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The rise of mass education in Colombia in the first half of the twentieth century

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"The rise of mass education in Colombia in the first half of the twentieth century"

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Dedication

To the memory of my father, Armando Fuentes Santander,
for instilling in me the gene of intellectual curiosity from an early age

A la memoria de mi padre, Armando Fuentes Santander,
por inculcarme el gen de la curiosidad intelectual desde temprana edad

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List of Acronyms

BRICs	Brazil, Russia, India, and China Countries
DANE	Departamento Administrativo Nacional de Estadísitica
EUROSTAT	European statistical office
FEDECAFE	Federación Nacional de Cafeteros
GDP	Gross Domestic Product (GDP)
GER	Gross Enrollmente Rate
GRECO	Grupo de Estudios del Crecimiento
IBE	International Bureau of Education
ISCED	International Standard Classification of Education
Latam	Latin American countries
OCDE	Organization for Economic Co-operation and Development
UNESCO	The United Nations Educational, Scientific and Cultural Organization
WWI	World War I

Introduction

Latin America is the most unequal region in the world, more so than even East Asia or Sub-Saharan Africa (World Bank 2006). Some studies associate the high levels of inequality to the path dependence of the colonial legacy (Engerman and Sokoloff 2012; Frankema 2009a), while others link it to policies adopted in the early twentieth century, from the pre-World War period to the 1970s (Bértola and Williamson 2017; Williamson 2015)(Williamson 2015)(Williamson 2015)(Williamson 2015)(Williamson 2015). By that time, the so-called "Great Leveling" occurs, which means that while many nations reduced their high levels of inequality, Latin America failed in its attempts to do so. As part of this debate, Goldin (2001) argued that education has been the key element in reducing inequalities.

Colombia is still a long way from achieving full coverage of education, as are many other countries in Latin America. While great strides have been made in some fields, such as gender equality (Baten, *et al*. 2010), many children still do not enjoy the same opportunities to access education. According to the National Statistics Department (DANE in its Spanish initials), in 2019 several regions did not exceed 55% of enrollment in primary education, while others did not exceed 25% in secondary education. Most of these inequalities in the provision of education have longstanding causes (Ramírez and Salazar 2007; Ramírez and Téllez 2007), since the current educational system has its roots in a model that was devised at the beginning of the twentieth century (Ghotme 2013). España-Eljaiek (2017, 2019) states that the persistence of the discriminatory nature of colonial regimes, as reflected in the design of educational policies, prevented some regions from transferring the benefits of the first wave of globalization to better educational performance.

Moreover, during the first half of the twentieth century, Colombia experienced critical structural changes economically, politically, demographically, and institutionally. These changes mostly occurred at the end of the twentieth century after a major civil war of the country (Thousand Days' War, 1899-1902) arising out of the political rivalry between the Liberal and Conservative parties. The war resulted in the country's almost total economic devastation, the destruction of most of its infrastructure, the weakening of the state, and the subsequent separation of Panama. The Conservative Party emerged victorious from the war and remained in power until 1930. The reconstruction of the country was based on the export economy, mostly on income received from the export of coffee at the time of the boom. Around the coffee industry, new industries and services emerged, increasing the demand for labour and initiating urbanization (José Antonio Ocampo 1999). This process of reconstruction was also based on a model of territorial decentralization. By then, a differentiated model had been chosen according to its

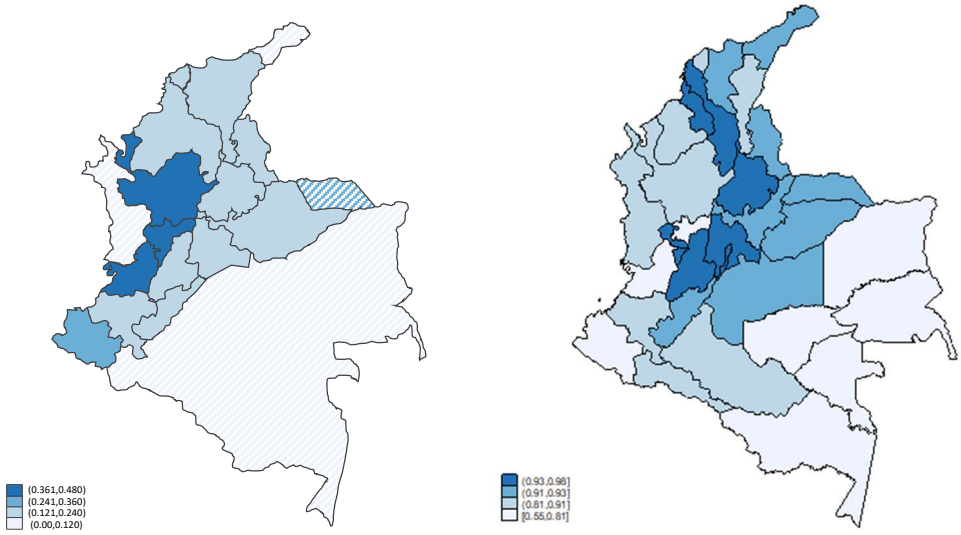
capacity to collect taxes and the presence of the indigenous population (Helg 2001). This territorial organization involved an administrative differentiation of regions into departments (located in the centre of the country) and national territories (situated on the periphery).[1] While the departments had full fiscal autonomy, the national territories depended entirely on the state.

This process had implications for education from the perspectives of both supply and demand. In some respects, it can be said that right decisions were made that resulted in the reduction of educational inequalities, but others had a negative direct or only indirect impact on educational coverage. On the one hand, due to the financial incapacity of the state, a policy of decentralizing the financing of education was chosen, which caused significant regional inequalities in coverage. On the other hand, due to the growing demand for labour generated by coffee exports and the emergence of new industries and services, there were both negative and positive implications for the demand for education as a result of the tradeoff between studying and working.

This thesis therefore seeks to determine the crucial elements that shaped educational outcomes and to highlight the lessons that can be learned in continuing to develop the future of educational policy in Colombia, as well as in other countries with similar historical trajectories. For this purpose, this research has used unpublished sources at sub-national scales to build a national picture, since the evolution of educational outcomes has not been homogeneous throughout the country. On the contrary, educational outcomes have been conditioned by the geographical, economic and institutional features of each region. Figures 1 give enrollment rates of primary and secondary education in 1915 and 2019 by department. Analysis of the figures shows the need to conduct regional analyses, since the evolution of the trajectory of educational coverage has not been homogeneous. Also, it can be observed that the mapping of this coverage has changed little in a century, so to understand current regional inequalities, it is necessary to resort to long-term analysis. For this reason, in this research, I have built regional series from 1900 to 1958 in my efforts to establish the determinants of educational outcomes because it was during this period that most of the legal bases of the Colombian educational system were laid down (Ghotme 2013).

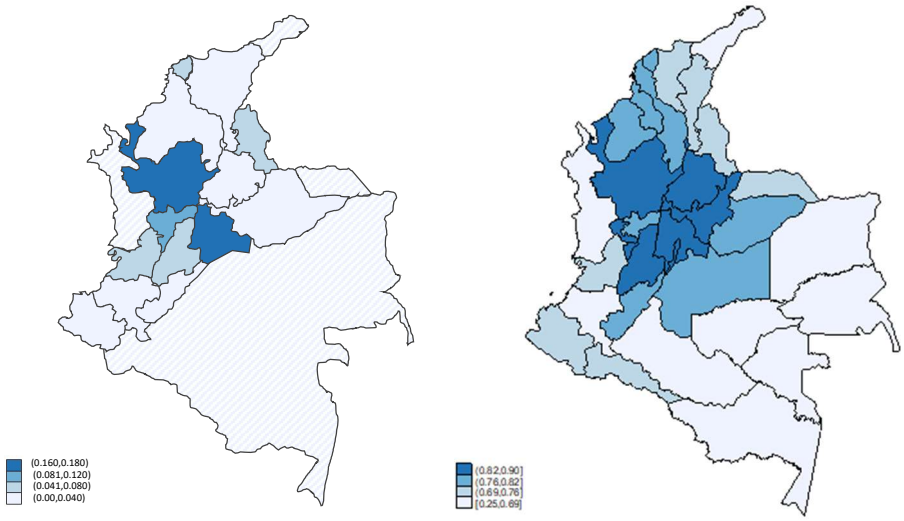
[1] The 1886 Constitution established a new territorial organization in which the federated states became departments and new administrative entities were created for the most peripheral areas called national territories.

Figure 1. Gross enrollment rates in primary education in 1915 and 2019.



Source: data for 1915 from Statistical Yearbook for 1915 and Population Censuses for 1912, for 2019 from DANE. Note: the grated area corresponds to the national territories

Figure 2. Gross enrollment rates in secondary education in 1915 and 2019.



Source and notes: see Figure 1.

One of the main drawbacks of approaching regional analyzes at the time was that previous works have only built series for the central regions of the country (Ramírez and Salazar 2007). Therefore, in the first chapter, I have built long-term annual series for all territories for both primary and secondary education to understand why Colombia failed in its attempt to reduce inequality during the period of the so-called Great

Levelling. By answering this question, I have been able to identify patterns and mechanisms that have served as the basis for developing the rest of the research.

This first chapter of this thesis helps us to contextualize the Colombian case from a comparative perspective. For this reason, I focus on providing a comprehensive view of different international debates on the determinants of the country's investment in education, with particular emphasis on the Latin American case. Also, I describe Colombia's institutional, economic and geographical characteristics, and take a broad journey through the history of education during the first half of the twentieth century. In addition, the main country's educational reforms are described, as well as the political and social motivations involved in the design of educational policies. By the same token, in this chapter, I compare the educational performance of Colombia with other countries in the region and in developed countries. This comparison leads to the following main conclusions: a) Colombia maintained high rates of illiteracy and low enrollment rates throughout the first half of the twentieth century, unlike the countries of the southern cone, which performed better; and b) figures from Colombia and Latin America on female participation in primary and secondary education at the aggregate level were similar to those of the most advanced European economies.

Regarding the construction of the regional series, given that the structure of educational programmes changed considerably during the first half of the twentieth century, I have adapted data on the Colombian education system to the International Normalized Classification of Education (ISCED) of 2011. Later, based on the previous classification, I built a series for students enrolled in primary school disaggregated into public, private, rural and urban education. Regarding secondary education, the information on enrolled students was grouped into three types of training: academic, professional and teacher training. For both primary and secondary schooling, the data were disaggregated by gender. Finally, once the series for the number of enrolled students was constructed, I estimated the school-age population to build enrollment rates.

The results allow us to identify different patterns between regions that help us understand why Colombia failed in its attempt to create mass education for the entire country. The main finding is that the different enrollment rates seem to be associated with institutional, ethnographic and economic characteristics. Regarding primary education, we see that the territories where industrialization began had higher coverage rates. These departments had a long tradition of coffee growing, so there may be a direct connection with investment capacity, as suggested by Ramírez and Téllez (2007). Although these departments maintain high enrollment rates throughout the period, there is stagnation and/or decline in the years of the coffee boom, which took place in the 1930s. Contrary to what is observed in the most industrialized departments, the periphery of the country, mainly populated by indigenous peoples, was far below the levels of the central area. Exceptionally, two territories in the periphery, San Andrés and Chocó, moved away from low educational coverage to some extent. In both cases, these territories made a local effort to improve and expand the coverage of mass education.

Secondary education was also mainly public, with few exceptions. Here too, the series shows that only the most highly industrialized departments of the country had educational performance far superior to the rest of the country. Besides, these

departments had higher enrollment rates in academic education compared to the rest of the country. Also, there was a significant increase in vocational education and teaching training after the 1930s, which seems to be related to the specific needs of the emergence of new industries. Additionally, as with primary education, Chocó and San Andrés deviate from the general trend and have higher enrollment rates in teacher training, showing that there was great interest in ensuring that there were no problems with the availability of teaching staff.

Regarding gender analysis, the results suggest that from a regional perspective there was gender segregation. Apropos primary education, the series shows more boys than girls enrolled in most territories except for those located on the Caribbean coast. This pattern can be observed from the beginning of the century in some cases, but in others only from the 1930s. This difference is apparently explicable by the fact that most Caribbean families are constituted on the basis of a free union from which men are absent, i.e. are one-parent families with the mother as the parent, which could have increased women's interest in educating their daughters. Finally, the secondary education series has a single general pattern: more female enrollment in the first decades of the twentieth century, a trend later reversed. At first sight this may be surprising, but from examining the quality of education, we can see that most women were enrolled in private, not in public education. Until 1933, a private school was the only option for girls to receive a quality education, since the law segregated the quality of public education by gender. Consequently, despite the fact that statistics show more women than men in secondary school in the first decades of the century, the reality was that female secondary education was not comparable to male education in quality terms.

Returning to the question of why Colombia failed in its attempt to reduce inequality during the period of the so-called Great Levelling, the findings suggest that there were limitations in terms of access to education that excluded a large proportion of the population, either due to a lack of provision or to low demand for it.

While in Chapter 1, the series are eloburated and the main patterns highlighted, in the following chapters, I delve into some of features that may contrast some of the hypotheses that were previously suggested. In Chapter 2**,** I dwell mainly on two points. First, I analyze Colombia's educational coverage from the supply perspective and relate the model of the financial decentralization of education adopted at the beginning of the twentieth century to the uneven evolution of the provision of education in the longer term. Secondly I relate the expansion of education in some departments to adaptation to changes in the demand for rural and urban education.

Regarding the financial decentralization model of education, the Colombian literature suggests that the differences in regional incomes and in local decisions on levels of spending on education persist today (Meisel Roca 2011). Although regional gaps in educational coverage have been reduced in recent decades, differences in quality have become the central problem. Nowadays, the areas with the lowest coverage rates at the beginning of the twentieth century still show the worst results in mathematical and language skills, even though educational coverage has improved considerably. These differences have become persistent in the longer term (Galvis and Meisel Roca 2013),

especially between departments located at the centre and on the periphery of the country, respectively.

In order to assess the relationship between investment in education and educational coverage, aggregate series were built for spending on education at the national, departmental, and municipal levels. These series shed light on the role of departmental investment in the expansion of mass education, since it was evident that the most significant weight of investment in education was neither national nor municipal, but departmental. Therefore, annual data were collected for educational spending by department. Some previous series already existed, described by Ramírez and Téllez (2007), for departments located in the centre of the country between 1925 and 1950. Here I have completed their series with data for 1918-25 and 1950-58 and have included all Colombian departments, including those in the periphery. Although my analysis of this information is mainly descriptive and does not seek to show causalities, it does identify patterns and mechanisms. The results of this analysis suggest that there is a high level of correlation between fiscal capacity and enrolment rates, so that the higher the investment per school-age child, the higher the primary enrollment rate.

Regarding the relationship between the level of urbanization and the expansion of mass education, the literature recognizes the role of the big cities in accumulating human capital. Lucas (1988), for instance, argues that large cities foster spillovers of knowledge that drive economic growth. As a consequence, literacy rates and average educational attainment levels tend to be higher in urban areas than in rural areas (Williamson 1988). To come closer to this debate, in this chapter I analyzed the relationship between the degree of urbanization and primary enrollment rates at the subnational level. To do that, I used the series on rural and urban education constructed in Chapter 1 and estimated regional series for the percentages of rural and urban populations from population censuses. The results of the analysis show that territories with the highest enrolment rates adapt better to changes in the demand for rural and urban education. However, only Antioquia, Atlántico, Cundinamarca, Valle del Cauca and Caldas managed to absorb the demand for urban education. In Antioquia, for example, educational policies promoted rural education. Consequently, a large number of schools were founded in very remote rural areas, accounting for almost half the total number of primary schools.

Overall, the main conclusion of this chapter is that improving the financing of education and adapting educational policies to local needs can improve educational outcomes and therefore break the persistence of interregional inequalities over time.

From the point of view of the demand for education, in Chapter 3, I discuss the impact of the coffee boom on school enrollment rates. About this matter, the existing Colombian literature argues that this agrarian commodity provided resources for coffee-growing areas, which improved the supply of education subnationally in the long term (Ramírez and Téllez 2007). Despite this, the series constructed in Chapter 1 shows that during the 1930s, primary enrollment rates in coffee regions stagnated or decline, leading us to wonder about the relationship between the coffee boom and the drop in schooling in the short term.

Most of the literature on agricultural societies focuses on how specific agrarian structures might or might not allow institutional arrangements to emerge, thus democratizing the supply of schooling (Bértola and Ocampo 2013; Nugent and Robinson 2010, Galor et al. 2009; Sokoloff and Engerman 2000). Despite the importance of agrarian commodity production in supplying schooling, the literature overlooks the flip-side of this story, that is, the impact of commodity-based structures on the demand for education. This omission is particularly problematic when analyzing contexts of persistent poverty in which underprivileged parents readily sacrifice their children's schooling in order to improve household incomes (Bhaskar and Gupta 2012, Beegle et al. 2006, Dammert 2008). This suggests that any combination of poor household conditions and commodity shocks is likely to affect the demand for education.

During the late nineteenth and early twentieth centuries, coffee became the main Colombian export, turning the country into one of the world's leading coffee producers. Most coffee was produced in a context of extreme poverty, in a rural society with a low interest in education, in areas challenging for the introduction of technologies, intensive in labour, with crop-growing tasks suitable for children and, more importantly, making intensive use of family labour, child labour included (Escobar and Ferro 1991 Arango 1981; Machado 2001; Ocampo 2015). Therefore, the main argument made in this chapter is that coffee production boosted child labour more than any other rural activity, consequently depressing educational outcomes such as primary enrollment rates and literacy.

Little has been studied about the impact of commodity-based structures on the short-term demand for education. The evidence is contradictory in this regard, especially for Latin America. Empirical work has shown that the demand for children's education might be countercyclical; that is, it increases during crises in commodity production (Jensen 2000; Ferreira and Schady 2009; Shah and Steinberg 2017) and declines during production booms (Carrillo 2019). Indeed, the impact of commodity shocks on the demand for schooling is conditional on additional factors such as family wealth (Kruger 2007). To address this debate, historical evidence from early twentieth-century Colombia has been used to examine the short-term effects of the coffee commodity boom on the demand for schooling subnationally.

In order to test this hypothesis, whether this system of agrarian commodity production discouraged the demand for education subnationally, it has created a new historical database at the municipal level to conduct cross-sectional regressions. This database has information on coffee production, education and socioeconomic variables. However, due to the lack of data on child labour in this period, it uses two methodological strategies. First, the regressions include coffee-harvest months and non-coffee agrarian products controlled by the urbanization level in each municipality. The inclusion of coffee-harvest months allows us to determine whether municipalities with more months during periods of schooling show lower enrolment rates. Also, a counterfactual model was estimated to confirm that a lower educational performance is associated with coffee-specific characteristics rather than with Colombia's agrarian economic structure, so the impact of coffee crops on educational outcomes was compared with that of other agrarian products. Secondly, to validate the econometric results, the quantitative

exercises have complemented with systematic qualitative evidence regarding the relationships between coffee, child labour and education.

The main results show that coffee cultivation had a negative impact on the Gross Enrollment Rate and literacy. The results also show that, when it is controlled by the level of urbanization, coffee has a negative impact on both rates, the results being contingent on the level of rurality. The more rural an area and the more coffee it grows, the more negative the impact on educational outcomes will be. Moreover, the exercises corroborate the hypothesis that more months of harvesting per year reduces educational outcomes, while non-coffee products are not associated with poorer educational performance, unlike the case of coffee. That is, the results of the counterfactual analysis showed that cultivating other products is not associated with the poorer educational results that are observed in the case of coffee cultivation. Finally, the qualitative analysis showed that child labour was a structural phenomenon of producer areas that depressed educational outcomes. The archival research also indicated that, although the literature claims that the coffee boom generated positive synergies in the accumulation of capital and the development of the coffee regions and the country, it led to peasant children stopping studying in order to help in the tasks of collection and processing.

Continuing with the analyzes from the perspective of the demand for education, Chapter 4 studies the impact of liberal legal reforms to the economic and social condition of women in reducing the gender gap in education.

Although gender inequality in education persists in most developing countries, in Latin America it is lower nowadays than elsewhere in the developing world. Bértola and Ocampo (2012) suggest that the narrowing of this gap emerged in part from the adoption of liberal reforms at the beginning of the twentieth century. The present work aims to build on Bértola and Ocampo's insight using Colombia as a case study and drawing on new empirical evidence. To do this, this chapter examines the impact of liberal legal reforms related to the abolition of the marriage bar and educational equality on the demand for female education, implemented in 1932 and 1933 respectively.

Colombia's Republic was established in the nineteenth century. Great efforts were made within the nation state's project to promote mass education. However, these efforts were not entirely successful, and women remained marginalized. Public education was segregated by gender, and women were denied access to academic secondary school and tertiary education. Likewise, the role of women in society was confined to domestic space (Condés 2002). They were subject to male guardianship, especially by their fathers or husbands, and numerous civil, educational and economic restrictions were imposed on them (Serrano Galvis 2017). Among the main barriers involving women were access to the labour market and managing their assets. The civil code laid down that a single woman could not sign employment contracts or buy heritage assets without the approval of her father.

These paternalistic policies begin to change in the twentieth century when the Liberals formed the government and establish a new state-nation project that was more progressive and inclusive both socially and economically. In the 1930s, the Liberals had come into office after 44 years of Conservative governments in a context of economic

depression following the global market crash of 1929. The new economic project involved strengthening the industrial fabric, which required more skilled labour. This initiative was aligned with reformist ideas supported by feminist movements resulting in the approval of laws that liberated the female workforce and, in turn, ensured that this workforce received an education good enough for employment in the new industries and services.

In 1932, women were allowed to dispose of their assets freely and to sign contracts (Luna 2001). In 1933, the government also approved several educational reforms that equated women's education with men's, and women were also granted access to tertiary education. Therefore, the hypothesis of this chapter is that the adoption of these two liberal reforms improving the economic and social statuses of women was associated with a decrease in the gender gap in education through an emerging demand for education.

To test the hypothesis, first, descriptive analyses of the long-term evolution of female enrollment rates compared with male rates in both primary and secondary education have been used. And an econometric strategy has been designed.

The second part of the analysis seeks to evaluate the impact of liberal reforms introduced in 1933 on the gender gap in education via a panel-data model for the period 1905-1958 for nineteen departments. This model uses the database disaggregated by gender and department built in Chapter 1. The model includes a dummy variable for the period 1933-1958. Unfortunately, as there are few observations available for the secondary level before 1933, it was not possible to replicate the analysis for this educational level.

Concerning the descriptive analyzes, the series also shows a relatively “small” gender gap in terms of primary-school enrollment during the first half of the twentieth century in most departments. Regarding secondary education, the series shows a sizeable general gender gap for the entire period in most departments, unlike what is observed in primary education. Likewise, from the 1930s, there is no apparent decrease in the gender gap. When analyzing the gender gap in each educational programme, the series shows different patterns depending on the training programme. Looking at academic education, which is what gives access to tertiary education, we see that the gender gap is much higher and that it does not fall after the adoption of laws in favour of women. On the contrary, in most cases, this gap even increases in the first three decades of the century. On the other hand, focusing on the vocational and teaching enrollment rates, we see a substantial increase in female enrolment rates after the granting of female rights, which is exceptionally high in the teacher training programme.

Regarding the econometric analysis, the results suggest there is a positive relationship between the granting of rights to women and the narrowing of the gender gap in primary education. Despite the fact that the 1930s was a period marked by lower enrollment in primary education in some departments, we observed that after the passage of these laws, the decrease in enrollment was smaller in female education than in male education.

Overall, this dissertation examines the policies and structural changes that Colombia underwent in the first half of the twentieth century and shows how these impacted on

the expansion of mass education both directly and indirectly. Despite the achievements made, education remains one of the main concerns on the national agenda. For this reason, this dissertation offers historical evidence that will allow new challenges to reduce educational inequalities to be faced in the years to come in Colombia, as well as in other countries with similar historical trajectories.

Chapter 1

The origins of mass education in Colombia

1.1 Introduction

Inequality in Latin America has been characterized not only by differences within each country or between countries in the region, but also between these countries and the world's leading economies (Bértola and Ocampo 2013). Indeed, Latin America has the most unequal income distribution in the world, greater even than East Asia or Sub-Saharan Africa at the present time (World Bank 2006). Some literature attributes the high levels of inequality to the path dependence of the colonial legacy (Engerman and Sokoloff 2012; Frankema 2009a), suggesting that the initial conditions had profound and enduring effects on long-term institutional and economic development (Engerman and Sokoloff 2000).

However, some authors have expressed doubts about the early colonial heritage hypothesis (Dobado-Gonzalez and García-Montero 2014). Williamson (2015) suggested that inequality in Latin America is actually a recent outcome, as it was not very high after the conquest. On the contrary, in this view, it started during the first period of globalization and increased in the early twentieth century, when most nations were reducing levels of inequality (the so-called "Great Leveling"). The period between World War I (WWI) and the 1970s shows a decreasing trend in inequality internationally thanks to several different policies, such as the regulation of the labour market, industrial protectionism, welfare policies, and investment in education (Lindert and Williamson 2016; Piketty 2014). Goldin (2001), writing about the USA, highlighted the key role of investment in education in reducing inequality in the same period.

By the same token, we have less information about Latin America's performance between the WWI and the 1960s than for the period from the 1960s to the 1990s (Bértola and Williamson 2017:5). Since an analysis of this period is essential to understanding the origins of inequality in Latin America, the goal of the present chapter is to help fill this gap by examining educational policies Colombia from 1900 to 1958. In doing so, this research asks whether or not Colombia failed in its attempt to achieve egalitarian mass education. Here "egalitarianism" is understood to be the belief that all people are equal and deserve the same rights and opportunities rather than outcomes. Goldin (2001) argued that an egalitarian education must provide and maintain public funding,

openness, gender neutrality, local (and also national) control, the separation of Church and state, and an academic curriculum. Therefore, to address the question posed in this chapter, I construct and analyze annual series of gross enrolment rates (GER) for primary and secondary schooling disaggregated by department, public and private education, rural and urban schooling, and gender.

This new database will allow us to identify the main regional trends in the evolution of education in Colombia and advance some hypotheses about the slow progress of education both there and in Latin America generally. The Colombian study will provide new empirical evidence supporting the hypothesis that low investment in education may have limited the fall in inequality in the first half of the twentieth century, contrary to what happened internationally during the "Great Leveling" period (Lindert and Williamson 2016), which took place even in the countries of Latin America's southern cone. The study period covered by this article started in 1904, after the Thousand Days' War (*La Guerra de Los Mil Días*), when the legal basis of the current Colombian educational system was defined. It ended in 1958, after a great institutional and political change with the emergence of the National Front (*Frente Nacional*) consisting of a coalition between the Liberal and Conservative parties, which led to substantial changes being introduced in the education system.

Previous investigations of education in Colombia using historical perspectives have mainly focused on the whole country, only a few of them taking regional inequalities into account. The most recent work on education in the twentieth century is that by Ramírez and Téllez (2007). They made an outstanding effort to reconstruct, for the first time, long-term national series of schools and students enrolled in primary and secondary education, as well as some regional series, but more for the departments located in the centre of the country than the national territories on the periphery. Th authors also disaggregated all series by gender. This new regional approach, which includes every single region of the country, allows us to affirm that several segments were not included in the national mass education project.

The results confirm that Colombia failed in its attempts to achieve egalitarian mass education during the first half of the twentieth century, understanding 'egalitarianism' in Goldin's terms. During this period, the provision of education in the country was very uneven between regions in both coverage and quality. Regarding primary education, we see that the territories where industrialization began had higher coverage rates, while the periphery of the country, which was mainly populated by indigenous peoples, was far removed from the levels of the central area. These patterns are repeated in secondary education as well. Exceptionally, two territories on the periphery, San Andrés and Chocó, moved away from the standard of low educational coverage to some extent. In both cases, these territories made local efforts to improve the coverage of mass education, Chocó in the public sector, San Andrés in the private sector. In both cases, these territories had the highest secondary teacher-training enrollment rates in the rest of the country, indicating the great interest in guaranteeing the teaching staff.

However, the results of this analysis also suggest the presence of gender segregation, especially in the first three decades of the twentieth century. Regarding primary education, the series shows more boys than girls enrolled in most territories. Surprisingly, there was an exceptional pattern in the Caribbean areas, which had more

girls than boys enrolled in primary education. This pattern is observed from the beginning of the century in some cases and in others since the 1930s. This circumstance is apparently explained by the fact that most Caribbean families are constituted on the basis of a free union from which men are absent. This institution may explain women's interest in educating their daughters, since many of them will end up being the only providers of the family's income. Finally, the secondary education series have a single generalized pattern: more female enrollment in the first decades of the twentieth century, a trend that was later reversed. Going into the reasons for this, we find a contrast in that most of these women were enrolled in private and not public schools. Until 1933, a private school was the only option for girls to receive a quality education, since the law distinguished public education by gender and quality. Secondary female education was not comparable to male education, and as female pupils were not taught the same subjects, even the certificate of completion was not equivalent.

In the next section, I review several debates on the determinants of the country's investment in education. In Section 3, I establish conceptual parameters for what education means for this research. In Section 4, I discuss the history of the development of education in Colombia, as well as the national and international contexts. Section 5 describes the methodology and sources used. Section 6 presents the constructed national and regional series, while Section 7 offers a conclusion.

1.2 Theoretical framework: determinants of investment in education

There is some consensus in literature when it comes to relating human capital formation with long-term economic growth (Hanushek and Woessmann 2020). However, there are different hypotheses about the mechanisms through which education influences the level of economic growth in a country. One of them sees the accumulation of knowledge as a mechanism facilitating the adoption of agricultural and industrial technology, improving productivity, and generating economic growth. From an agrarian economy perspective, Parman (2012) states that more educated farmers use the resources they have more efficiently, allowing them to adopt technological innovations in agriculture more quickly. Madsen (2014) emphasizes education as a mechanism facilitating the adoption of new technology, through which it becomes possible to expand the technological frontier and generate higher economic growth. Das (2015) considers this to be a fundamental cause of the convergence and divergence of productivity and economic growth.

What, therefore, are the factors that influence the behaviour of educational variables? And which factors have determined the level of public investment in education across countries historically? The divergence in terms of schooling in the least developed compared with the most developed countries has generated significant interest in the literature. Many hypotheses stemming from the Latin American case have emerged from this debate, without neglecting some relevant experiences outside this geographical framework. In line with the above, I shall pay particular attention to those hypotheses

that seek to answer why the expansion of mass education in the twentieth century in Latin America lagged behind the rest of the world and why it occurred unevenly among countries in this region.

1.2.1 Institutions and colonial heritage

There is sufficient evidence to suggest that in Latin America educational levels are backward in absolute terms. However, the long-term approach indicates that, despite this, the region showed significant progress in the twentieth century (Bértola and Ocampo 2013), and especially over the past half century (Hanushek and Woessmann 2012).

One of the hypotheses explaining Latin America's poor educational performance, offered by Bértola and Ocampo (2013), sees the answer as lying in the nature of social structures and power relations. The authors consider that the backwardness of the educational system in Latin America is explained by its colonial roots, Catholic indoctrination, and the continued existence of power elites. Conversely, they relate improvements in the educational outcomes to the creation of independent states, the appearance of new political parties, the emergence of self-employed businessmen, and the incorporation of immigrants. In line with the above, the countries that presented the best educational indicators were those that had the least impact on the Iberian metropolises, that is, the most urbanized, the most ethnically homogeneous, and those with the greatest presence of European immigrants.

Aligned with the previous argument that relates educational development to the colonial legacy, Frankema (2009) states that the interest in preserving the concentration of land ownership in their own hands prompted landowners to limit the training of their workers. Similarly, this trend towards extractive work and the elite's fear of losing its political power limited workers' access to education, even if this damaged productivity levels. Wegenast (2010) provides supporting evidence for this with empirical evidence from Brazil, which suggests that states with a more equal distribution of land that is not controlled by landowners have better educational coverage and quality.

Arguing from a neo-institutionalist perspective, Engerman et al. (2009) and Engerman and Sokoloff (2012) emphasize that although investment in education is positively correlated with per capita income, much of the variation between countries remains to be explained. The authors suggest that the concentration of power leads to institutions reinforcing a high degree of inequality in political power, which in turn seems to be associated with lower literacy rates and schooling. Several works have shown emphatically that political competition and the inclusion of marginalized populations in electoral systems positively influence education, as happened in Latin America between 1920 and 2000, especially in public education (Chong and Olivera 2008; Eterovic and Sweet 2014; Ross 2006). Espuelas (2012) following this research line that employs democratization as a determining factor of social spending, uses dictatorships as a variable of interest to measure their impact on spending on education, health, social welfare, pensions and benefits. His conclusion, based on the empirical evidence

provided, is that during the 1950s and 1980s in Europe, dictatorships were less generous in social benefits than democratic countries; emphasizing unemployment, welfare and education subsidies, the latter being of greatest interest for this research.

Moreover, some authors relate religion to educational outcomes. Within this debate, Becker and Woessmann (2009, 2019) found that Protestant areas had higher literacy rates, higher school densities, higher enrollment in primary school, and an educational gender gap lower than in Catholic areas. The authors' hypothesis is that the obligatory reading of the Bible promoted the accumulation of human capital, which in turn favoured economic prosperity. As for the Latin-American experience, although the Catholic religion was the most widespread, in some countries Protestantism had a considerable presence. McCleary and Barro (2019) focused on Guatemala, analyzed differential investment in education across types of Protestantism at the end of the nineteenth century, and compared educational outcomes between Protestantism and Catholicism. Their results suggest that literacy is enhanced more by what they call 'Mainline Protestant schools' than by 'Other Protestant schools', while Catholic schools show only a weak impact on literacy.

Beyond the relationship between religion and educational outcomes, many works have focused on the positive effects of missionaries on the accumulation of human capital.[2] As for Latin America, Waldinger (2017) has analyzed the long-term effects of different Catholic missionary orders in colonial Mexico on educational outcomes. Their results show that the highest educational results at present (literacy and school completion rates) were in some regions where mendicant orders had historically been present. Similarly, these religious orders are associated with less social inequality in colonial Mexico because they educated the native population. Finally, Valencia Caicedo (2019b, 2019a), in a long-term study of the impact of the Jesuit order on Guaraní instruction in modern-day Argentina, Brazil, and Paraguay, shows proximity to historical Guaraní Jesuit missions has a significant long-term effect on education and income.

From another institutionalist approach, many scholars have focused on the presence of slavery in colonial societies throughout the American continent, which continued in most countries after independence from the European powers. According to this idea, Engerman and Sokoloff (1997) argue that conditions generated by crops that could be grown by slaves led to poor economic development in Latin America due to the perpetuation of an unequal distribution of land, wealth, and political power, as well as the constraints of public education.

Many of the empirical works on the implications of slavery for education focus on Brazil. The main findings show that states characterized by a more egalitarian distribution of land spent more on schooling and had better educational coverage and quality. These improvements did not take place in states that had more slaves during colonial times, before abolition (Musacchio et al. 2014; Wegenast 2009). Also, the local provision of public goods in the early nineteenth century explains economic growth in the long term,

[2] Lankina and Getachew (2012), Nunn et al. (2014), Wantchekon, Klašnja and Novta (2015), and Woodberry (2004, 2012) have focused on Africa; Calvi and Mantovanelli (2018), and Castelló-Climent et al. (2018) on India; and, Bai and Kung (2015) and Chen et al. (2013) on China.

but not contemporary economic and political inequalities (Summerhill 2010). Regarding works on Colombia, Acemoglu et al. (2012) investigated the impact of slavery on the country's long-term development by comparing municipalities gold mines during the seventeenth and eighteenth centuries with neighbouring municipalities without gold mines. The main results show that the historical presence of slavery increased poverty and reduced school enrollment and public goods provision in the 1990s and 2000s.

One way to reverse the concentration of power and marginalization of the slave-descended population is through democracy. The concentration of power increases the inequality of political power, leading in turn to a lower percentage of the population having the right to vote, which seems to be associated with lower literacy and schooling rates (Engerman *et al.,* 2009; Engerman and Sokoloff 2012). Ross (2006) and Chong and Olivera (2008) argue that political competition and the inclusion of marginalized populations in electoral systems positively influence education. Regarding Latin America, Eterovic and Sweet (2014) corroborate this argument with empirical evidence finding that political competition and the inclusion of marginalized populations in electoral systems transformed education between 1920 and 2000 by increasing enrollment. Gallego (2010), states more specifically that while democracy is a significant determinant of primary or elementary schooling, the degree of decentralization of political power is much more relevant in explaining more advanced levels of instruction, such as secondary and higher education.

1.2.2 Globalization and migration

Many works have addressed the effect of the waves of migration from the old continent to the New World on educational outcomes. Baten and Mumme (2010), for instance, analyze trade openness as the underlying cause of income inequalities and, consequently, of educational inequalities. The statistical evidence provided by the authors shows that the type of migration and the moment at which it occurs determined its impact. Their results associate immigration between 1850 and 1913 with educational inequalities in Latin America, while immigration between 1945 and 1984 helped to reduce it. Also, Droller (2018), writing about European migration to Argentina during the Age of Mass Migration, states that migrants had a higher level of human capital that increased literacy rates in the receiving counties, which in turn contributed to higher gross domestic product (GDP) per capita for eighty years thereafter. As for the Chilean case, González (2019) analyzes the relationship between European immigration and the human capital of the indigenous population. The main findings show a positive correlation between the arrival of Europeans and the accumulation of human capital accumulation by local populations, as well as an increase in local economic output for fifty years thereafter. This improvement in the human capital of the indigenous population seems to be driven not by changes in the provision of public goods but by the modernization of economic activities. Similar findings for Brazil were reported by Stolz *et al.* (2013). The authors argue that European immigration increased arithmetic ability in the Brazilian provinces, where immigrants settled due to the direct and indirect effects on the indigenous population of the creation of schools and hospitals. Therefore, these areas grew faster than non-immigration areas in the long term.

Despite the evidence for a positive correlation between immigrants and higher literacy in the New World, Juif (2015) found evidence of particular groups of migrants *not* contributing to the accumulation of human capital. The author explains that nearly half of the European immigrants came from the Spanish province of the Canary Islands, which had the lowest literacy and numeracy rates in Spain in the nineteenth century. The reason suggested by the author is that Cuban landowners promoted the immigration of low-cost, uneducated white labour to replace African slaves on their sugar plantations.

1.2.3 Opportunity costs and the labour market

There is an intergenerational component of poverty in education, which influences the ability of individuals to work and earn money in the future (Horrell *et al.* 2001). Human capital formation and the labour market usually have a univocal relationship related to the expectations of future wages and the rates of child labour (Hastings *et al.* 2015). Therefore, the transparency of information on the labour market and the salaries on offer can affect enrollment rates. This argument is similar to that proposed by Goldin (2001), who suggested that the success of education in the United States at the beginning of the twentieth century was the result of the established educational model, which encouraged inclusion in the labour market and allowed geographical mobility, as well as between different types of industry.

As for the female labour market, many works demonstrate that if the job prospects are good, families tend to invest a little more in the education of their female offspring and vice versa, so that levels of female education will depend on the extent of the country's economic development (Goldin 1995; Mammen and Paxson 2000; Manzel and Baten 2009; Saaritsa and Kaihovaara 2016). Within this debate, Goldin (2006) highlights other processes related to the female demand for work and education, such as social perceptions of women. The author states that social norms regarding the nature of women's work explain the process of the inclusion of women in the labour market in the United States at the beginning of the twentieth century. The earliest jobs were those society regarded as "pleasant", such as teaching and office jobs. Later, the creation of part-time jobs and the spread of domestic technologies facilitated the entry of married women into the labour market and prepared subsequent generations to enter more skilled jobs.

From another angle, there is an extensive literature focusing on the effects of agrarian shocks on child labour and schooling. In agrarian commodity-based societies, low-income individuals may have more urgent needs, hence they might not be able to afford education for their children (Bursztyn, 2016, Bhaskar and Gupta, 2012). Actually, school attendance has a high opportunity cost, since child labour is usually suitable for different crops and cultivation tasks (Baker, Blanchette, and Eriksson 2020). According to the literature, the effects of production shocks on schooling depend on a country's level of wealth. However, the evidence is contradictory in this regard, especially in the Latin American case. Empirical works show, for instance, that the demand for child education might be countercyclical, that is, it improves during crises in commodity production

(Ferreira and Schady 2009; Jensen 2000; Shah and Steinberg 2017) and declines during production booms (Carrillo 2019). Alternatively the impact of commodity shocks on the demand for schooling is conditional on additional factors such as levels of family wealth (Kruger 2007).

1.2.4 Segregation by gender and ethnicity

Religion, culture, and conservative values inherited from the past or colonial institutions have usually been negatively associated with lower levels of female education (Aderinto 2014; Becker and Woessmann 2008; Bozzano 2017). Thus, gender equality in education can only be achieved through changes in the political, social, and economic spheres, that is, transforming society into a more democratic one (Brown 1999; Cooray 2012).

As for the acquisition of political rights, Lott Jr and Kenny (1999) affirm that women's franchise significantly increases total social spending. Chong and Olivera (2008) and Ross (2006) present empirical evidence showing that the inclusion of marginalized populations into the system improves educational outcomes.

Moreover, democracy is a matter not only of the acquisition of political rights, but also of empowerment in terms of expanding economic rights, that is, control of one's property and the freedom to enter into legally binding contracts, operate a business, and dispose of profits. Geddes *et al.* (2012) affirm that granting such economic rights increases the incentive to invest in girls' human capital by increasing expectations of better future earnings. The authors based their analysis on the enactment, in the United States between 1850 and 1920, of laws to extend the rights of married women to own and control their own separate property and earnings in the market. Their results show that the expansion of women's economic rights resulted in higher relative rates of school attendance by girls.

As for the Latin American experience, Bértola and Ocampo (2012) suggest that from the colonial period to independence, the educational system had high levels of inequality regarding both social status and gender due to the focus on elitist education defined by Catholic values. The change in the educational system came with the independence of the states because it led to changes in educational institutions as a result of new ideas related to the modernization of society through education (Miller 2003; Reimers 2006). Eterovic and Sweet (2014) also contribute to this debate with empirical evidence on several Latin American countries. Their central findings are that the main improvements in education respond to the inclusion of marginalized populations in electoral systems, such as women, and show that women's right to vote led to an increase in enrollment in higher education.

