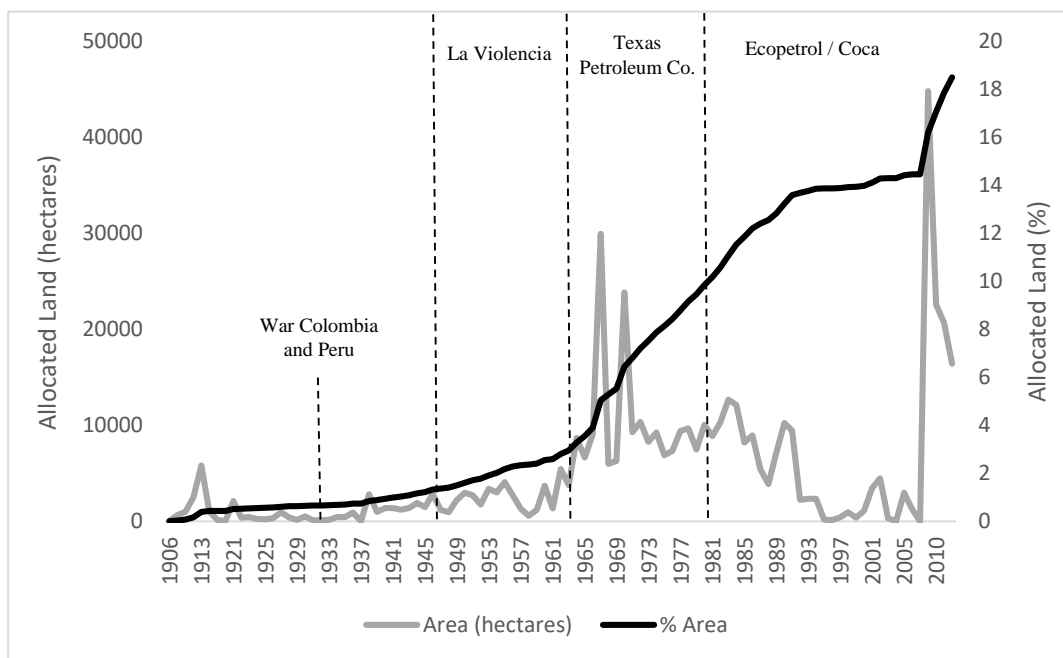
road to connect Orito with San Miguel.³¹ Thanks to these self-interested infrastructure investments, the oil company became during the sixties and early seventies, so to speak, the INCORA of Putumayo.

However, road networks are necessary but insufficient to consolidate a proper farming economy. Putumayo was not a priority of the agricultural agenda of the state during the developmental era. For example, the *Caja* did not implement state-directed settlement projects in Putumayo during the fifties (Devia 2004), as it did in Caquetá. It seems that the agricultural agenda of the state in Putumayo basically focused on the allocation of public land to landless settlers. To this end, it was necessary to subtract an important part of the reserve forest in 1966 (Law 2nd). However, the administrative decision energized conflicts between the oil company and settlers around the formal recognition of public land (Centro Nacional de Memoria Histórica, 2015).³² Graph 6 shows the amount of area that has been allocated to private hands in Putumayo over time. The allocation of public land was high between 1967 and 1971, just after the subtraction of the reserve forest.

³¹ The initial goal was to extract Ecuadorian oil through this pipeline.

³² Conflicts about land ownership between Texaco, settlers and indigenous peoples became very common. The main losers of this historical process were indigenous groups (Sina, Cofan and Inga), who used to inhabit the region and were further displaced (Centro Nacional de Memoria Histórica, 2015). The Colombian state signed a contract with Texaco and, based on this document, the company claimed ownership of indigenous land and tried to prevent peasant settlement. When the reserve forest was subtracted in 1966, after the private contract, the company had fewer legal tools to oppose peasant settlement, which markedly increased during that time. Indigenous land was first occupied by the oil company and then by incomers that were looking for the economic opportunities that the company opened.

Graph 6. Allocated Public Land in Putumayo



Source: INCODER

In this context, the allocation of public land to private hands was one of the few strategies of the agricultural agenda of the state in Putumayo. The intervention of the INCORA, created in 1961, was not very consequential in the region. There were neither state-directed settlement projects nor large-scale investment projects like Caquetá I and II. Not surprisingly, in Putumayo INCORA used to have very few state officials, who were administratively dependent on neighbor Nariño (interview 25). Although the minor significance of INCORA in Putumayo, it is necessary to mention the project *Putumayo I*, which was an investment project to change rural conditions in upper Putumayo, in a place where the farming sector was much more consolidated (Centro Nacional de Memoria Histórica, 2015). Apart from this very localized project, it is very difficult to find historical evidence about the agrarian agenda of the state in Putumayo during this time. Existing secondary literature, reviewed historical archives, and interviewees are, generally speaking, very silent on the role of state agencies like INCORA in Putumayo. State action was mostly limited to the allocation of public land to those that had migrated by themselves.