Drawing on another approach also related to the segregation of marginalized groups, many works have focused on ethnic discrimination (Arouri, et al. 2019; Sánchez and Singh 2018; Chong et al. 2008). According to Sulmont (2011), the indigenous peoples of Bolivia, Ecuador, Guatemala, and Mexico have significant social weight, despite which they have fewer social and economic rights with respect to the rest of the population,

which means less social investment and therefore less investment in education (Hall and Patrinos 2012). For instance, Pasquier-Doumer and Risso-Brandon (2015), writing on Peru, found that the country's indigenous peoples are allocated fewer educational resources.

Using a long-term approach, España-Eljaiek (2017, 2019) focuses on the Colombian case and shows how the persistence of racism prevented some regions from transferring the benefits of the first wave of globalization into better educational performance. Consequently, areas populated mainly by indigenous peoples had lower enrollment rates and fewer educational resources, students and schools.

1.2.5 The allocation of fiscal resources and decentralization

From another angle, some see the management of public finances as the determining factor of low investment in education. On the one hand, some authors argue that a government's efforts to improve educational variables should be measured as a fraction of GDP, which in turn will have a positive impact on economic growth (Blankenau and Simpson 2004; Glomm and Ravikumar 1992; Ni and Wang 1994). On the other hand, others consider that the government's efforts to improve educational variables should be measured with reference to tax revenues (Greiner 2008).

Also, the control and provision of education can affect the outcomes. Lindert (2003, 2004) states that decentralized education fostered the development of human capital in Germany. The author explains that the leading cause of low school enrollments in the histories of many countries has been the misallocation of tax revenues and the low fiscal support that has been given to mass schooling, and not just gender discrimination or failures in the labour market. In line with this idea, many authors consider that decentralized systems allow the local demand for education to be more easily identifies (Goldin 2001; Goldin and Katz 2008; Inman and Rubinfeld 1997). Conversely, others argue that decentralization has adverse effects on the accumulation of human capital. Vollrath (2013), for instance, focusing on the United States at the beginning of the twentieth century, observes that the educational lag of the south of the country compared with the north is due to the fact that spending on education in the south was financed by the state's tax collection, while in the north it was done locally. Cappelli (2016) and Cappelli and Vasta (2020) argue that a shift towards a more centralized school system can benefit countries that are characterized by poor levels of human capital and large regional disparities in education. Examining the adoption of a centralized system in Italy in the early twentieth century, the authors found that centralization substantially increased literacy between 1911 and 1921 and reduced the country's regional disparities.

As for the debate on emerging economies, after analyzing education at the beginning of the twentieth century in Brazil, Russia, India, and China (the so-called BRIC countries), Chaudhary et al. (2012) found that decentralized education can produce educational results, especially in the presence of political elites. This can generate notable regional disparities, institutional differences, and socioeconomic inequalities. Regarding the Latin American experience, Prawda (1993) and Di Gropello (1997), in a comparative

analysis of the different effects of decentralized education in various countries, find that certain errors in the implementation of decentralized models caused large divergences in quality indicators between geographical areas.

As for case studies, Letelier and Ormeño (2018) focus on Chile and on how educational results were affected in 2014 due to the reversal of the radical reform in favour of decentralization established in the early 1980s, which gave control of schools to the municipalities. The main findings show that municipalities with greater autonomy obtained better results when they managed local schools. Based on this result, the authors concluded that selective decentralization in favour of more autonomous municipalities is a better public policy approach to finding a general solution, and therefore they recommend renewing and establishing a more effective fiscal equalization system.

Moreover, Levy (2019) highlights the crucial role played in their success of managing the implementation of decentralization policies. To analyze this, the author focused on the decentralization of national public education carried out through the privatization of public schools. The results show that because teachers only reluctantly became involved in aspects of this legislation, compliance with the law was partial, contrary to what was observed in other decentralized policies in which teachers were not involved.

Finally, most of the works on Colombia relate to what would be the second decentralization of 1991. In that context, Melo (2005) affirms that decentralization was successful in expanding coverage rates and highlights the important role of local authorities. Despite this, the author states that there was also a negative impact on students' academic achievements. Faguet and Sánchez (2008, 2014) add that having decentralized education led to improved enrollment rates in public schools in districts where financing and policy formulation were under greater local control, especially in smaller, rural municipalities. Conversely, enrollment was reduced in districts where funding was still under the control of the central government.

1.3 Contextualizing the Colombian case

1.3.1 Colombia: geographical, socioeconomic and institutional characteristics

Colombia is a country located mainly in the north of South America, but with some territories in Central America (San Andrés Island). It has an area of 2,070,408 km^2, of which 1,141,748 km^2 is its land area, and 928,660 km^2 its maritime area. As shown in Figure 1.1, the country is bounded on the north by the Caribbean Sea, the northwest by Panama, the south by Ecuador and Peru, the east by Venezuela, the southeast by Brazil, and the west by the Pacific Ocean. Also, the national territory presents variety in its relief, with a central mountainous system made up of the three Andean mountain ranges, the interior and coastal plains, and the inter-Andean valleys. This topographical and climatic variety also results in an enormous diversity of agricultural products. Coffee, the main agricultural and export product, is grown in temperate areas on the

mountainsides. Fruit varieties and cereals are also grown in temperate climates. Cotton, banana, rice and sugarcane are produced in warm regions, while colder climatic conditions are more suitable for growing potatoes, wheat, and vegetables. There are also vast areas devoted to livestock, especially in the plains of the Caribbean coast and in the Eastern Plains, as well as in the Sabana de Bogotá, where there are many dairy herds. The coasts of the two oceans and the extensive river network provide extensive fishing resources (Echeverry 2002).

Figure 1.1. Physical map of Colombia.

According to the Constitution of 1991, the country is divided administratively into 32 departments, subdivided in their turn into 1122 municipalities. The administrative structure is shown in Figure 1.2. The population is close to 50 million inhabitants, mainly located in the Andean Mountain region and on the Caribbean coast.

Figure 1.2. Administrative map of Colombia

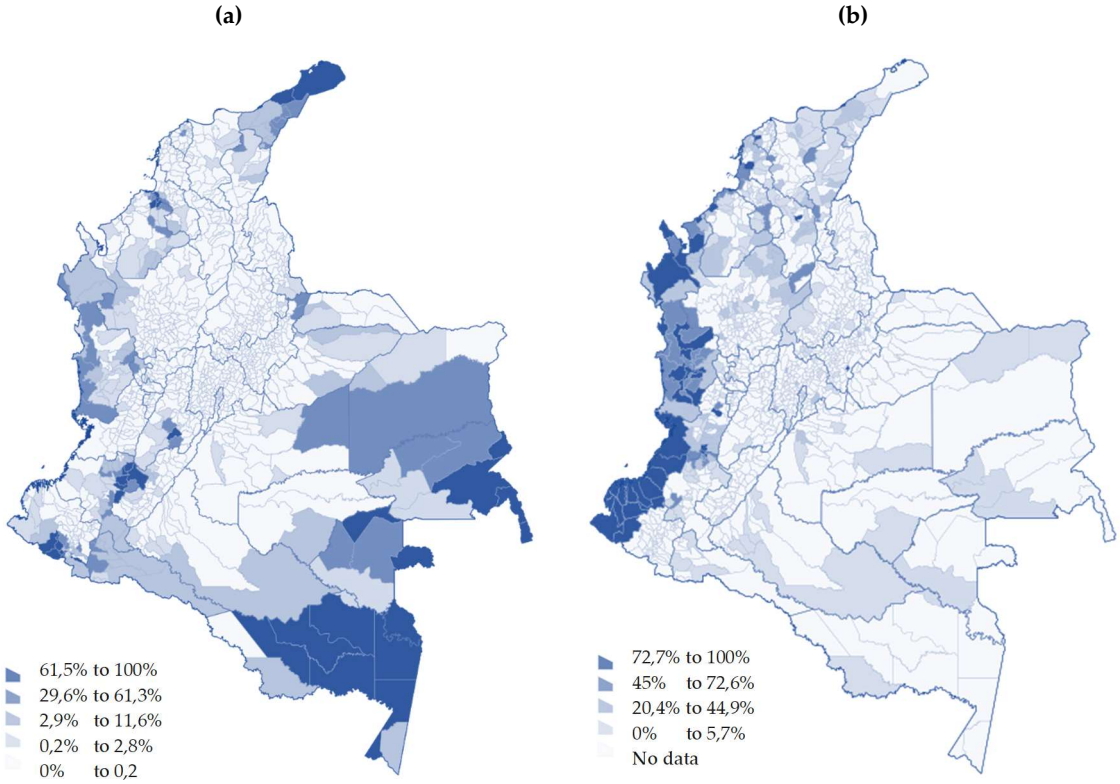
Source: *Departamento Nacional de Planeación* (DPN, hereafter)

Colombia's population is ethnically and linguistically diverse, its rich multicultural heritage reflecting various influences from diverse origins: Amerindian civilizations, Spanish settlements, the African population that was employed as forced labour, and immigration from Europe and the wider Middle East in the first and second waves of globalization (Echeverry 2002). In this context, four sectors are usually distinguished: the nonethnic population, indigenous peoples, Afro-Colombian populations, and the Gypsies, with less presence. More specifically, the Colombian Census of 2005 reported

that the white and mestizo population accounted for 86% (36.8 million people), the Afro-Colombian population for 6.68% (2.9 million people), the Amerindian population for 4.3% (1.9 million people) and the Roma population for 0.01% (5,000 people).

According to this census, 87 fully identified indigenous groups reside in Colombia. The majority of the indigenous population is located in the rural areas of the country, in natural regions such as the jungle, the natural savannas of the Orinoquia, the Colombian Andes, the inter-Andean valleys, and on the Caribbean plain. The departments with the highest percentages of indigenous people are Guainía, Vaupés, La Guajira, Amazonas, Vichada, Cauca, and Nariño. The departments of La Guajira, Cauca, and Nariño have approximately half of the country's indigenous people. Figure 1.3 shows the percentage of the indigenous and Afro-Colombian population by municipality in 2005.

Figure 1.3. Percentage of the indigenous (a) and Afro-Colombian (b) population by municipalities, 2005.



Source: Colombian Census of 2005, DANE.

The departments with the highest percentages of Afro-Colombians are Chocó, the San Andrés Archipelago, Providencia, Santa Catalina, Valle, Bolívar, and Cauca. Approximately 50% of the country's Afro-Colombian population live in Valle del Cauca, Antioquia, and Bolívar (Hernández et al. 2007).

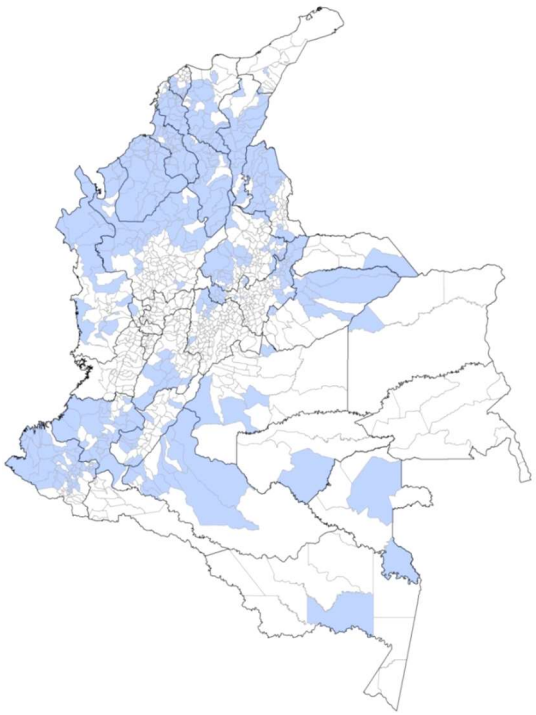
Finally, a fourth group within the population, listed as "nonethnic population" and consisting of whites and mestizos (those of mixed white European and Amerindian ancestry, including almost all of the urban business and political elite), constituted 86%

of the national population, subdivided into 49% mestizo and 37% white (Bushnell and Hudson 2010).

This mixing in Colombian society has generated a long-term problem with racism term. Bushnell and Hudson (2010) point out that since the sixteenth century Colombian society has been highly stratified, with social classes generally linked to distinctions of race or wealth, and that vertical mobility has been limited. Consequently, as España-Eljaiek (2019) explains, areas mostly populated by indigenous groups were excluded from social investment, for example, in education, that were derived from the economic benefits of the first globalization. As a result, these regional differences have become persistent in the longer term, especially between the departments located at the centre and on the periphery of the country (Galvis and Meisel Roca 2013; Meisel Roca 2011).

Moreover, Galvis and Meisel Roca (2010) studied the conditions of poverty and inequality in Colombia from a temporal and spatial perspective, comparing the levels of poverty in a given year and location with the values observed in poverty lagging behind both temporally and spatially. Their main results show that the periphery has been most affected by high levels of poverty, since 70% of the poorest municipalities belonged there in 2005 , as had 63% of the municipalities that were in poverty between 1993 and 2005. Figure 1.4 gives the authors' estimates of municipalities that were caught in a poverty trap in 2005. What first strikes one as evident is the perfect match with areas where indigenous communities and the Colombian-African population are in the majority.

Figure 1. 4. Location of the municipalities in the condition of the poverty trap in 2005.



Source: Galvis and Meisel (2010).

Overall, Colombia is a country with vast regional differences geographically, economically, and ethnically levels, preventing it being understood as a whole with a unique trajectory. This fact highlights the need to carry out regional, not national,

analyzes to understand the causes of backwardness in the periphery, as well as their persistence in the long term.

1.3.2 Historical context: the roots of Colombian institutions

As Olson (1993) stated, no society can function satisfactorily if it does not have a peaceful order and if its population does not have access to public goods. Colombia in the late nineteenth and early twentieth centuries was not only a poor society, its institutions were also weak. Institutions that were deeply rooted in the colonial past prevailed. This resulted in the presence of strong political elites, illiteracy, religious dogmatism, and a political rivalry marked by hegemonic bipartisanship (Kalmanovitz 2001). Although these political forces might give the impression of a minimum of plurality and political participation, the reality was that power did not flow from the whole of society. Elections were indirect, and the right to vote was limited by proof of property ownership and literacy (Kalmanovitz 2001). It was not until the Constitution of 1886, three civil wars, and an agreement between the Liberals and Conservatives that the foundations were established for guaranteeing property rights that put the country on the path towards economic development.

From the beginning of the twentieth century until the end of the 1920s, Colombia went through a period of stabilization and economic growth once the social conflict known as the Thousand Day War had ended. This economic growth responded to a substantial expansion of coffee exports and, to a lesser extent, bananas and oil (Ocampo and Botero 2000). The success of the development of Latin American economies in general was preceded by the success of their agricultural exports, which increased the region's income and allowed the specialization and division of labour, as well as the development of subsidiary activities and local industries. Lastly, this economic growth facilitated the expansion of investment in education that stimulated the potential of the same region (North 1955). Despite this, although coffee exports led the Colombian economy at the beginning of the twentieth century, the income earned was not turned into a more significant investment in human capital. On the contrary, due to the decentralized system, the income received from the coffee boom was not reversed throughout the country but was located in coffee-producing areas (España-Eljaiek 2019).

At the political level, the Liberal and Conservative parties enjoyed a degree of historical continuity for almost two centuries that most Latin American parties have lacked. As Robinson (2007) explains, this characteristic of political bipartisanship generated a dynamic of networks of patronage very different from those in other Latin American countries, where what prevailed was political populism. Colombia's structural clientelism may have determined the size of the state, since in Latin America increases in the state have always been aligned with more populist movements. Likewise, the structure of clientelism also affected educational organization during the nineteenth century, since every time a party came to power it reviewed and modified the educational system designed by its predecessor and adapted it in accordance with its own interests (Urrutia 1976).

1.3.3 Education in Colombia in the first half of the twentieth century

1.3.3.1 Laying the foundations (1886-1930)

To understand the functioning of the Colombian educational system during the twentieth century, it is necessary to go back to the starting point, to the legislature that defined its characteristics. From 1886, the Conservative Party established itself in government, where it remained continuously for 44 years, a period known as the Conservative Hegemony. During this period, Rafael Núñez, a former militant of the radical liberal movement, converted to more social Catholic thought, assumed the presidency and led the campaign called *La Regeneración*. In this period, the new Constitution of 1886 was voted, whereby political centralism and administrative decentralization were established, incorporating the strong influence of the Catholic Church. In addition, the country was organized territorially into departments and national territories, the former having a greater level of autonomy from the national government. national territories, besides being politically less autonomous, were characterized by having the most significant share of the indigenous population in the country. In educational terms, the national territories adopted the status of School Territories (Amazonas, La Meta, Caquetá, Vichada, La Guajira, San Andrés, and Chocó until 1947). [3]

Due to the large presence of indigenous people, the main objective of the government was to catechize these areas, so after the Concordat of 1887, the first convention was signed in 1888 with Catholic missions for the colonization and Christianization of the peripheral areas. Catholic missions had full autonomy over the design of educational programmes and the arrangement of resources.

Despite the fact that in many cases these educational programmes were classified as primary education, they were more focused on the population learning religion, the Spanish language, reading, writing, counting, sewing, washing, and learning a trade that allowed one to fend for oneself (Helg 2001). According to Santos (2012), the "civilization" of the indigenous tribes became a central aspect of a political and economic project on the part of the state. National territories had vast areas of arable land, and many of them were located in border areas, which made them potential centres of production and trade. Therefore, from the nineteenth century the objective of the state was to turn the indigenous population into a potential workforce allowing the country to make progress. For this reason, under the direction of the state the instruction of the Catholic missions sought to induce the discipline of work in the population beyond the educated and well-prepared.

Overall, the Constitution of 1886 reinforced the Church's power in the country, and within its framework the Concordat of 1887 was signed, giving it control over specific administrative and educational procedures.[4] This agreement establishes that primary

[3] More details on the missions involved in education by territories, see Figure 1A.1 in Appendix 1A.

[4] According to Article XII of the Concordat of 1887, "In development of the right that Catholic families have that their children receive religious education in accordance with their faith, educational plans, at the

and secondary educational programmes should include religious education in official establishments. Also, this alliance between Church and state reinforced the expansion of private Catholic schools with the support of religious congregations (Helg 2001).

However, the Constitution of 1886 and the signing of the Concordat were not enough to maintain political and social calm for long. The Liberals opposed this alliance between Church and state and the adoption of elitist social policies for the few. In fact this triggered the violent conflict known as the Thousand Days War,[5] which among other things dismantled much of the transportation and school infrastructure, resulting in an increase in the dropout rate across the country (Ramírez and Téllez 2007).

Also, with the Conservatives in power and the country shattered, a process of physical and ideological restoration was carried out, in which the educational system was rebuilt according to the paternalist ideology of the Conservative Party (Helg 2001). To redefine the educational system, Law 39 of 1903 and Decree 491 of 1904 were Passed, though this legislation only covered the characteristics and organization of public education, not private. Conversely, the educational reform focused on establishing guidelines for "education" in general, without distinguishing between public and private.[6] According to the legislation, the education system was organized into pre-primary, primary, lower-secondary, upper-secondary, post-secondary non-tertiary education, professional education, and tertiary education.

Additionally, two non-formal educational programmes not fitting into these categories were created, either by age or by type of training, namely night schools for adults and schools for the indigenous peoples (*orfelinatos*) founded by the Catholic missions. In all cases, schools were gender-segregated. If there only one school building, schooling for boys and girls was divided into different time slots. Public education was managed by the Catholic Church.

Regarding non-formal programmes, night schools were created to try to reduce working-class illiteracy. These schools imparted basic notions of Religion, Reading, Writing, Geography, Drawing, and Arithmetic, otherwise schools for indigenous people sought evangelization more than literacy; similarly, practical training was provided to carry out farm work and crafts.

As for formal programmes, pre-primary education was mainly provided by nursery schools, whose aim was to provide sufficient preparation to facilitate entry into primary school, though a uniform national plan was lacking.

Moreover, *public primary education* was divided into rural schools and urban schools. Rural schools had three-year programmes that formed the basis for the country's most

primary and secondary levels, will include in official establishments teaching and religious formation according to the Magisterium of the Church. ”

[5] Idem.

[6] Decree 1478 of 1932.

crucial literacy campaign because they were focused on the peasant population, the largest in the country. These schools could be for boys, girls or both, alternating in the latter case between different time slots for each gender and being permanent or periodic according to the needs of the population. Urban schools, by contrast, were managed by municipal governments. Study programmes lasted six years and were based on four fundamental pillars: moral, intellectual, civic, and physical education. Due to the poverty of a large part of the country's population, many children were forced to drop out of school after the third or fourth year to go out to work. For this reason, urban education was separated into *elementary schools* covering three years, and *upper primary schools*, where classes were taught from the fourth to the sixth year.

In both rural and urban schools, responsibility for female education was given to each community. Unlike boys, who received a full academic training, girls learned to embroider, cut, sew, decorate, and make cakes. Regarding formal education, the girls only learned basic notions of the Spanish language, mathematics, history, and geography.

The differences between urban and rural schools led to the emergence of two unequal educational systems, one for the city, the other for the countryside. This situation reflected the elitist interests of the Conservative Party, since at that time the country was still mostly rural, its population being close to three million, of which only 140,000 lived in the large cities (Bogotá, Medellín, and Barranquilla) (Melo 1978). On the other hand, female education was designed by the community, much of it teaching women's roles as mothers and housewives (Helg 2001).

Regrading *private primary education*, teaching methods and educational programmes were quite uneven until the 1927 reform. Most of these schools were run by religious orders, such as Christian Schools, the Marist Brothers, and the Jesuits. Another form of private education was provided by a group of secular schools run by foreign pedagogues, many of them German and North American. Christian and secular schools had their own educational programmes and did not necessarily follow those designed by the state for purposes of public education (Helg 2001).

The boundaries between educational levels during the first half of the twentieth century were not well defined, so programmes were quite heterogeneous, resulting in the level of qualification of graduates from primary education being quite unequal. To minimize the differences in the training of students to enter secondary school, a *lower secondary education* programme was created called *complementary school*s at a level intermediate between primary and secondary education.[7]

Moreover, there was considerable divergence between public and private education at the beginning of the twentieth century. Private schools, both primary and secondary, had been run by European Catholic communities since the late nineteenth century. These communities formed a teaching network that differed from public education, emphasizing French literary training and moving away from science education. In the

[7] Decree 492 of 1933 in MEN.

view of many, this elitist education became a prerogative for leaders and merely contributed to widening the already marked social differences in the country (Herrera 1993).

Nor was *upper secondary education* not characterized by any uniformity to its programmes and methods, and in many cases the training provided was insufficient to continue directly to tertiary education or to enter the formal labour market. Secondary schools might be private or public and were organized around three types of programme: *academic, vocational, and teaching education*.[8] Before 1933, while in primary education, there were already differences between the educational programmes of boys and girls, in secondary education these differences were even more significant. Boys' schools issued a certificate for finishing the programme which in theory demonstrated sufficient competence for entry into tertiary education. Conversely, women were denied access to secondary academic school and tertiary education, and the certifications issued by female secondary schools did not allow direct admission to the university, only allowing them to work as schoolteachers, seamstresses, or housewives.

Academic secondary education provided the necessary preparation to enter university faculties. The academic schools were divided into *Schools of Sciences* and *Schools of Philosophy and Letters*. The Schools of Sciences granted access to technical institutes and the Faculty of Mathematics and Engineering, the Schools of Philosophy and Literature to all programmes. Here too, the legislation denied women access to this level of education.

Vocational secondary education was divided into three sections: Industrial Preparatory Section, Commerce Preparatory Section, and Arts and Crafts Schools. Certificates of Commerce Studies only were issued by the National School of Commerce, located in Bogotá. In addition, Commerce Studies was in turn divided into two levels: a *Secondary High School of Commerce* and a *tertiary or post-secondary* level. The high-school level lasted six years and was focused on the training of employees, workers, and warehouse clerks.

Finally, *teaching secondary education* aimed to train teachers in the basic knowledge required for the teaching of primary education, as well as in elementary notions of industry, agriculture, and commerce. The capital city of each department was to have a boys' and a girls' school financed centrally but supervised by departmental administrations.

The fact that secondary school was classed as public education did not mean that the state financed it. The national government only provided buildings for schools, and in the event that that did not happen, the buildings had to be provided by the local government. As for educational programmes, until 1916 each school had the freedom to

[8] Teaching Schools (*Escuelas Normales*) had offered teacher-training from 1821, when Francisco de Paula Santander, Colombia's second president, authorized their creation. This name is still used today to refer to this type of secondary education.

design them as it wished. Afterwards a minimum number of subjects and teaching hours were specified as a requirement for receiving a high-school diploma.[9]

To promote manufacturing, non-professional *post-secondary education* was divided into *Commercial* and *Industrial Education* (Ramírez and Téllez 2007). Most of these schools were located in Bogotá, although each departmental capital had a school of arts, crafts, or commerce adapted to local conditions and customs. On the one hand, *industrial post-secondary education* was focused on manufacturing, and especially on the operation of machines suitable for industry. In these schools, the training provided by technicians covered locksmiths, foundry, carpentry, drawing, topography, fabrics, and ornamentation, among others. On the other hand, *commercial post-secondary education* focused on the professionalization of commercial studies, with a five-year programme in which students were taught subjects such as commercial geography, commercial accounting, commercial practice, settlement of bills, and current accounts, among others.

Moreover, focusing education on industrial technical training could be considered at least questionable, since in this period agriculture had greater weight in the country's GDP than industry, and the country was benefiting from the international coffee boom. Due to the coffee boom, domestic production expanded rapidly, achiving the maximum weight of national exports in the first third of the twentieth century. Between 1900 and 1904, coffee exports represented 39% of the total. Between 1925 and 1930, this percentage reached 67% (Ocampo and Botero 2000). This production was mainly concentrated in Cundinamarca, Caldas, Tolima, and the Santanderes. Furthermore, these regions had better schooling performance in the long term due to the increased tax revenues, allowing much greater budgetary capacities and educational investments (Ramírez and Téllez 2007).

Overall, it could be said that secondary education was a practically non-existent field during this period since the Ministry of Education was unable to provide an official system regarding coverage and quality, and as a consequence 70% of students in secondary education were enrolled in private establishments. Helg (2001) and Urrutia (1976) suggested that the low level of enrollment was due to the low demand for this type of education, only the children of the elites attending it.

As for *post-secondary education*, the law was unclear regarding what type of schools should be included in it. Despite this, this educational section also covers the National Agricultural Institute and the National School of Mines.

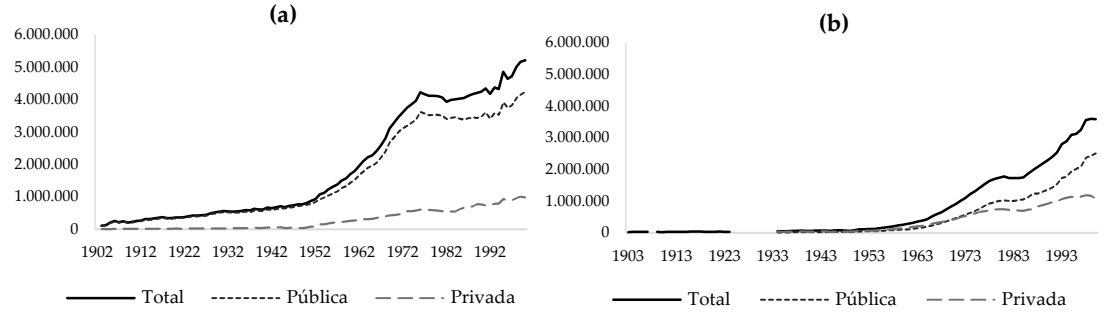
Finally, at the top of the country's educational provision was *tertiary education* or *bachelor's education*. The legislation was much more organized and more precise than on the other educational levels. Access to tertiary education was restricted to those who had a valid high-school certificate. To access tertiary education, it was necessary to have completed *academic secondary education*. For this reason, women could not access this level of schooling, since they could not access academic secondary education. In addition, tertiary education was concentrated in a few institutions or universities, so to

[9] Decree 1601 of 1916 in MEN.

enter the Medical Science, Mathematics, Civil Engineering, Law, and Political Science programmes, students usually had to move to the big cities.[10]

Figures 1.5 show the slow rate of the population's incorporation into primary and secondary education. In primary education, it can be observed that there were no significant increases in the school population during the first half of the twentieth century national levelly. A more significant increase is seen from the early 1950s to the 1970s, but it falls outside the scope of the study of this investigation. When it comes to secondary education, the figures are much more alarming for the period covered by this research.

Figure 1. 5. Total students in public/private primary (a) and secondary education (b), 1902-2000.



Source: Ramírez and Téllez (2007).

Another highly relevant aspect defined in Decree/Law 491 of 1904 was the disaggregation of national public spending on education. Much of the national expenditure came to be borne by the departments and the municipalities. The central government only taking charge of the inspection and provision of educational texts and school supplies. Conversely, departments had to take charge of paying the teachers and the municipalities for the construction, conservation, and provision of primary schools. This separation caused considerable discrepancies in the provision of resources for education between departments, condemning the country to a scenario of substantial inequalities in levels of schooling.

In general terms, the way in which education was defined legally tended to favour the education of the elite. For this reason, in 1917the Liberal Party, greatly weakened after the Thousand Days War, proposed a new political programme to establish free education. But it was not until 1930, when the Liberal Party became the party of the central government, that the changes towards more popular education began (Helg 2001).

In 1924, the Conservative President Pedro Nel Ospina invited the Liberals to participate in the country's modernization process and brought in a German pedagogical mission

[10] Among the main universities were the Colegio Mayor de Nuestra Señora del Rosario, in which most of the faculties functioned, the Veterinary School and the Dental College in Bogotá, the Universities of Antioquia, Bolívar and Cauca, and the College of Boyacá.

to reform public education in the country. From this process stemmed the proposal for the Organic Education Law of 1925. This proposal was vetoed by the Church, which feared that its power over the educational system would be reduced and rejected by Parliament, which supported it. Despite this, the Ministry of Education decided to find an intermediate position between the German mission and national opinion. Therefore, Nel Ospina instigated the 1927 Reform, which contemplated an increase in the public instruction budget, an increase in teachers' salaries, the creation of a school inspection system, and the implementation of a school construction programme, among other measures.[11]

1.3.3.2 The path towards mass education (1930-1950)

In 1930, the Liberal Party came to power, where it remained continuously until 1946. This period is known as the Liberal Hegemony. Melo (1992) defines this moment as that of the modernization of the country, since the basic conditions for the development of a capitalist model were taking place. Likewise, the Liberals were concerned to impose modern institutions that would break with the strong social, cultural, and political authoritarianism of the Conservatives. From this moment on, the breakdown of the traditional educational system also begins. The main objective of the Liberals was to end illiteracy and thus achieve real national integration. To achieve this, the Liberal Government was strongly positioned to face the absolute power of the Church, which not only defended its ideological interests, but also its political, cultural, and economic influence (Melo 1992).

Moreover, during this period, social movements arose demanding civil rights. Within them, feminist movements, which were already a reality in the rest of Latin America and the world, came to Colombia through a sort of contagion effect. This ideology had been established in Colombia thanks to several women from the elite who had traveled and studied in other countries (Luna 2001; Luna and Villarreal 1994a). In this context, the most notable changes in education took place during the Liberal Hegemony, and especially during the López Pumarejo government (1934-1938), which made great strides in the education of women. To this end, Decrees 1487 and 1972 were approved in 1932 and 1933 respectively. The most significant advance was in equalizing education between men and women. A first step towards this change was to allow women access to academic education. Likewise, the contents of both primary and secondary educational programmes had to be the same for boys and girls.

These educational reforms sought to clarify the boundaries and programmes between each educational level. Reforms not only allowed teaching to be homogenized, they also facilitated statistical assessments and contributed to the design of educational policies that were more in line with the reality of each part of the nation territory.

These reforms were influenced mainly by the first German pedagogical mission, which from the late nineteenth century contributed to the design of new pedagogical methods,

[11] See Law 56 of 1927.

the implementation of science teaching in primary education, and the definition of the role of the state in education (Müller 1992).[12]

In the 1930s, the second German mission arrived in Colombia. This mission collaborated with a group of Colombian pedagogues to design a proposal to reform the educational system. This proposal was not approved by the Senate of the Republic, but several aspects of it were included in the educational reform of 1932. Among the most notable changes of the 1932 Reform was the restructuring of the Ministry of Education. The Ministry was divided into two departments, an administrative one to manage the teaching, and technical one responsible for setting up an education inspection system for purposes of control and supervision. Also, educational programmes were standardized in both primary and secondary education. There was a trend towards more equal education between boys and girls, all educational programmes were reformulated, and women were allowed to enter tertiary education.

One of the main changes made in the reform occurred in primary education, which went from six years in urban schools and three in rural schools to four years in both. Complementary education replaced the last two years of urban primary education. This was oriented towards training in popular arts and crafts as an alternative for those who did not continue with secondary education. Teacher-training went from a single five-year programme to a six-year phased programme, the first four years of which qualified the student as a Teacher of Elementary Education and the last two as a Teacher of Higher Education.[13]After this reform, education did not have many more changes. However, some international agreements were signed, such as accession to the International Bureau of Education (IBE) and a degree-equivalence agreement with Spain in 1937.[14]

Another of the main modifications made by the López Pumarejo government was the Constitutional Reform of 1936. This reform provided for greater intervention by the state, as well as the secularization and democratization of education. These educational reforms established the principle that public primary school should be free and compulsory, and it also prohibited discrimination against students based on race, religion, social class, or illegitimacy of birth.[15] As for secondary education, a standard curriculum was established for public and private schools. The first official secondary schools were founded, and a system of public inspection was inaugurated to assess its quality. However, Helg (2001) finds that despite the efforts made by the government to

[12] In 1872 the first German pedagogical mission arrived in Colombia, the second was at work between 1924 and 1935, the third from 1965 to 1978.

[13] Decree 1487 of 1932.

[14] The IBE was founded in Geneva in 1925 as a private, non-governmental organization to serve as a focal point for institutions and associations interested in the subject of education. Today it is an integral part of UNESCO. Colombia joined the IBE in 1932 under Decree 537 and approved the Convention with Spain with Law 127 of 1937 in MEN.

[15] See Law 36 of 1936.

liberate and popularize secondary education, it continued to be under the control of the elites.

In the 1930s, regional differences continued, as many departmental governments did not have the resources to invest in education, affecting not only the provision of education, but also its quality (Ramírez and Téllez 2007). That is why, in 1939, the National Government carried out a tax reform that set up a Municipal Development Fund to work as a financial fund to promote mass education. The objective of this fund was to channel state resources to the less favoured regions, but the impact of this policy is not evident from the existing literature (Helg 2001; Ramírez and Téllez 2007).

Many of these educational reforms cannot be understood without taking into account the economic and social transformations of the time. As for economic changes, in the 1930s the start of a slow process of modernization can be observed due to the increase in coffee exports, international loans, and investments in oil, mining, and public services, as well as the emergence of an incipient manufacturing sector (Ocampo 1999). This situation required increasing the workforce. For this reason, many industries opted to incorporate female labour because market wages were much lower than men's (Luna and Villarreal 1994b). Furthermore, the increases in coffee exports seem to have been associated with the participation of child labour in the cultivation and threshing of coffee (García Londoño 1996).

Moreover, to support this embryonic development, the state opted for secondary technical education as an instrument to exploit the potentual of the country's productive capacity. This led to the creation of industrial and arts and crafts educational establishments, as well as establishments for agricultural education. Vocational education was focused on the popular classes, being taught in vocational schools, while the elites were trained in academic education, widening social differences even more (Helg 2001).

Although the crisis of the 1930s had a strong negative impact on the country's aggregate demand for non-basic goods, its impact on national production was minimal because this economic decline directly affected imports, allowing the emergence of an internal market (Ocampo 2015). This potential and growing domestic market required an urbanized population, so it was necessary to have a homogeneously literate society to facilitate migration from the countryside to the cities. The integration of the countryside into urban society required an effort to standardize primary education since the rural educational model consisted of one or two years of study, while urban education lasted six years. During this period, the central government focused on reinforcing rural education, but the measures it introduced were never fully effective. Sometimes only legal provisions were established, without the financial or institutional support to ensure compliance (Helg 2001).

The policies adopted thus fell far short of the proposals, partly because spending by the Ministry of Education fell sharply in the 1930s, from 6.48% of the national budget in 1923 to 2.02% in 1933. This lack of educational provision was reflected in a lack of teachers (Ramírez and Téllez 2007). According to the Report on Education of 1937, providing primary education coverage to the entire country required having around 15,000 new

schools and 20,000 new teachers, while at that time there were only 8,314 schools and 12,370 teachers. In the 1940s the national education budget increased as a result of the recovery of the economy and the government's interest in education, reaching a maximum of 9.25% in 1940, which allowed the national government to build new rural schools between 1940 and 1945 (Helg 2001). Despite the efforts of the central government in this period, there were no significant growth or changes in trends in educational variables, such as the number of students enrolled in primary and secondary education (see Figure 1.5), or the number of schools and their quality. The first transformations can only be observed from the 1950s, when there was strong economic growth and significant changes in the economic and demographic structure of the country (Ramírez and Téllez 2007).

Beyond financial difficulties, there were other problems the educational system had to face in this period. First, one of the main problems was the search for dignity on the part of the teachers' union. According to Ramírez and Téllez (2007), the teaching profession had become entirely discredited. An urban teacher in the early 1930s earned $45 month, compared to a railroad employee, who earned an average of $82, and salaries were often not paid on time. Then, in 1937, a national scale was established to minimize salary differences between departments. Secondly, there was also student unrest that resulted in many street demonstrations and clashes between students and the police between 1930 and 1946. In these actions, students criticized the educational policies of Liberal governments regarding plans of study, teacher training, and especially the existing clientelism around appointments of directors of educational establishments (Herrera 1993).

Conservative governments returned between 1946 and 1953, during which President Mariano Ospina Pérez began a period known as "The Conservative Reaction," in which the Liberals' educational ideology was abandoned and dismantled. In particular, the Liberals' secular ideology of the classrooms was eliminated and the Christian tradition reincorporated. Likewise, these Conservative governments dedicated many efforts to eradicating the left-wing ideology of educational institutions, which had emerged in the previous years under Liberal governments. This fact accentuated the political struggles and philosophical debates, leaving as its legacy a country in ideological conflict (Herrera 1993).

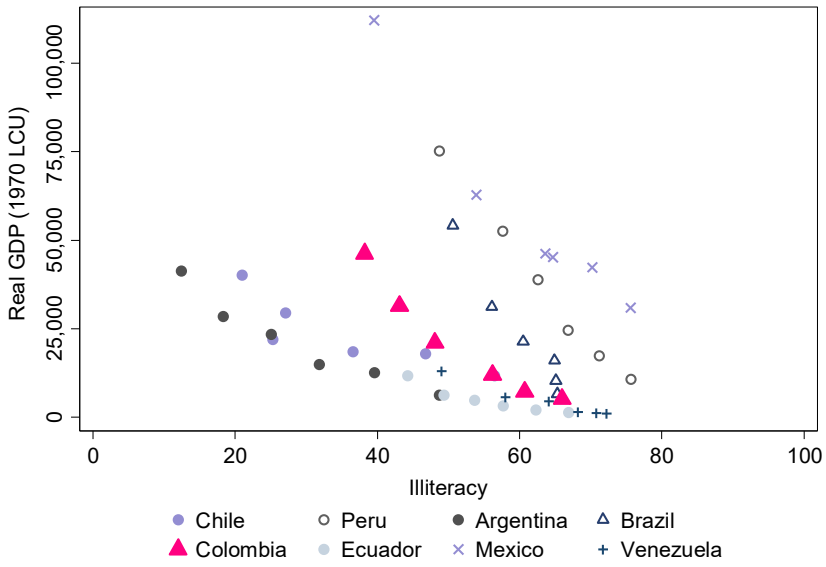
Starting in the second half of the twentieth century, the expansion of education in Colombia took off. In the 1950s, growth in enrollment rates was much higher than in the previous years. As explained by Ramírez and Téllez (2007), this is especially noticeable in primary education (see Figure 1.5). The improvement in enrollment rates corresponds to a series of structural changes that began in the second half of the twentieth century. One of these changes was demographic, the period being one of high population growth, with rates close to 3%, as a consequence of a high fertility rate and a decrease in mortality. Likewise, enrollment rates were affected by the dynamics of the urbanization process, which reached its highest point in the 1950s. This process was a response to a high degree of rural-urban migration and an improvement in the conditions of urban centres. Finally, improvements in educational indicators corresponded to the greater

fiscal capacities that were a consequence of the economic growth (Ramírez and Téllez 2007).

1.3.4 Colombia compared with Latin America and the World

Colombia did not enjoy the privilege of belonging to the select group of prosperous economies in the continent's southern cone, like Argentina or Chile. Unlike these economies, Colombia was quite rural and more stratified, less urbanized, its society ethnically more heterogeneous, with a small, oppressive elite (Kalmanovitz 1999). As a starting point, the economic health of several Latin American countries and their levels of illiteracy in the first half of the twentieth century are compared (see Figure 1.6). The first observation regarding these comparisons is that there is apparently a negative correlation between GDP per capita and illiteracy. Secondly, two different dynamics are observed. The first corresponds to the countries of the southern cone, which, despite not having a GDP per capita as high as other Latin American countries, had low illiteracy rates. In the second dynamic, we have states that, despite having a relatively high GPD per capita for the average level in the region, had high levels of illiteracy. Colombia falls somewhere in between the two groups: that is, its illiteracy level in relation to its GDP per capita was much better than countries such as Brazil, Peru, or Mexico, but much worse than Chile or Argentina.

Figure 1.6. GDP per capita in local currency units (LCU) and illiteracy rate, 1900-1950.

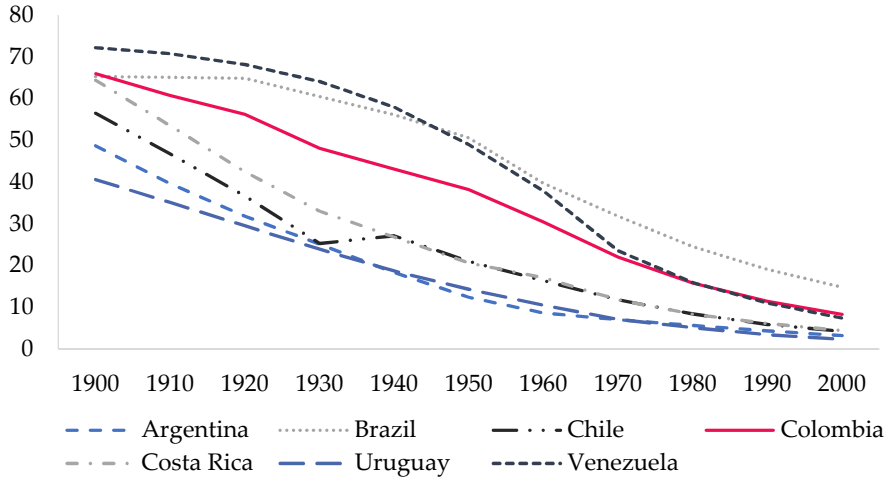


Source: Moxlad.

However, if we observe the evolution of the illiteracy rate over time, regardless of the size of the economies (see Figure 1.7), we see that Colombia maintained high rates of illiteracy in its adult population throughout the first half of the twentieth century. According to Ramírez and Téllez (2007), the inability of political parties to organize and regulate education throughout the nineteenth century, together with the civil wars in and the low resources available to the Colombian state, caused the new century to start

with one of the highest levels of educational backwardness in Latin America. In contrast, Argentina and Uruguay had the lowest illiteracy rates, despite not having the highest GDP per capita at the time. Bulmer-Thomas (2003: 100) suggests that, regardless of the impact that economic resources have on schooling, the reason why some Latin American countries had better educational performance than others is that they began the process towards mass education much earlier than the others (e.g., Argentina and Chile began the process around the 1860s, Costa Rica in 1890, and Uruguay in the following decade).

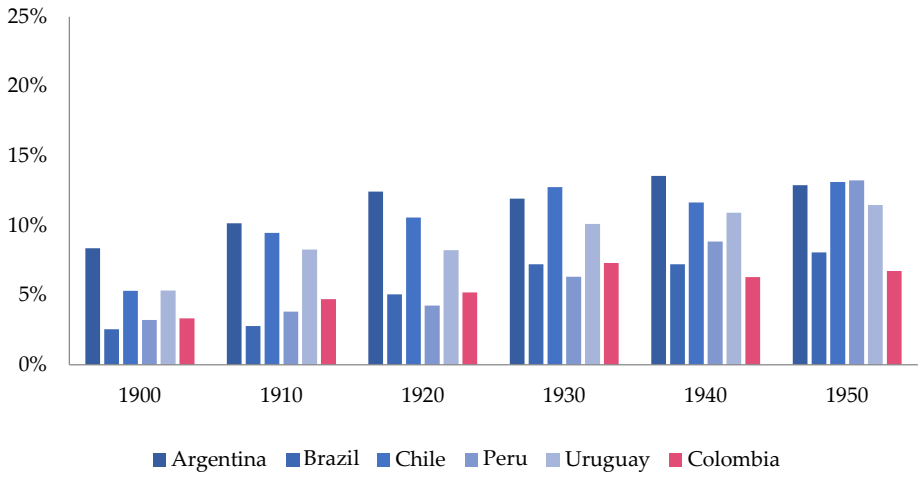
Figure 1.7. Illiteracy rate as a percentage of the adult population.



Source: Ramírez and Téllez (2007).

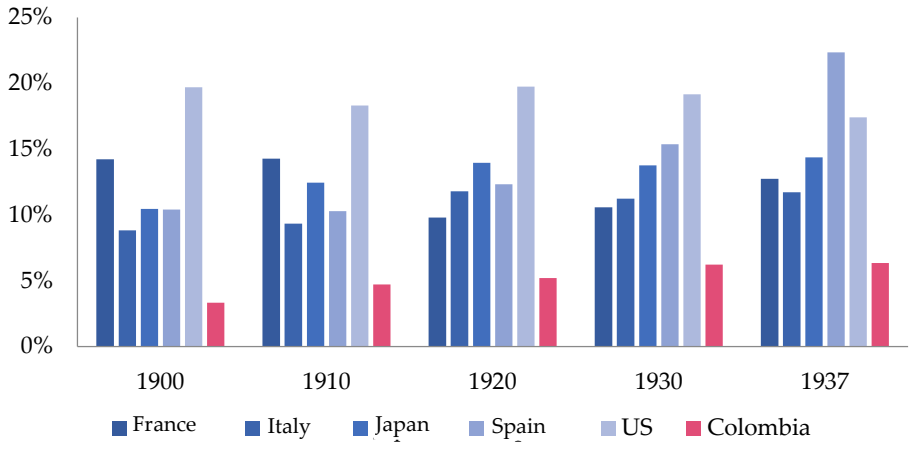
Moreover, if we analyze educational levels in terms of the percentage of the population enrolled in primary school, the different pattern of the southern cone remains, as shown in Figure 1.8. Likewise, although Colombia had an enrollment rate in primary education similar to countries such as Brazil or Peru at the beginning of the twentieth century, by the middle of the century, its enrollment rate was lagging behind the rest of Latin America. However, if we compare the performance of Colombia with respect to developed countries, it can be said that these percentages were very far from the Colombian reality (see Figure 1.9). On the contrary, there was a convergence between them. In contrast, when we focus on secondary education, the United States had a different performance than other countries, both developed and developing, as seen in primary education (Figure 1.10).

Figure 1.8. Students enrolled in primary school as a percentage of the total population. Selected Latin American countries, 1900-1950.



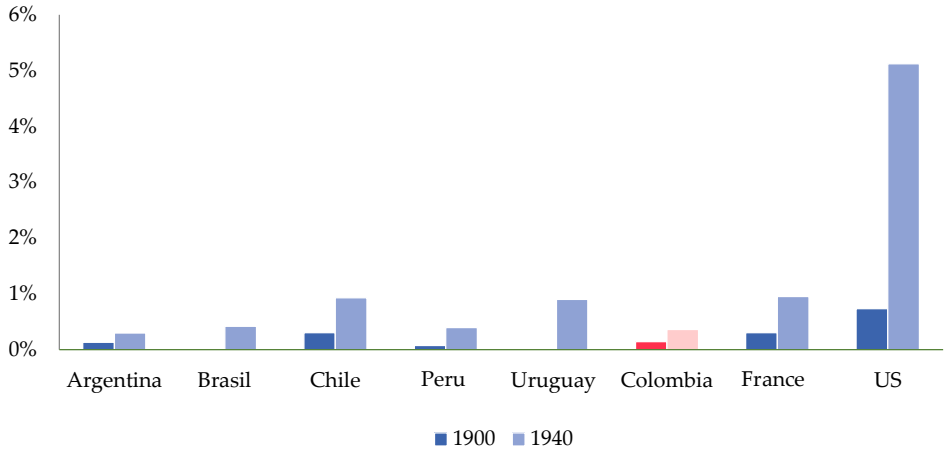
Source: MOXLAD and The World Bank.

Figure 1.9. Students enrolled in primary school as a percentage of the total population: Selected countries, 1900-1937.



Source: MOXLAD and The World Bank.

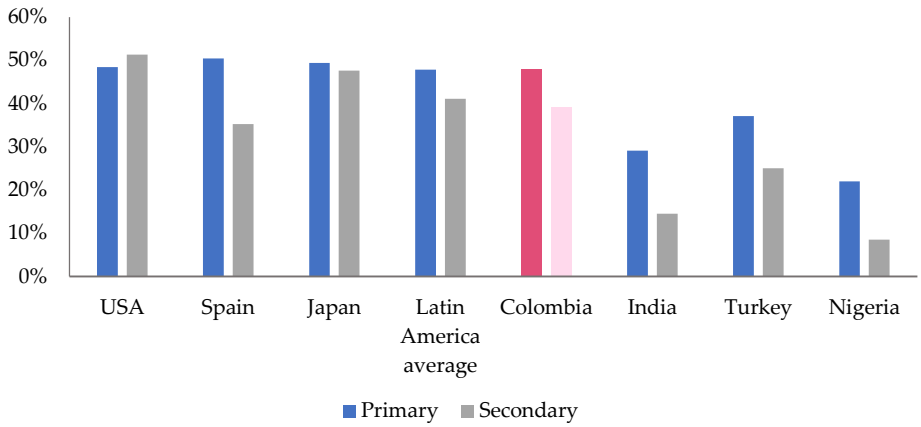
Figure 1.10. Students enrolled in secondary education as a percentage of the total population: selected countries, 1900 and 1940.



Source: MOXLAD and The World Bank.

Overall, as Frankema (2009) points out, even though there were sufficient resources on the aggregate economic level that could have been devoted to educational expansion, resistance to its redistribution and the low benefits of investing in education generated few incentives to promote education during the twentieth century. In agreement with the above, gender segregation could partially explain the educational backwardness. Despite this, statistics on female participation in primary and secondary education show that both Latin America and Colombia had levels more or less comparable to those of the most advanced European economies and the United States (Figure 1.11).

Figure 1.11. Percentage of female participation enrolled in primary and secondary education. Selected countries, 1950/1954.



Source: Frankema (2009b).

In general terms, education in Colombia in the first half of the twentieth century can be considered backward compared to similar Latin American countries and the developed world. Likewise, the statistics offered by the literature refer to the national average, but as previously noted, Colombia is a country with significant economic and institutional inequalities. For this reason, this research will focus mainly on addressing these

differences to understand the expansion of mass education during the first half of the twentieth century.

1.4 Methodology

1.4.1 Conceptual framework and definition and classification of educational levels according to UNESCO and the OECD

The structure of educational systems can change considerably depending on the country and years. Therefore, it is not possible to make international comparisons or comparisons over time within the same country without previously establishing some criteria for their homogenization. In the mid-1970s, an international agreement was approved by the International Conference on Education (Geneva, 1975) to create a classification making it possible to establish an international framework to group the activities defined in educational programmes into universally valid categories applicable to all types of educational system. This arrangement was called the International Standard Classification of Education (ISCED), and it was revised in 1997 and later in 2011, in collaboration with countries and other international organizations such as the OECD and the European statistical office (Eurostat). Finally, the UNESCO Institute for Statistics led the development of a third version called ISCED-2011, adopted by UNESCO's 36th General Conference in November 2011.

The purpose of ISCED is to provide an integrated and consistent statistical framework for the collection and reporting of internationally comparable educational statistics. The classification is mainly organized by education programme and certification, as well as other criteria, such as starting ages, entrance qualifications, entrance requirements, and access to the labour market.

According to this classification, *educational programmes* may be "formal" or "non-formal". Among the formal programmes are those that are institutionalized, publicly organized and accredited private organizations, and those programmes mainly focusing on education prior to entering the labour market, but also vocational education, special needs education, and some educational programmes are also covered. Adult education also counts as formal education. Programmes delivered partially in the workplace can be considered to fall under formal education if, and only if, they provide certification recognized by the competent authorities. Vocational programmes are usually carried out in collaboration with educational institutions and employers. Conversely, non-formal education represents an alternative or complement to formal education and includes those programmes whose certifications are not recognized by the competent national authorities. Within a single programme, educational activities can be structured into smaller ones, known elements with different names depending on the country, such as "courses", "modules", "units" or "subjects".

The *certificate* is defined as official confirmation of the conclusion of an educational programme or a phase of it. This confirmation is usually made by means of a physical

document of official validity. Other terms such as "degree", "title", or "diploma" can be used interchangeably to refer to certification at the same educational level: for example, having a degree in tertiary education may mean that a student has completed a programme, or a student may be said to possess a title or diploma in tertiary education.

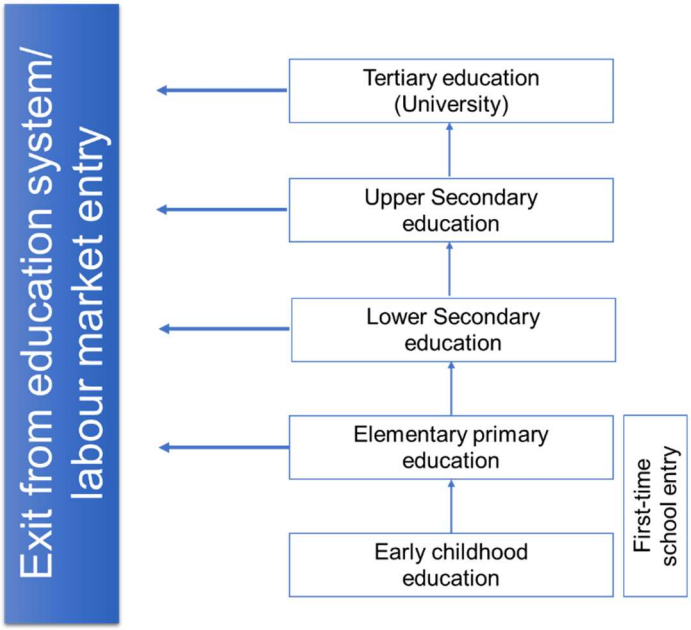
Within the design of ISCED 2011, educational programmes are developed through the completion of specific tasks in a period, called "levels". These levels represent advances in educational progression in terms of complexity, that is, the more advanced the programme, the higher the level of education. The classification of educational programmes into levels of progression allows us to collect details of the variety of options available in educational systems; for this purpose, there are nine levels ranging from 0 to 8. Because educational systems have different ramifications, each individual can organize his or her path in different ways. However, a single pathway does not cover all the existing levels.

Within this classification, *level 0* comprises early childhood education and may be given different names, for example, early childhood education and development, kindergarten, kindergartens, pre-primary, or preschool. *Level 1* seeks to lay a solid foundation for learning, its programmes being very long, and the most widely used term internationally is primary education. *Level 2*, also known as lower secondary education, seeks to reinforce level 1 learning outcomes. In many countries, it coincides with the completion of compulsory schooling, and the most commonly used names are middle school, junior secondary school, middle school, or junior high school. *Level 3*, or upper secondary, is more specialized than lower secondary and offer students more choices and diverse pathways for completing their secondary education. This level focuses on preparation for tertiary education or vocational studies. It may be referred to in many ways, for example, secondary school (stage two/upper grades), senior secondary school, or (senior) high school. *Level 4*, or post-secondary non-tertiary education, seeks to broaden, rather than deepen, the contents of level 3. The programmes included in this level have a vocational orientation. Among the main denominations, we find technician diploma, primary professional education, or *préparation aux carrières administratives*.

Finally, tertiary education comprises *levels 5 to 8* and is based in part on knowledge acquired in secondary education, while deepening learning in specialized fields of study. The contents of the programmes at these levels are more complex and advanced than the lower-level programmes. The natural evolution of the course is level 5, or short-cycle tertiary education; level 6, or tertiary education degree or equivalent; level 7, or master's level, specialization or equivalent; and level 8, or doctorate level or equivalent.

Table 1.1 presents a synthesis and complete overview of the codification and the criteria defined for each of these educational levels. Within these classification criteria, aspects such as the scope and properties of the programme, the activities that each level must cover, orientation, duration, target age, whether or not compulsory, access to a more advanced level, and the certifications obtained at the end of the level. Figure 1.12 shows the potential educational pathways in a general way.

Figure 1.12. Potential educational pathways.



Source: Own elaboration based on ISCED 2011. Note: The ISCED 2011 Operational Manual shows more specifically the programmes and possible pathways.

Many countries have adapted their educational systems to the ISCED guidelines. Colombia changed its current policy to ISCED 2011 in November 2015. I use these guidelines as a reference to establish the standardization of the Colombian educational system during the first half of the twentieth century. Therefore, before presenting the adaptation proposal, I described the main characteristics of the Colombian educational system in the following section.

Table 1.1. International Standard Classification of Education (ISCED).

ISCED classification level	Educational level	Scope / objective	Requirements	Entrance age	Duration	Compulsory education
ISCED 0	Early childhood education	Focused on initial support of the child's cognitive, social, and emotional development. Programmes are usually not very structured.	None	0 - 2	Duration criteria not established	No
	Pre-primary education	Basic alphabetical and mathematical concepts are exposed, promoting self-expression. Social interaction, skills, and autonomy are promoted.	None	3 - 5		
ISCED 1	Primary education	Provide basic skills in reading, writing, and mathematics, that is, literacy and number use. The level of complexity is usually basic, with little or no specialization.	None	5, 6 or 7	4 to 7 years (most common: 6 years)	Yes
ISCED 2	Lower secondary education	Reinforce learning outcomes at ISCED level 1. They tend to apply a more subject-oriented model, and a branch emerges between general and vocational education.	ISCED 1	10 - 13	2 to 5 years (most common: 3 years)	Yes

	General lower secondary education	*The successful completion of this level is considered insufficient for the end of the secondary education, and it is required to continue ISCED 3 (general)*	ISCED *1*	*10 - 13*	*2 to 5 years (most common: 3 years)*	*Yes*
	Vocational lower secondary education	*The successful completion of this level is considered insufficient for the end of the secondary education, and it is required to continue ISCED 3 (vocational)*	ISCED *1*	*10 - 13*	*2 to 5 years (most common: 3 years)*	*Yes*
ISCED 3	Upper secondary education	Consolidate secondary education in preparation for tertiary education or provide necessary skills for the labour market. This level offers more diversified, specialized and advanced instruction than ISCED 2.	ISCED 2	14 - 16	2 to 5 years (most common: 3 years)	Depends on the educational system
	General upper secondary education	*The completion of the level can take place "with direct access" to non-tertiary or tertiary post-secondary education, or "without access."*	ISCED *2 general*	*14 - 16*	*2 to 5 years (most common: 3 years)*	*Depends on the educational system*
	Vocational upper secondary education	*The completion of the level can take place "with direct access" to non-tertiary or tertiary post-secondary education, or "without access."*	ISCED *2 vocational*	*14 - 16*	*2 to 5 years (most common: 3 years)*	*Depends on the educational system*
ISCED 4	Post-secondary non-tertiary education	Educational programmes at this level are usually not more advanced than upper secondary programmes; the main difference is that knowledge is expanded rather than deepened. The main objective is to improve insertion	ISCED 3		6 months to 2 o 3 years	No

		into the labour market or facilitate entry to tertiary education.				
ISCED 5	Short-cycle tertiary education	The programmes are intended to impart practical professional knowledge, skills, and competences and are usually geared towards specific or technicians' occupations and preparing the student for the job market. May be called technician education (higher) *technical education, junior college education, technician o advanced/ higher vocational training*.	ISCED 3 or 4		2 to 3 years	No
ISCED 6	Bachelor's or equivalent	Programmes are longer than ISCED 5 and are intended to impart intermediate academic or professional knowledge, skills, and competences leading to a first degree or equivalent certification. They can receive the name of Bachelor, license, degree or first university cycle.	ISCED 3 or 4		3 to 4 years from ISCED 3; or 1 to 2 years from another ISCED 6 programme	No
ISCED 7	Master's or equivalent	The main objective is to impart advanced academic and/or professional skills leading to a second degree or equivalent certification. They may include a significant research component. They usually receive the names of a master, magister, a master level, specialization, or equivalent.	ISCED 3, 4, 6 or 7		1 to 4 years from ISCED 6; or 5 to 7 years to ISCED 3	No

ISCED 8	Doctoral or equivalent	These programmes seek to lead to an advanced research degree. They are usually offered exclusively by higher education institutions (universities) dedicated to research. They can receive different denominations, such as: *PhD, DPhil, D.Lit, D.Sc, LL.D.*	ISCED 7		3 years minimum	No

Source: Based on OECD (2015).

1.4.2 Definition and classification of educational levels in this work

1.4.2.1 Adaptation of the Colombian educational system to the international classification

In order to provide internationally comparable data, I have adapted data on the Colombian education system in the first half of the twentieth century to the International Normalized Classification of Education (ISCED) of 2011. The classificatory criteria of ISCED's formal education programmes and Colombia's educational laws and decrees between 1904 and 1958 were analyzed. Although the first of the criteria used was the name of the programme, using that alone can prove misleading. Similar programmes may have different names in different countries, while access and certification requirements between programmes with the same name may not be equivalent (Goldin 2001). As a result, subsidiary criteria have been adopted here. Whenever the name of a programme was not explicit, the criterion that was chosen was the age of admission. If this information was not available, the decisive criterion was the certificate of access required.

Table 1.2 shows the adaptation of formal education from the first half of the twentieth century to the international classification ISCED 2011. In it, the same categories of levels, educational programmes, and certifications have been used according to the information available from the Colombian system. Figure 1.13 shows the possible educational trajectories that a student could carry out from entering the educational system at the most basic level to tertiary education, as well as the possibilities provided by access to the labour market according to the legislation on child labour. The trajectory started with *early childhood education*, a non-compulsory level. It nonetheless gave access to *primary education*, although it was also possible to start it directly without going through early childhood education. Primary education had an *elementary level*, which provided access to the *upper primary education*. Night primary education was designed for the working class who wanted to acquire the training and could not access other programmes.

From primary education, the possibilities for further training diverged. One route allowed access to *complementary, religious, nursing,* and *arts and crafts training*, from where it went directly to the labour market. The other route allowed choice of a path to *vocational education* (commercial, industrial, or teaching), which in turn gave way to more specialized training or direct access to the labour market. In the case of *secondary school*, this offered the possibility to work as an elementary school teacher. Finally, higher primary education gave access to *academic secondary education*, which in turn allowed access to tertiary education.

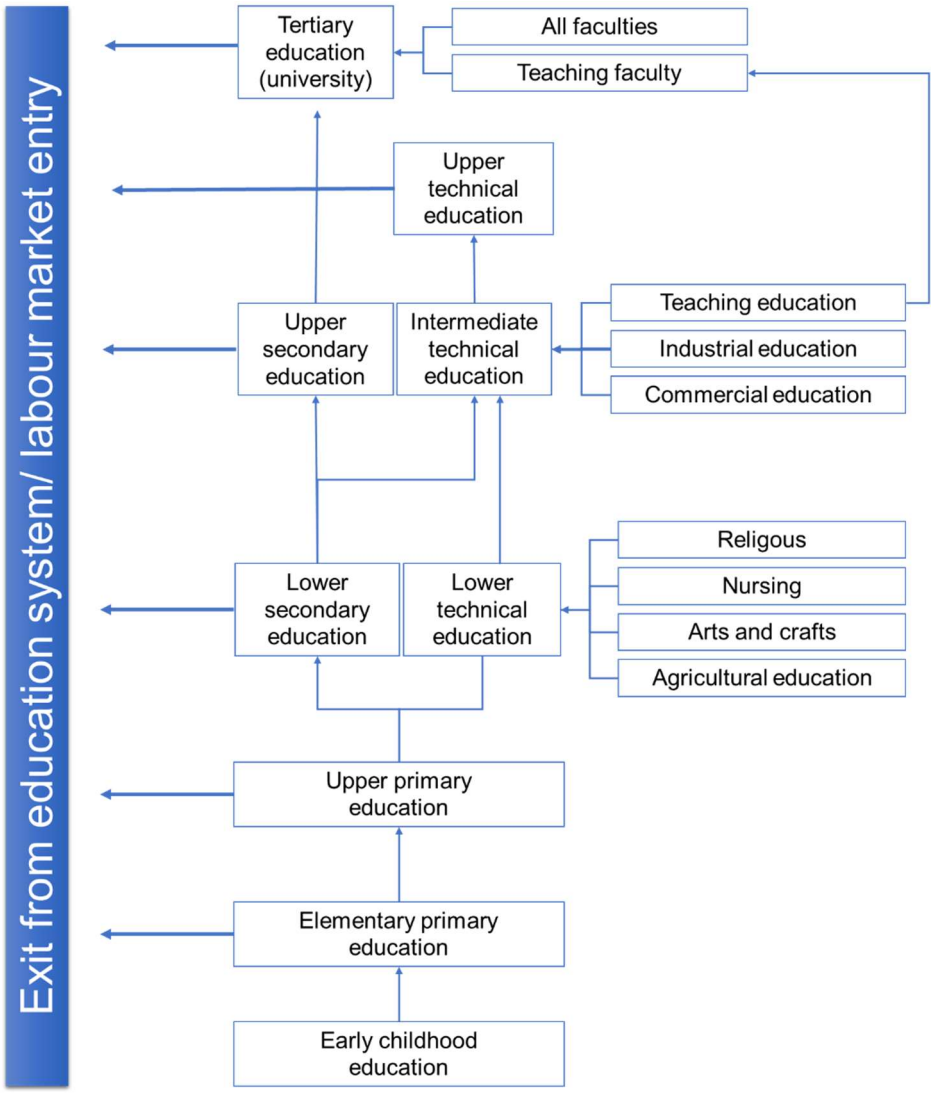
Table 1.2. Adaptation of educational levels in Colombia to ISCED 2011between 1900 and 1958.

ISCED Level	Education level	Entrance age since 1904	Duration before 1932	Duration after 1932	Entrance age after 1932	Certification	Requirements	Level name
ISCED 0	Early childhood education	5-7		5	Until 7		None	Child education
ISCED 1	Primary education		3	4	7	Elementary education diploma	None	Rural education
			2	4			None	Urban elementary education
			4			Primary education diploma	Elementary education	Upper urban education
SCED 2	Lower secondary education	11		2	14	Complementary education diploma	Elementary education	Complementary Education
ISCED 3	Upper secondary education		4			Vocational diploma	Primary education or complementary education	Technical upper secondary education: Industrial Preparatory Section
		11	6	6				Technical upper secondary education: Commercial Preparatory Section
		11	6	6				Vocational secondary education: arts and crafts schools
		11	5	4		Teacher in higher education	Primary education	Vocational secondary education: Teacher training
				2		Teacher in upper education		
		11	6	6		Diploma in Science-humanities	Primary education	Academic secondary education
ISCED 4	Post-secondary non-tertiary education		6			Certificate of Suitability	Technical diploma Commercial	Commercial education: Second Grade Technical Section
			5			Certificate of Suitability	Technical diploma Industrial	Industrial education: Second Grade Technical Section
ISCED 5	Short-cycle tertiary education	-	-	-	-	-	-	-

ISCED 6	Bachelor's or equivalent level	17				Professional	Diploma in Science-humanities or Technical Diploma Industrial	Faculty of Mathematics and Engineering
		17				Professional	Diploma in Science-humanities	All faculties
		17				Graduate Teacher	Teacher in higher education	Magisterium

Notes and Source: own elaboration based on ISCED 2011 and the laws and decrees of education between 1903 and 1958, and Memories of Education from 1904 to 1958. Before Decree No. 1186 of 1954, there are no references to the minimum age of entrance to night school.

Figure 1.13. Potential educational pathways.



Source: own elaboration based on Law 39 of 1903 and Decree 491 of 1904.

1.5 Educational series: data and sources

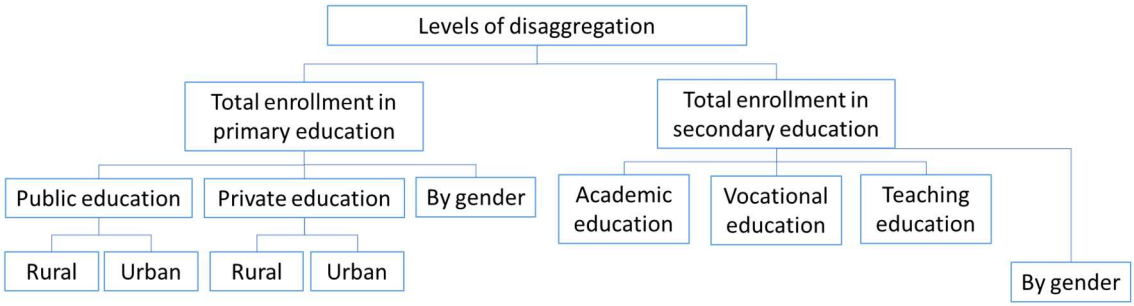
To understand the internal dynamics of education in Colombia during the first half of the twentieth century, long-term regional series of the Gross Enrolment Rates (GER) for primary and secondary education had been built between 1900 and 1958 In order to provide data that can be internationally comparable, I have adapted data on the Colombian education system in the first half of the twentieth century to the ISCED 2011 classification, as shown in Table 1. The classificatory criteria of ISCED's formal education programmes and Colombia's educational laws and decrees between 1904 and 1958 were also analyzed (see Table 1.2).

The process of construction of the series of students in primary and secondary education ran into various difficulties due to the dispersion of the data and the lack of homogeneity in statistics before 1932. Until then, there were no clear criteria for the collection of data regarding the publication of statistics and their periodicity. For this reason, the data may come from either the Yearbooks of the Ministry of Education or Statistical Yearbooks. Also, information for some years was not published, and there were some years for which the statistics included data from previous years. Appendix 1A specifies the source used to collect the data on an annual basis.

Additionally, for reasons explained above, and due to specific events such as the Thousand Days War and the Crisis of 1929, the collection of statistical data was prevented, and therefore it was not possible to obtain data for some years, especially for secondary education. Concerning primary school, the years 1900-1903, 1929, and 1938 are not included (Gómez Marín *et al.* 1982). Regarding secondary education, it was not possible to collect data for the years 1900-1903, 1911, 1913, 1919, 1920, 1923-1927, 1929, 1932, 1933, and 1938.

Beginning in 1933 with Decree 492, the national government, through the Ministry of Education, specified that all public and private schools were required to send statistics to the Ministry of National Education using a single unified criterion form. For this reason, from 1933 onwards, educational statistics began to be published in the Statistical Yearbook of Colombia and remained relatively homogeneous for the rest of the research period. In 1954, Decree 1186 established new statistical criteria that, despite differing slightly from the previous one, did not pose a problem in homogenizing the data. Figure 1.14 shows the disaggregation levels that have been constructed for primary and secondary education series, as long as the source allows it.[16]

Figure 1.14. Levels of disaggregation in primary and secondary education.



Source: see text.

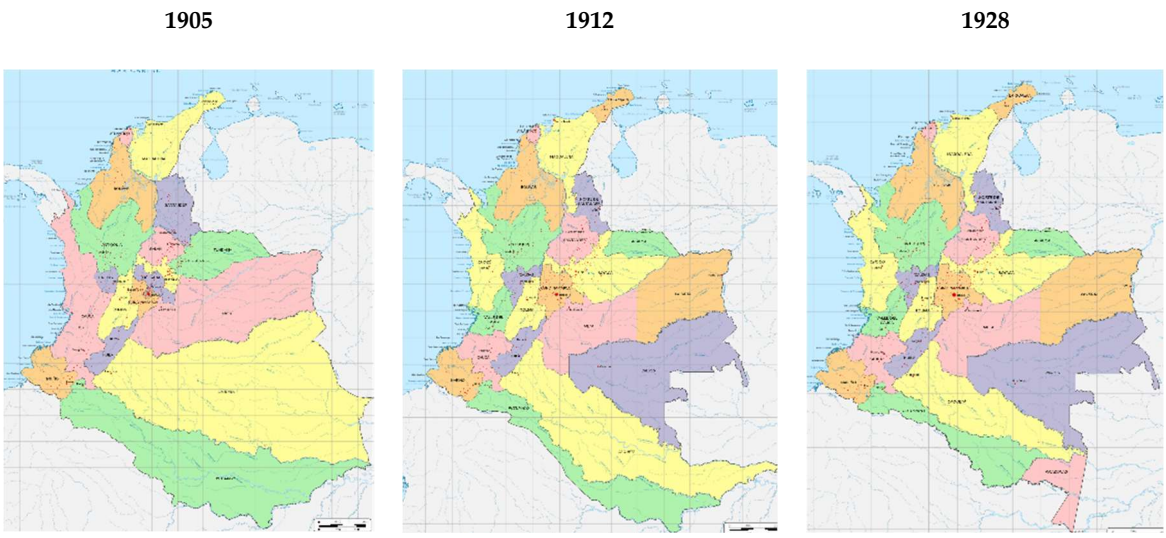
The relevant school-age ranges are here assumed to be 5 to 14 years old for primary schools and 15 to 19 for secondary schools, based on the population censuses of 1905, 1912, 1918, 1928, 1938, 1958, and 1964. Exponential growth curves have been estimated based on the six years covered by each census to obtain annual school census records. The school-age population for the national territories was not published in the pre-1938

[16] For more details on the sources used, see Appendix 1A, Tables 1A.1 and 1A.2.

censuses, only the total population. For this reason, an average of the child population with respect to the total population was estimated using the censuses of 1938, 1951, and 1964. Once the average percentage of children concerning the total population was calculated, the number of school-age children for 1905, 1912, 1918, and 1928 were estimated, assuming that the said percentage remained constant.

In order to homogenize the collected information, I have made several decisions that I present below. In order to facilitate the analysis, due to the numerous changes in internal borders and the autonomy levels of each department between 1905 and 1958 (the main border changes can be seen in In Figure 1.15), I use the territorial order that existed in 1928 because this was what prevailed throughout most of the period. Since then, there have only been minor changes to internal borders. In addition, as a data-grouping criterion, in cases where a territory was divided into two or more units, the largest territorial division was always the one that was retained, its students and population being added as a single data point.[17]

Figure 1.15. Territorial changes in Colombia between 1905 and 1958.



Source: Instituto Geográfico Agustín Codazzi.

Also, because the national territories of Meta, Vichada, Putumayo, Caquetá, Vaupés, and Amazonas changed their borders many times during this period, it was not possible to treat them independently. For the purposes of this research, therefore, I have grouped them into a single territory I call the Amazon Region, resulting in nineteen observations.[18] However, since the national territories of Meta, Vichada, and Vaupés have kept their borders stable since 1912, the series estimated thereafter, such as those

[17] On April 24, 1907, the first section of the border between Colombia and Brazil was negotiated through the Vásquez Cobo-Martins treaty. Subsequently, between 1922 and 1934 many of Colombia's international boundaries were fixed, mainly those with Brazil (1928), Panama (1924) and Peru (1922-1934).

[18] For more details about the aggregation of the territories, see Appendix 1A, tables 1A.3 and 1A.4.

disaggregated by gender, were disaggregated into 21 observations according to the availability of data.

The War of a Thousand Days between 1899 and 1902 prevented any data being collected for the first years of the twentieth century. As a result, the first Statistical Yearbook for public education did not appear until 1911.[19] Similarly, the institutional instability of the country did not allow the publication of statistics for some years and territories, so that the Ministry of Education Yearbooks are lacking for 1948, 1950, 1952, and 1957. Regarding primary education, it was not possible to collect data anywhere in the country in 1900-1903, 1924, 1926, 1929, or 1938. In the same way, the available sources only allowed urban education to be disaggregated from rural education for the period 1927 to 1958. In the case of secondary schools, it was not possible to collect data for 1900-1903, 1918-1920, 1924-1932, 1935, or 1951, nor for 1948 for any department.

Moreover, the statistics between 1905 and 1932 are quite heterogeneous due to the constant changes in the administration of the Ministry of Education. For this reason, the format of the statistics, as well as the categories of disaggregation, changed year by year throughout the period. Another problem was the lack of homogeneity in the data due to the constant changes made to the legal framework, institutional instability, and the permanent abandonment of positions. Some examples of changes in criteria and statistical formats are shown in Appendix 1A. Likewise, departmental statistics vary significantly from year to year, generating some doubt about the reliability of some data. For several of the years for which data were missing or seemed unreliable in respect of primary education, as in Atlántico for 1920, Magdalena for 1931, Meta for 1945, San Andrés for 1939, or Cauca for 1910, figures were interpolated from the numbers of students that did not present many variations between the previous year and the following one.

Finally, as it was not possible to arrive at disaggregated school census figures for the rural versus the urban populations, for this type of analysis I used the total population figure using the same methodology of exponential growth and with the censuses of 1928, 1938, 1958 and 1961 as the source.[20]

The goal behind the construction of series is to identify the main regional trends in the evolution of education in Colombia and advance some hypotheses about the slow progress of education both there and in Latin America generally. In this framework, the economic, geographical, and institutional constraints are expected to determine the performance of education in each region. Likewise, the national territories are expected to differ substantially from the departments due to their lack of fiscal autonomy and the control of Catholic missions over the provision of education.

[19] Yearbook of the Ministry of Education for 1911.

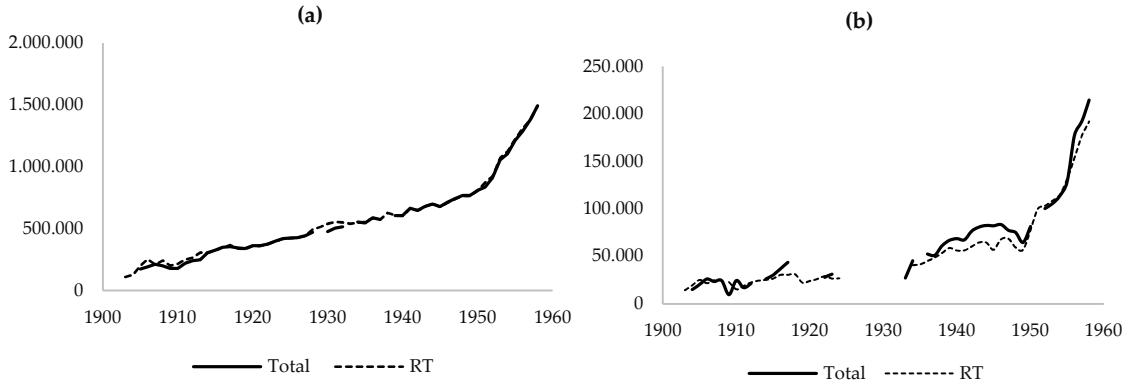
[20] The Population Census for 1928 was overestimated by 5% and was not approved by Congress (Vidales *et al.* 1978).

1.6 Educational series: analyzing patterns

1.6.1 National series

Figure 1.16 shows my series for primary and secondary education school students, based on the sum of regional data. The series by Ramírez and Téllez (2007), based on national data, is also included for purposes of comparison. The graph shows that the two series follow very similar trends, except for the period between 1904 and 1915 and the beginning of the thirties, where my series shows slightly lower levels. This difference might be explained by the fact that Ramírez and Téllez (2007) used data from the Colombian statistical yearbooks, which in many years were based on estimates, while my data are based on the census education records.

Figure 1.16. Students in primary (a) and secondary education (b) 1904–1958.

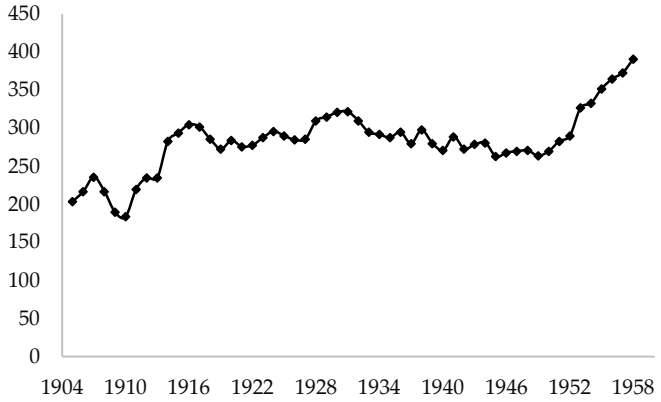


Source: see text for my own data and Ramírez and Téllez (2007) (RT hereafter).

As for the series for secondary education, the figure shows that these differences were more persistent during almost the entire period. These differences can be related to the criteria used to define secondary education. Ramírez and Téllez (2007) focus on vocational and academic education, but they do not specify what types of programmes are contained in each of them, meaning that some might have been omitted.

The previous series does not allow us to make inferences about the evolution of schooling. When we look at the national series of primary school enrollments in absolute values, I see a steady increase in the numbers of students. However, three different periods can be identified in the enrollment rate if we analyze the school-age population exclusively, as in Figure 1.17. The first period is one of growth between 1905 and 1916, the second a period of stability with some fluctuations between 1917 and 1949, and the third, from 1950 onwards, one in which it is possible to see a new increase. As I shall explore in the next chapter, this increase in enrolment rates since 1950 corresponds to the demographic expansion that occurred after the mid-1940s (Ramírez and Téllez 2007).

Figure 1.17. Primary school enrollment rate: Colombia, 1904-1958.



Source: see text. Note: includes public and private enrollment numbers divided into thousands of children 5 to 14 years old.

To obtain a more global perspective, I compare the new data with those provided by Lindert (2004) (Table 3). First, my figures on the Colombian primary school enrollment rate and those provided by Lindert are similar, although mine are slightly higher. Moreover, when we compare the values with those for Latin America generally, we can see that there are two clear trends. One of them, with more than 400 children enrolled per thousand, occurs in countries like Argentina, Chile, Costa Rica, and Cuba. The other, lower trend appears in countries such as Brazil, Guatemala, Nicaragua, Uruguay, and Colombia. Some authors attribute these differences to an earlier trend towards mass education (Bulmer-Thomas 2003). However, if we compare Colombia's performance with that of the USA, the most successful country in the twentieth century when it comes to education (Goldin and Katz 2007), it is possible to see a substantial divergence.

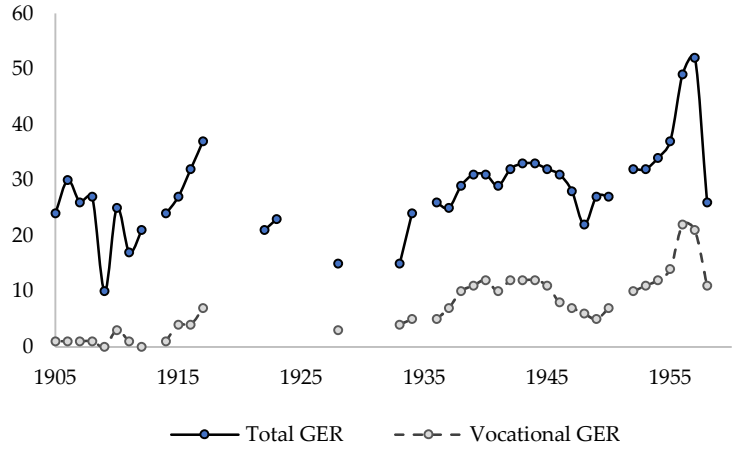
Table 1.3. Students enrolled in primary education, for every thousand children between 5 and 14, selected Latin American countries.