There is important evidence suggesting that the oil economy, by contrast, was not able to sustain and establish most settlers. Unskilled labor was demanded during the construction of roads, oil wells, and the pipeline. However, when those infrastructures were built, the demand for local unskilled labor collapsed (Devia 2004). While some incomers left the region, others decided

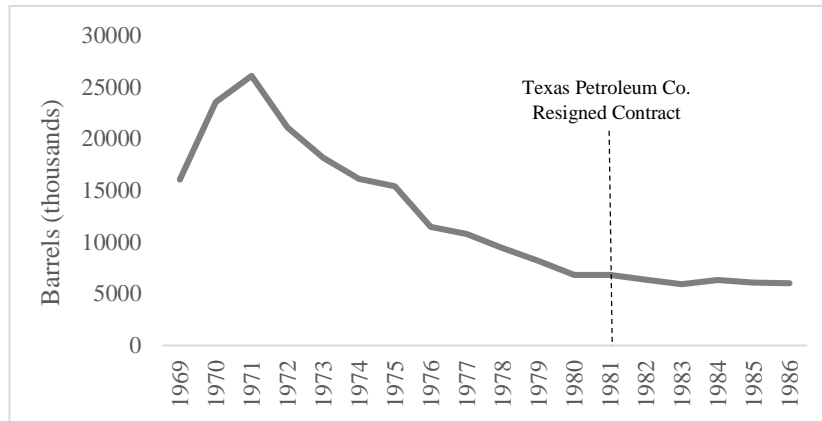
to stay to cultivate rice, bean, cane, plantain, maize and yucca (Torres Bustamante, 2011). Commercial livestock farming was also implemented during this time, but it was less dominant compared to Caquetá. Farming became an economic alternative for those that the oil economy did not absorb, but the commercial rural market was poorly consolidated.³³ As a result, the farming sector was less consolidated when coca cultivation and cocaine production reached lower Putumayo in the late seventies. The reinforcing effect produced by the interaction between the illegal and the legal farming economy was simply impossible.

The Colombian state highly profited from Putumayo's oil, which not only increased total exports but also left important royalties. In 1975, for example, at least 27% of the Colombian oil was extracted in Putumayo (Realpe Jiménez, 1992, p. 18). However, the relative importance of Putumayo started to vanish when oil extraction started in Casanare and Arauca. Furthermore, Orito's oil reserves were quickly diminished³⁴ and Texaco resigned the contract. Oil extraction in the region was directly assumed by the state-owned Ecopetrol. Graph 7 shows the number of barrels of oil that were extracted in Putumayo between 1969 and 1986. An initial peak was followed by a sustained decrease.

³³ As it happened in Caquetá, the IDEMA (Instituto de Mercadeo Agropecuario) was the agency in charge of regulating the prices and buying most rural products. The IDEMA built facilities to buy products in both Puerto Asís and Valle del Guamuéz.

³⁴ In 1990 around 3% of the Colombian oil was extracted from Putumayo. However, the importance of oil extraction in Putumayo did not vanish. In 1985, at least 54% of Putumayo's GDP depended on mining (Realpe Jiménez, 1992).

Graph 7. Produced Barrels of Oil in Putumayo (1969-1986)



Source: Devia (2004, p. 83), based on official data provided by Ecopetrol

In conclusion, during the developmental era, the integration trajectory of Putumayo was radically changed. The Amazonian province that used to be the center of economic and political development during the Capuchin mission at the beginning of the twentieth century slowly faded. Instead of promoting the consolidation of commercial farming in Putumayo, the Colombian state implemented a purely extractive strategy that experienced a typical boom and bust cycle. Cumulative deforestation in Putumayo was the result of peasant's settlement and private investments that followed the oil industry (oil wells, roads, pipeline). A poorly consolidated commercial farming sector in which no product is clearly hegemonic is the main explanation of low cumulative deforestation in Putumayo.

6. Conclusion

The objective of this paper was to present the basic logic of a paired historical comparison between two Amazonian provinces in Colombia—Caquetá and Putumayo—as a strategy to explore the role of politics in explaining subnational variation in levels of cumulative Amazon deforestation. Although Putumayo and Caquetá had similar levels of both economic development and population density before the international war between Colombia and Peru, cumulative deforestation in Putumayo is lower than in Caquetá. By comparing these two departments of the Amazonian foothills, the two most-similar such departments in Colombia, I offered an empirically-grounded theory to explain the ways in which different trajectories of economic and political integration impact cumulative deforestation.

My argument suggests that subnational variation in levels of cumulative deforestation can be explained by the *degree* and *type* of territorial integration into the internal market and the state project. In particular, I argue that high cumulative forest loss in Caquetá is the result of a particular path of economic and political integration, in which commercial cattle farming consolidated and democratized as a result of early state-building strategies implemented during the development era. By contrast, low cumulative deforestation in Putumayo is the result of a markedly different state strategy of economic and political integration. The Colombian state in Putumayo focused on promoting oil extraction instead of supporting the consolidation of a proper commercial farming system. By the end of the seventies, when coca crops reached the Amazon foothills, Caquetá and Putumayo were moving along two very different integration trajectories. While coca cultivation reinforced the legal economy in Caquetá, it quickly became the only rural product in Putumayo.

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- No. 2: Rancher and coca grower in Belén de los Andaquíes, Caquetá, May 15, 2016.
- No. 3: Rancher in Florencia, Caquetá, May 17, 2016.
- No. 6: Former Director of INCORA in Florencia, Caquetá, January 14, 2018.
- No. 10: Rancher and Coca grower San Vicente del Caguán, Caquetá, May 18, 2016.
- No. 11: Politician in Florencia, Caquetá, February 2, 2016.
- No. 22: Rancher in Belen de los Andaquíes, Caquetá, May 16, 2016.
- No. 25: Former Director of INCORA in Mocoa, Putumayo, July 6, 2015
- No. 33: Public servant of ICA in San Vicente de Caguán, Caquetá, May 20, 2016.