Países	1900	1910	1920	1930
Argentina	324	409	548	613
Bolivia	136			
Brazil	102	123	147	215
Chile	245	431	422	556
Costa Rica	259	306	329	405
Cuba	373	354	414	516
El Salvador				119
Guatemala			218	
Nicaragua			174	
Uruguay	207	292		
Colombia				
Lindert's figures			**250**	
Own figures		**184**	**284**	**321**

Source: Lindert (2004). For Uganda and Nigeria, see (Frankema 2012). Own data for Colombia, see text.

Regarding secondary education, according to Figure 1.18, the trend of the series of total enrollment rate is like that for primary school, which showed an initial growth until approximately 1916, stability with fluctuations thereafter, and a new growth period from the beginning of the 1950s. It should also be noted, however, that the schooling rate per thousand children between 15 and 19 years old remained at very low levels even in the best years, as in the 1950s. During the whole period, the number of students in school remained at between 10 and 56 students per thousand, almost one-tenth of those enrolled in primary education. This corroborates the idea that significantly few young people were able to enter high school. These results agree with those authors who state that high school was a privilege of the few, especially the children of the country's elites (Helg 2001).

Figure 1.18. Total and vocational secondary school enrollment rate: Colombia, 1904-1958.

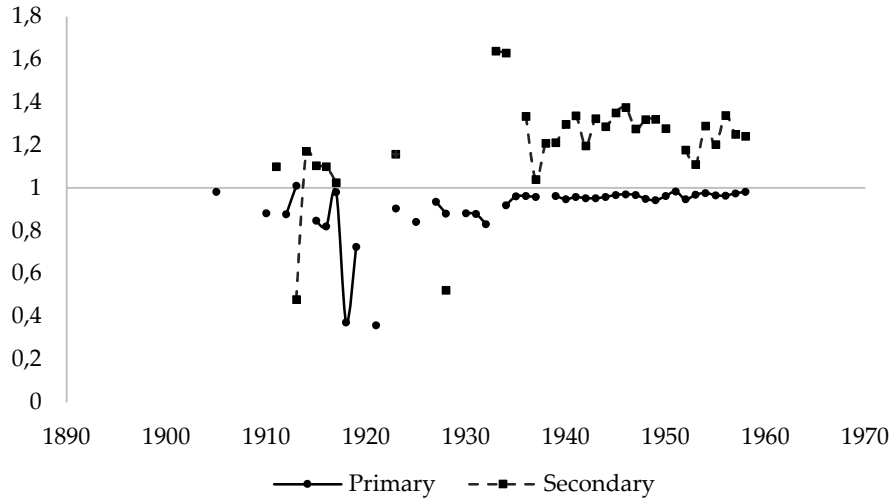


Source: see text. Note: includes public and private enrollment numbers divided into thousands of children 15 to 19 years old.

The growth observed in the number of students enrolled in the 1950s coincides with the process of industrialization in the country. Part of this increase was due to the role of technical education in secondary schools. Therefore, analyzing the weight of vocational and technical education over the total enrollment numbers in the same figure, a growing trend can be observed from the beginning of the twentieth century to the 1940s, which coincides with the Liberal government's efforts to promote the country's industrialization. There was also a decline between 1940 and 1950, which coincides with the changes in commercial education programmes, causing the disappearance of many schools.

Several analyses have addressed the issue of gender inequalities and female segregation in primary and secondary education during the first half of the twentieth century in Colombia (Luna *et al.*1994; Pedraza 2011), but all of them offer a qualitative rather than a quantitative perspective. Therefore, long-term series have been constructed to compare previous theories and provide a new perspective. In Figure 1.19, which shows the relationship between boys and girls enrolled in primary and secondary school, we see how the difference is favourable to males in primary school, that it is maintained in the long term, and that it is smaller from the liberal period that begins in the 1930s.

Figure 1.19. Male enrollment / female enrollment in primary ana secondary school, 1905-1958.



Sources: see text. Notes: includes public and private schools. Point one in the vertical axis indicates a perfect parity between male and female, while points above axis one indicates that there were more boys enrolled than girls, and points below axis one show that the relationship is reversed.

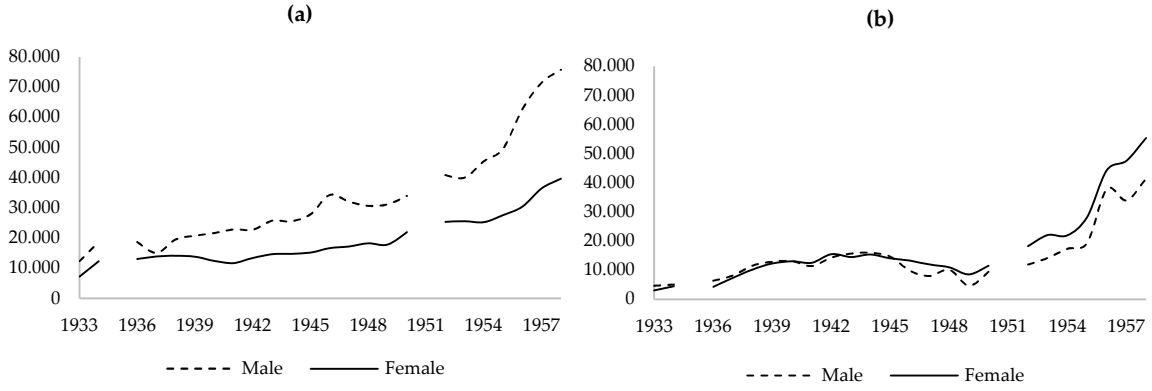
Regarding secondary schooling, there is not enough data to clearly know what happened between the 1920s and 1930s. However, we see that in general terms there was more male than female enrollment except for some years before the 1930s. The higher female enrollment rate prior to the 1930s could be explained by the fact that education for women was not comparable to education for men. Before the 1933 education reform was passed, which unified secondary education without gender discrimination, girls used to study in private Catholic schools, whose education was inferior in quality to that of male public education (Helg, 2001).

The design of policies to promote female enrollment in secondary school after 1930 reflects the social pressure of early feminist struggles to be able to enter the labour market (Pedraza 2011), but it is also possible that the effect of these was limited. Given that only general education allowed students to enter tertiary education, if we analyze the schooling of girls compared to boys in general secondary school, it is possible to state that these policies focused on preventing women from entering the college. In Figure 1.20 we see that the proportion of women in academic secondary school declined sharply in the early 1930s and increased in subsequent decades. This hypothesis is backed by reports from the Yearbooks of the Ministry of Education, which shows that, between 1941 and 1942, of 1,469 high school certificates issued, 1,256 were awarded to men and only 213 to women.[21] Conversely, in vocational education, there was a change in the trend from 1941, when we begin to see more women than men in this context. This suggests that, although there were substantial variations in the legislation promoting the increase in secondary female enrollment, in practice, educational policies tried to

[21] Yearbook of the Ministry of Education for 1942.

prevent women's access to tertiary education. The same policies pushed women to choose vocational education, especially teaching and commercial training.[22]

Figure 1.20. Academic (a) and Vocational (b) Secondary School Enrollment, Male and Female: 1933–1958.



Source: see text.

1.6.2 Regional series

1.6.2.1 Primary education

In this section, I focus on primary school trends by departments and national territories. Figure 1.21 shows the gross enrollment rate disaggregated into public and private education.[23] In general, various patterns can be identified in Figure 1.21. The first of them is given by a difference in the evolution of the GER between the departments and the national territories (Arauca, Guajira, San Andrés, Amazon, and Chocó until 1947).

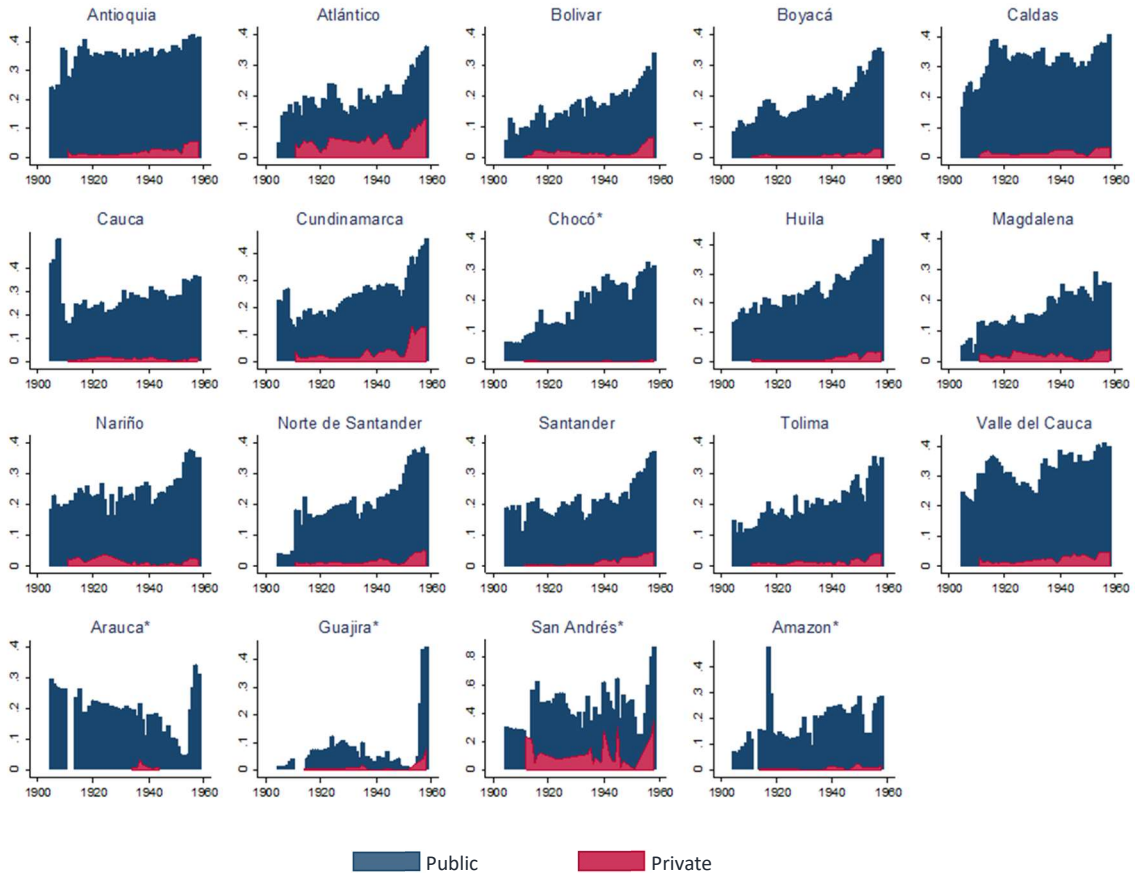
Overall, the series show slow growth from 1900 to 1950 and faster growth since then in most of the territories. In most cases, the GER tends to be much higher in the departments than in the national territories. Likewise, the national territories show more erratic compartments, with high peaks and valleys, as seen in Arauca and Guajira in the late 1950s or Amazonas in the 1910s. In any case, the estimates of the GERs of the national territories should be read with extreme caution, since the weakness of the local institutions might affect assessments of educational statistics. During the first two decades of the twentieth century, the indigenous population gathered in the Population Censuses was overestimated and classified as "non-citizen," distorting the statistics of the school-age population, which could have affected the real needs and the educational supply.[24]

[22] For more on policies to extend vocational and academic education to women, see Decree No. 1593 of 1941 and Law No. 56 of 1948.

[23] For the complete series, see Appendix 1B.

[24] For more details on the overestimation of the indigenous population, see Table 1A.8 in the Appendix.

Figure 1.21. Primary education gross enrollment rate disaggregated into public and private education by departments and national territories, 1904-1958.



Source: see text. Note: the enrollment figures are divided into thousands of children from 5 to 14 years old. *For national territories

As mentioned earlier, national territories did not have fiscal autonomy and therefore could not decide on investments in education, which was the preserve of the central government. From the above, some questions arise about the role that fiscal capacity and levels of autonomy played on educational performance, since it was precisely the territories that lacked self-government that had the worst educational outcomes.

Although national territories tend to exhibit similar behaviour among themselves, Chocó shows a particular pattern that could be explained by two reasons. The first reason may be related to the fact that in 1947 the national government granted it department status. Therefore, from then on, it acquired the freedom to decide on investment in education. Figure 1.21 shows how the GER in Chocó tends to resemble that of the departments, being quite distinction from the national territories' GERs. A second reason may be related to the rise in platinum exports. During the first decades of the twentieth century, Chocó began experiencing an economic boom with the arrival of foreign companies seeking gold and platinum. By the end of the 1910s, Chocó had become the world's leading producer of platinum, further benefited by the international increase in demand following the new uses for platinum that were discovered in the Second World War and the Russian Revolution (González 2003). Caicedo (1997) points

out that the Chocó budget in 1927 was like that of Cauca, with a population three times lower.

Like Chocó, San Andrés shows quite specific behaviour within the national territories since its GER is one of the highest in the country, although with many fluctuations. This fact can be explained because San Andrés has the smallest and densest population in the country, which itself could have facilitated the schooling of children.

In a position opposed to that of most national territories are the departments of Antioquia, Caldas, and Valle del Cauca, which show the highest enrollment rates in the country. These departments have a long tradition of growing coffee, and they were the first to experience industrialization, so there may be a direct connection with investment capacity, as suggested by Ramírez and Téllez (2007).

Furthermore, Antioquia promoted measures that gave it good educational outcomes, and later some of these policies were exported to other departments, again with successful results. One of these policies was the creation of teachers' associations to work on the improvement and needs of education called Liceos Pedagógicos. Similarly, Antioquia was also a pioneer in creating a teaching salary scale in 1911, teachers being classified according to their level of preparation and seniority and assigned a category and salary. Subsequently, in 1937, this measure was applied to the entire national territory.[25]

Even though Valle del Cauca, Antioquia, and Caldas had the highest GERs in primary education during the first half of the twentieth century, it is surprising that they showed stagnation and, in some cases, a decrease after the 1930s. So how can we explain why those departments that experienced an expansion of coffee and better long-term school performances showed a drop in enrollment rates in the short term? As will be explained in Chapter 3, a possible cause may be found in the characteristics of coffee production in Colombia. Coffee used to be produced in rural areas, in a context of extreme poverty, and it was intensive in labour, so crop-growing became a task very suitable for children. For this reason, in the coffee boom period, cultivation was based on the intensive use of family labour, including child labour, which could discourage time being spent in education (Carrillo 2019).

Moreover, other departments such as Cundinamarca, Cauca, Huila, Norte de Santander, Nariño, and Tolima show a gradual increase in their GERs until the late 1940s, and much more significantly from the 1950s. The particularity of Cundinamarca stands out among all departments, since its behaviour was not the most prominent, even though the country's capital is located within it and it sheltered essential parts of the country's industrialization process. According to the Yearbook of the Ministry of Education for r 1933, the precarious fiscal situation in the years before and after the crisis of 1930 forced the closure of many of the schools financed by the national government. Delays in paying teachers' salaries became increasingly common, thus eliminating many study scholarships and grants to private schools.

[25] See Law 2 of 1937, by which the teaching scale of primary schools was created, and Law 43 of 1945, by which it was created for secondary education documents.

As with Cundinamarca, in many departments the primary enrollment rate grew slowly at the beginning of the century and then tended to stagnate until 1950, when a rapid increase in GER began. This fact is mainly attributable to the shortage of teachers at the beginning of the century, which forced the closure of many schools and increased the costs of education, as indicated in the Yearbook of the Ministry of Education of for 1911. Much of the increase in wages is explained by the constant flight of qualified teachers to departments with better infrastructure. The Yearbook of the Ministry of Education of for 1928 reveals that many teachers travelled to Antioquia, Caldas, and Valle del Cauca because they were better paid there.

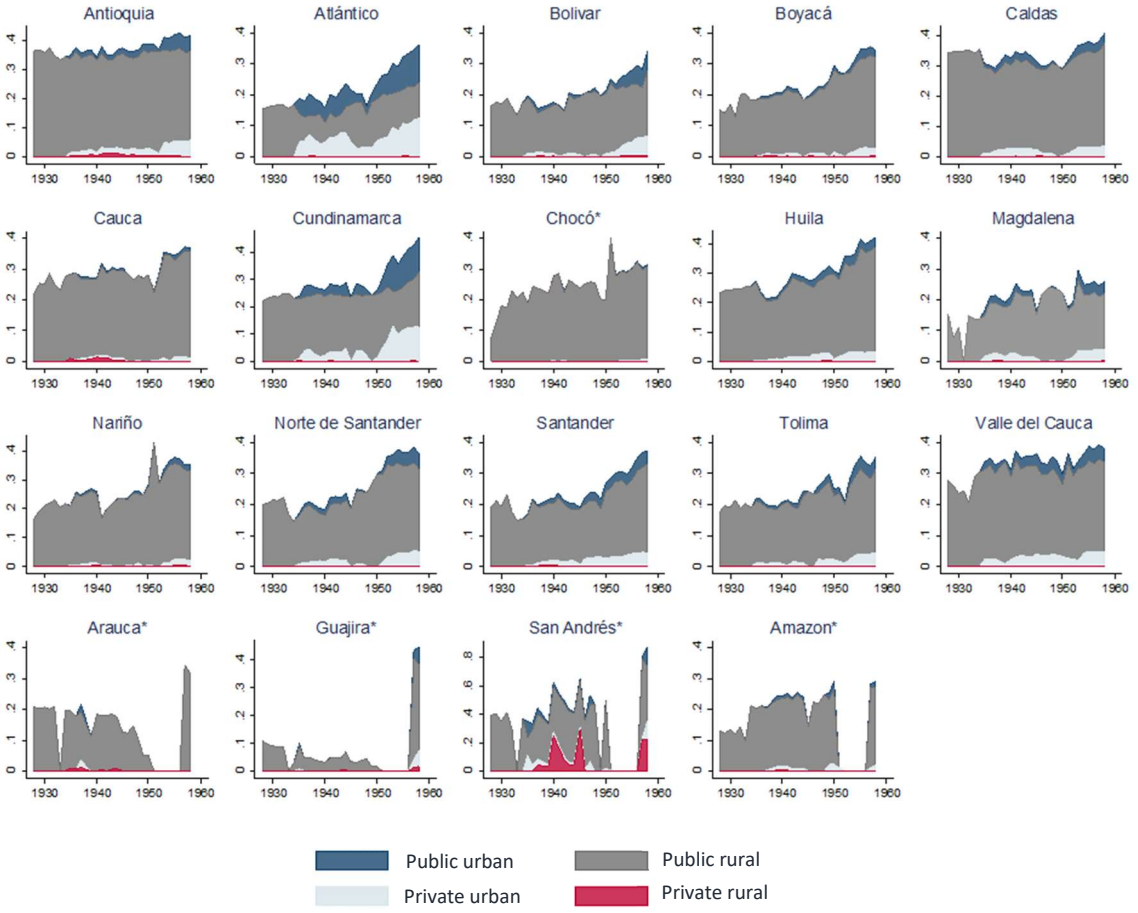
Moreover, the series shows that departments on the Caribbean coast (Bolivar, Magdalena, and, Atlántico) had quite bad performances compared to the remaining departments. Despite this, Atlántico attained higher rates than the other departments on the Caribbean coast. Unlike the others, Atlántico is densely populated and was the only department to experience an incipient industrialization process based on the chemical, pharmaceutical, food, mechanical metal, beverage, and paper industries, giving it a much higher budget to invest in education (Helg 2001).

Finally, Figure 1.21 also shows the composition of the GER by public and private education. The series show that most students were enrolled in public school except in Atlántico and San Andrés, where there was a high proportion of students in private education. In the Yearbook of the Ministry of Education of for 1911 we learn that, contrary to what happened in the other departments, the Atlántico departmental government decided to outsource a large proportion of its investment in education by subsidizing all the private boys' schools since the public buildings were not in the right condition. As for San Andrés, the educational reports do not explain why there was so much private education. By contrast, Helg (2001) explains that the Island de San Andrés, which is located closest to the Nicaraguan coast, was populated by Black people who spoke a dialect derived from English, professed the Anglican religion, and were the most literate in the country. According to the author, because the objective of the central government was to convert the population to the Catholic religion, public schoolteachers were Catholic and spoke Spanish. Hence, some of the local community preferred to open their own private schools offering an Anglican education in English.

Figure 1.22 shows the primary education gross enrollment rate disaggregated into public urban, public rural, private urban, and private rural education by departments and national territories.[26] In the first place, it is observed that schooling was mainly rural and public in most of the territories. The only exception was San Andrés, which shows a high percentage of private rural education, possibly for the reasons mentioned above. Conversely, unlike rural education, urban education was scarce except in Atlántico, Cundinamarca, and Valle del Cauca. These departments show a slightly higher proportion of urban education, apparently due to the fact that the population was more concentrated in the municipal capitals. Also, urban education, contrary to what is seen in rural education, was mainly divided into similar proportions in public and private education in the whole country.

[26] For the complete series, see Appendix 1B.

Figure 1.22. Primary education gross enrollment rate disaggregated into public urban, public rural, private urban, and private rural education by departments and national territories, 1928-1958.



Source: see text. Note: the enrollment figures are divided into thousands of children from 5 to 14 years old. *For national territories.

If we focus on the departments that had the highest GERs, such as Antioquia, Caldas, and Valle del Cauca, we see that at least in Antioquia and Caldas there was a great effort to expand rural education by local governments. According to the Yearbook of the Ministry of Education for 1933, in Antioquia many of the primary schools were created in remote rural areas, reaching almost half of the total number of primary schools. In Caldas, where a large part of the population is dedicated to coffee cultivation, one of the central educational policies adopted was the promotion of agricultural education in primary educational programmes from 1925 (Helg 2001). For this reason, there seems to be a clear relationship between the interest in expanding rural education, including promoting agricultural studies, and the success in achieving high enrollment rates.

Moreover, since the 1940s there has been an increase in urban schools, both public and private, the departments that began their journey to urbanization earlier, such as Antioquia, Atlántico, Cundinamarca, and Valle del Cauca, while conversely, in the remaining territories the appearance of urban education is observed only from the 1950s.

As well as analyzing the series, it is essential to mention that the differences between rural and urban education went beyond provision. Urban education was of much better quality, had more resources, had better-trained teachers, and the programme was much broader. Between 1932 and 1936, only 37% of these departmental resources were directed to primary education, while the urban area received 63% (Helg 2001). Likewise, the preparation of teachers was much better in urban schools; in 1950, 82% of teachers in rural official primary schools had no pedagogical training, while in urban schools the figure was 51% (Ramírez and Téllez, 2007). Wages were also very uneven (Helg, 2001): while a teacher in urban areas earned $45 a month, a teacher in rural areas earned $30 a month.

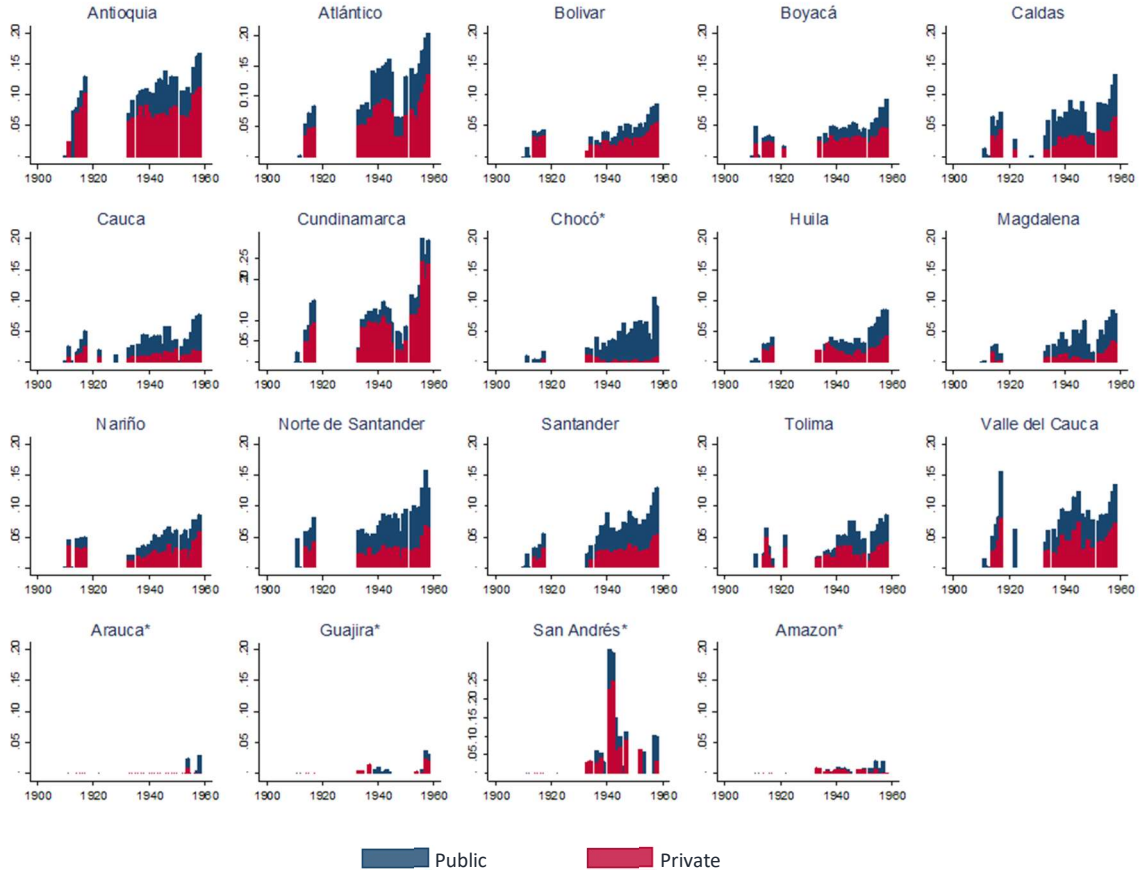
1.6.2.2 Secondary education

Figure 1.23 shows the departmental trends in secondary education disaggregated into departments and national territories. These statistics must be interpreted with caution since, during this period, it can be confusing to differentiate between private and public education. Helg (2001) explains that a large part of secondary school provision was in the charge of private institutions that received a certain level of government subsidies, which implied that some institutions were classified as public without actually being public.

Focusing on the series, the first thing to note is that the GERs in secondary education were much inferior to those for primary education. Besides, the series show more fluctuations from year to year. This can be explained by the constant appearance and disappearance of secondary schools, which was more common than in primary education (Helg 2001).

Despite those mentioned above, four patterns can be distinguished. The first pattern is that of the departments that had the highest rates, such as Antioquia, Atlántico, Cundinamarca, and Valle del Cauca. These departments were the most highly industrialized areas of the country in that period. Some of them had important seaports during the first half of the twentieth century, such as the Port of Buenaventura in Cali (Valle del Cauca) or Puerto Colombia in Barranquilla (Atlántico), making them mandatory and frequent sites of the passage of imports and exports. These ports brought the greatest commercial potential to the capitals, providing significant resources that allowed the accumulation of private capital and the subsequent development of industries (Gamarra 2007; Meisel Roca 1987). The emergence of new industries could be associated with a higher GER in secondary education since this required the use of more qualified labour. For this reason, greater economic development could increase the demand for education, and consequently, stimulate the creation of the supply of private secondary schools.

Figure 1.23. Secondary education gross enrollment rate disaggregated into public and private education by department, 1910-1958.



Source: see text. Note: the enrollment figures are divided into thousands of children from 5 to 14 years old. *For national territories

In addition to the favourable economic conditions of the aforementioned departments, there is the fact that some received subsidies for the creation of national schools. Due to the budgetary inability of the national government to found schools in all the departmental capitals, in 1905 the state decided to create so-called National Schools in Bogotá (Helg 2001) to allow students from all over the country to receive secondary education through a scholarship programme. Later, this model of schooling was extended to other large cities such as Medellín. According to the Yearbook of the Ministry of Education of for 1925, the Normal School of Medellín received the status of a National School, allowing it to receive all the economic advantages that this presupposed, such as the school being entirely subsidized by the central government.

In a second level of good performance in the GER, we have the departments of Caldas, Norte de Santander, and Santander, which, although they did not reach the same standards as the previous ones, show relatively good educational outcomes. Despite being departments with sufficient financial resources large enough to have had better educational results, we see that their performance was limited. Helg(2001) explains that many students from these departments decided to move to study in cities with better educational provision, such us Medellín or Bogotá, due to their proximity to them.

A third identified pattern is that of departments with a low level of coverage in secondary education, such as Bolivar, Boyacá, Cauca, Huila, Magdalena, Nariño, Tolima, and finally Chocó, which, despite not having acquired departmental status until 1947, performed very similarly. One possible explanation for the low GERs in secondary education may be related to the fact that the main economic activity in these territories was agriculture. For this reason, secondary school was not necessary, since primary training was already sufficient to exercise effectiveness in the field.

Another explanation could be the low budgetary capacity, since by that time secondary education had to be provided by local governments. In Cauca, for example, the departmental government could not make the investment necessary to build secondary schools due to the existing demand, which is why the support of Catholic communities was required to found them, as revealed in the for 1928. This also happened in Chocó, where keeping the secondary school open was possible thanks to the support of the Sisters of Charity, as revealed by the Yearbook of the Ministry of Education of for 1916.

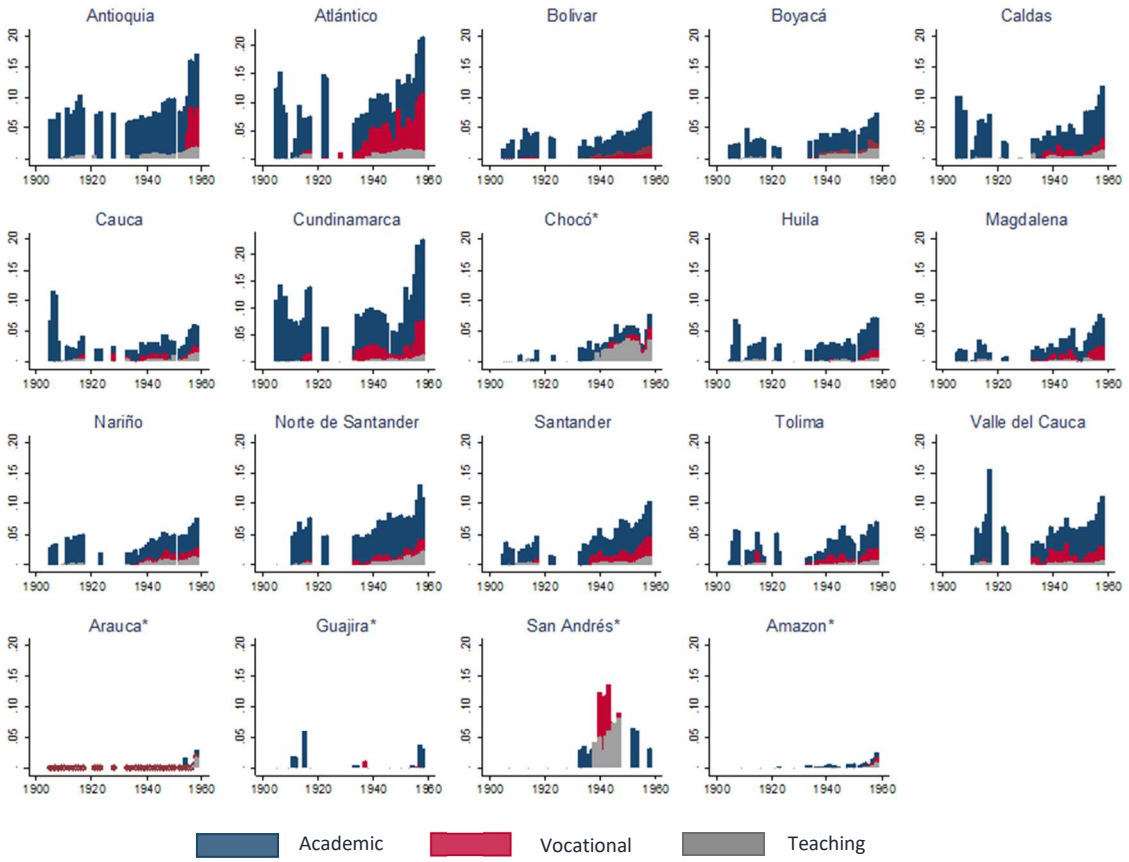
Finally, for the national territories, no clear pattern can observed in secondary education. As has been observed in the case of primary school, Chocó and San Andrés have different performances than the remaining national territories, possibly related to the particular characteristics of these territories mentioned above. Although the Yearbooks of the Ministry of Education do not provide any explanation for why secondary education came so late to the national territories, this may have considered unnecessary originally because these were very rural settings. Besides, in 1873, through Law 25, the central government assumed the expenses of up to three students to train in secondary education outside their territories. Subsequently, in 1879 this law was modified, and the student subsidy was extended to six young people (Santos Delgado 2012). The objective of the central government was to train a group of young people to acquire sufficient training to be appointed teachers, as indicated in Law 35 of 1879. This educational policy could explain why secondary education only appeared in most of the national territories until the 1930s.

Figure 1.24 shows the gross enrollment rate for secondary education disaggregated into academic, vocational, and teaching training. The Figure shows that before the 1930s, academic training was the majority in practically the entire period and in most territories except for San Andrés and Chocó, where the GER in teacher training was the highest since the 1930s. The fact that these two national territories invested more in teacher training can help explain why they also had a much more favourable educational performance than the other national territories, and even better than many departments. In this context, the Yearbook of Education for 1943 explains that Chocó made a considerable economic effort to expand its teaching staff. While the number of graduated teachers between 1938 and 1943 in Valle del Cauca was 133, 75 in Nariño and 54 in Cauca, in Chocó, it was 105, an extraordinary number considering its extreme poverty.

In the particular case of San Andrés, its remote location may explain the need to train its own teachers since at that time transportation was minimal, so it was not easy to attract teachers from other regions. Likewise, given the interest of the local population in perpetuating an Anglican education in English, training their own teachers ensured that they received the training that met their needs.

Moreover, in the most industrialized departments (Antioquia, Atlántico, Cundinamarca, and Valle del Cauca), there was more investment in academic and vocational training, compared to an insufficiency in teacher training. Although educational policies had understandably been developed to promote a type of training that responded to the emergence of new industries and services, it is striking that teacher training was not given so much importance.

Figure 1. 24. Secondary education gross enrollment rate disaggregated into academic, vocational, and teaching education by departments and national territories, 1910-1958.



Source: see text. Note: the enrollment figures are divided into thousands of children 5 to 14 years old. *For national territories

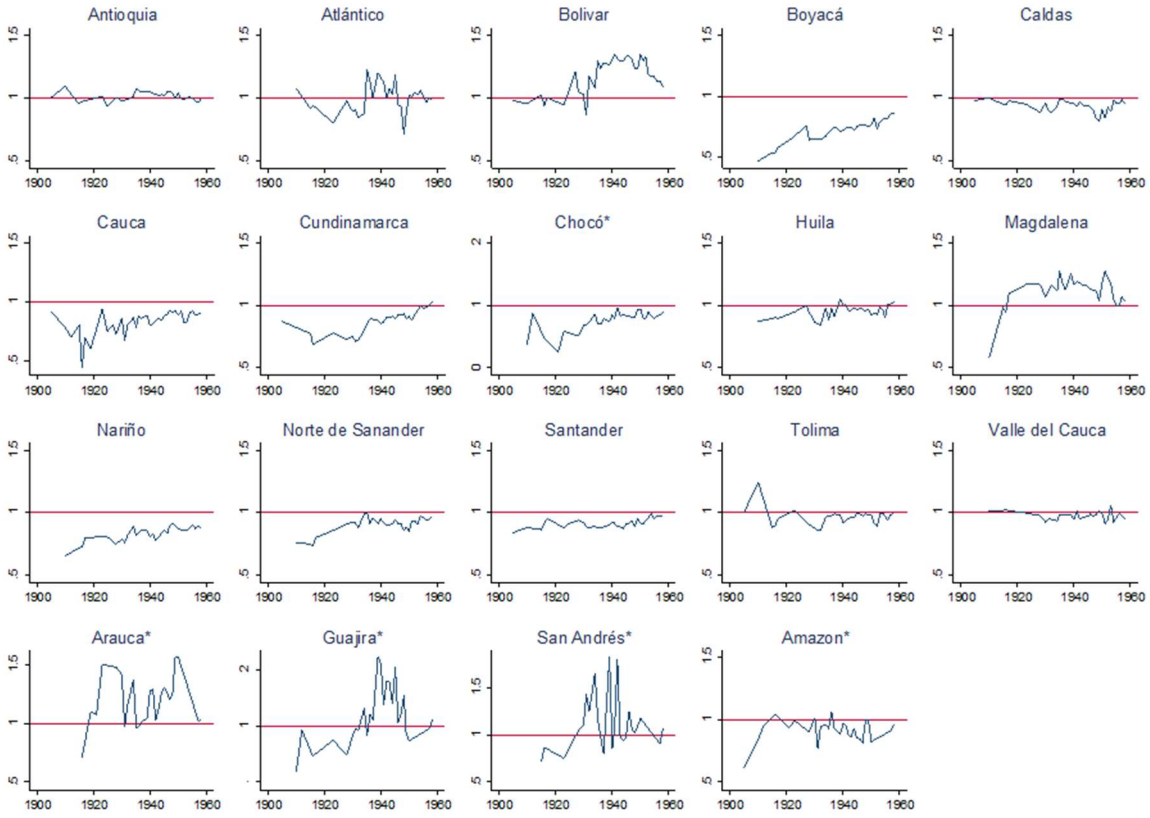
In relation to the above, according to the Yearbook of the Ministry of Education of for 1928, many departments had to coexist with the frequent flight of qualified teachers to departments with better infrastructure and where they were better paid, such as Antioquia, Caldas, Cundinamarca, Atlántico or Valle del Cauca. For this reason, it can be understood that the departments with the highest educational budgets had little interest in teacher training.

Finally, with regard to the remaining the territories, it can be widely observed that vocational and teacher training began to increase from the 1930s, becoming a new training outlet for those who had no interest in continuing with tertiary education.

Figure 1.25 gives the ratios of girls to boys enrolled in primary education by departments and national territories. The results show different patterns, but in general terms, it can

be observed that there were more boys than girls enrolled in primary education in practically all departments during the first three decades of the twentieth century. Thereafter, the number of boys and girls enrolled tends to converge in most territories. Little is known about why there were more girls than boys enrolled in primary education in this department. Ramirez and Salazar (2010) also observe a similar pattern at the end of the nineteenth century without providing a plausible reason for this fact. The hypothesis used in this research is that until 1933 female education was of lower quality than male education, which could have discouraged the female demand for education. In addition, also until the early 1930s, women were not allowed to work without the permission of their husband, or their father if single. In early 1932 this prohibition was eliminated, so this fact could have encouraged the demand for female education given the new job opportunities that women could access.

Figure 1.25. Female enrollment and male enrollment in primary education by departments and national territories, 1904-1958.



Source: see text. Note: the enrollment figures are divided into thousands of children 5 to 14 years old. *For national territories.

Analyzing the ratios, we observe several patterns. The first is the most extended. In it, we find a generalized trend of more children being enrolled in primary education, as well as a tendency to parity from the 1930s. In this pattern, we identified the territories of Boyacá, Cauca, Cundinamarca, Chocó, Nariño Norte de Santander, Santander. Huila, Tolima, and Amazonas exhibited similar patterns, but the difference between boys and girls was slightly less. This pattern reflects the paternalistic and sexist policies of the time, which were aimed at reinforcing boys' education.

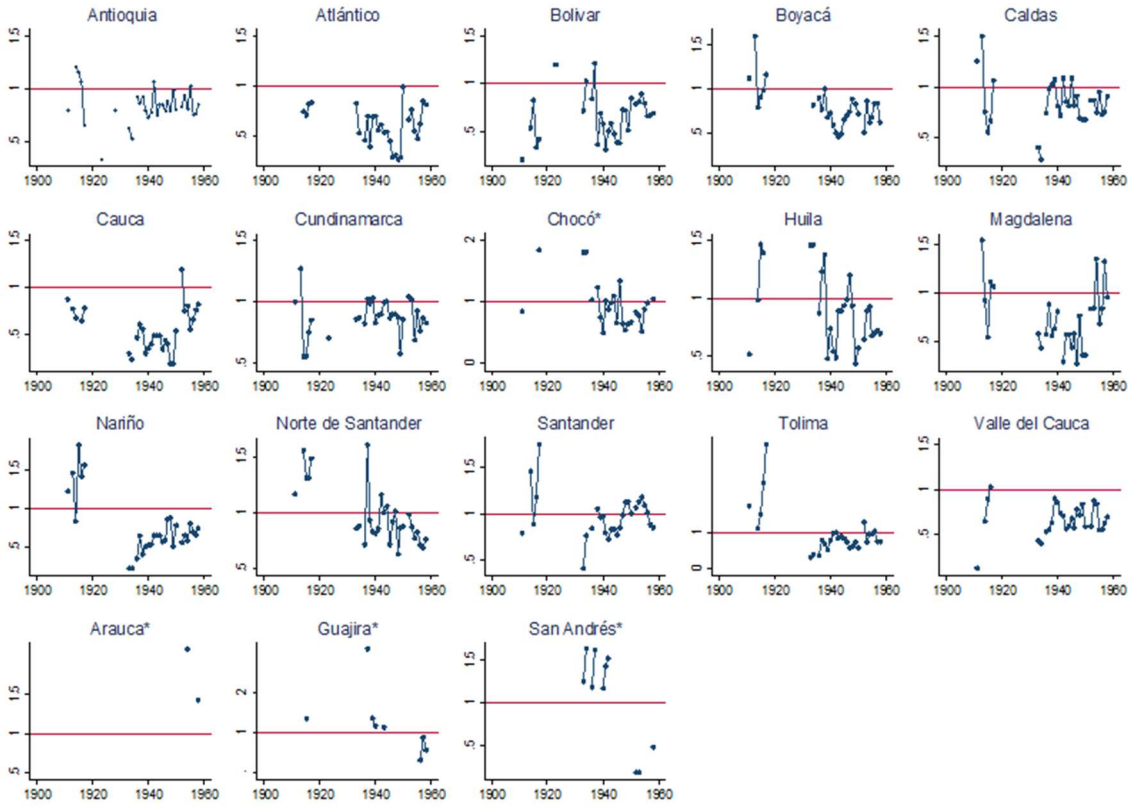
The second pattern identified is that shared by Antioquia, Caldas, and Valle del Cauca. These departments show more or less parity between boys and girls enrolled in primary school throughout the period. The departments also exhibit the highest enrollment rates, which could be associated with better local educational policies to extend coverage.

Finally, the third pattern was exhibited by Magdalena and Arauca, in which a much higher enrollment of girls than boys is observed during most of the period. The same applies to Atlántico, Bolívar, Guajira, and San Andrés, which during the first three decades of the twentieth century had more boys than girls in primary education, though from then on the trend changes, resulting in more girls than boys. Little is known about the reasons for this trend, neither in Colombian historiography nor in educational memories, so it is not possible to offer a different hypothesis to explain it. For this reason, some ideas have suggested to explain it. The main hypothesis relates to family structure on the Colombia's Caribbean coast. Although Arauca is not located on this stretch of coast, it shares some features with it. In these regions, family structure has been marked by free unions and a high absence of men in most cases, giving women a fundamental role (Helg, 2001). This particularity is not observed to the same extent in the rest of the country (Saavedra *et al.* 2013), which may explain why women saw a greater need to educate their daughters, since many of them would end up becoming the only providers of family income.

Figure 1.26 gives the ratios of girl to boy enrolled in secondary education by departments and national territories. It is striking that practically the same pattern can be observed, with more female enrollment in the first decades of the twentieth century, a trend later reversed. This fact is quite striking because educational policies were focused on discouraging female education, so the question that arises is what type of education was provided to females enrolled in it? Figure 1.27 gives the number of girls and boys enrolled in academic schools nationwide, disaggregated by public and private education. What the series show is that there were very few girls in public education compared to boys in the first decades, there being more girls than boys in private school. The above may explain why the departmental ratios show an advantage in female enrollment during the same period.

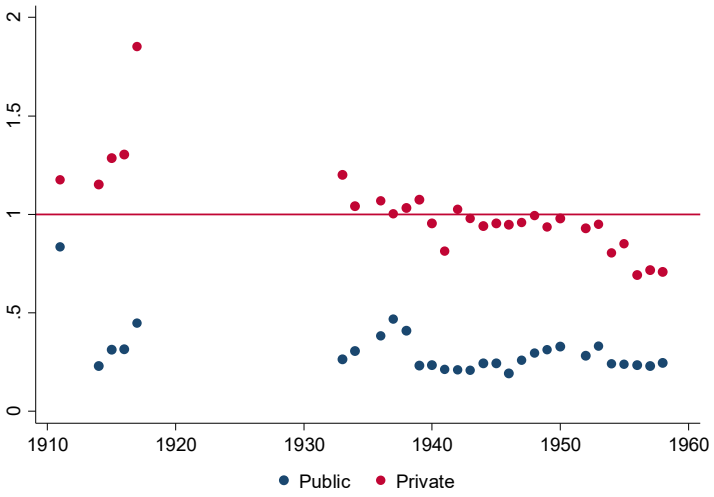
Although the provision of Law 39 of 1903 indicated that the national government would finance at least one academic school and one for teachers, both men and women, in each departmental capital, the reality was that only schools for men and women were financed in Antioquia, Boyacá, Cauca and Cundinamarca, as explained in the Yearbook of the Ministry of Education for 1911. Other departments only had male and non-female schools. Still others did not have any school funded by the government in the first decade of the twentieth century, therefore the only alternative open to women was to study in private schools founded by Catholic congregations.

Figure 1.26. Female and male enrollment in secondary education by departments and national territories, 1904-1958



Source: see text. Note: the enrollment figures are divided into thousands of children 5 to 14 years old. *For national territories.

Figure 1.27. Female/male enrollment in secondary academic education, 1910-1958.



Source: see text.

Helg (2001) explains that the Presentation Sisters led the post-elementary instruction movement not only because of the number of campuses they founded but because ofthe wide geographical coverage they achieved. Like the Sisters of the Presentation, many were women's congregations that dedicated themselves to providing secondary training to women in private schools, becoming in most cases the only alternative for them.

Between 1880 and 1899, the Presentation Sisters founded 33 women's colleges across the country, and a similar number between 1900 and 1930.

In Chocó, for example, in the 1910s the local government was unable to mae the investment required to build secondary schools due to the existing demand, which is why the support of the Catholic communities was required to found them. Such is the case of the secondary school for women, which was made possible thanks to the congregation of the Mission of Sisters of Charity, as explained in the Yearbook of the Ministry of Education of for 1916. A similar situation occurred in Cauca, which was made possible by several of the various secondary schools in the late 1920s thanks to the support of the Sisters of Charity, as explained the Yearbook of the Ministry of Education of for 1928.

Moreover, as mentioned earlier, female secondary-school certificates only qualified them to work as schoolteachers, seamstresses, or housewives, and in no case were they thereby qualified to continue their studies: in fact, the educational programmes of female secondary education differed significantly from male secondary education.

Overall, the first changes in secondary education, to increase the participation of women, occurred in vocational education, not in academic education. In 1927, the National Pedagogical Institute for Young Ladies was created, one of the first institutions to offer quality education to women and allowing them to professionalize pedagogical education (Helg, 2001). In any case, the supply of vocational education was much smaller than that of academic education: that is, in general terms the supply of secondary education for women was still less than for men.

1.7 Conclusions

Because there is not much information about the origins of inequality in Latin America, and given that education is crucial to understanding the long-term evolution of inequality (Goldin 2001), this study has aimed to contribute to understanding the origins of inequality in Latin America by focusing on education in Colombia during the first half of the twentieth century. In light of the new empirical evidence presented here, we can confirm that Colombia failed in its attempt to achieve egalitarian mass education during the first half of the twentieth century.

Concerning primary education, Colombia had an enrollment rate similar to countries such as Brazil or Peru at the beginning of the twentieth century, but by mid-century its enrollment rate was lagging behind those in other Latin American countries. If we compare Colombia to the developed countries, it can be said that the enrollment rate was very far from those of the developed world. When we focus on secondary education, the gross enrollment rate in Colombia converges with countries in the region of similar size, such as Peru, but diverges from the countries of the southern cone and from developed countries. Finally, analyzing gender differences, it can be said that gender segregation only partially explains Colombia’s educational backwardness because the country’s gap in enrollment rates was comparable to those of the most advanced European economies.

Because Colombia is a very heterogeneous country with marked long-term regional inequalities, this chapter has focused on offering new evidence on educational outcomes from a sub-national perspective. As previous regional studies on education have focused on the central regions (Ramírez and Salazar 2007), this chapter provides new evidence but incorporates both the centre and the periphery of the country.

In order to provide internationally comparable data, I have adapted data on the Colombian education system in the first half of the twentieth century to the International Normalized Classification of Education of 2011. To identify regional patterns, I went through the Colombian historiography of education and the international literature on the determinants of educational provision, with particular emphasis on Latin America. The variable constructed for the analyzes was the enrollment rates for both primary and secondary education between 1900 and 1958. Primary education was disaggregated into public, private, rural, and urban education. Secondary education was disaggregated into three levels of training: academic, vocational, and teaching. Also, all series were disaggregated by gender.

The construction of the series shows significant regional differences in enrollment rates in primary and secondary education during the first half of the twentieth century. In general, there were considerable differences in educational results between the centre and the periphery of the country, which can be explained by the capacity for self-management, among other aspects.

Since the end of the nineteenth century, the country has been organized into departments and national territories. The departments had a high degree of budgetary autonomy, while the national territories depended on the central government. This decision was mainly based on the fact that the populations of the national territories were mainly indigenous, so, by the state's criteria, they needed to be "civilized" to join them to the nation-state project (Santos 2012). This territorial division was extended to the educational system. The national territories lacked the ability to take decisions about the provision and quality of education. Instead, this responsibility was given to the Catholic missions, which limited themselves to literacy and catechizing the indigenous population. This fact created to a marked difference in educational coverage and quality in the long-term, in both primary and secondary education.

Moreover, in referring to the departments, we are not referring to a group of homogeneous regions. Conversely, many of them did not share the same institutional characteristics, nor the same economic resources. These substantial differences in turn resulted in different patterns in educational outcomes. As for primary education, overall this was mainly rural and public. Also, the series show slow growth from 1900 to 1950 and faster growth since then in most of the territories. Looking at the observed patterns, we see that the GERs were mostly higher in the departments than in the national territories, except for Chocó and San Andrés. The particularity of Chocó can be explained by the fact that it was the first territory to acquire departmental status and had higher incomes than the other national territories from the exploitation of platinum. As for San Andrés, unlike the rest of the country, private education had substantial weight in the totality of primary education. As Helg (2001) explains, the island of San Andrés was populated by Black people who spoke a dialect derived from English, professed the Anglican religion and was the most literate in the country. These particularities led to

their own schools being founded, since the precepts of the Catholic Church governed public education, and the classes were in Spanish.

With regard to the departments, Antioquia, Caldas, and Valle del Cauca have the highest enrollment rates in the country. These departments have a long tradition of growing coffee, and they were the first to be industrialized, so there may be a direct connection with investment capacity, as suggested by Ramírez and Téllez (2007). Other departments such as Cundinamarca, Cauca, Huila Norte de Santander, Nariño, and Tolima show a gradual increase in their GERs until the late 1940s, becoming much more significant from the 1950s. Finally, the Caribbean coast departments (Bolivar, Magdalena, and Atlántico) had inferior rates than other departments.

Concerning secondary education, the first thing to note is that the rates were much lower than those for primary education. From this general fact, four patterns were identified. The first pattern refers to the departments that had the highest rates, such as Antioquia, Atlántico, Cundinamarca, and Valle del Cauca. As with primary education, this can be explained by a higher budgetary capacity. In a second pattern of good performance, we have the departments of Caldas, Norte de Santander, and Santander, which, although they did not reach the same standards as the first pattern, show relatively good educational outcomes. A third identified pattern is that of the departments with a low level of coverage in secondary education, such as Bolivar, Boyacá, Cauca, Huila, Magdalena, Nariño, Tolima, and finally, Chocó. In these departments, the main economic activity was agriculture, so primary training was already sufficient to exercise effectiveness in this field. Finally, most of the national territories have a practically non-existent pattern in secondary education until the 1930s. However, as was observed in the case of primary education, Chocó and San Andrés have different performances than the rest, possibly related to the particularities of these previously exposed territories.

Furthermore, when we focus on secondary education disaggregated by type of training, the results show that before the 1930s academic training was in the majority throughout practically the entire period and in most of the territories, again except for San Andrés and Chocó, where the GER in teacher training was the highest since the 1930s. In both cases, these territories sought to train their own teachers, either to maintain their own religion and language, as in San Andrés, or because they were not able to offer salaries similar to those offered in other regions, as happened in Chocó.

Regarding the analyzes of the series by gender, the results for primary education show several patterns, but in general there were more boys than girls enrolled in primary education in practically all departments during the first three decades of the twentieth century. In contrast, the territories located on the Caribbean coast show the opposite trend, that is, more girls than boys enrolled. This pattern is observed from the beginning of the century in some cases, while in others it has been seen since the 1930s. The central hypothesis seems to be related to the family structure. On the Caribbean coast, the majority of the family has been constituted in a free union. In most cases, men are absent, and women become the head of the household. This institution may explain women's interest in educating their daughters, since many of them will end up being the only providers of family income.

Lastly, in the analysis of gender for secondary education, a single pattern is observed. The series show more female enrollment in the first decades of the twentieth century, a trend later reversed. The fact that there were more women than men enrolled in secondary education in the early decades of the twentieth century is striking because women were banned access to tertiary education. If we analyze in greater depth the schools in which girls were being educated, we see that most girls were enrolled in private schools. At that time, Catholic private education became the only option for women to access post-primary education. Starting access to higher education for women was approved, and at the same time schools were forced to equalize educational programmes between men and women. Despite this, the state promoted vocational training instead of academic training, which provided access to tertiary education.

As a general conclusion, the results obtained in this chapter allow us to state that a large part of the population was totally or partially excluded from mass education during the first half of the twentieth century. In the following chapters I will delve mainly into three topics. In the next chapter, I will examine how budgetary capacity and levels of rurality could influence the provision of education in each of the territories. Subsequently, I will focus on the negative impact of coffee cultivation on the demand for education in the short-term. Finally, I will focus on analyzing gender inequalities in education.

1.A Appendix 1

Discussions of sources

Sources used to collect data on students in primary and secondary education

Table 1.A 1. Source used to collect data for primary schools, 1904-1958.

Year	Source
1904	Yearbook of the Ministry of Education for 1909
1905	Statistical Yearbooks 1905
1906- 1908	Yearbook of the Ministry of Education for 1909
1909-1910	Yearbook of the Ministry of Education for 1910
1911-1913	Yearbook of the Ministry of Education for 1911
1914	Yearbooks of the Ministry of Education of 1916-1917
1915	Statistical Yearbooks 1915
1916-1917	Yearbook of the Ministry of Education for 1916-1917
1918-1919	Yearbook of the Ministry of Education for 1920
1920	Yearbook of the Ministry of Education for 1921
1921-1922	Yearbook of the Ministry of Education for 1922
1923	Yearbook of the Ministry of Education for 1923
1924-1925	Yearbooks of the Ministry of Education of 1925
1926	Yearbook of the Ministry of Education for 1926
1927	Yearbook of the Ministry of Education for 1928
1928	Yearbook of the Ministry of Education for 1928
1929	No available
1930-1931	Yearbooks of the Ministry of Education of 1931
1932-1933	Statistical Yearbooks of 1933
1934-1937	Statistical Yearbooks of 1934-1937
1938	No available
1939-1950	Statistical Yearbooks of 1939-1950
1951-1952	Statistical Yearbooks of 1951-1952
1953-1958	Statistical Yearbooks of 1953-1958

Table 1.A 2. Source used to collect data for secondary schools, 1904-1958.

Year	Source
1904	Yearbook of the Ministry of Education for 1909, only for Cundinamarca
1905	Statistical Yearbooks 1905, only for Cundinamarca
1906	Yearbook of the Ministry of Education for 1909, only for Cundinamarca
1907-1908	Yearbook of the Ministry of Education for 1909
1909-1910	Yearbook of the Ministry of Education for 1910
1911	Not available
1912	Yearbook of the Ministry of Education for 1912
1913	Not available
1914	Yearbook of the Ministry of Education for 1916
1915	Statistical Yearbooks 1915
1916-1917	Yearbook of the Ministry of Education for 1916-1917
1918	Yearbook of the Ministry of Education for 1919 for Atlántico and Caquetá Yearbook of the Ministry of Education for 1921 for Cauca, Yearbook of the Ministry of Education for 1920 for the other territories.
1919-1920	No available
1921	Yearbook of the Ministry of Education for 1922, only for Antioquia, Boyacá, Caldas and Huila
1922	Yearbook of the Ministry of Education for 1922, only for Bolivar, Boyacá and Cundinamarca
1923-1927	Not available
1928	Yearbook of the Ministry of Education for 1928, only for Antioquia, Caldas and Cauca
1929	Not available
1930	Yearbook of the Ministry of Education for 1931, only for Antioquia
1931	Yearbook of the Ministry of Education for 1931
1932-1933	Not available
1934	Statistical Yearbooks of 1934
1935	Not available
1936-1937	Statistical Yearbooks of 1936-1937
1938	Not available
1939-1950	Statistical Yearbooks of 1939-1950
1951	Statistical Yearbooks of 1951-1952, only for Cauca
1952	Statistical Yearbooks of 1951-1952
1953-1958	Statistical Yearbooks of 1953-1958

Territorial changes

Due to changes to borders, the following territorial reorganizations were made to build long-term series:

Table 1.A.3. Territorial groupings of data from 1909 and 1910 according to the territorial organization of 1942.

Department	Territories included
Antioquia	Antioquia, Sonsón, Medellín, and Jericó
Atlántico	Atlántico and Barranquilla
Bolivar	Bolivar, Cartagena, Sincelejo, and Mompós
Boyacá	Boyacá, Casanare, Tundama, Tunja, and Santa Rosa
Caldas	Caldas and Manizales
Cauca	Cauca and Popayán
Cundinamarca	Cundinamarca, Bogotá, Facatitivá, and Zipaquirá
Chocó	Chocó and Quibdó
Huila	Huila and Neiva
Magdalena	Magdalena and Santa Marta
Nariño	Nariño and Pasto
Norte de Santander	Norte de Santander and Cúcuta
Santander	Santander, Galán, Bucaramanga, and San Gil
Tolima	Tolima and Ibagué
Valle del Cauca	Valle del Cauca, Buga and Cali
Arauca	Arauca
Guajira	Guajira
San Andrés	San Andrés
Amazon	Amazonas, Caquetá, Meta, Putumayo, Vaupés, Vichada, Tierradentro

Table 1.A.4. Territorial groupings of data from 1954 to 1958. A 1. Territorial groupings of data from 1954 to 1958.

Department	Territories included
Cundinamarca	Cundinamarca and Bogotá

Table 1.A.5. Territorial groupings of data from 1951 to 1958.

Department	Territories included
Bolivar	Bolivar and Córdoba

Changes in criteria and statistical formats

Table 1.A.6. Fragment of the educational statistics of the department of Nariño, 1922-1924.

NARIÑO

ESTADISTICA

Escuelas.

En 1922: 304 (urbanas, 112; rurales, 53; alternadas, 139).
En 1923: 372 (oficiales, 298; privadas, 74).
En 1924: 159 (dato último consignado en el informe).

Matriculas.

En 1922: 23,354 (13,073 varones y 10,281 mujeres).
En 1923: 27,187 (23,686 oficial y 3,501 privada).
En 1924: 15,645 oficial.

Schools

In 1922:	304 (urban schools, 112; rural schools, 53, alternates, 139)
In 1923:	372 (public schools, 298; pirvate schools, 74)
In 1924:	159 (unique data reported in the report)

Enrollments

In 1922:	23,354 (13,073 boys and 10,281 girls)
In 1923:	27,187 (23,686 public; 3,501 private)
In 1924:	15,645 public school

Source: Memoir of Education of Colombia of 1924

Table 1.A.7. Fragment of educational statistics of the department of Chocó, 1922.

Intendencia del Chocó.

De esta Intendencia sólo ha sido posible conseguir los datos estadisticos, solicitados por telégrafo, pues el anterior Director de Instrucción Pública se retiró del puesto sin cumplir el deber reglamentario de rendir el informe anual. El que está hoy en dicho puesto, señor don Manuel Santacoloma, hace poco tomó posesión de él y apenas está iniciándose en los negocios de su dependencia.

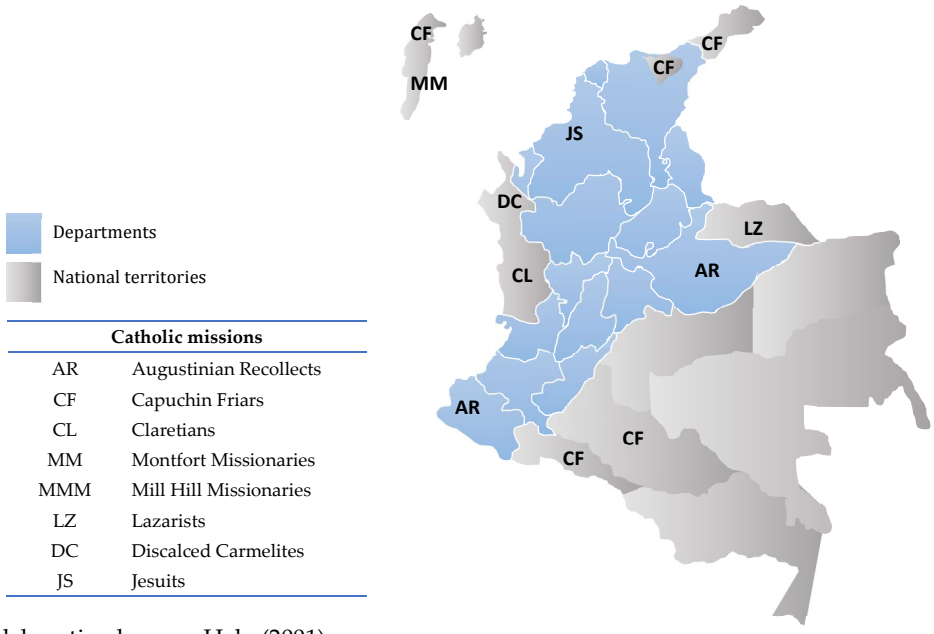
Intendance of Chocó

"From this Intendance it has only been possible to obtain the statistical data, requested by telegraph since the previous Director of public education retired from office without fulfilling the regulatory duty to render an annual report. The person who is in that position today, Mr Manuel Satancoloma, recently took up his position and is just starting in the businesses of his dependency."

Source: Yearbook of the Ministry of Education for 1922.

Indigenous population

Figure 1.A. 1.Missions in charge of education at the beginning of the twentieth century.



Catholic missions	
AR	Augustinian Recollects
CF	Capuchin Friars
CL	Claretians
MM	Montfort Missionaries
MMM	Mill Hill Missionaries
LZ	Lazarists
DC	Discalced Carmelites
JS	Jesuits

Source: own elaboration base on Helg (2001).

Table 1.A.8. Indigenous population according to population censuses of 1912, 1918, 1928 and 1951.

Department	1912*	1918 *	1928	1951
Chocó**	16,500	18,480	4,758	8,773
Meta	20,000	22,400	1,587	1,421
Arauca		600	2,628	311
Caquetá	22,500	68,900	3,345	1,117
Guajira			27,725	44,748
Putumayo	30,000	33,600	8,076	817
Vaupés	5,000	5,600	6,948	8,329
Vichada		5,000	8,804	924
Casanare	22,500			
Cauca				51,534
Nariño				4,560
Amazonas				4,126
Total	***116,500***	***154,580***	***63,871***	***126,660***

Sources: Censuses of 1912, 1918, 1928, and 1951. Note: * indigenous non-citizen population estimated by Catholic missions. ** Corresponds to black people.

1.B Appendix 2

Table 1.B.1. Primary education gross enrollment rate disaggregated by departments and national territories, 1905-1958.

Year	Antióquia	Atlántico	Bolívar	Boyacá	Caldas	Cauca	Cundina-marca	*Chocó	Huila	Magdalena
1904	24.5	4.99	5.76	8.58	16.69	42.44	22.69	6.57	13.71	5.26
1905	24.5	4.99	5.76	8.58	16.69	42.44	22.69	6.57	13.71	5.26
1906	23.34	13.5	12.83	9.72	21.74	43.69	22.32		14.51	5.52
1907	25.23	14.8	11.19	11.9	23.85	52.24	26.37		17.03	7.06
1908	19.78	13.37	7.46	11.06	25.25	52.55	27.16		18.39	7.62
1909	38.11	17.28	7.18	10.12	22.01	24.67	15.82	6.31	16.45	2.75
1910	37.05	14.16	9.55	10.73	22.52	17.52	13.78	5.46	15.47	5.49
1911	27.98	18.02	9.23	11.04	22.65	16.14	12.78	7.48	18.22	12.72
1912	27.78	17.06	10.12	11.19	26.74	16.35	16.44		20.35	13.47
1913	30.95	13.79	9.73	13.3	28.23	19.3	15.53		14.61	8.69
1914	34.98	20.12	11.99	16.44	30.61	24.81	18.88	9.31	16.31	11.71
1915	38.72	18.24	12.07	16.68	36.91	23.72	17.44	9.76	19.55	12.5
1916	36.76	19.45	14.48	18.55	38.99	24.46	19.46	12.89	21.88	12.86
1917	40.84	19.51	17.02	18.88	39.51	26.24	10.31	16.96	21.55	13.36
1918	37.51	17.07	14.59	16.41	36.67	17.17	17.32	12.57	19.09	12.56
1919	35.52		9.30	17.55	35.97	22.68	17.97		19.51	12.13
1920	34.92	15.2	9.75	15.25	37.48	23.24	18.85	12.18	19.27	11.71
1921	36.11	19.06	12.09	13.68	32.55			12.41		12.15
1922	35.82	18.86	12.54		31.72		16.08		17.64	13.36
1923	35.63	24.22	14.52	13	33.79	25.74	19.22	12.77	22.74	15.06
1924						20.27				12.8
1925	36.72	23.51	14.09	14.35	34.74	21.45	18.23	12.37	22.19	12.06
1926										12.53
1927			13.11			22.33		15.94	19.6	12.65
1928	36.44	15.35	16.39	15.12	34.35	22.85	22.42	7.86	23.53	15.25
1929										
1930	34.48	14.05	18.05	16.05	32.76	25.44	23.90	19.61	22.18	15.62

Year	Antióquia	Atlántico	Bolívar	Boyacá	Caldas	Cauca	Cundina-marca	*Chocó	Huila	Magdalena
1931	37.45	16.77	18.99	12.81	35.03	30.46	23.80	17.75	24.68	
1932	34.82	16.53	16.22	20.11	35.20	26.85	24.96	23.04	24.59	14.9
1933	33.37	15.67	13.29	20.34	34.28	23.19	25.06	20.61	25.41	13.79
1934	36.04	22.37	19.17	18.41	36.7	29.48	25.56	22.51	26.08	15.34
1935	34.83	18.8	19.89	18.35	30.88	28.31	24.06	18.8	27.3	16.25
1936	37.61	17.86	18.18	19.27	30.24	28.67	27.55	24.43	23.36	21.21
1937	35.66	20.29	15.56	19.39	29.33	27.38	28.26	23.68	21.17	21.40
1938										
1939	36.97	17.66	16.83	20.65	33.62	27.22	26.53	22.06	22	19.02
1940	34.19	15.82	17.61	20.51	32.88	27.2	26.28	27.63	24.3	21.03
1941	37.76	20.12	16.88	22.73	34.79	31.84	28.51	28.45	26.8	25.27
1942	35.13	19.02	15.05	21.93	33.93	29.08	27.81	22.62	30.09	23.06
1943	35.2	21.5	20.78	21.76	34.72	30.43	27.72	26.51	29.37	22.79
1944	36.92	23.84	19.71	18.35	33.02	29.7	28.84	25.1	28.7	22.88
1945	37.36	21.71	19.94	19.57	31.48	30.37	23.76	23.93	27.52	16.09
1946	36.49	20.37	20.41	20.93	30.04	28.51	28.74	25.1	27.84	21.52
1947	36.34	20.56	21.17	22.9	30.18	26.5	27.79	25.81	29.6	23.62
1948	36.61	16.4	22.16	22.83	31.92	28.04	26.59	25.57	30.92	24.28
1949	38.76	20.48	19.7	24.36	30.3	26.8	24.13	20.11	32.31	23.39
1950	38.74	23.69	21.25	29.45	29.14	28.04	26.41	19.93	30.66	22.15
1951	36.31	20.34	23.84	27.26	30.65	25.39	25.43	39.85	28.16	16.55
1952	37.23	26.59	23.57	26.78	34.56	28.58	35.56	27.77	35.84	19.51
1953	41.17	30.14	25.92	28.36	36.97	35.43	38.97	29.39	35.86	29.42
1954	40.95	29.14	26.43	31.47	37.46	34.79	35.69	29.08	36.53	24.83
1955	42.12	32.43	27.92	34.59	38.28	34.37	38.72	30.2	41.65	24.94
1956	42.61	33.27	29.52	34.92	37.26	35.44	41.31	32.37	40.05	25.89
1957	41.01	34.53	28.09	35.48	38.46	37	42.86	30.48	41.22	24.65
1958	41.81	36.3	33.96	34.44	41.01	36.62	45.42	31.21	42.08	25.68

Year	Nariño	Norte de Santander	Santander	Tolima	Valle del Cauca	Arauca	Guajira*	San Andrés*	Amazon*
1904	18.46	4.08	19.11	15	24.98	29.83	1.63	30.69	7.25
1905	18.46	4.08	19.11	15	24.98	29.83	1.63	30.69	7.25
1906	23.02		18.34	11.01			1.63		6.99
1907	20.15		19.55	14.07			1.61		7.95
1908	18.87		17.95	10.86			1.78		9.19
1909	19.35	3.80	19.55	12.3	21.57		3.07		10.76
1910	20.15	4.77	11.31	11.48	25.56	26.36	4.24	28.9	14.89
1911	19.99	18.17	11.62	11.9	30.79			28.55	12.31
1912	21.37	18.3	14.67	12.51	31.19			23.09	
1913	18.47	13.25	20.43	12.9	29.32				
1914	23.72	22.41	20.82	15.23	35.18	23.79	0.45	57.14	15.82
1915	25.11	16.6	19.52	17.38	36.2	26.44	4.48	53.64	10.73
1916	24.66	17.17	22.24	17.51	36.78	6.72	5.47	62.87	15.55
1917	23.76	14.92	18.43	20.86	36.1	18.92	7.47	47.72	47.75
1918	26.16	15.92	17.71	18.55	34.64				29.51
1919	23.02	16.43	17.3	16.92	33.14			44.08	14.05
1920	22.59	15.92	16.78	16.42	31.14	22.83	7.47	49.40	13.37
1921						22.52		47.20	14.9
1922	23.25	16.98	16.15	18.61	31.33				
1923	27.05	18.08	17.21	16.32	29.61	21.51	8.14	54.62	13.34
1924							12.44		
1925	16.42	19.35	20.91	15.37	26.15	21.67	8.27	54.55	12.09
1926									
1927	23.39			22.98	28.10				
1928	16.54	20.09	19.22	17.5	27.79	20.63	10.93	39.54	13.04
1929									
1930	25.63	20.32	22.56	16.79	25.24	19.75	8.85	37.68	20.43
1931	22.10	21.19	23.24	21.58	24.46	20.24	8.53	41.39	11.85
1932	23.07	22.40	17.61	19.00	20.8	20.87	8.51	29.84	14.52
1933	20.73	16.72	15.07	20.3	28.91				9.89
1934	23.49	15.29	15.61	19.84	34.38	19.74	4.85	53.06	21.37
1935	21.17	17.34	17.03	22.16	35.84	19.77	10.06	34.93	20.17
1936	25.75	20.04	21.68	21.70	33.42	17.99	4.83	33.45	21.16

1937	24.88	21.07	19.93	19.91		21.7	4.92	44.17	20.62
1938					36.23				
1939	27.15	18.71	21.61	19.5	32.44	11.23	3.34	34.03	24.44
1940	26.06	18.36	21.85	20.77	38.98	18.36	3.28	62.57	24.44
1941	16.81	22.06	23.77	21.38	36.39	18.11	5.01	55.16	25.02
1942	20.01	22.73	21.31	20.55	37.10	17.79	4.65	49.52	23.83
1943	22.01	22.21	20.51	20.24	37.19	18.60	4.78	43.22	25.55
1944	23.67	23.44	20.26	24.38	37.97	17.18	7.16	41.89	23.94
1945	23.92	18.80	19.13	24.3	34.71	12.64	3.41	65.06	14.89
1946	23.63	24.96	22.37	23.59	34.43	12.32	3.29	36.91	22.27
1947	25.74	24.79	23.85	26.04	37.08	14.75	3.96	53.33	22.07
1948	26.30	23.81	24.02	27.85	35.08	10.54	4.48	47.15	24.72
1949	24.94	26.57	21.59	29.72	31.04		1.58		25.40
1950	28.22	29.97	27.12	25.18	35.08	10.32	1.74	50.13	28.98
1951	42.82	29.72	25.40	23.81	33.04	24.64	7.44	51.80	32.36
1952	28.73	35.68	30.37	21.10	35.38				
1953	33.73	36.06	30.79	28.4	38.16				
1954	36.71	37.95	29.69	32.55	40.55				
1955	37.95	36.75	31.77	35.55	39.66	19.7	5.11	40.25	23.30
1956	37.23	36.94	35.13	33.46	41.10				
1957	35.43	38.56	36.76	32.53	39.94	34.24	43.77	79.86	28.33
1958	35.26	36.48	37.5	35.42		31.48	44.57	86.84	28.93

Source: see text. Note: the enrollment figures are divided into thousands of children 5 to 14 years old. *For national territories.

Table 1.B.2. Secondary education gross enrollment rate disaggregated by departments and national territories, 1905-1958.

Año	Antióquia	Atlántico	Bolívar	Boyacá	Caldas	Cauca	Cundina-marca	*Chocó	Huila	Magdalena
1904							10.77			
1905	6.50	12.39	1.7	2.29	10.24	6.89	11.52		0.37	1.63
1906	6.53	15.37	1.74	2.37	10.21	11.59	14.51		2.78	2.14
1907	2.81	9.51	2.55	2.67	7.54	10.85	11.15		7.03	0.45
1908	7.46	8.20	3.21	2.61	7.96	3.48	12.25		6.20	2.03
1909	0.11						3.8			
1910	0.25		0.11	0.16		0.21	8.13		0.27	0.18
1911	8.31	1.20	1.53	4.99	1.44	2.69	2.6	1.15	0.75	0.30
1912	4.67	3.55	3.09	2.73	3.83	1.53	7.62		2.68	1.48
1913	7.20	9.4	5	2.77	6.29	2.50	6.77		1.20	3.57
1914	8.09	5.53	4.18	3.04	6.56	1.75	7.76	0.58	3.00	2.67
1915	9.28	7.37	3.72	3.27	5.00	2.24	8.32	0.46	2.78	2.93
1916	10.51	6.98	4.09	3.41	5.88	3.45	13.51	0.61	3.09	1.36
1917	8.36	7.59	4.31	3.24	7.28	4.26	14.09	1.83	4.09	1.48
1918										
1919										
1920										
1921	0.67			2.06	0.21				0.3	
1922	7.24	14.94	3.66	1.85	2.87	2.16	6.7		2.48	0.66
1923	7.75	14.35	3.34	1.89	2.58	2.21	6.51	1.22	3.02	0.81
1924										
1925										
1926										
1927										
1928	7.47	1.22			0.24	2.61				
1929										
1930										
1931										
1932										
1933	5.98	6.27	2.07	0.02	3.31	2.04	2.95	2.32	1.97	1.93

Año	Antióquia	Atlántico	Bolívar	Boyacá	Caldas	Cauca	Cundina-marca	*Chocó	Huila	Magdalena
1934	6.21	7.14	3.03	2.94	3.33	2.02	8.86	2.26	1.95	2.59
1935										
1936	6.39	7.97	2.19	3.08	2.97	1.94	8.55	3.47	2.14	2.05
1937	6.42	7.73	1.69	2.35	3.8	1.34	9.15	0.52	2.94	1.58
1938	7.18	8.06	1.97	4.2	4.6	3.28	9.81	2.04	3.13	2.35
1939	6.62	10.69	3.69	4.29	3.09	2.94	10.15	3.03	2.83	3.06
1940	6.84	10.72	3.7	4.3	3.76	2.93	8.4	2.38	2.77	2.45
1941	6.85	10.28	2.36	3.67	3.1	3.10	9.70	2.95	2.72	0.32
1942	5.87	11.45	2.87	3.62	5.44	3.18	9.56	3.27	3.20	2.40
1943	7.68	10.41	3.09	4.18	4.51	3.16	9.15	3.28	3.07	3.90
1944	7.39	11.29	3.06	4.16	4.36	3.13	8.89	4.11	3.00	3.83
1945	7.43	11.43	3.81	4.28	4.3	2.45	7.33	3.53	2.62	3.70
1946	9.17	9.97	3.89	5.02	5.75	4.5		6.15	2.67	4.28
1947	9.36	8.12	4.61	4.83	4.97	4.37	5.91	4.41	3.28	5.58
1948	9.92	8.41	4.45	4.32	3.99	3.48	5.79	4.72	3.81	2.44
1949	9.25	13.89	3.78	4.02	3.94	3.44	4.42	5.47	2.97	1.76
1950	9.86	13.06	4.52	4.67	3.85	3.45	7.16	6.09	2.97	1.73
1951										
1952	7.86	13.29	4.73	3.99	7.86	2.14	14.14	5.92	4.74	3.48
1953	7.86	14.83	4.02	4.96	7.81	2.56	11.48	5.46	5.37	4.81
1954	8.48	13.37	4.92	5.25	7.94	2.82	12.42	4.82	5.32	3.95
1955	10.22	14.17	6.29	4.97	7.94	4.12	16.34	3.07	6.24	5.96
1956	16.18	18.56	7.29	6.49	8.47	5.31	21.86	2.71	5.90	6.62
1957	15.77	20.87	7.48	6.78	10.5	6.17	21.37	5.37	7.31	7.79
1958	17.23	21.58	7.81	7.51	11.85	6.06	22.91	7.73	7.34	7.20

Año	Nariño	Norte de Santander	Santander	Tolima	Valle del Cauca	Arauca	Guajira	San Andrés	Amazon
1900									
1901									
1902									
1903									
1904									
1905	2.86		1.90	0.63					
1906	3.18		3.83	3.87					
1907	3.61		2.84	5.86					
1908			2.58	5.65					
1909									
1910	0.16								
1911	4.60	4.86	2.32	2.38	1.57		1.88		
1912	4.10	5.47	2.70	2.29	6.11		1.82		
1913	4.28	7.03	2.67	1.92	2.57				
1914	4.76	5.89	3.35	2.43	5.20				
1915	3.95	5.8	2.87	5.38	6.98		11.35		
1916	4.90	6.24	3.63	3.21	8.31				
1917	5.08	7.69	4.86	1.51	15.62				
1918									
1919									
1920									
1921									
1922		4.67	1.55	5.29	6.39				
1923	2.09	4.86	1.51	2.33	5.24				0.21
1924									
1925									
1926									
1927									
1928									
1929									
1930									
1931									
1932									

Año	Nariño	Norte de Santander	Santander	Tolima	Valle del Cauca	Arauca	Guajira	San Andrés	Amazon
1933	2.02	4.82	2.2	1.19	3.41	0	0.53	3.09	0.55
1934	2.00	4.95	3.49	1.39	3.96	0	0.51	3.6	0.51
1935									
1936	2.52	4.43	3.19	1.78	3.52	0	0	2.37	0.3
1937	1.5	3.71	4.07	2.19	2.54	0	1.16	3.04	0.3
1938	2.74	5.1	4.68	1.87	4.7	0	0	4.37	0
1939	2.85	4.81	4.73	2.03	6.31	0	0		0.21
1940	3.19	5.72	5.95	2.58	5.17	0	0	12.46	0.33
1941	3.8	5.99	4.64	4.38	5.2	0	0	11.74	0.65
1942	4.35	7.37	4.35	4.03	5.53	0	0	11.82	0.47
1943	4.07	7.19	4.08	4.12	6.19	0	0	13.56	0.38
1944	4.01	7.4	4.03	4.05	6.21	0	0	7.47	0.27
1945	4.46	7.28	4.26	5.78	7.56	0	0	7.27	
1946	5.45	8.57	6.09	6.49	6.15	0	0		
1947	5.16	7.68	5.88	4.71	5.97	0	0	9.11	0.08
1948	4.67	5.1	7.44	4.76	5.76	0	0		0.71
1949	3.41	7.86	7.22	4.28	4.5	0	0		0.61
1950	5.09	8.18	6.89	3.61	6.2	0	0		0.69
1951									
1952	4.71	7.74	6.14	2.3	6.27	0	0	6.46	0.52
1953	5.06	7.96	6.97	4.94	7.04	0	0	6.08	0.65
1954	3.96	7.61	6.78	4.77	7.31	1.67	0.35		1
1955	5.05	8.21	7.53	5.59	6.48				0.14
1956	6.37	10.58	8.34	6.59	8.44		0.13		0.69
1957	6.85	13.17	9.85	6.12	10.22	0.54	3.77		1.5
1958	7.65	10.95	10.55	7.17	11.14	2.96	3.18	3.26	2.6

Source: see text. Note: the enrollment figures are divided into thousands of children 15 to 19 years old. *For national territories.

Chapter 2

Educational disparities in Colombia 1904-1958: new evidence from a regional perspective[27]

2.1 Introduction

Human capital is a fundamental determinant of economic growth. One of the first to make this observation was Uzawa (1965), who, like Mankiw *et al.* (1995), explained the growth of economies in terms of the accumulation of human capital. Nelson and Phelps (1966) focused more on the mechanism of human capital and growth, suggesting that education accelerates the process of technological diffusion, whose externalities generate economic growth. Of the long-term analyses that are aligned with this idea, Goldin and Katz (2008) claim that the higher the level of education, the greater the individual productivity rate and the higher the aggregate growth rate. 'That the twentieth century was both the American Century and Human Capital Century is no historical accident' Goldin and Katz (2008,1), given the strong connection between the role of education and the development of a great technological process that stimulated economic growth. Therefore, focusing on the analysis of educational policies will allow us to understand the role of educational systems in economic growth (Hanushek and Woessmann 2012a).

If we focus on Latin American education throughout the twentieth century, we can see considerable contradictions. On the one hand, significant efforts have been made that have resulted in substantive improvements to educational levels. On the other hand, in the longer term these efforts seem to have lagged and been insufficient, Latin America having been at a clear disadvantage in comparison with other parts of the world (Bértola and Ocampo 2013). Since colonial times, education in Latin America has sought to preserve the established social order, having initially been promoted by Catholic missions to indoctrinate the native population in the Catholic religion, while "academic" education was only focused on the elites. Modern educational systems in the region are

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the creations of independent states, associated with the emergence of political parties and industrial groups. However, significant progress is only observed in primary-school enrolment until the first part of the twentieth century (Bértola and Ocampo 2013). In this process of expanding educational coverage in the early twentieth century, Colombia fell quite a long way behind those states that achieved high rates of educational coverage early, namely Argentina, Chile, Costa Rica, and Uruguay (Bulmer-Thomas 2003). In the same way, many territorial differences in Colombia arose in the enrollment rates that persisted until the middle of the twentieth century (Helg 2001); even today great differences in the coverage and the quality of education are observed (Galvis and Meisel Roca 2010). In that frame, the present chapter seeks to contribute to the debate over territorial differences and patterns of the persistence of poverty and underdevelopment on the periphery in Colombia from the identification of patterns of low coverage in the first half in the twentieth century for both primary and secondary education.

Education was one of the main concerns of the Colombian state at the beginning of the twentieth century. As a consequence, a national and centralized educational programme was established the financing of which had to be assumed by each of the departments until at least the end of the 1950s. The differences in regional incomes and local decisions on levels of spending on education, in turn, caused large and persistent differences that last until today. Although territorial differences in educational coverage have been reduced in recent decades, differences in quality have become the central problem. In this respect, the departments with the lowest coverage rates at the beginning of the twentieth century, such as Chocó La Guajira, still show the worst results regarding mathematical and language skills, even though educational coverage has improved considerably (Meisel Roca 2011).

Likewise, these territorial differences are also observable in incomes and have become persistent in the longer term (Galvis and Meisel Roca 2013; Meisel Roca 2011), especially between the departments located at the centre and on the periphery of the country respectively. Nowadays, these departments have the lowest gross domestic product (GDP) per capita and the largest number of people living in poverty (García 2008). In this regard, long-term studies of territorial disparities are scarce due to the lack of reliable data on departmental incomes in the first half of the twentieth century, although there are a few exceptions, like Bonet and Meisel Roca (1999), who study the distribution of long-term incomes and the process of regional convergence for the period 1926-1995.

As well as suggested by the economic literature, the accumulation of human capital is one of the main determinants of the competitiveness of regional economies and levels of income, meaning that solving these problems is a *sine qua non* for achieving the convergence in incomes between regions and thus improving the productivity of the economy. Therefore, the identification of patterns of low educational coverage in the first half of the twentieth century can help to understand the origin of the persistent patterns of poverty in some territories. For this purpose, series of expenditure on education by territories have been constructed, which appears to be one of the most determining factors in the origin of the differences due to the decentralized nature of the foundation.[28]

[28] The study period covered by this article started in 1904, after the Thousand Days' War (*La Guerra de Los Mil Días*), when the legal basis of the current Colombian educational system was established together with a model of the financial decentralization of education. It ended in 1958 when substantial changes were

In the same way, by deepening educational expenditure by territories, policies of national and local scope, and the country's urban transformation, certain hypotheses about the origin of these differences based on the literature can be generated. One of them is that the decentralization of education financing could have created inefficiencies in the provision of education, and another is that the urbanization process allowed a greater enrolment of children in the most densely populated territories.

Previous studies of education in Colombia have used historical perspectives centred mainly on the departments in the centre of the country (Ramirez and Salazar 2010; Ramírez and Téllez 2007), but there are still gaps in the literature on long-term educational outcomes in the peripheral territories, so until now, it has not been possible to carry out analyses of decentralization or urbanization processes that take into account all of Colombia's territories for the first half of the twentieth century.

Finally, the results of this work, as can be seen in other studies of incomes (Meisel Roca 2011), show a tendency towards the formation of an educational cluster in the centre and the existence of such a human capital trap in the periphery of the country during the whole period, which in the 1950s was much more marked in both primary and secondary education. The results also suggest that there is a high correlation between the budgetary capacity of the territories and enrolment rates between 1904 and 1958. Finally, it can also be observed that the territories with the highest enrolment rates can be correlated with high urban enrolment rates from the beginning of national urbanization.

In the next section, I present different debates on territorial differences in educational provision. In Section 3 I tackle the history of the development of education in Colombia. Section 4 describes the methodology and sources used. Section 5 presents results, while Section 6 provides a conclusion.

2.2 Determinants of investment in education

The determinants of the differences in regional development have stimulated an interest in the literature on economics. Using information from 110 countries and 1,500 territorial and subnational divisions, Gennaioli *et al*. (2012) found that education is the factor that best explains the differences in per-capita income levels between regions and that, conversely, local institutions have minimal influence. In the case of Latin America, (Bejarano 2007) found that human capital in itself represents approximately half of the differences in GDP per capita between municipalities in a group of countries.

The question is, what makes the regions of a given country have different levels in the accumulation of human capital. Within the different derived hypotheses, many authors

introduced in the financing policies of the education system focused on the centralization of spending (Arvone 1978).

see the decentralization of education as the *main* cause, although some authors argue that decentralization has positive impacts on the level of educational expenditure because it tends to better provide education (Goldin 2001; Goldin and Katz 2008; Lindert 2003). In contrast, other authors argue that decentralization may create inefficiencies in the provision of education (Vollrath 2013), in many cases causing underprovision or even a human capital trap (Cappelli 2016).

As for Latin America experience, Newland, (1991) explains that from the Declarations of Independence, many countries inherited a decentralized education model from the colonial institutions. However, the tendency towards centralization was strengthened in all Latin-American countries, especially those in which economic growth made an increase. In countries such as Argentina, Venezuela or Mexico, national agencies were created to exercise control of education, while in most countries, centralization was initiated when the national state began to finance education. The main problem of the decentralized model was, on the one hand, that primary education was not a priority hence spending on education was very low during a significant part of the twentieth century; on the other hand, that education was more focused on the elite of each country. Arroyo (2016) in line with the previous idea, affirms on the movement of centralization in 1905 in Peru, that their centralized model resulted in a suboptimal provision of educational services because of the lack of political representation and the more restrictive nature of the electoral process in which the indigenous population was not allowed to participate.

Concerning to the twentieth century, the reforms carried out in Latin America during the 1980s to modifying the paternalistic role of the State resulted in the adoption of decentralized models of education; then many studies emerged from the 1990s when many countries established decentralized education systems. Prawda (1993) and Di Gropello (1997), in a comparative analysis on the different effects of decentralized education in several Latin-American countries, found that certain errors of implementation and design of educational reforms generated great divergences in the quality indicators between the different geographical areas. As for the recent literature, Habibi *et al.* (2003) on Argentina, found that decentralization had a positive impact on human development across all regions and led a significant reduction in regional disparities. On the contrary, Galiani, *et al.* (2008), although they confirmed that decentralization had an overall positive impact on student test scores, they also said it did not reach the poor areas because of the lack of ability to defend their preferences as a community.

In the absence of a centralized system, other factors acquire special weight, such as the heterogeneity of local economic and institutional characteristics or preferences. Following this line of reasoning, some authors have found that differences in public spending are associated with ethnic diversity. Several studies at the subnational level argue that the more fragmented and ethnically diverse a region the lower its provision of public goods, including education (Alesina, Glaeser, and Glaeser 2004; Stichnoth and der Straeten 2013).

Another element that has aroused much interest within the institutional literature is the relationship between the concentration of land and the provision of education In that line of arguing, Frankema (2009) points out that Latin America's historical legacy of a

high concentration of landownership might have restricted the expansion of public education. Similarly, in an empirical work on Brazil during the nineteenth and twentieth centuries, Wegenast (2010) found that provinces, where slave or cheap labour was prevalent, had lower enrolment rates in the long term. He attributed this to the fact that Brazil's politically influential agrarian elite had no interest in promoting schooling, as not only would extending education cost more through taxes, it might also lead rural workers to seek better-paid jobs.

In another approach, Lucas (1988) recognized the role of large cities in human capital accumulation. He argues that large cities foster spillovers of knowledge that drive economic growth. The size and persistence of wage gaps between rural and urban workers provide incentives for investments in education by them. Therefore literacy rates and average educational attainment levels tend to be higher in urban areas than in rural areas (Williamson 1988).

Nonetheless, the literature on the origin of the disparities in education in Colombia is scarce, with only a few works taking a long-term view. One of the main such examples is Ramírez and Salazar (2007), who goes back to the nineteenth century and point out that, due to the geographical and political fragmentation of that time, creating either a state or a standard and consolidated educational system was very difficult. During the nineteenth century, all states in the country had meagre enrolment rates except for Antioquia and Cundinamarca. The authors found that those territories with high school-enrolment rates had also made the most significant investments in education, whereas low enrolment rates were correlated with critical financial situations and low incomes. Institutional factors were also decisive. Thus, Antioquia played a significant role in the expansion of coffee cultivation, its agrarian structure being based on small-scale coffee-growers and landowners, who had a great incentive to educate themselves in order to manage their lands and farms.[29]

Bearing in mind that the educational system has its origins in legislation defined in the early years of the twentieth century, few works address the first decades of that century. The most important such work is by Ramírez and Téllez (2007), who, centred mainly on the departments in the centre of the country, and based on an initial analytical analysis of the subnational level in the longer term, identify some of the causes of subnational differences in the provision of education. The authors point out that the high rates at the beginning of the twentieth century were associated with higher levels of industrialization, higher incomes, higher educational expenditure and higher teaching salaries.

[29] At the end of the nineteenth century Antioquia became the center of coffee-growing, which generated sufficient resources to give the local population the opportunity to participate in export and import activities. Coupled with the emergence of the textile industry, this meant that Antioquia was one of the regions that had more resources (Urrutia 1976).

2.3 Background: territorial disparities in Colombia and education policies before the first half of the twentieth century

Colombia is a medium-income country similar in size of income to Brazil, Mexico, Peru and Venezuela (Bértola and Ocampo 2013), with almost fifty million inhabitants and a land area of about 1.2 million km². Today Colombia is made up of thirty-two departments and Bogotá, the capital district, which is treated as a department (Figure 1.2). Departments are subdivisions of the country similar to the French system, each of them, in turn, being subdivided into municipalities, which are further subdivided into *corregimientos* in rural areas and *comunas* in urban areas.

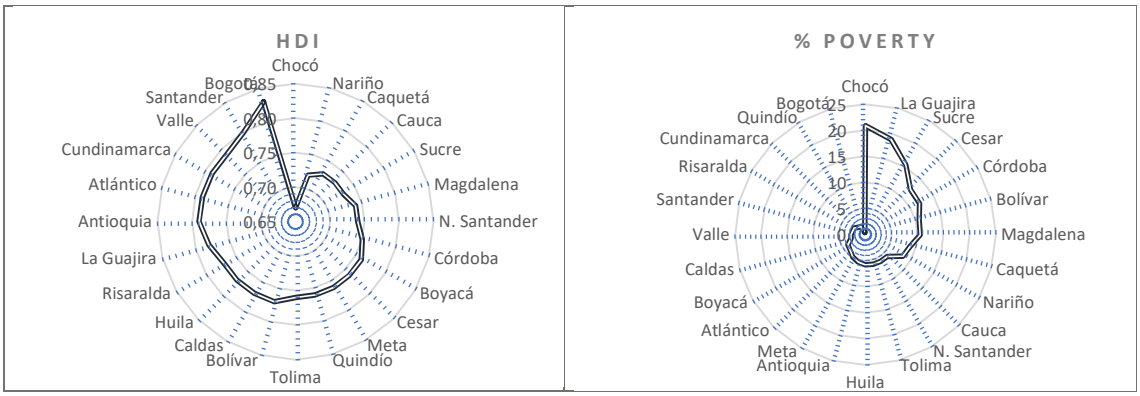
Figure 2.1. Territorial organization of Colombia by departments.

Source: Instituto Geográfico Agustín Codazzi.

Colombia has many regions with very different racial, ethnic, social and geographical characteristics, whose processes of colonization have conditioned their present-day cultural and socioeconomic factors. In the centre of the country, there is what might be called the "Andean trapezium" (*Trapecio Andino*), which includes the area traditionally known as the "golden triangle" (Bogotá-Medellin-Cali), with an offshoot to Santander, and more specifically to Bucaramanga and its metropolitan area. In 2001, 53% of Colombia's total national population was concentrated in the trapezium, which constitutes a centre-periphery structure in the distribution of economic activity in

Colombia (Galvis 2001). Moreover, Barranquilla (Atlántico), located on the Caribbean coast, is the fourth most populous city in the country and, as an important centre of industry and development, it is an exception in the Caribbean area. Conversely, departments located on the periphery of the country, whose population is mostly black or indigenous, such as Chocó, Guajira, Magdalena and Nariño, have the highest rates of poverty and the worst indicators of human development in the country, as we see in Figure 2.2.

Figure 2.2. Human Development Index (HDI) and share of people living in poverty in Colombia by departments, 2005.



Source: Departamento Administrativo Nacional de Estadística (DANE).

These differences between centre and periphery are not only spatial but also temporal (Galvis and Meisel Roca 2010). Works on regional differences in Colombia have found persistent patterns of long-term poverty in the periphery of the country associated with institutional determinants such as the colonial legacy (Bonet and Meisel Roca 2007) and the initial level of human capital (Meisel Roca 2011).

2.3.1 Roots of the Colombian educational system and policies during the first half of the twentieth century

Although the greater part of Colombia's present-day educational system reflects the reforms carried out at the beginning of the twentieth century, the roots of the reform date back to 1870, when liberal governments under the direction of General Eustorgio Salgar introduced a system of public education with national coverage. Until 1886, Colombia was a federal state composed of nine states, and until that date the design and financing of education had been their responsibility.[30] As Ramírez and Salazar (2007) point out, under the 1870 reform public primary education became free and mandatory for all children between 6 and 14 years, being secular, centralized and supervised by the national government. This reform was not very successful, mainly due to opposition

[30] The nine states were Antioquia, Bolívar, Boyacá, Cauca, Cundinamarca, Magdalena, Santander, Tolima and Panamá.

from the Church and its influence over the population, one of the leading causes of the civil war that occurred between 1876 and 1877.[31]

Years later, as explained more fully in Chapter 1, the conflict between Church and state ended with the entry into force of Colombia's new Constitution of 1886 establishing an alliance between them. Likewise, a new territorial organization was created and maintained until 1991 in which the federated states became departments, subdivided into smaller units called municipalities (*municipios*). However, administrative entities called national territories (*territorios nacionales*) were retained for the more peripheral areas.[32] These territories were located very far from Bogotá and had low levels of population, lacked the capacity for self-government and depended on the central government for their administration.

This new territorial organization was framed by a model of political centralism combined with administrative decentralization. In 1887 a Concordat was signed whereby the state gave the church control over various administrative and educational procedures and explicitly supported private Catholic education. Likewise, as part of the new constitutional background, education in the national territories was handed over to different Catholic missions, whose primary objective, beyond encouraging literacy among the indigenous groups living there, was to catechize them.

Between 1899 and 1902, conflicts between the Conservative Party and the Liberal Party unleashed the Thousand Days' War, which destroyed a large part of the transport infrastructure, preventing many children from attending school. National reconstruction after the war was supported by coffee exports, which allowed enough capital accumulation to initiate a process of industrialization in Colombia, led in particular by the textile industry in Antioquia (Bejarano 2007). In 1903 Panama separated from Colombia with the support of the United States, becoming an independent state.

After the war, under the Conservative General Rafael Reyes, a policy of economic reconstruction was carried out in which several laws were issued to regulate and organize public administration in the country (Ramírez and Téllez 2007). In education, the Law 39 of 1903 and Decree 491 of 1904 defined the new characteristics of the education system, as explained in more detail in the previous chapter. Education ceased to be compulsory, and public education was organized and directed by the Catholic church in primary and secondary schools. Primary education was distributed between urban, rural and night schools, each governed by different standards. The night schools were created to battle working-class illiteracy and only had basic notions of urban educational programmes. The urban primary education programme lasted for six years and offered the most complete education, while rural primary education lasted only three years. In both rural and urban schools, the responsibility for women's education

[31]The civil war of 1876 to 1877 was conflict within Colombia with a political-religious character and reflected the interests of the Colombian Conservative Party in opposition to the government of the radical faction of the Colombian Liberal Party.

[32] The status of national territory disappeared with the 1991 Constitution, after which they all became departments with the same degree of autonomy. Exceptionally Chocó acquired the status of a department in 1947.

was given to each community; it was to be free and to be run by women from the same community. The secondary school system was very heterogeneous, while most high schools were private, many of them corresponding to technical and vocational schools. Technical education focused on classes for the poor and was taught in supplementary schools, night schools, arts and crafts schools and technical schools. In the same way, commercial and agricultural schools were founded, some offering degrees in higher education, while others offered intermediate alternatives between primary and secondary education. In all cases, in both primary and secondary education, the central government designed educational programmes in broad terms, leaving some freedom for their adaptation to local preferences.

Regarding financing, the new legislation mainly gave the responsibility to the departments for hiring, supervision and cost of primary education, which had the highest costs of any level of education. Moreover, each department was free to decide what percentage of its income it invested in education. Also, the construction of schools were tasks handed over to the municipalities. Conversely, the central government merely undertook inspections, provided teaching materials and school supplies to primary schools and funded a high school in each department. Regarding secondary education, the central government financed one school for boys and one for girls in each department. In the event that the demand for secondary education was higher, the departments were obliged to provide additional schools themselves.

By the same token, the decentralized system fostered great discrepancies in the allocation of educational resources among departments, causing significant educational inequalities between them (Ramírez and Téllez 2007). Very few departments had large enough economies to provide the resources to promote universal access to education. In this respect, the main sources of departmental income were the taxes on the consumption of meat, alcohol and tobacco. Departmental governments had a monopoly on the production of alcohol, which became the main source of income for several departments such as Antioquia, Santander and Caldas (Ocampo 1999). The case of Antioquia is surprising, as its income at the beginning of the 1910s was more than double the second-ranking department in income terms and had up to ten times more income than some other departments.[33]

In 1930, the Liberal Enrique Olaya Herrera won the presidential elections, ending 44 years of Conservative governments. In 1934, the new government of López Pumarejo claimed that decentralization was the leading cause of educational backwardness and of the considerable inequalities between departments, so he prioritized solving the issue. Not only did the differences between departments begin to increase, so did those between urban and rural education. This was partly because rural schools received much less finance for their operations. Helg (2001) states that, between 1932 and 1936, rural areas received only 37% of departmental educational resources, urban areas 63%. In 1938 a Municipal Development Fund (*Fondo de Desarrollo Municipal*) was created, followed in 1944 by a National School Fund (*Fondo Nacional de Educación)*, which the government used to try to channel more state resources to the less-favoured regions.

[33] Details of departmental incomes are given in Appendix 2.

By 1945, a different dynamic of growth and structural change had emerged, which continued for the next four decades. As Ocampo (1999) explains, the transition from a rural to an urban and semi-industrial economy had a significantly impact on the agricultural sector, causing a substantial reduction in its participation in the international economy. Demographically mortality rates fell, and the population growth rate greatly accelerated, especially between the fifties and sixties, when the population grew by 2.5% per year. The major cities grew from having 31% of the population in 1938 to 52% in 1951, this growth being mainly concentrated in the cities of Bogota, Medellin, Cali and Barranquilla.[34] These concentrations in urban areas also generated large differences between the quality of urban and rural education, the best qualified teachers being concentrated in the cities. While in 1950, 82% of teachers in rural primary schools had no teaching certificate, in urban schools, only 51% were certified (Ramírez and Téllez 2007). These demographic changes, together with a greater national fiscal effort, meant that from 1950 until the mid-1970s educational indicators saw unprecedented improvements. Likewise, the new education policies obliged municipalities and departments to allocate a fixed percentage of their income to education, which was reflected in an unprecedented growth in primary- and secondary-school enrolment rates (Ramírez and Téllez 2007).

By 1958, an electoral coalition between Conservatives and Liberals signed a stability pact, the *Frente Nacional*, with the goal of ending the dictatorship of Rojas Pinilla. This political pact introduced many changes to how the legal framework for education was financed, perhaps the main one possibly, being a move towards centralizing the financing of education, one aspect of this was the central government assuming greater responsibility for financing the salaries of primary education teachers (Arvone 1978).

2.4 Methodology and sources

As explained more fully in chapter 1, annual data were collected on the number of students enrolled in primary and secondary education and on spending on education between 1900 and 1958 for each department and national territory. Previous research on education for this period mainly provided national data, and although there were also some departmental data, not all departments or national territories in the country were taken into account (Ramírez and Téllez 2007). The main contribution of this work has been the construction of long-term series for all departments and national territories in Colombia, including both continental and insular territory, resulting in nineteen territorial entities as shown in Figure 2.3. For the construction of the series of students enrolled and spending on education I used data from the Yearbooks of the Ministry of Education (*Memorias del Ministerio de Educación*) from 1910 to 1958 and the Colombian Statistical Yearbooks of the National Administrative Department of Statistics (*Departamento Administrativo Nacional de Estadísitica*, hereafter DANE); and for the

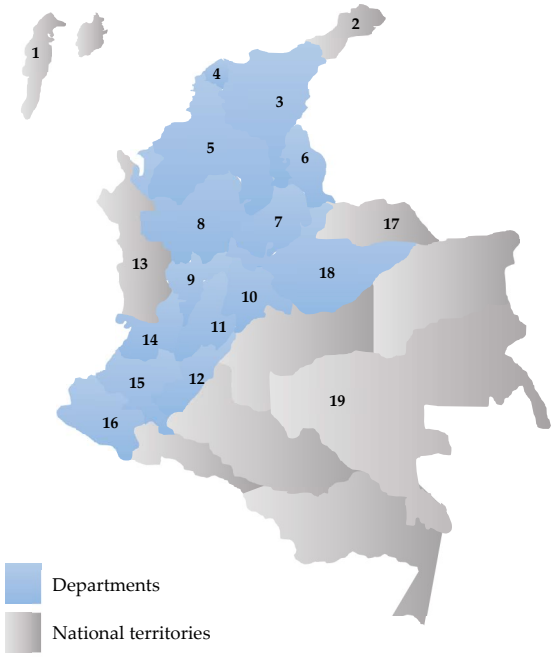
[34] Between 1946 and 1966, the period known as *La Violencia* was unleashed in Colombia, in which violent confrontations took place, including murder, aggression, persecution and the destruction of private property, all of them due to ideological differences.

estimates of children in school age, I used population censuses between 1905 and 1964. The Appendix 2A tables present the summary of all the series built for all the territories and Chapter 1 explains in more detail the construction of these series, the primary sources used as well as and the discussion of the definition of the internal borders and the country's foreign borders.

Moreover, the data have been disaggregated between primary and secondary education, and primary education has been disaggregated further into rural and urban education. Due to lack of data, it was not possible to arrive at disaggregated figures from the school census in the rural and urban population throughout the whole period, so this type of analysis has only been carried out since 1928, using the censuses of 1928, 1938, 1958 and 1961 as the source.[35]

As for spending on education, some previous series already existed, elabourated by Ramírez and Téllez (2007) for departments located in the centre of the country between 1925 and 1950. Here I have completed their series with data for 1918-25 and 1950-58, and all Colombian departments (including those on the periphery) have been included. As a result, long-term series were created for the departments of Antioquia, Atlántico, Bolívar-Córdoba, Boyacá, Caldas, Cauca, Cundinamarca, Huila, Magdalena, Nariño, Santander, Norte de Santander, Tolima and Valle del Cauca and the national territory of Chocó.

Figure 2.3. Colombian territorial organization by departments and national territories in 1942.



[35] The Population Census for 1928 was overestimated by 5% and was not approved by Congress (*Vidales et al*. 1978).

Notes: 1= San Andrés & Providencia Islands; 2=La Guajira; 3=Magdalena; 4=Atlántico; 5= Bolívar; 6=Norte de Santander; 7=Santander; 8=Antioquia; 9=Caldas; 10=Cundinamarca; 11=Tolima; 12=Huila; 13=Chocó; 14=Valle del Cauca; 15=Cauca; 16=Nariño; 17=Arauca; 18=Boyacá; 19 = Amazon Region (which includes Meta, Vichada Putumayo, Caquetá, Vaupés and Amazonas)

My analysis of this information is mainly descriptive and does not seek to compare causalities, so the results should be read with caution. Rather, the objective has been to identify regional patterns that help explain the differences in the enrolment rates between territories. Hence, to help identify spatial patterns, maps have been drawn based on enrolment rates by territory. Likewise, in order to identify patterns of convergence, box plots have been used for primary and secondary education. For analyses related to rural/urban area, cross-sectional plots have been used for primary education. Lastly, to complement the quantitative analysis, qualitative information has been used from the Ministry of Education Yearbooks.

2.5 Territorial disparities: analyzing patterns

Figures 2.4 and 2.5 show the geographical distribution of enrolment rates in primary and secondary schools in the country for six years selected between 1905 and 1958. The findings suggest the formation of an educational cluster in the centre of the country, which already existed at the beginning of the twentieth century, but which became much more noticeable in the middle of the century in both primary and secondary education. Likewise, the results show a strong correlation between the backwardness in the Gross Enrolment Rate (GER) and the fact of it being a national territory. Therefore, according to enrolment rates, the country tended to be divided into centre and periphery, or rather into departments and national territories. This geographical pattern of educational backwardness on the periphery and high enrolment rates in the centre of the country coincides with the levels of development reached in the later years in the "Andean Trapezium," (*Trapecio Andino*) defined by Galvis (2001). Hence, one could also speak of the existence of an "Andean educational Trapezium" during the first half of the twentieth century. In relation to secondary education, a pattern of correlation is observed between enrolment rates and a high level of industrial development. As in the case of Antioquia, Atlántico, Cundinamarca, Santander and Valle del Cauca, which in 1936 accommodated 70% of the country's industrial centres, together with Caldas, in 1932 they accounted for about 60% of the country's coffee production, as well as having the highest enrolment rates in the entire period (Ocampo 2015).[36]

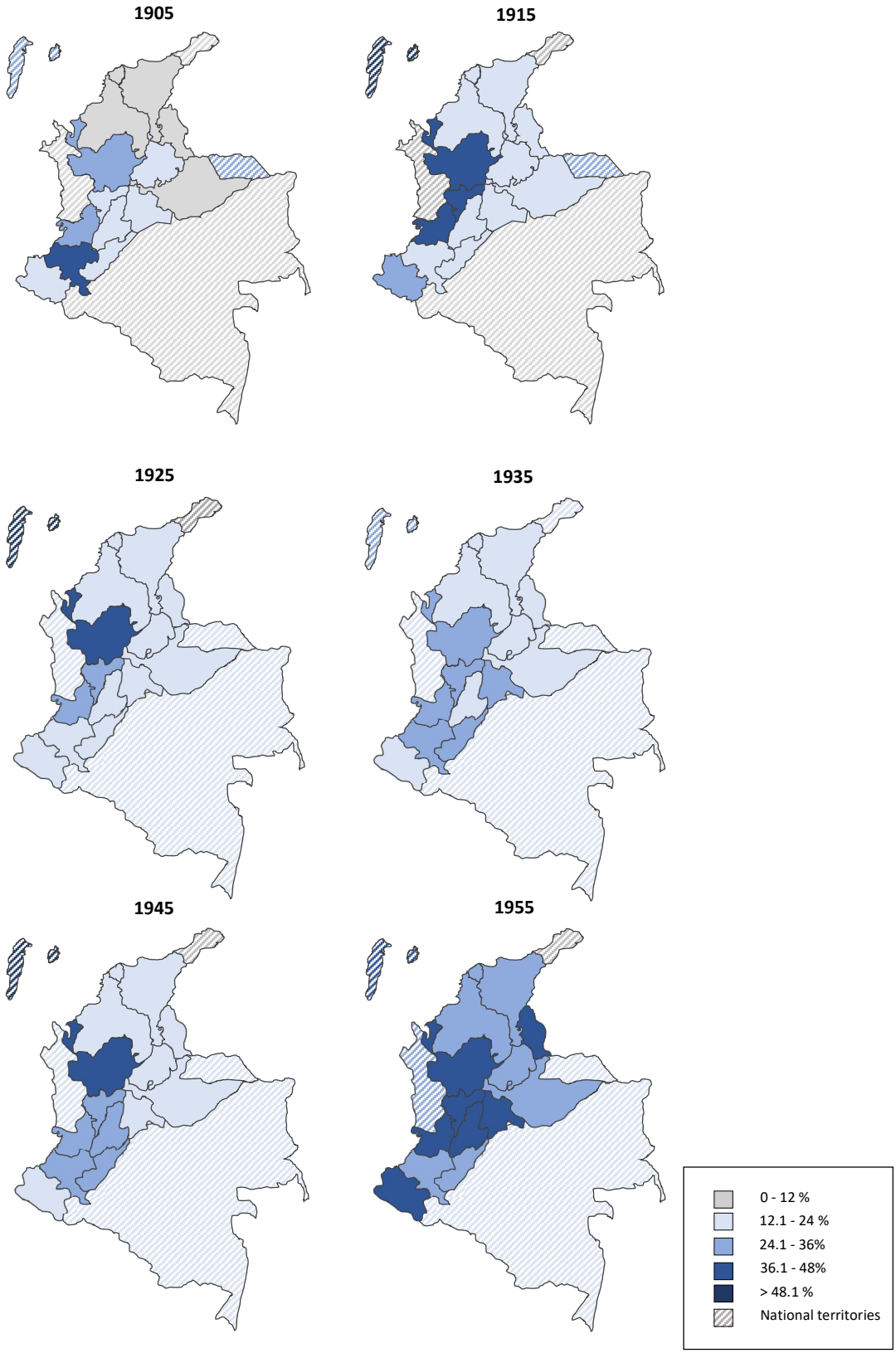
Figures 2.6 and 2.7 illustrate in box plots the evolution of the distribution of the GER before mid-century for both primary and secondary schools. In the box plots, the median is represented by the line in the box, the box indicates the degree of dispersion (spread) and represents the 50% of the data, and finally, the whiskers represent the ranges for the bottom 25% and the top 25% of the data values, excluding outliers. The results indicate a clear pattern of convergence in primary school series, so territorial differences tend to be smaller the closer we come to the mid-twentieth century. Also, there was an increase in the value of the median between 1905 and 1915, with slight upward and downward

[36] Details of industrial establishments by department in 1936 can be found in Appendix 2B.

fluctuations until 1945, and again a considerable increase in 1955, indicating significant improvements in aggregate enrolment at the end of the period. This increase in enrolment rates since 1950 responds to the demographic expansion that occurred after the mid-1940s (Ramírez and Téllez 2007). Not many outliers are observed in the whole period, the whiskers indicating that most of the distribution is concentrated around the median. Regarding secondary education, we see a very different scenario. On the one hand, average enrolment rates in secondary schools begin an upward trend at the beginning of the century, while a second period of growth started in the 1930s. On the other hand, the box plot shows large interquartile ranges indicating high levels of dispersion in all selected years, with a positive asymmetry in all cases. Whiskers located far from the median show many atypical values in the distributions. For most years we find outliers, corroborating the idea that there were consistent asymmetries in the levels of enrolment in secondary education during the first half of the twentieth century (Helg 2001; Ramírez and Téllez 2007).

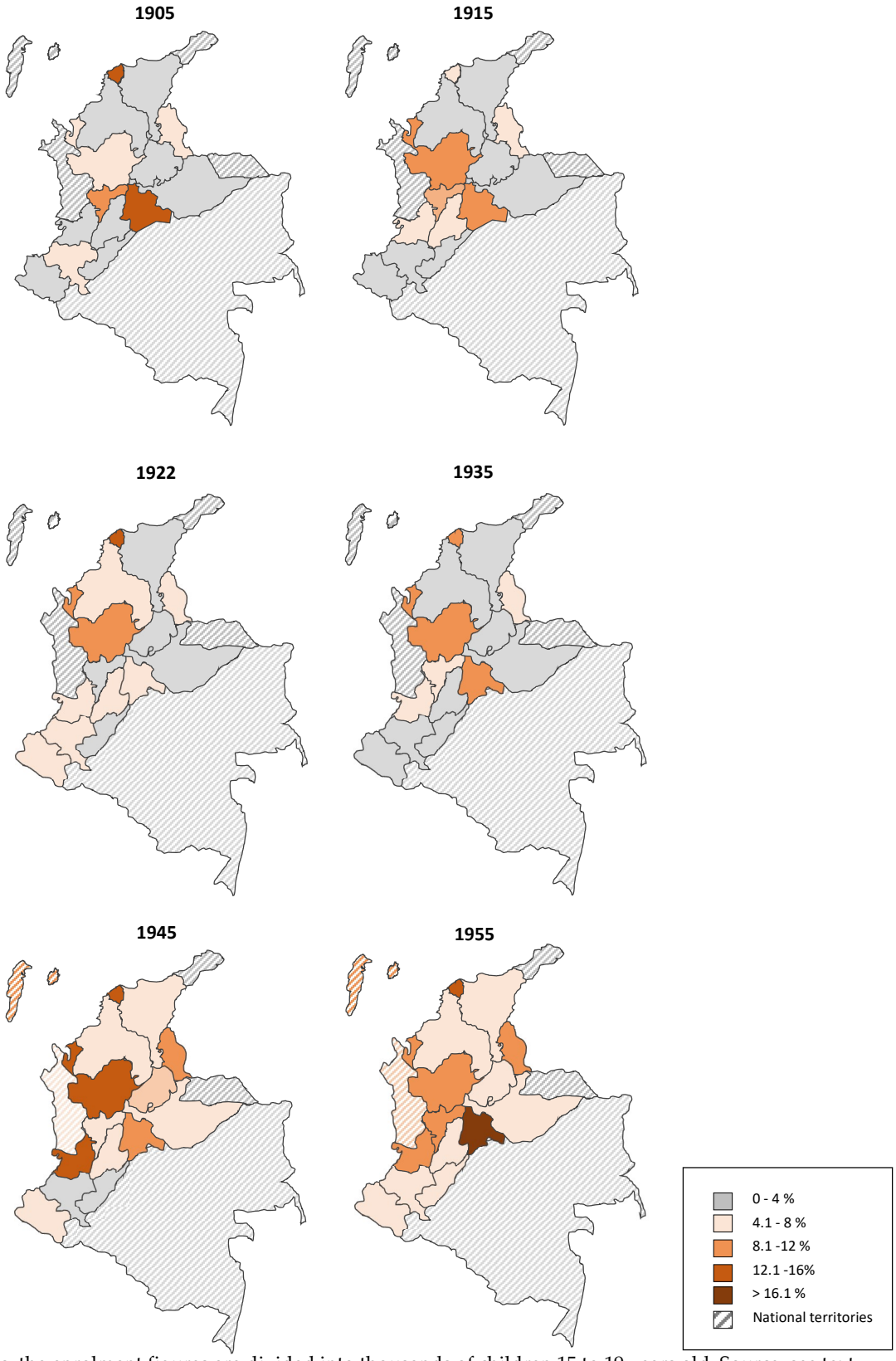
Since the main objective of this work is to identify regional patterns in the evolution of enrolment rates, in Tables 2.1 and 2.2 the observed patterns were categorized according to the changes in the positions of the ranking of enrolment rates in 1905 and 1958. The first pattern refers to those territories that maintained high enrolment rates, the second to those that maintained low enrolment rates, the third to those who improved them, and finally the fourth to those cases where they deteriorated. The results show that Antioquia and Cundinamarca are among those with high enrolment rates in both primary and secondary education, while Guajira, Magdalena and Chocó are among those with low enrolment rates. The question that arises from these results is what these patterns can be associated with.

Figure 2.4. Primary school enrolment rates by departments and national territories, 1904-1958.



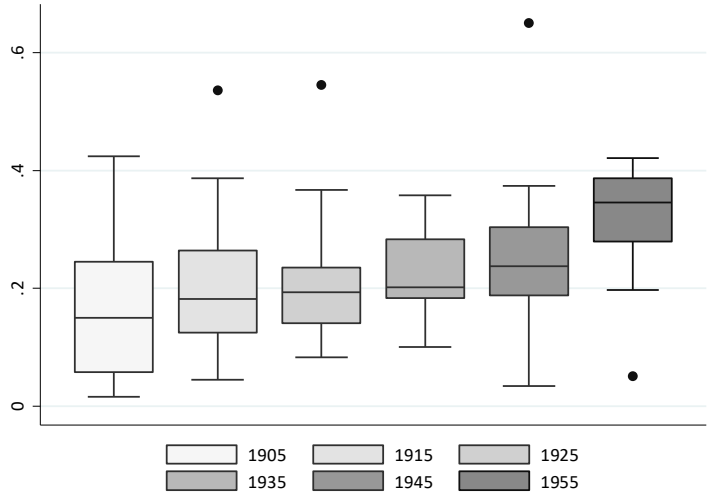
Notes: the enrollment numbers are divided into thousands of children 5- to 14-years-olds. Source: see text.

Figure 2.5. Secondary school enrolment rates by departments and national territories, 1904-1958.



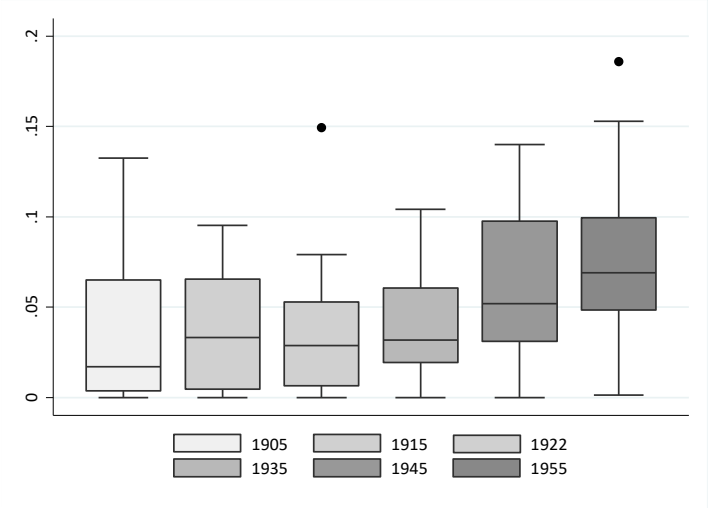
Notes: the enrolment figures are divided into thousands of children 15 to 19 years old. Source: see text.

Figure 2.6. National primary school enrolment distribution, 1905, 1915, 1925, 1945, 1955.



Notes: the enrolment figures are percentages of children aged 5 to 14. The values include departments and national territories. Source: see text.

Figure 2.7. National secondary school enrolment distribution, 1905, 1915, 1925, 1945, 1955.



Notes: the enrolment figures are percentages of children aged 15 to 19. The values include departments and national territories. Source: see text.

Table 2.1. Patterns of enrolment for primary school by departments and national territories according to the 1905 and 1958 rankings.

Always high enrolment	Always low enrolment
Antioquia	Guajira*
San Andrés*	Magdalena
Valle del Cauca	Bolívar
Cundinamarca	Chocó*
Improvement	**Deterioration**
Caldas	Cauca
Atlántico	Arauca*
Norte de Santander	Santander
Nariño	Amazon Region*
Huila	
Tolima	
Boyacá	

Notes: *indicates national territories. Notes: Under "Always High Enrolment" are those territories that remained among the six first positions. Under "Always Low Enrolment" are those territories that remained between the last positions. Under "Improvement" are those territories that advanced at least one position. Under "Deterioration" are those territories that retreated at least one position. Source: see text.

Table 2.2. Patterns of enrolment for secondary school by departments and national territories according to the 1905 and 1958 rankings.

Always high enrolment	Always low enrolment
Cundinamarca	Chocó*
Atlántico	Arauca*
Antioquia	Guajira*
Norte de Santander	San Andrés*
	Amazon Region*
	Bolívar
	Magdalena
Improvement	**Deterioration**
Valle del Cauca	Cauca
Tolima	Boyacá
Huila	Nariño
San Andrés	Santander
	Caldas

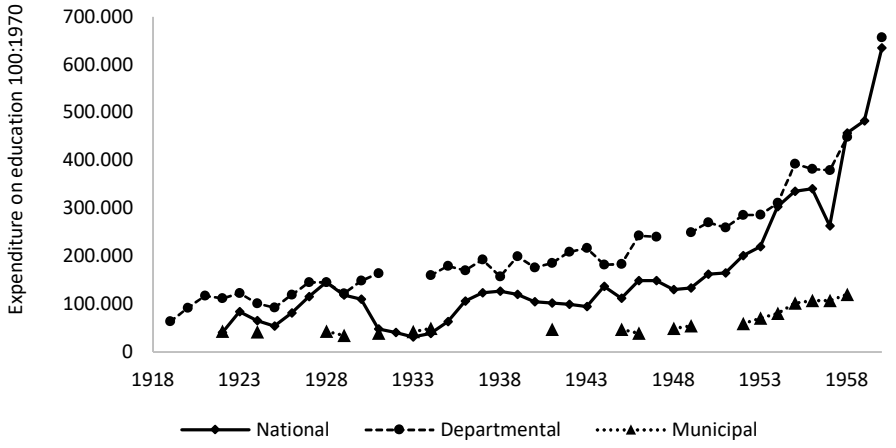
Notes: see Table 2.1. Source: see text.

2.5.1 Educational expenditure: "following the money".

As Lindert (2010) argues, the key to Latin America's poor schooling was the failure to supply it with money from taxes, not gender discrimination or any shortfall in the market demand for skills. Therefore, to understand the patterns in the differences in educational supply between territories, the origins of the financing of education should be examined.

As mentioned above, the educational policies introduced at the beginning of the twentieth century depended on a decentralized financing model which shared educational expenditure among the three levels of government: national, departmental and municipal. In Figure 2.8, we see that, until the end of the 1950s, the greatest weight of financing was assumed by the departmental governments, followed by the national government, with only a small share coming from the municipalities. There was also an increase in national spending from the beginning of the 1920s, which coincides with the Dance of the Millions (*La Danza de Los Millones*), money received as compensation for the separation of Panama from the United States and the boom in loans and exports. Once these resources had been spent, and after the crisis of the 1930s, there was a significant decline in national spending on education. Indeed, departmental spending remained constant, as a counterweight to the decrease in national expenditure. Only after 1936 did national spending tend to increase, and even then, it did not reach departmental expenditure levels until the late 1950s. Since 1950 significant increases in education expenditure can be observed. These years are considered to have been a period of economic prosperity when the annual growth in GDP was 4.3%, and tax revenues rose from 5.7% to 7.1% as a share of GDP (Rincon and Junguito 2007).

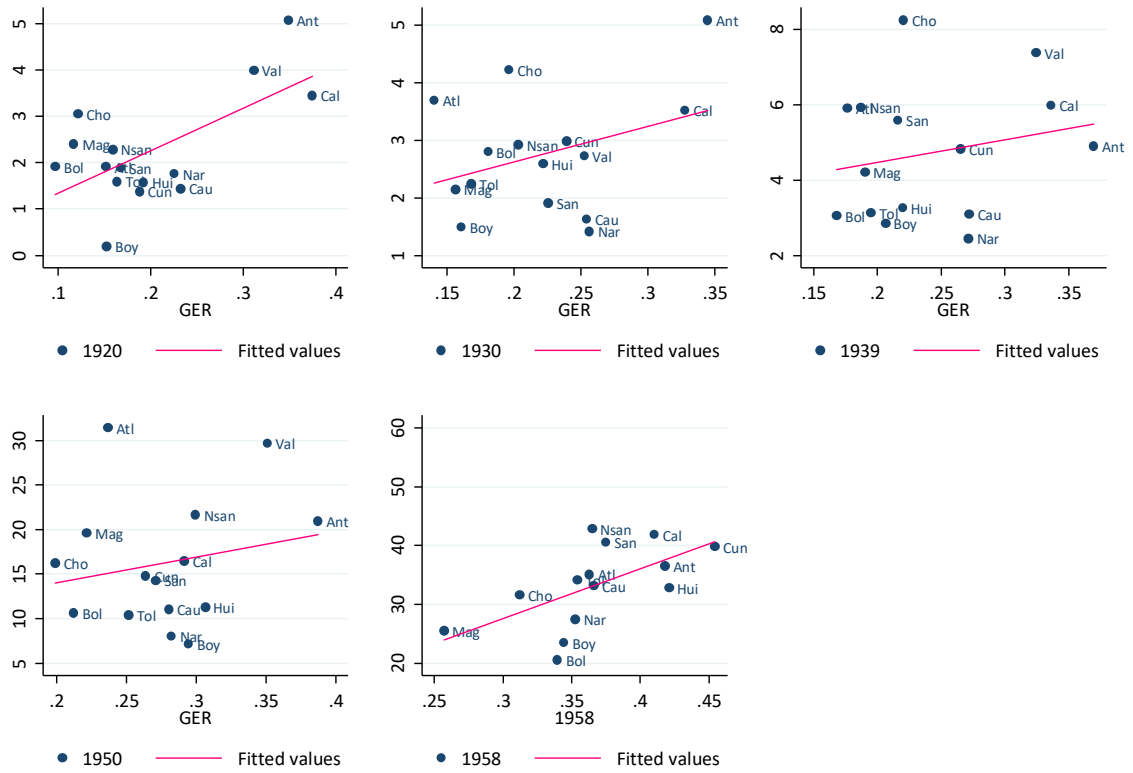
Figure 2.8. National, departmental and municipal expenditure on education, 1918-1960.



Notes: includes the aggregate expenditure of all departments and municipalities. Values are in 1970-constant pesos. The data include the aggregate expenditure of all the departments and of the municipalities into which the departments are divided. Municipal educational expenditure does not take into account the municipalities located in the national territories. Source: see text.

If we go back to the distribution patterns of the enrolment rates, we see that those with the lowest enrolment rates are mainly the national territories, those financed exclusively by the national government. According to the Yearbook of the Ministry of Education for 1921, the national budget dedicated to the education of the national territories was less than 13% of the total budget, which was already low in itself. Moreover, if we analyze the differences in the levels of educational expenditure per child of school age and department, as shown in Figure 2.9, we see a clear pattern that links the high enrolment rates with a greater level of investment in education. Earlier studies showed that in most cases educational spending as a share of total spending fluctuated between 10% and 30%, and the departments that presented the highest percentages were those that decided to allocate a higher percentage of their total budgets to education, such as Antioquia, Cundinamarca and Valle del Cauca (Ramírez and Téllez 2007).

Figure 2.9. Departmental differences in public education spending per child in school-age from 5-14 and GER, 1920, 1930, 1939, 1950, and 1958.



Notes: values are in current pesos. Source: see text.

This greater investment in education in some departments reflects the local interest in improving educational indicators. After 1912 in Antioquia, for example, as reflected in the Yearbook of the Ministry of Education for 1915, it was decided by departmental decree to invest 6% of the tax revenues from alcohol, tobacco and slaughtering in school construction. In 1920 Antioquia was already devoting more than a third of its income to primary education, which corresponded to almost half of what the national government

was spending on education.[37] Conversely, other departments had great problems in supplying their schools with the teachers needed to run them, forcing the recruitment of highly unskilled teachers and even the closure of many schools.[38]

As mentioned above, the central government had committed itself to provide at least one secondary school for boys and one for girls in each department, but only co-educational schools for boys and girls were financed in Antioquia, Boyacá, Cauca and Cundinamarca. In other departments, only boys' schools were established, and in some cases none at all, so each department was obliged to provide them. This did not pose great problems for departments with large budgetary capacities such as Atlántico, but in others like Bolívar, whose budget was very low, several schools had to close due to the impossibility of maintaining them.[39] Other departments such as Cauca or Chocó had to ask for support from Catholic communities to set up schools.[40]

But money does not explain everything, as local educational policies also had a great impact on levels of enrolment, as well as in the demand for education. In Caldas, for example, because much of its population worked in coffee cultivation, since the late 1920s and in the 1930s the National Federation of Coffee Growers was encouraged to support agricultural education and coffee cultivation, while in Cauca this type of project was rejected (Helg 2001, 99). Policies focused on demand can also be observed in Valle del Cauca, where the local government, aware of the need to train human capital for industrial development within the department, from a very early period financed industrial schools in several rural areas, teaching the manufacture of straw hats and tobacco cultivation.[41]

Finally, another important point that explains the patterns of success in the expansion of education in some departments was adaptation to changes in the demand for rural and urban education. In Antioquia, for example, educational policies in the first two decades of the century fostered rural education, and a large number of schools were founded in very remote rural areas, reaching almost half the total number of primary schools.[42] In thirteen years from the 1940s to the 1960s, the urban population increased by 500% on average in almost all departments, while the rural population only grew by 35%. However, only Antioquia, Atlántico, Cundinamarca, Valle del Cauca and Caldas

[37] See Appendix 2.

[38] Yearbook of the Ministry of Education for Yearbook of the Ministry of Education for 1914.

[39] Yearbook of the Ministry of Education for Yearbook of the Ministry of Education for 1923.

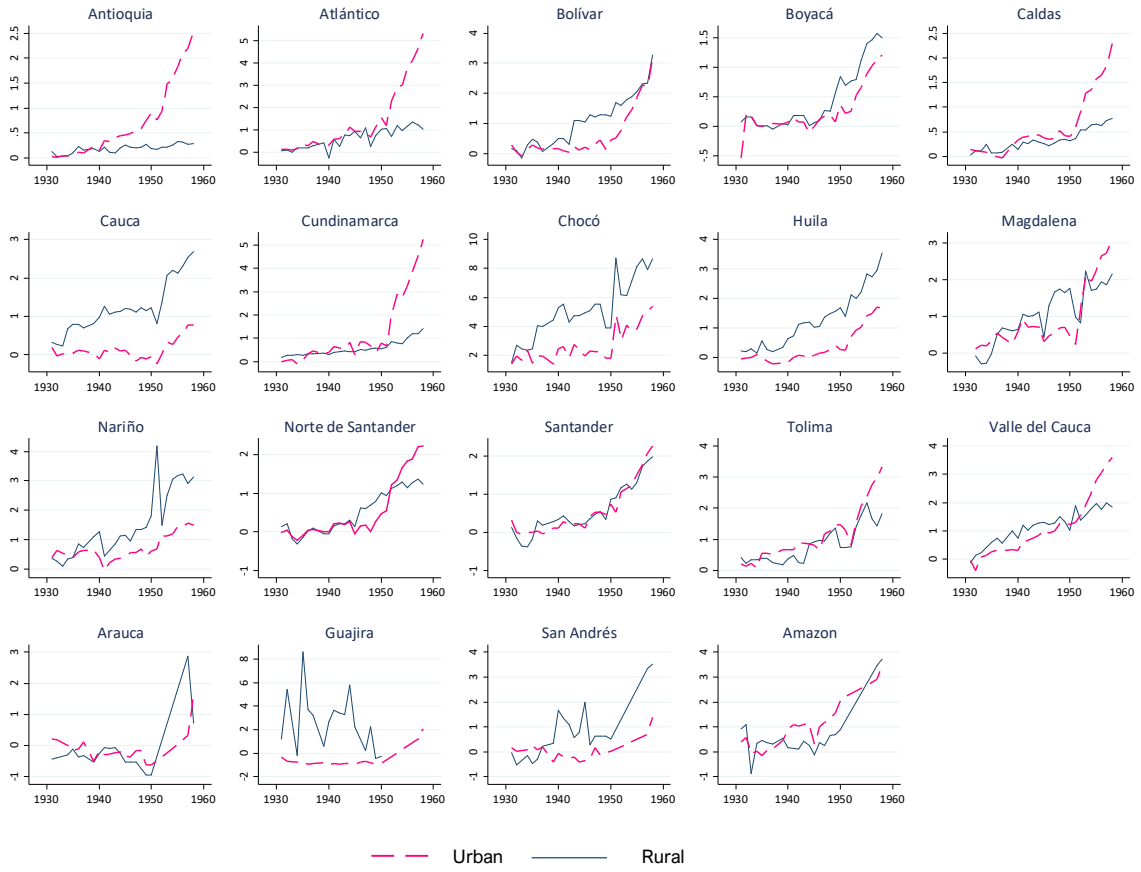
[40] As explained in the Yearbook of the Ministry of Education for Yearbook of the Ministry of Education for 1914, in Cauca, the establishment of a secondary school for women was made possible thanks to the congregation of the Daughters of Mary Help of Christians. A similar situation occurred in Chocó, where several schools were founded by the Sisters of Charity.

[41] Yearbook of the Ministry of Education for Yearbook of the Ministry of Education for 1923.

[42] Yearbook of the Ministry of Education for Yearbook of the Ministry of Education for 1914.

managed to absorb the demand for urban education, as shown in Figure 2.10.[43] This high increase in the enrolment rate in urban education may be associated partly with the larger budgetary capacity and partly with the increased demand for education. The task of increasing the qualified human capital of new industries and services also explains the higher enrolment rates in secondary education in these departments.[44]

Figure 2.10. Urban and rural primary school enrollment rates by department and national territories, 1904-1958.Urban and rural primary school enrollment rates by department and national territories, 1904-1958.



Notes: *for national territories. Source: see Figure 2.3.

2.6 Conclusions

The existence of poverty traps in some Colombian regions has been a persistent and long-term problem (Bonet and Meisel Roca 2002). Several authors consider differences in the provision of education to be one of the main causes of poverty traps over time

[43] Statistics for the growth of the rural and urban populations were based on values calculated from the population censuses of 1938 and 1964.

[44] See the number of industrial establishments by department in 1936 in Appendix 2B.

(Galvis and Meisel Roca, 2010). This chapter seeks to contribute to the debate on the origin of differences in regional incomes in Colombia by understanding the causes of regional differences in educational outcomes and thus examining educational provision. As Lindert (2010) argues, to test the chain of alleged causation from inequalities in schooling, one must follow the public money, or lack of it, in as many contexts as the data will allow. Therefore, understanding the patterns of the differences in educational supply between territories in Colombia can be taken further by examining the origins of financing at the beginning of the twentieth century, when the principles of the current educational system were established and when a decentralized model of financing was adopted that lasted until the late 1950s.

This model of financing education placed the burden for the provision of education almost entirely on the departments, the central government only contributing in the provision of school materials and the setting up of a secondary school for boys and one for girls in each department. Subsequently, the decentralized model of education was adapted to the territorial organization of the country. At that time, Colombia was organized territorially into departments and national territories. The departments had a high degree of budgetary autonomy and a certain, albeit limited, degree of freedom in the design of educational policies. Conversely, the national territories, which were located on the peripheries of the country and whose population was mostly indigenous, did not have budgetary autonomy and depended entirely on the state for both the financing of education and the design of educational programmes. From this point on, this chapter argues that, under this territorial division, the adoption of a decentralized model of financing education generated great differences in the provision of education between the territories from the beginning to the middle of the twentieth century and slowed the convergence between them due to the great differences in the budgetary capacities of the different territories and the appropriateness of local educational policies.

Therefore, the results of using secondary primary school enrolment rates as a reference point in analyzing territorial differences in the provision of education show, on the one hand, that the highest enrolment rates in primary schools during the first half of the twentieth century were correlated with departments that had much higher budgetary capacities, which at that time were those that led the coffee boom at the beginning of the century. Similarly, these departments sought to encourage the demand for education through the adaptation of national education programmes to local needs, such as the promotion of rural education or the teaching of coffee cultivation in coffee-growing areas. Finally, it can also be observed that the departments with the highest education rates managed to absorb the demand for urban education from the 1940s, a period of population explosion and urbanization in the country.

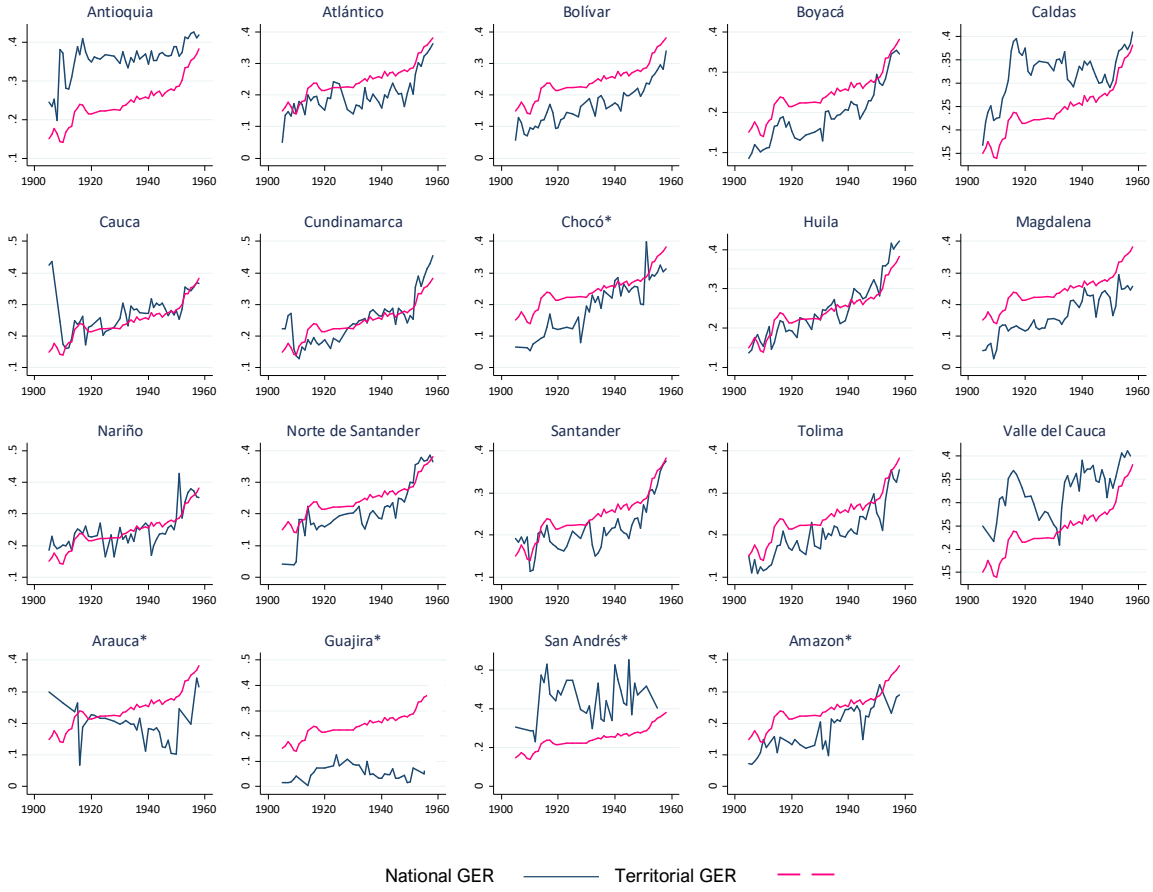
On the other hand, results related to secondary education show a similar pattern as for primary education, in which high enrolment rates occur in departments with high fiscal capacities. From this point of view, the qualitative information collected in the Memoirs of Education confirms that the lack of commitment on the part of the central government in establishing secondary schools meant that departments with more modest budgets had to close many schools, or in many cases had to resort to the Catholic missions to set up secondary schools. Last, there was a pattern of high enrolment rates in secondary

education linked to the area with the most significant industrial development, the "Andean Trapezium".

To conclude, the issue of regional disparities remains central to both the economic history of Colombia and current public policy. Many works have discussed the need to address the lagging behind of certain territories in respect of education as a mechanism for achieving greater levels of development (Meisel Roca 2011). From this point of view, the present work suggests that improving the financing of education and adapting educational policies to local needs can improve educational outcomes and therefore break the persistence over time of interregional inequalities.

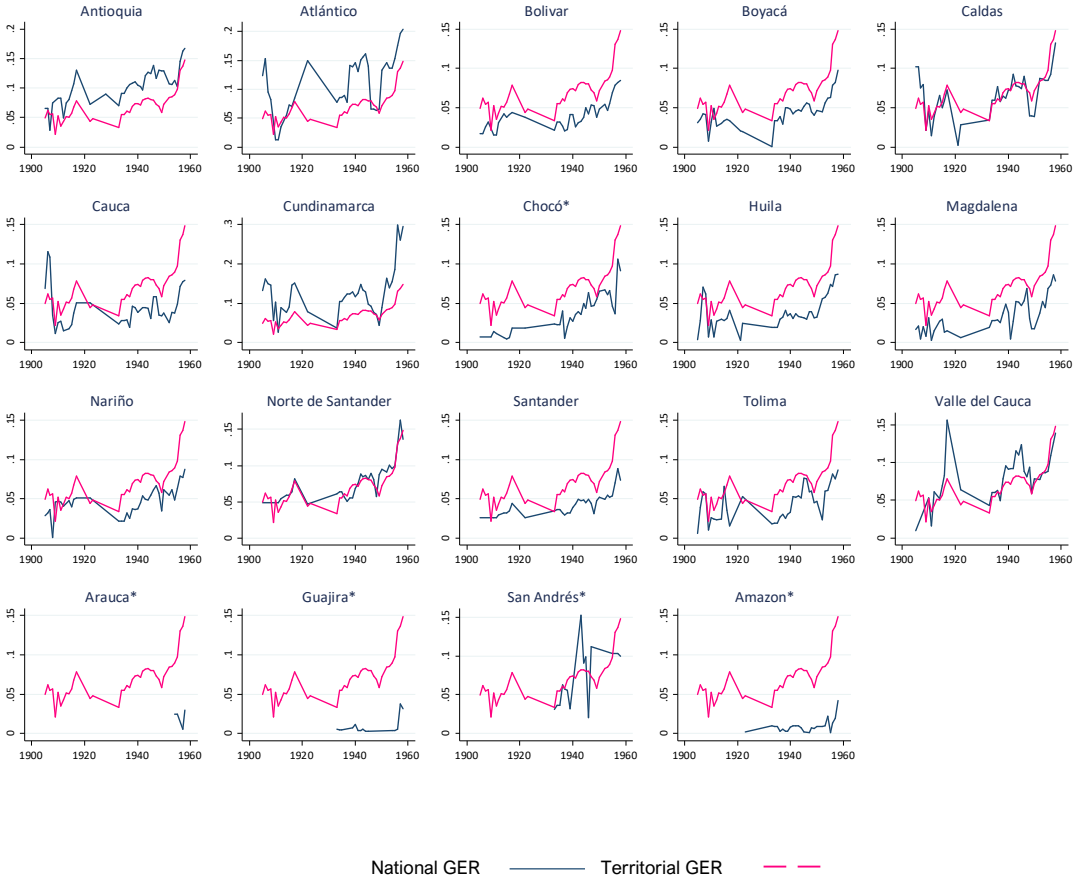
2.A Appendix 1.

Figure 2.A.1. Primary school enrolment rates by departments and national territories, 1904-1958.



Notes: *indicates national territories. Source: see text.

Figure 2.A.2. Secondary school enrolment rates by national territories, 1904-1958.



Notes: *indicates national territories. Source: see text.

Table 2.A.1. Departmental differences in public education expenditure per child in school-age of 5-14, 1919-1958.

Year	Antioquia	Atlántico	Bolívar	Boyacá	Caldas	Cauca	Cundina-marca	Chocó	Huila	Magdalena	Nariño	Norte de Santander	Santander	Tolima	Valle del Cauca
1920	1,186,509	76,478	261,781	36,113	433,540	99,202	298,916	61,602	71,940	152,659	167,680	156,024	221,330	153,600	309,971
1925	1,256,383	207,569	296,630	65,094	568,165	109,288	537,892	93,640	86,213	269,363	136,192	185,292	219,974	269,661	328,135
1930	1,447,997	239,227	520,896	361,577	623,614	145,220	817,422	102,075	130,959	185,679	159,792	260,368	287,830	287,830	361,365
1935	1,529,263	344,484	362,475	400,956	832,056	200,668	902,847		148,377	222,140	98,812	285,040	384,834	282,746	734,357
1940	1,913,158	392,580	685,304	554,151*	1,277,003*	302,923	1,467,074	248,273*	183,748	370,010	419,417	440,364	715,438	472,581	1,244,449
1945	3,222,425	1,423,498	1,556,810	182,920	2,142,335	563,131	2,170,950		428,700	331,112	697,365	906,310	1,143,644	1,116,701	2,473,078
1950	8,197,343	3,180,253	2,652,545	1,505,764	4,484,260	1,177,990	5,591,300	541,660	771,830	2,405,961	1,134,984	2,245,089	2,705,640	1,832,447	7,595,213
1955	14,532,876	3,984,984	5,316,894	4,260,473	9,916,609	2,463,553	11,059,384	687,037	1,774,997	2,465,509	2,861,043	3,779,749	4,953,739	4,966,909	13,408,746
1958	20,051,443	5,247,717	7,463,052	6,209,982	14,694,902	4,640,505	22,275,024	1,417,121	3,100,955	4,627,917	4,671,449	5,625,154	9,704,503	7,250,081	19,701,612

Notes: Values are in current pesos. ** Values are from 1939. Source: see text.

Table 2.A.2. Total national, departmental and municipal public expenditure on education, 1919–1958.

Year	National	Departmental	Municipal
1920		3,687,345	
1925	2,696,000	4,638,175	1,667,133*
1935	2,532,000	7,191,000	1,976,019**
1940	6,292,000	10,562,731	
1945	11,232,000	18,358,979	4,708,721
1950	27,596,000	46,022,279	8,738,732***
1950	27,596,000	46,022,279	
1955	73,760,000	86,432,502	22,472,764
1958	141,743,000	139,215,524	37,318,244

Notes: Values are in current pesos. * Values are from 1924, **from 1934, and *** from 1949. Source: see text.

2.B Appendix 2.

Departmental incomes and industrial establishments in selected years.

Table 2.B.1.Departmental incomes according to total population, 1915, 1930, and 1950.

Departments	Total incomes			Incomes/total population		
	1912	1930	1950	1912	1930	1950
Antioquia	1,433	6,312	42,418	1,9	6,0	28,5
Atlántico	194	1,436	11,734	1,9	5,3	28,9
Bolívar	478	1,606	13,343	1,2	2,3	12,7
Boyacá	133	2,079	9,331	1,0	2,1	12,2
Caldas	423	5,457	23,508	1,5	8,1	21,4
Cauca	166	959	5,128	1,1	2,9	11,3
Cundinamarca	636	12,352	32,919	1,0	11,3	22,4
Huila	158	551	4,320	0,9	2,6	18,0
Magdalena	204	2,195	11,535	1,4	6,8	25,1
Nariño	225	684	5,997	1,2	1,6	10,6
Norte del Santander	311	960	8,533	1,5	2,7	19,7
Santander	292	3,583	13,134	1,0	5,7	17,4
Tolima	320	1,785	14,969	1,2	3,8	20,0
Valle del Cauca	607	2,987	34,468	2,6	5,2	34,2

Source: Yearbook of the Ministry of Finance of 1918.

Table 2.B.2. Industrial establishments by department, 1936.

Department	Industrial establishments	
Antioquia	85	10.13%
Atlántico	126	15.02%
Bolívar	29	3.46%
Boyacá	35	4.17%
Caldas	41	4.89%
Cauca	17	2.03%
Cundinamarca	262	31.23%
Huila	17	2.03%
Magdalena	15	1.79%
Nariño	16	1.91%
Norte de Santander	33	3.93%
Santander	67	7.99%
Tolima	41	4.89%
Valle del Cauca	55	6.56%
Total	**839**	**100%**

Source: Colombian Statistical Yearbooks of 1936.

Chapter 3

Coffee tastes bitter: child labour, education and the coffee economy during the early twentieth century[45]

3.1 Introduction

As we see in previous chapters, educational inequality is one of the most challenging issues for Latin American countries. The literature usually relates this problem historically to the agrarian commodity-based economic structures of the region. Such structures might or might not allow institutional arrangements to emerge democratizing the supply of schooling and therefore might either promote or counter educational inequalities (Bértola and Ocampo 2013; Nugent and Robinson, 2010, Galor *et al.* 2009; Sokoloff and Engerman 2000).

Nonetheless, despite the importance of agrarian commodity production in supplying schooling but also in promoting educational inequalities, economic history overlooks the flip side of this story, that is, the impact of commodity-based structures on the demand for education. This omission is particularly problematic when analyzing contexts of persistent poverty in which underprivileged parents readily sacrifice their children's schooling in order to improve household incomes (Beegle *et al*. 2006; Bhaskar and Gupta 2012; Dammert 2008). This suggests that any combination of poor household conditions and commodity shocks is likely to affect the demand for education.

The evidence is contradictory in this regard, especially for Latin America. Empirical work has shown that the demand for children's education might be countercyclical, that is, it increases during crises in commodity (Ferreira and Schady 2009; Jensen 2000; Shah and Steinberg 2017) and declines during production booms (Carrillo 2019). Indeed, the impact of commodity shocks on the demand for schooling is conditional on additional factors such as family wealth (Kruger 2007). Within this debate, we use historical evidence from early twentieth-century Colombia to examine the short-term effects of the coffee commodity boom on the demand for schooling subnationally. During the early twentieth century, Colombia became a major coffee exporter, generating historical

[45] This chapter has been co-authored with Irina España-Eljaiek from the EAFIT University of Colombia.

transformations in several sectors of Colombian society, including education. The available literature indicates that the regions that led the coffee boom developed an institutional environment that led to better schooling performance in the long term. Ramirez and Salazar (2007), for instance, argue that coffee increased tax revenues in producer areas, resulting in much higher budgetary capacities and educational investment. Nugent and Robinson (2010) also point out that the coffee boom was based on a more egalitarian agrarian structure of smallholdings and family labour that fostered the accumulation of human capital. However, although coffee production favoured some educational outcomes in the long term, there is evidence that in the short term, in the thirties to be more specific, variables such as primary enrollment rates decreased during production, as explained in chapters 1 and 2. This short-term effect seems to be related to the particular characteristics of Colombian coffee production. Specifically, coffee was produced in a context of extreme poverty in a rural society with a low interest in education, in areas challenging for the introduction of technologies, intensive in labour, with crop-growing tasks suitable for children, and, more importantly, making intensive use of family labour, child labour included (Escobar and Ferro 1991, Arango 1981; Machado 2001; Ocampo 2015).

This chapter, therefore, contributes to the debate by asking whether this system of agrarian commodity production discouraged the demand for education subnationally. Our main argument is that coffee production boosted child labour more than any other rural activity, consequently depressing educational outcomes such as primary enrollment rates (GERs) and literacy. In order to test this hypothesis, we have created a new historical database at the municipal level in order to conduct cross-sectional regressions. This database has information on coffee production, education and socioeconomic variables. However, due to the lack of data on child labour in this period, this study uses two methodological strategies. First, the regressions include coffee-harvest months and non-coffee agrarian products. The inclusion of coffee-harvest months allows us to determine whether municipalities with more months during periods of schooling show lower GERs. Moreover, taking non-coffee agrarian products into account allows us to test whether the results are due to coffee-specific characteristics or the structure of the rural economy in Colombia. Secondly, to improve the validity of the econometric results, we complement the quantitative exercises with systematic qualitative evidence regarding the relationships between coffee, child labour and education.

The econometric results show that more coffee cultivation negatively affects municipal GERs and literacy rates. Moreover, the exercises corroborate the hypothesis that more months of harvesting per year reduces educational outcomes, while non-coffee products are not associated with poorer educational performance, unlike the case of coffee. Our qualitative analysis validates these results, that is, different and separate archival evidence shows that child labour was of structural significance in coffee-growing areas. This ended up depressing educational demand since the school-age population participated in agrarian commodity production at the expense of school attendance.

This chapter proceeds as follows. Section 2 summarizes recent literature regarding the impacts of commodity booms on educational outcomes. Section 3 sets out the historical context of the coffee boom in Colombia and of the features of the education system at

that time. Section 4 presents the empirical strategy and sources. Section 5 shows the main results, and Section 6 concludes.

3.2 Agrarian commodities and educational outcomes

There is a large body of scholarship relating school performance to agrarian commodity-based economic structures in Latin America. Usually, the general argument is that this structure facilitates the concentration of power in a minority elite that restricts the supply of education in order to preserve the status quo quo (e.g., Acemoglu et al. 2012; Bértola and Ocampo 2013; Sokoloff and Engerman 2000; Wegenast 2010). However, what happens when individuals do not prioritize investment in education? In agrarian commodity-based societies, low-income individuals may have more urgent needs and not be able to afford education for their children (Bursztyn, 2016, Bhaskar and Gupta, 2012). In fact, school attendance has a high opportunity cost since child labour is usually suitable for different crops and cultivation tasks (Baker, *et al.* 2020). Therefore, rather than elites limiting investment in education, the poor themselves do not prioritize education.

There is no consensus among the scholars involved in this debate. The literature generally argues that the effects of production shocks on schooling depend on the level of wealth in the country concerned. In wealthier countries, such as the United States, child educational outcomes are countercyclical, showing improvements during crises in agrarian production (Baker, Blanchette, and Eriksson 2020). In poorer countries, Sawada and Lokshin (1999), for instance, found that changes in incomes and household assets significantly affect educational patterns for children in rural Pakistan. In Côte d'Ivoire, where over 70 percent of household earn their primary source of income from agriculture, Jensen (2000) found that children whose households suffered adverse rainfall shocks were less likely to attend school. Shah and Steinberg (2017) came to a similar conclusion regarding rural India, finding a fall in the education of poorer children because they switch out of school into productive work when adverse rainfall is higher. Analyzing Tanzania, Beegle, *et al.* (2006) found that adverse income shocks increase the hours' school-age children work, though the impact of these shocks depends on the level of the family's capital accumulation. Finally, Glick *et al.* (2016) affirm the existence of a high correlation between children dropping out of school and decreases in household income during periods of economic stress in Tanzania due parents tending to delay enrolling their children in school.

The evidence for Latin America is less clear. The relationship of external shocks and education is often revealed to be countercyclical, though in some cases, it seems to be procyclical. Schady (2004) analyzed the effects of the 1988–92 macroeconomic crisis in Peru on schooling decisions and concluded that there was no evidence of a drop in school attendance. Children exposed to the crisis were less likely to combine work with school, and they completed more grades than children who were not exposed to the crisis. The reason for this is that households, including poor households, were reluctant

to make cutbacks in critical investments in human capital, which restricted the drop in school attendance.

From another point of view, Kruger (2007) focused on short-term variations in coffee production in Brazil, finding that the effects depended on the income levels of producer families. That is, increases in the county-level value of coffee production led to more work for middle-income boys and girls: that is, poorer children were withdrawn from school, while wealthier children were not affected. In the case of Colombia, Carrillo (2019) focuses on the persistence of commodity shocks in the agricultural economy over the deaccumulation of human capital. The author finds that cohorts that faced sharp rises in returning to coffee-related work during school years completed fewer years of schooling and had lower incomes in adulthood. Santos (2014) contributed to this debate by analyzing the impact of mining commodity booms. The author specifically suggests the existence of a substitution effect, that is, during commodity booms child labour increases, while school attendance decreases.

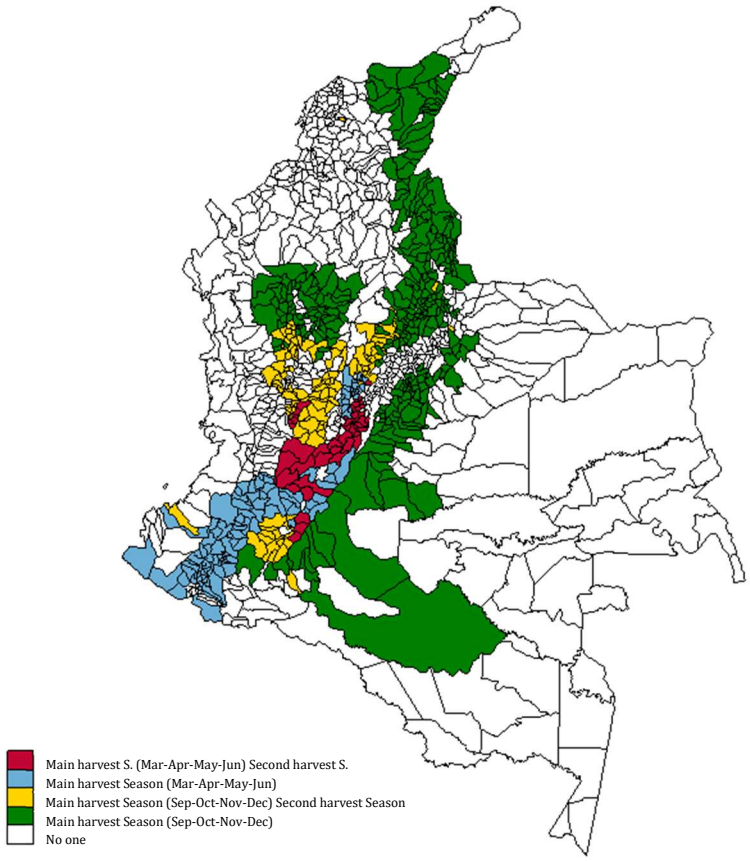
On the other hand, McKenzie (2003) focused on the peso crisis of 1995 in Mexico and showed that it served to reduce labour force participation, labour market opportunities, and the opportunity cost of education. Together these factors contributed to an increase in school attendance rates among young people aged fifteen to eighteen during the crisis. Cárdenas *et al.* (2015) also focused on labour markets to analyze the impact of trade liberalization in eighteen Latin American countries. The authors identified a countercyclical relationship between the opening of markets and the percentage of young men and women who attend school. The underlying mechanism is that the new changes led to higher productivity through the rapid destruction of unskilled labour and the creation of skilled jobs, which caused young people to be negatively affected by the large reallocation of resources and the increase in turnover in the labour market.

This debate suggests that, in addition to the supply of education, there are issues regarding the demand of schooling that might affect educational outcomes in predominantly agrarian commodity-based economies. In this context, the economy is labour-intensive, and education has a high opportunity cost that reduces the household incomes of the majority of the poor agrarian labour force (Ramirez and Salazar 2010). Hence, during positive agrarian commodity shocks, a simple cost-benefit evaluation calculation might reduce schooling attendance and thus increase child labour and educational inequalities. With this debate in mind, we proceed to analyze empirically the example of coffee in Colombia during the early twentieth century, considering its impact on schooling both in the short term.

3.3 Historical background

A geographical "fatality" made Colombia a suitable place for coffee production (Nieto 1999). Colombia has different altitudes, landscapes and climatic conditions, which allow coffee to be produced fairly consistently throughout the year if all coffee-growing municipalities are taken into account. Indeed, as can be seen in Figure 3.1, some coffee regions have two harvests a year, a principal harvest after 70 days, and a second harvest call *mitaca* after a further 50 days (Palacios 2002).

Figure 3.1. The coffee harvest season in Colombia.



Source: own elabouration based on Federación Nacional de Cafeteros (FEDECAFE).

Historically, coffee production in Colombia dates back to the eighteenth century, though it only became the main Colombian export between the late nineteenth and mid-twentieth centuries. This evolution was a gradual process with different stages. First, in the nineteenth-century coffee was mainly produced in vast landholdings or haciendas in the eastern regions of Santander, Norte de Santander, Cundinamarca, and to a lesser extent the western department of Antioquia (Ocampo 2015). This production was characterized by low capital investment, a scarce labour force, in-kind payments, and the integration of production processes (Arango 1981; Bejarano 2007).

The second stage occurred after the late nineteenth and early twentieth centuries. This was a time of crisis, mainly because of the Thousand Days' War (1899-1903), labour shortages, and lower international prices (Bergquist 1999; Machado 1988; Ocampo 2015). Nonetheless, a third stage began after 1905, a time of increases in international coffee prices and experiments in areas and forms of coffee production that led to significant transformations. Specifically, the hacienda system in the eastern region lost its share of production, while small-scale coffee-growing rose in many departments of western Colombia. This transition is particularly relevant given historiographical claims that smallholdings made for a more democratic form of production, with more equal

access to land, greater demand for and monetarization of the economy in coffee-producing areas, and also more family labour on coffee farms, including by school-age family members (Bejarano 2007). After this transition, the stage of consolidation had been completed. Between 1908 and 1970, coffee averaged 65% of Colombian exports (GRECO 2004). Moreover, while at the end of the nineteenth century Colombia produced less than 2% of the world's coffee, after the 1920s this share rose to between 10% and 15% (Ocampo 2015).

This positive performance was the driving force behind the development of the Colombian economy. Colombian coffee production allowed rapid economic growth, introduced a modern manufacturing sector and better infrastructure, and consolidated capitalism as the key socioeconomic system (Ocampo 2015). However, what remains unclear are the benefits of the coffee boom on the demand for education. This work, therefore, focuses on assessing whether coffee production actually boosted or prevented schooling levels in Colombian society. In order to analyze this issue, we need to disentangle the specific details of this agrarian commodity-based structure.

3.3.1 The coffee production process and labour roles

Colombian coffee is a commodity, and as such is labour-intensive in each of its production processes, namely cultivation (soil-conditioning, harvesting) and transformation (drying, packing, and threshing). For example, according to Palacios (2002), during the harvest seasons, the demand for labour is intensive because workers have to carefully select the ripe cherry, taking care not to damage the leaves or the green beans. This ability is imperative since the leaves and green cherries represent the next season's output (Escobar and Ferro 1991). Similarly, the transformation phase requires significant labour to skillfully choose which cherries to pick. Coffee production also allows simultaneous non-coffee agrarian crops and domestic activities (i.e., grazing, etc.) (Ramírez Bacca, 2004). In other words, the labour factor is critical to the coffee economy.

In this labour-intensive context, international commodity booms mean more demand for labour. However, how is this fact related to child labour? Historical evidence shows that during coffee booms, such as that experienced during the first decades of the twentieth century, labour deficits were an obvious problem. Haciendas and family farms responded to such deficits by incorporating all the potential labour they could and hiring seasonal workers regardless of age or gender. In other words, the priority was to obtain the necessary workers to fulfil the international coffee boom. An important caveat is that the details of coffee-producing processes consistently led to the recruitment of school-age workers. That is, in contrast to other forms of agrarian production that required strength or height in workers, coffee production was suitable for the physical constitution of children specifically. The coffee boom therefore, readily led to the incorporation of children in both coffee- and non-coffee-related labour (Arango 1981; Machado 1980; Ramírez Bacca 2015).

There were other factors increasing the possibility of child labour. Despite the high demand for labour and international booms, coffee workers did not seem to benefit from

the coffee economy. Specifically, they earned between four and ten times less pay than medium-skilled workers like miners and blacksmiths (Palacios 2002). Moreover, coffee workers had to deal with unstable food expenditure. Table 3.1 provides estimates of family income and food expenses for a family of four drawn up by Palacios (2002) based on food costs and wages at the Jonas hacienda in Antioquia. This information shows that food expenditure was more unstable than wages and that occasionally, even if the entire family worked, their wages were not enough to cover all their food expenses. Therefore, the alternative, sometimes exerted forcibly, was to recruit the mother and the youngest child as labour during the harvest.

Table 3.1. Family income estimates for the Jonas Hacienda, 1911 and 1917.

Family member	Percentage received from an average daily wage	Activity	Daily wage in 1911	Daily wage in 1917	Term of contract	Average working days
Father	100%	Farm peon	$21.47	$24.40	Fixed	215
First son	75%	Farm peon	$24.47	$24.40	Fixed	215
Mother	100%	Harvesting	$9.90	$13.50	Seasonal	83*
Younger son	100%	Harvesting	$9.90	$13.50	Seasonal	83*

Total annual family income	**$7,505**	**$11,421**	
Food expenditure on family per year	**$ 7,820**	**$8,779**	
Balance of family budget at the end of year	**$ -315**	**$2,642**	

Note: it is assumed that the father and the first child work all year round except at weekends, while the mother and the youngest son only work during the harvests. Family income is obtained by multiplying the percentage of daily wage by the days worked. *Working days in each hacienda. Source: own construction based on Palacios (2002).

The coffee boom also involved a large urban ancillary coffee industry, including threshing and the production of sisal bags, industries that also used child labour. For instance, the main industrial city at that time was Medellín. By 1918, one-third of the Medellín population was made up of children under fifteen. Palacios (2002) shows that just half of these children attended school, while the other half had to work to survive, most of them in urban coffee-related industries. Indeed, between 1916 and 1928, 9.5% of coffee-threshing workers were under fifteen years old, a Figure that rose to 15% in 1917.

The issue is, therefore, whether or not the coffee economy provided jobs during periods of schooling. Moreover, potential enrollment in schools could have an opportunity cost for large producers, small family farms, coffee-related industries, and coffee workers alike. Also, child labour may affect the demand for education, especially in the context of international commodity booms, and a majority of the population living in extreme rural poverty and giving a low priority to education.

3.4 Education during coffee booms

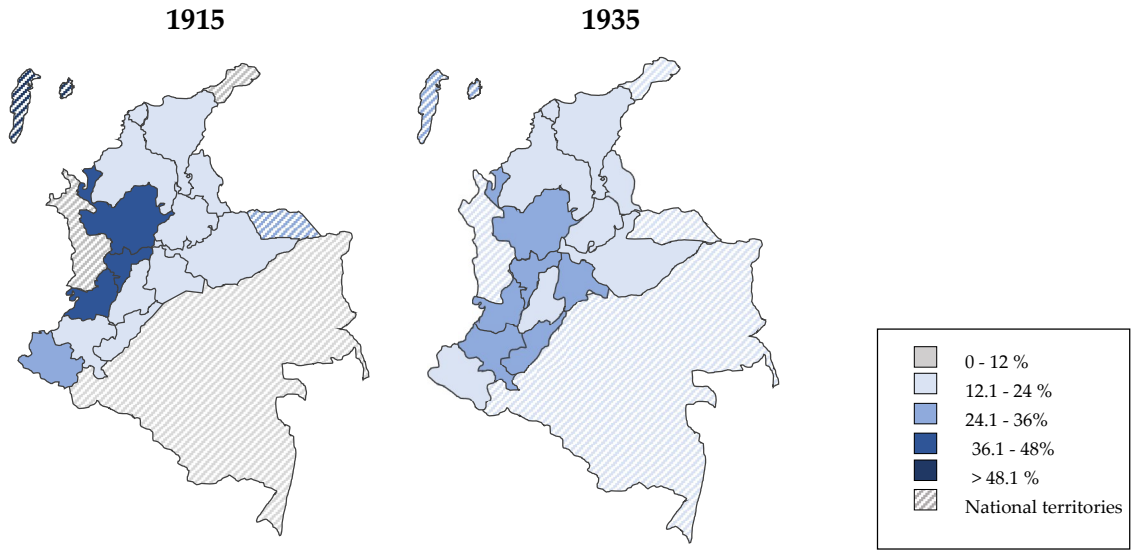
As explained more fully in Chapter 1 and 2, during the first half of the twentieth century, the Colombian education system was defined by the Constitution of 1886, Law 39 of 1903, and Decree 491 of 1904. Primary education was distributed between urban, rural, and night schools. The urban primary education programme lasted six years, rural primary education only three years. The secondary school system was very heterogeneous, consisting of high schools (mostly private), technical or vocational schools. The legislation introduced a decentralized educational model based on the territorial organization of the country, which at that time was organized into departments, national territories, and smaller divisions called municipalities. Educational expenditure was therefore divided among these three levels of government. The departments had the responsibility for hiring teachers, supervision, and the costs of primary education, that is, the highest costs of any level of education. In contrast, the municipalities provided school establishments and the national government only school materials in the national territories. This decentralized system fostered significant discrepancies in the allocation of resources between departments, municipalities and national governments. If the departmental government had the resources to count teachers many times over, the municipalities did not have sufficient resources to build schools, and vice versa (Ramírez and Téllez 2007)[46].

In this context, little is known about how coffee production impacted local educational outcomes at the beginning of the twentieth century. Some studies affirm that regions with an essential role during the coffee boom experienced better educational performance in both primary and secondary education (España-Eljaiek 2017; Ramírez and Téllez 2007), what in Chapter 2 has been called "Andean educational Trapezium." Chapter 1 also is explained that coffee-producing departments sought to encourage the demand for education through the promotion of rural education or the teaching of coffee cultivation. In Antioquia, for example, educational policies fostered rural education, and a large number of schools were founded in remote rural areas.

Figure 3.2 is in agreement with later arguments. However, although it shows that school enrollment rates in coffee-producing departments were much higher than in the rest of the country, it also shows a decline in primary school enrollment rates in the 1930s. This raises doubts about the role of the benefits of coffee. Moreover, this doubt becomes even stronger once we realize that in the 1930s, there was a significant qualitative leap in coffee production. The epicentre of this flowering was the western departments of Antioquia, Caldas, Risaralda, Quindío, Tolima and Valle del Cauca, though Cundinamarca and part of the Santanderes in the northeast of the country also remained important, as shown in Figure 3.3.

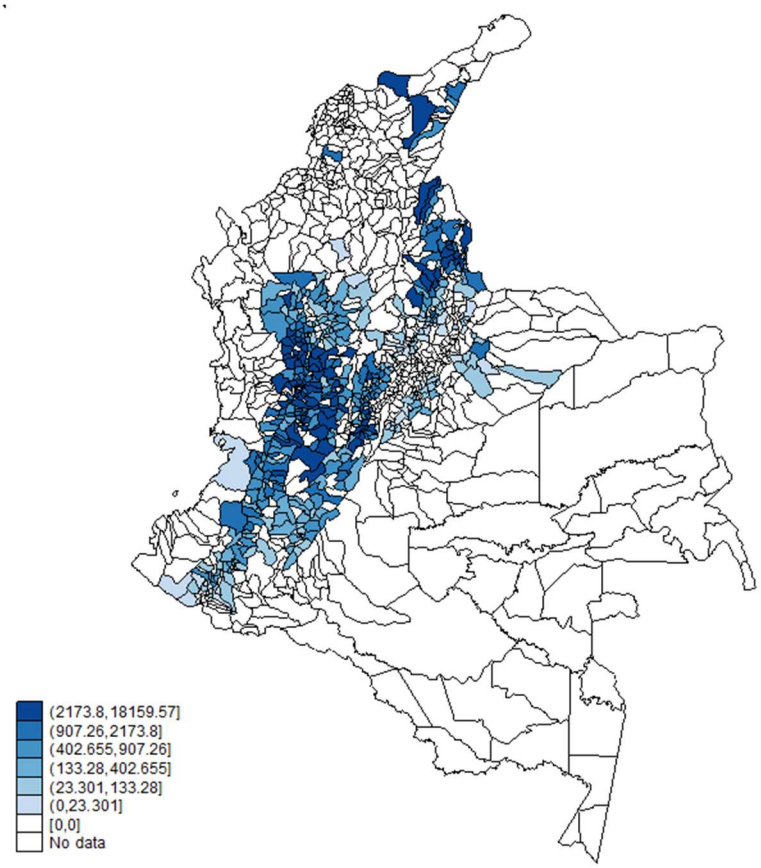
[46] For more information on the organization of the educational system during the first half of the 20th century, see Chapter 1.

Figure 3.2. Primary school enrolment rates by departments and national territories, 1915 and 1935.



Source: see Figure 1.4

Figure 3.3. Number of coffee trees by municipality 1932.



Sources: see text.

Such educational outcomes may be related to the fact that child labour was fundamental to the coffee cultivation. Indeed, Ramírez Bacca (2004) shows that child labour in coffee cultivation reduced educational attaintment since factors such as an ethos of hard work in coffee-growing regions and the poor economic conditions of peasant families increased the opportunity cost of attending school. The marginal product of child labour and the opportunity cost of schooling could increase significantly during harvests (e.g., April-June), when many pupils deserted the schools because the harvest demanded intensive labour use to collect the grain (Ramírez Bacca 2004). A formal analysis should, therefore be precise enough to be able to identify this relationship empirically.

3.5 Empirical strategy

The empirical approach uses different cross-sectional regressions to determine whether coffee production reduced the demand for education, a pattern that may be driven by the inclusion of more of the school-age population in coffee production. For the purposes of this strategy, we have created a new historical database at the municipal level for the 1930s. This period is in line with two historical facts that are critical for this research. First, this decade is consistent with the fall in primary school performance observed in Chapter 1 and 2. Second, despite the international crisis, Colombian coffee exports increased in volume during the 1930s, a fact mainly explained by the consolidation of Colombian coffee exports in the markets of the United States and Germany (Ocampo and Colmenares 2017).

The first cross-sectional specification is given by equation 1:

$$Y_i = \beta_0 + \beta_1 Cof_i + \beta_2 Harv2_i + \beta_3 Harv4_i + \beta_4 Harv6_i + \beta_5 Urb_i + \beta_6 Cof_i\, xUrb_i + \beta_7 X_i + \varepsilon_i \qquad (3.1)$$

where the outcome variables Y_i are primary gross enrollment (GERs) and literacy rates. We use these two outcome variables because, first, the context being analyzed is one of a developing rural country with a majority low-income class. As Edmonds and Pavnick (2005) explain, in this context, low-income families employ every possible source of labour in agriculture or other farm-related activities, in this case, coffee-production. This intensive use of labour incorporates under-age family members, which may discourage the demand for education, thus depressing GERs. Secondly, literacy rates allow us to identify the effects of the coffee economy on educational outcomes over time. That is since literacy is a stock variable, not a flow variable, literacy would show the effect of the coffee economy on education in the medium and long terms. The GER is the share of children enrolled in primary education as a proportion of the total number of children of school age (between seven and fourteen years old). Similarly, the literacy rate is the share of children who know how to read and write as a proportion of the total school-age population. These data come from the 1938 Census.

Cof_i is the number of cultivated coffee trees per capita in municipality i according to FEDECAFE's Coffee Census for 1932. Our hypothesis is that more coffee production in

municipality i means more coffee activities and consequently a higher demand for labour that can only be fulfilled, as already noted, by making greater use of children. A Cof_i negative and significant is then expected. Urb_i captures the urbanization level of the municipality i and $Cof_i\, xUrb_i$ captures the differences in the impact of coffee production according to the level of urbanization of each municipality.

However, since Cof_i is not explicitly related to the proportion of the school-age population working in the coffee fields, and since there are no data on child labour for this period, we add harvest period ($Harv_i$) as a variable. The highest demand for labour is during the harvest season. Hence, educational demand may be affected if harvests coincide with school months or there is more than one crop per year. Based on information from FEDECAFE, $Harv_i$ is operationalized as a set of dummy variables that interact with the identified harvest seasons, including the number of months that coincide with the school period (see Table 3.2). The results should show that, in the presence of child labour, $Harv_i$ is negative and significant when the harvest months coincide with more school months.

Table 3.2. . Harvests by department.

Variable	Harvest season months
$Harv_i 2$	1 when the harvest period coincides for two months with the school period
$Harv_i 4$	1 when the harvest period coincides for four months with the school period
$Harv_i 6$	1 when the harvest period coincides for six months with the school period

An additional cross-sectional exercise involves a counterfactual model. One of our main arguments is that lower educational performance is associated with coffee-specific characteristics rather than with Colombia's agrarian economic structure. At that time, non-coffee agrarian products included potatoes, corn, tobacco, etc. As Baker *et al.* (2020) explain, some of these alternatives involve tasks that are less suitable for children, therefore generating less demand for child labour. Hence, we compare coffee crops with other alternative agrarian products. This counterfactual model is specified as follows:

$$Y_i = \beta_0 + \beta_1 Hecul_i + \beta_2 Hecoffe_i + \beta_3 X_i + \varepsilon_i \quad (3.2)$$

where $Hecul_i$ indicates the total cultivated hectares per capita for all the products except coffee, and $Hecoffe_i$ indicates the hectares cultivated with coffee per capita. X_i is the vector of control variables. The variables $Hecul_i$ and $Hecoffe_i$ come from the Yearbook of the Ministry of 1935. This report offers information on hectares sown with cotton, rice, cocoa, sisal, corn, beans, potatoes, tobacco and wheat.[47] For coffee, the report records the number of trees per municipality. Since the degree of coffee specialization was very

[47] The information related to potatoes, beans, and fique was only available in kilograms produced per year, so the number of hectares was estimated. To convert kilograms into hectares, the yields estimated by Urrego-Mesa *et al.* (2019), who calculated the productivity of each crop in Colombia. (2019), who calculated the productivity of each crop in Colombia in the 1930s, were used. The yields used to convert kilograms into hectares were 5,969.19 kg/ha for potatoes, 617.70 kg/ha for sisal, and 529.41 kg/ha for beans.

different between regions, to convert coffee trees into hectares, we calculated a coffee-tree/hectare ratio per department based on the Coffee Census of 1932. We then applied the departmental ratios to the municipal data.

The cultivated area of all these agricultural products was added to arrive at the total area cultivated in each municipality, and it was separated from the area dedicated to the cultivation of coffee. Because there are no records of the area of each municipality in the analyzed period, the analysis of cultivated areas is expressed in terms of cultivated area per capita.

By last, we also include in the analysis the following control variables (X_i). First, we include the child-dependency ratio, to capture potential regional differences in the age structure of the population; and municipal incomes and spending on education as proxies for the supply of education in the National Yearbook for 1938. Second, political variables are also included. In this case, we use the percentage of population that voted for the winning presidential candidate based on information from the National Yearbook for 1938.[48] Third, geographical variables are established, such as height and distance from Bogotá and distance from the nearest seaport (Barranquilla on the Caribbean or Buenaventura on the Pacific).[49] Finally, transport variables are incorporated, since access to transportation facilitates school attendance. Using the maps of transport routes in the Yearbook of the Ministry of Public Works for 1934 (Memoria de Obras Públicas), variables dummies were constructed for roads, railways, horseshoe trails, and waterways for each municipality. Table 3.3 gives descriptive statistics.[50]

It is important to clarify that this empirical strategy does not seek to demonstrate causality but rather correlation. Likewise, there may be a problem of reversal causality, for this reason, this empirical evidence will be supplemented with qualitative evidence to understand the directionality of the effect.

[48] During the 1930s, the population could only vote directly for the president and the council; mayors and governors were appointed by the president. At that time, the main parties were the Liberal Party and the Conservative Party.

[49] Geographical variables do not include either height or temperature at the site directly correlated with coffee production.

[50]The Appendix 3A provides more details of the variables.

Table 3.3. Summary statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
GER*10000	793	3040.79	1622.96	34.72	14000
Literacy *10000	793	3869.61	1505.34	212.20	9034.59
Coffee trees per capita	796	55.71	106.44	0	1143.95
Share of urban children 7-14 (%)	793	0.22	0.18	0	0.99
Children 7-14	793	2274.50	3091.97	67.00	58.66
Population	815	10857.35	17037.18	399	35.55
Ratio male/female 7-14	793	1048.73	0.10	0.59	2140.50
Revenue per capita	733	1848.21	199.41	0.10	2214.68
Educational expenditure/Revenues	733	0.14	0.12	0	1729.42
Share of population with the right to vote (%)	759	0.51	0.04	0.29	0.78
Share of votes to the Liberal Party (%)	737	0.72	0.33	0	1
Distance to Bogotá	793	286.19	189.50	0	1261.28
Distance to Barranquilla seaport	796	611.90	259.44	0	1734.11
Distance to Buenaventura seaport	796	408.50	193.08	0	1168.42
Roads	796	0.45	0.49	0	1
Horseshoe trails	796	0.46	0.49	0	1
Train	796	0.16	0.36	0	1
River navigation	796	0.12	0.35	0	1
Harvest 2	796	0.50	0.50	0	1
Harvest 4	796	0.44	0.49	0	1
Harvest 6	796	0.32	0.46	0	1
Cultivated area per capita without coffee	814	0.13	0.18	0	1.70
Cultivated area per capita with coffee	814	0.08	0.15	0	1.51

3.6 Results

3.6.1 Results: coffee and educational outcomes

As can be seen in Table 3.4, the results for GERs and literacy in the first and second models indicate that an increase in coffee cultivation per capita negatively impacts on educational outcomes. This result suggests that despite the scholarship argues a long-term positive effect of the coffee economy on the Colombian human capital accumulation; there is a short-term negative effect of this agrarian-commodity production on educational demand. An increase of one coffee-tree per capita, is associated with a 0.96‰ decrease in the GER. Therefore, the Colombian evidence would indicate that the dynamic is countercyclical in the short term. Moreover, when we include the interaction of coffee with the level of urbanization, the coffee variable remains statistically negative and significant, but the interaction is statistically positive.

From the above, we can infer that, regardless of the level of a municipality's urbanization, coffee cultivation has a direct impact on educational outcomes due to the trade-off between studying and working. Nonetheless, the results are also consistent with Echavaria-Soto (1999), who affirmed that most manufacturing and agro-industries, such as threshing, require employed children to be able to read and write.

Table 3.4. OLS Cross-sectional regressions. Dependent variables: GER and literacy.

VARIABLES	(1) GER	(2) Literacy	(3) GER	(4) Literacy
Coffee trees per capita	-0.96***	-0.78**	-2.65***	-2.63***
	(-2.77)	(0.36)	(0.35)	(0.65)
Share of urban children	2,574***	2,012***	2,355***	1,773***
	(6.43)	(362.6)	(400.7)	(365.6)
Coffee trees per capita*share of urban children			10.22**	11.13***
			(4.67)	(3.81)
Constant	4,351***	7,190***	4,366***	7,206***
	(4.776)	(872.2)	(887.6)	(851.1)
Controls				
Children 7-14	✓	✓	✓	✓
Ratio male/female 7-14	✓	✓	✓	✓
Revenue per capita	✓	✓	✓	✓
Educational expenditure/Revenues	✓	✓	✓	✓
Political variables	✓	✓	✓	✓
Distance to Bogotá	✓	✓	✓	✓
Distances to seaports	✓	✓	✓	✓
Transport controls	✓	✓	✓	✓
Observations	685	685	685	685
R-squared	0.349	0.353	0.354	0.358
F	29.73	30.55	29.75	31.43

Robust t-statistics in brackets
*** p<0.01, ** p<0.05, * p<0.1

The doubt that arises at this point is that the negative impact responds to a problem of demand since the mechanism proposed in this chapter is that using child labour in the cultivation of coffee depressed the demand for education. Therefore, to understand if at the same time there was a problem with educational demand with an increase in child labour, we have used the harvest period as an indicator of child labour, as explained in the previous section. Four cross-sectional models for the GERs in primary school and literacy have been estimated, taking into account the number of months each crop coincides with the school period; the results are shown in Tables 3.5 and 3.6.

Table 3.5. OLS Cross-sectional regressions with dummies variables. Dependent variable: GER.

VARIABLES	(1) GER	(2) GER	(3) GER	(4) GER	(5) GER
Coffee trees per capita	-0.46	-2.28	-3.57**	-3.79**	-3.53*
	(-0.25)	(1.99)	(1.80)	(1.84)	(1.82)
Share of urban children 7-14	2,809***	3,383***	2,704***	3,653***	2,498***
	(7.13)	(463.6)	(436.7)	(409.9)	(428.2)
Harvest 2	-152.7	-164.6	-141.2	-200.6	-158.5
	(-0.96)	(144.5)	(138.5)	(140.7)	(140.5)
Harvest 4	-493.3***	-1,012***	-971.4***	-926.2***	-916.5***
	(-2.80)	(225.7)	(197.5)	(198.2)	(196.4)
Harvest 6	-0.46	-2.28	-3.57**	-3.79**	-3.53*
	(-0.25)	(1.993)	(1.807)	(1.842)	(1.820)
Coffee trees PC x Share of urban children	14.93**	11.50*	9.104*	11.11*	9.755*
	(2.53)	(5.95)	(5.373)	(6.07	(5.60)
CoffeePC x Harvest 2	-2.97**	-0.13	1.42	1.72	1.18
	(-2.15)	(1.83)	(1.69)	(1.63)	(1.72)
Coffee PC x Harvest 4	-0.42	2.98	3.66*	3.08	3.06
	(-0.22)	(2.16)	(2.07)	(1.99)	(2.07)
CoffeePC x Harvest 6	-0.62	2.09	2.91	3.30*	3.14*
	(-0.38)	(1.92)	(1.79)	(1.75)	(1.78)
Constant	2,557***	4,003***	3,500***	4,382***	4,410***
	(17.18)	(857.4)	(653.3)	(872.7)	(896.4)
Controls					
Share of urban Children 7-14		✓	✓	✓	✓
Ratio male/female 7-14		✓	✓	✓	✓
Revenue per capita			✓		✓
Educational expenditure/Revenues			✓		✓
Political variables				✓	✓
Distance to Bogotá		✓		✓	✓
Distances to seaports		✓	✓	✓	✓
Transport controls		✓	✓	✓	✓
Observations	785	785	718	713	685
R-squared	0.168	0.225	0.337	0.325	0.388
F	19.62	20.40	24.08	21.67	23.00

Robust t-statistics in brackets
*** p<0.01, ** p<0.05, * p<0.1

According to the initial hypothesis, the harvest variables must have negatively impacted on educational outcomes when, instead of studying, children were collecting coffee berries. The results show that there is negative and significant relation between harvest

months and educational outcomes, especially when the harvest months coincide with four and six school months. When we compare the intensity of coffee production (coffee trees per capita) with the ratios of harvest months that coincide with the school period, there is no evidence that those variables are correlated. However, under closer inspection, we observe that the regions with four harvest months show a lower level of enrollment (see Tables 3.5 and 3.6). These regions are typically related to the family form of coffee production and an ethos of hard work (e.g., Caldas, Quindio, Risaralda, see Ocampo (2015) and Palacios (2002). From the above, it follows that the family form of production may increase the chances of children to stop enrolling in school more than the volume of production, increasing the chances of they being dedicated exclusively to the cultivation of coffee in the family farms.

Table 3.6. OLS Cross-sectional regressions with dummies variables. Dependent variable: Literacy.

VARIABLES	(1) Literacy	(2) Literacy	(3) Literacy	(4) Literacy	(5) Literacy
Coffee trees per capita	4.03**	-0.25	-2.97*	-3.55**	-3.50**
	(2.09)	(1.76)	(1.55)	(1.52)	(1.49)
Share of urban children 7-14	1,914***	2,870***	2,285***	2,982***	2,064***
	(5.82)	(375.3)	(370.2)	(348.3)	(375.2)
Harvest 2	253.0*	159.8	102.6	19.67	-4.46
	(1.670)	(136.9)	(134.8)	(136.9)	(138.8)
Harvest 4	-74.83	-821.1***	-916.1***	-868.2***	-948.1***
	(-0.42)	(227.0)	(222.0)	(216.0)	(212.9)
Harvest 6	-262.9	-1,133***	-1,145***	-1,302***	-1,183***
	(-1.06)	(303.8)	(257.4)	(260.8)	(253.9)
Coffee trees PC x Share of urban children	14.37**	10.04**	7.735*	11.46**	9.033**
	(2.462)	(4.793)	(4.311)	(4.560)	(4.362)
CoffeePC x Harvest 2	-7.438***	-1.505	1.471	1.856	1.762
	(-5.28)	(1.55)	(1.49)	(1.42)	(1.46)
Coffee PC x Harvest 4	-4.05*	1.35	3.40	2.81	3.19
	(-1.91)	(2.23)	(2.15)	(2.06)	(2.06)
CoffeePC x Harvest 6	-5.81***	-0.46	1.88	2.47	2.48*
	(-3.53)	(1.71)	(1.55)	(1.51)	(1.51)
Constant	3,309***	5,606***	6,271***	7,340***	7,173***
	(24.73)	(715.4)	(660.2)	(854.4)	(835.6)
Controls					
Children 7-14		✓	✓	✓	✓
Ratio male/female 7-14		✓	✓	✓	✓
Revenue per capita			✓		✓
Educational expenditure/Revenues			✓		✓
Political variables				✓	✓
Distance to Bogotá		✓		✓	✓
Distances to seaports		✓	✓	✓	✓

Transport controls		✓	✓	✓	✓
Observations	786	785	718	713	685
R-squared	0.114	0.249	0.356	0.338	0.399
F	15.57	22.20	28.85	30.83	26.94

Robust t-statistics in brackets
*** p<0.01, ** p<0.05, * p<0.1

As for counterfactual analysis, Table 3.7 shows two cross-sectional models in which per-capita coffee and non-coffee cultivation are included. The result shows a negative and significant correlation only for the cultivated area of coffee per capita, while the cultivation of other products is not negatively associated with GER or literacy. From the above, we deduce that coffee cultivation had features that are associated with lower educational outcomes, possibly due to the greater use of child labour.

Table 3.7. OLS Cross-sectional regressions with dummies variables. Dependent variable: GER and literacy.

VARIABLES	(1) GER	(2) Literacy
Cultivated area per capita without coffee	-159.7	-262.8
	(-0.51)	(298.8)
Cultivated area per capita with coffee	-914.6***	-742.1***
	(-3.40)	(256.1)
Constant	4,613***	6,997***
	(3.17)	(1,03)
Controls		
Share of children 7-14	✓	✓
Ratio male/female 7-14	✓	✓
Revenue per capita	✓	✓
Educational expenditure/Revenues	✓	✓
Political variables	✓	✓
Distance to Bogotá	✓	✓
Distances to seaports	✓	✓
Transport controls	✓	✓
Observations	665	666
R-squared	0.296	0.341
F	16.24	25.81

Robust t-statistics in brackets
*** p<0.01, ** p<0.05, * p<0.1

3.6.2 Empirical analysis: qualitative analysis

The lack of quantitative data on child labour is still a challenge for the results. This chapter seeks to contrast the idea that coffee production negatively impacts on the demand for education in the short term because children need to join the labour market for coffee. However, since economic history is not merely a matter of running regressions or covering historical periods (Blum and Colvin 2018), we conducted qualitative archival research in order to evaluate our causal explanation. In other words, following Mathison (1988) and Hussein (2009), we collected an array of original qualitative sources to validate the quantitative results and thus to verify whether child labour was a systematic factor in coffee production capable of explaining the lower educational outcomes.

Honest archival research needs to avoid faulty confirmation, that is, to go beyond merely collecting "cherry-picking" observations, but should uncover unbiased, independent, and systematic evidence (Beach and Pedersen 2013, p. 123; Brownlow 2018). In this regard, the literature on qualitative analyses of the evidence suggests that we need to triangulate the data, for example, we need to collect and analyze different types of evidence and/or in different kinds of sources (Beach and Pedersen 2013; Mathison 1988). Therefore, we focus on identifying traces of child labour in coffee-producing areas from different and independent sources, such as newspapers, publications, coffee-farm documents, and educational reports from both public and private archives throughout the first half of the twentieth century.

One of the first archival materials we used is the Colombian Coffee Atlas of 1927 by Monsalve (1927), which offers qualitative and quantitative information on the coffee economy. We also checked several issues from the trade journal Revista Cafetera de Colombia, in which we tried to identify the views of the main coffee guild, FEDECAFE, regarding the use of child labour. Likewise, we checked the newspaper La Patria of Antioquia, one of the main coffee-producing areas during the studied period. This original source offers contrasting evidence on the normalization and presence of the school-age population in coffee-growing activities.

We also checked the reports of international coffee companies, such as Roselius. This company published a series of pictures about coffee production in Colombia with visual evidence. Also, to find evidence about the hiring of school-age children, we used an original primary source from the coffee farm of La Carolina between 1943 and 1959, located in the municipality of Yolombó (Antioquia), and the property of one of the most influential coffee-growing families in Colombia, the Ospina (Acevedo Echeverri *et al.* 1989). This primary original evidence consists of work cards, contracts, work liquidations, insurance documents, and reports.

Finally, we analyzed the educational reports of the Ministry of Education as one of the most critical historical sources on education in Colombia.

All this archival material is assessed alongside, for instance, historiography, regulations, and contextual knowledge, with closer inspections and scrutiny for systematic consistencies, distortions, omissions, or contradictions (Brownlow 2018; Beach and Pedersen 2013). This qualitative assessment, combined with the quantitative results,

allows us to affirm that child labour was a structural phenomenon in coffee-producing areas that is correlated to lower GERs and literacy rates.

Analysis of the archival material first and foremost validates the systematic presence of children in the coffee labour force. In Monsalve (1927), for instance, we identify three precise references in this regard. The first reference stresses that children and women were intensively involved during the coffee harvesting season (Monsalve 1927, p. 277, 361). This observation matches the historiography, which argues that, in coffee-producing departments, children and women were an important share of the workforce because of the high demand for labour in coffee production (e.g., Arango 1981; Ramírez Bacca 2004, 2010). Indeed, as Table 3.1 shows, children used to work on average 83 days a year on a coffee hacienda, a work period that could be significantly extended during export booms and in coffee-producing areas with more than one harvest per year.

The second reference indicates how critically early the recruitment of child labour by a coffee farm could be. Monsalve (1927, p. 276), for instance, states that child labour on coffee farms began at five years of age when children were engaged in auxiliary work such as supporting non-coffee agrarian production or animal herding. This early involvement of children contrasts with assumptions made by FEDECAFE in 1933 when the organization classified the coffee workforce into different categories called "arms": that is, the "first arm", or adult men; the "middle arms", comprising men with a disability; and the "fourth arm", which included women and children from eight to twelve years old (FEDECAFE 1933). The information provided by Monsalve (1927), therefore suggests that child labour began earlier than FEDECAFE claimed and that children worked on coffee farms during both the harvest season and the non-harvest season. Moreover, by analyzing the regulatory framework for child labour, Monsalves' findings are at least controversial, since according to Law 79 of 1926, labour was not allowed by children younger than fourteen, particularly if it would disrupt their enrollment in primary education (García Londoño 1996).

Finally, the author explains that child labour was positively normalized in coffee-growing areas to the extent that each coffee-producing department had its own daily market wage range for children, as shown in Table 3.8. This normalization is also evident in other independent sources. For example, in 1933 FEDECAFE explicitly claimed that child labour was of social benefit in that it developed skills in agronomy and botany through the cultivation of coffee, as well as basic notions of geometry, carpentry, materials resistance, and mechanics, learned through grain-threshing. Similarly, Palacios (2002) mentions how the over-exploitation of family work was positive for both the consolidation of the Colombian coffee economy and the survival of coffee-growing families. This last aspect coincides with reports by the Ministry of Labour stating that the use of the entire family as a labour force in coffee production, including children, would generate better incomes and lower production costs (Echavaria-Soto *et al.*, 1999).

Table 3.8. Daily wages on coffee plantations in current pesos from 1927.

Departments	Men	Women	Children
Antioquia	0.50 – 1.20	0.30 – 0.50	0.15 – 0.30
Caldas	0.60 – 1.20	0.40 – 0.80	0.15 – 0.40
Cauca	0.20 – 0.70	0.10 – 0.40	0.05 – 0.25
Huila*	0.20 – 0.70	0.10 – 0.50	0.05 – 0.35
Tolima	0.50 – 1.00	0.30 – 0.60	0.10 – 0.25
Boyacá	Max 0.40	Max 0.25	Max 0.10
Sierra Nevada**	1.30	1.30	0.75
Magdalena	0.20-0.40	0.20-0.30	0.10-0.20

Note: prices in pesos. * Includes food ** 2.70-3.00 per pound collected. In the rainy season, the hour was paid at 0.10-020 Source: Monsalve (1927).

As for visual evidence of the school-age population in the coffee economy, the German coffee company Roselius published a series of pictures of coffee production in Colombia during the 1920s. The work illustrates each production process, that is, harvesting, drying, packing, and shipping. Roselius' original idea was to advertise Colombian coffee in Europe. Nonetheless, we can observe how the pictures systematically show children engaged in each of these coffee production processes from harvesting to shipping. This pattern is also verified in different pictures in a series published by FEDECAFE in the 1920s (see Roselius 192?, Monsalve (1927), and FEDECAFE 1932)[51].

Newspaper sources also provide evidence of the normalization and existence of child labour in coffee-growing departments. The Antioqueno newspaper La Patria of 1900 constantly has adverts recruiting workers to work on different farms. For instance, in the edition for 18 December 1900, a company called Alvarez, Echavarria & C^{a} placed a notice for poor peons and families willing to work doing daily farm activities. What is particularly significant is the emphasis it places on work for boys in berry gathering and the promise of steady work for men and seasonal work for women and children during the coffee harvest, which, the ad explicitly states, is nearly "continuous":

> Peons and poor families: "The Hacienda La Alejandría" needs a good number of labourers for ordinary farm work, and women and boys to gather coffee ... Poor families who want to live on the farm will be given accommodation, a kitchen, and a vegetable garden ... Men will tend to constant work, and women and boys at coffee gathering time, that is, almost constantly.

Regarding archival material from the La Carolina hacienda, we found information on work cards, contracts, work settlements, and insurance documents for between 1943 and 1967. A summary of the findings is shown in Table 3.9. We checked all the work cards,

[51] For photographic evidence of child labor see Appendix 3B.

127 in total, and found that 22% of the reports concern the school-age population, that is, children between ten and seventeen years old. Moreover, the work cards also show that the youngest children (ten years old) remained working on this hacienda for a significant number of their school years (five years). Secondly, the source also shows that 22 out of 85 contracts correspond to underage workers; indeed, nine explicitly note their inability to read and write. Similarly, thirteen out of 57 work settlements refer to children, while the insurance documents show that 67% of the workers were between twelve and seventeen years old. Concerning these primary sources, an important caveat must be made, as the time period of these archives is outside the historical framework adopted for this research. Nonetheless, these materials are a revealing source, since they come from a private farm archive that was not produced for posterity (see Brownlow 2018) but is nonetheless an original source for the extent of the normalization of child labour in Colombia's coffee economy.

Table 3.9. Documents from the private archival of the hacienda "La Carolina", 1943-1959.[52]

Type of document	Total checked documents	Years	Number of documents referring to child labour	Percentage
Work cards	127	1959	28	22%
Contracts	85	1943-1967	22	26%
Work settlements	23	1957-1959	13	25%
Insurances	42	1943-1967	28	67%

Source: see text.

Assessment of these different and independent sources consistently proves that child labour was systematic in Colombia's coffee economy. The existence of a precise category, the "fourth arm", for FEDECAFE, the classification of a range of salaries for children, job ads in newpapers, the visual evidence, the archives of private coffee farms, the information in Monsalve (1927) and the overall historiography all prove without a doubt that child labour was standard practice and not just anecdotal in the production of this agrarian commodity.

Nonetheless, these original archives still lack precise evidence of the causal relationship between child labour, coffee production, and the level of demand for education. Thus, on the one hand, given the evidence discussed here, we can say that child labour was the outcome of the agrarian structure of the Colombian economy. Indeed, the literature and archival material confirm this supposition. For instance, the education report for 1937-38 mentions that two-thirds of out-of-school children belong to peasant families because of the tendency to use underage children in agrarian activities (Yearbook of the Education of 1937/38, p. 25), an argument also made by Ramirez and Salazar (2010). On

[52] For examples of work cards, contracts, work settlements, and insurances that refer to children see Appendix 3B.

the other hand, while we can show that school-age children were involved in the coffee economy, this does not prove how this issue affected educational performance. Indeed, FEDECAFE (1933) contains contradictory evidence for our argument. This source claims that the harvest did not harm educational performance since this activity only occurred in a few months of the year (FEDECAFE 1933).

This challenge made us look for "a highly improbable piece of evidence with strong inferential weight" (Beach and Pedersen, 2013, p. 126). If we find this improbable evidence, it can be used to validate our causal explanation that the coffee economy affects educational outcomes through the extensive use of child labour in coffee production. We found this improbable evidence in the education report for 1938-1939, where the Minister of Education discusses the main problems of rural education at that time. The educational report explicitly mentions the use of children during coffee harvests as a critical problem. That is, the report explicitly admits that during the coffee harvests, school attendance "*completely ceases*" in coffee-growing regions. The report also states that in the cases of wheat and potatoes, which are grown in colder regions, school attendance is "*considerably reduced*" but not eliminated altogether during the harvest (Yearbook of the Ministry of Education, 1938/1939, p. 17-18).

This original source is remarkable for the following reasons. First, the report covers the period analyzed for this research. As Brownlow (2018) argues, the closer a piece of information in time and space to the analyzed phenomenon, the better the quality of the original source.

Second, the observation explicitly refers to the coffee economy as one of the main hindrances to school attendance in coffee-producing areas, probably because of the high opportunity cost of children attending school within an agrarian commodity-based structure. Indeed, the report explicitly states that coffee production was an issue for educational enrollment, as the quantitative results also indicate. The source also points out that the decline is especially critical during the harvest season. As already mentioned, this season could cover a large part of the schooling months in some coffee-growing areas, therefore reducing educational outcomes, as the cross-section regressions show.

Third, the argument in the report is in line with the intensive use of the school-age population in coffee production, a fact recurrently described in both the literature and the archival sources analyzed earlier in this section.

Fourth, the report provides qualitative evidence of the counterfactual exercise in the quantitative section of this chapter. The source compares coffee production with that of non-coffee crops such as potatoes and wheat. The archival source, therefore, validates the counterfactual that the lower school performance is explained by the specific conditions of the coffee economy. That is, coffee was an agrarian commodity, suitable for child labour because of children's physical constitution, and labour-intensive in a rural and poor society. Consequently, many more children dropped out of school to join in the coffee boom than can be observed in the case of other agrarian activities.

In conclusion, this qualitative analysis, combined with the quantitative results, validates our argument. Child labour was a structural phenomenon in coffee-producing areas with a depressing effect on the demand for education.

3.7 Conclusions

In scholarship, educational inequality in Latin American agrarian economies is usually linked to historical structures of the supply of schooling (Palacios 2002), thus overlooking the question of the demand for education. In this debate, we have examined the short-term effects of a historical agrarian commodity boom on the subnational demand for schooling during the Colombian coffee boom of the early twentieth century.

Our main hypothesis is that many children in the coffee economy drop out of school to be part of the coffee boom, since some aspects, such as a situation of extreme poverty, a rural society, a low interest in education, scarce technologies, and, more importantly, a need for the intensive use of labour facilitated the inclusion of a school-age population in the production of this agrarian commodity.

To test this hypothesis, this chapter has specifically assessed a cross-sectional model and qualitative archival work. The quantitative approach uses municipal data on total coffee trees grown and harvest seasons as proxies for the demand for child labour and measures the impact of coffee production on the rate of enrollment in primary school and literacy in 1938. The main results show a negative impact of coffee cultivation on the Gross Enrollment Rate and literacy. The results also show that, when it is controlled by the level of urbanization, coffee has a negative impact on both rates, the results being contingent at the level of rurality. The more rural the area and the more coffee is grown, the more negative the impact on educational outcomes will be.

Regarding our analyses of harvest periods, the results also show that there is a negative correlation between collecting coffee for four and six months during the school period and educational outcomes. In addition, to show that agriculture itself is not associated with lower educational results, the number of hectares per capita devoted to cultivating other products and those dedicated exclusively to coffee cultivation were included in the cross-sectional model. The results of the counterfactual analysis showed that cultivating other types of products is not associated with the poorer educational results that are observed in the case of coffee cultivation.

Due to the lack of quantitative information on the use of child labour in coffee crops, this chapter has presented qualitative evidence from original historical sources to validate the quantitative results. The analysis of different and independent qualitative sources provides systematic evidence of the use of child labour in coffee production. Moreover, the analysis shows that child labour was a structural phenomenon depressing educational outcomes in producer areas. This archival work also shows that, although the literature claims that the coffee boom generated positive synergies in the accumulation of capital and the development of the coffee regions and the country, it led

to peasant children stopping studying in order to help in the tasks of collection and processing.

The overall conclusion of our analysis is therefore that if, when studying schooling performance, we find that supply plays a part in educational outcomes, the scholarship also needs to analyze the flip side of the educational coin, that is, the demand side. This issue is particularly crucial in an agrarian commodity-based society dealing with international commodity booms. In this context, school attendance has a high opportunity cost for a majority rural population living in poverty that does not prioritize education, as was the case for the Colombian economy in the early twentieth century.

2.A Appendix 1

Table 3A.1. Variable Definitions.

Variable	Definition
Gross enrollment rate *10000	Total children enrolled in primary school divided by the total of children aged 7-14 multiplied by 10000. Data from the National Census of 1938.
Literacy*10000	Total number of children who can read and write by the total of children 7-14 aged multiplied by 10000. Data from the National Census of 1938.
Coffee cultivation area per capita	Number of coffee trees divided by the total population. The total number of coffee trees from the coffee census of 1938, and the total population from National Census of 1938.
Harvest 2	Dummy variable that is equal to one when the period of the municipality's harvest coincides for two months with the school period. Data from the FEDECAFE.
Harvest 4	Dummy variable that is equal to one when the period of the municipality's harvest coincides for four months with the school period. Data from the FEDECAFE.
Harvest 6	Dummy variable that is equal to one when the period of the municipality's harvest coincides for six months with the school period. Data from the FEDECAFE.
Children 7-14	Children of primary school age (7-14). Data from the National Census of 1938.
Population	Total population. Data from the National Census of 1938.
Ratio male/female 7-14	Number of males between 7 and 14 years old divided by the number of girls between 7 and 14 years. Data from the National Census of 1938.
Revenue per capita	Total municipal income, from the benefits of the municipality's assets, credits, business taxes, taxpayers' taxes, departmental treasury entries, and national treasury entries, divided by the total population. Data from National Yearbook of 1935.
Educational expenditure as a percentage of incomes	Total municipal education expenditure divided by the total of revenues. Data from National Yearbook of 1935.

Share of urban population (%)	Total population living in the municipal seat divided by the total population in each municipality. Data from the National Census of 1938.
Share of population with the right to vote (%)	Total men over 21 years of age divided by the total male population. Data from National Yearbook of 1938.
Share of votes to the Liberal Party (%)	Total men over 21 who voted for the Liberal party in the presidential elections of 1938. Data from National Yearbook of 1938.
Distance to Bogotá	Linear distance between the central point of each municipality and the epicentre of Bogotá. Data from the National Census of 1938.
Distance to Barranquilla seaport	Linear distance between the central point of each municipality and the epicentre of Barranquilla. Data from the National Census of 1938.
Distance to Buenaventura seaport	Linear distance between the central point of each municipality and the epicentre of Buenaventura. Data from the National Census of 1938.
Roads	Dummy variable that is equal to one when a municipality has a road that connects it to another municipality. Data from Yearbook of the Ministry of Public Works of 1935.
Horseshoe trails	Dummy variable that is equal to one when a municipality has a horseshoe trail that connects it to another municipality. Data from Yearbook of the Ministry of Public Works of 1935.
Train	Dummy variable that is equal to one when a municipality has a train that connects it to another municipality. Data from Yearbook of the Ministry of Public Works of 1935.
River navigation	Dummy variable that is equal to one when a municipality has access to a waterway. Data from Yearbook of the Ministry of Public Works of 1935.
Cultivated area per capita without coffee	Number of hectares cultivated with different product to coffee per inhabitant and municipality. Data from Yearbook of the Ministry of Agriculture of 1934.
Cultivated area per capita with coffee	Number of hectares cultivated with coffee per inhabitant and municipality. Data from Yearbook of the Ministry of Agriculture of 1934.

Table 3A.2. Coffee trees and number of hectares produced by department, 1932.

Department	Coffee trees	Hectares	Coffee trees/ hectares
Caldas	95,139,765	190,311	500
Antioquia	98,109,552	154,744	634
Tolima	75,338,756	145,121	519
Cundinamarca	64,698,690	92,953	696
Valle	45,841,840	92,773	494
Norte de Santander	60,136,279	60,671	991
Santander	43,791,642	45,252	968
Cauca	15,572,690	26,548	587
Huila	9,957,006	21,463	464
Magdalena	10,633,954	13,247	803
Boyacá	4,818,281	10,342	466
Nariño	5,390,787	8,481	636
Bolívar	1,588,972	2,430	654

Source: See text.

3.B Appendix 2

Photographic evidence of child labour

Figure 3B.1. Labourers' barracks, 1927.

"Pawn barracks. Men plant and grow coffee.
Women and children, from the age of five,
carry out grain collection and auxiliary work."

Source: Monsalve (1927).

Figure 3B.2. Street vendors of coffee, 1927.

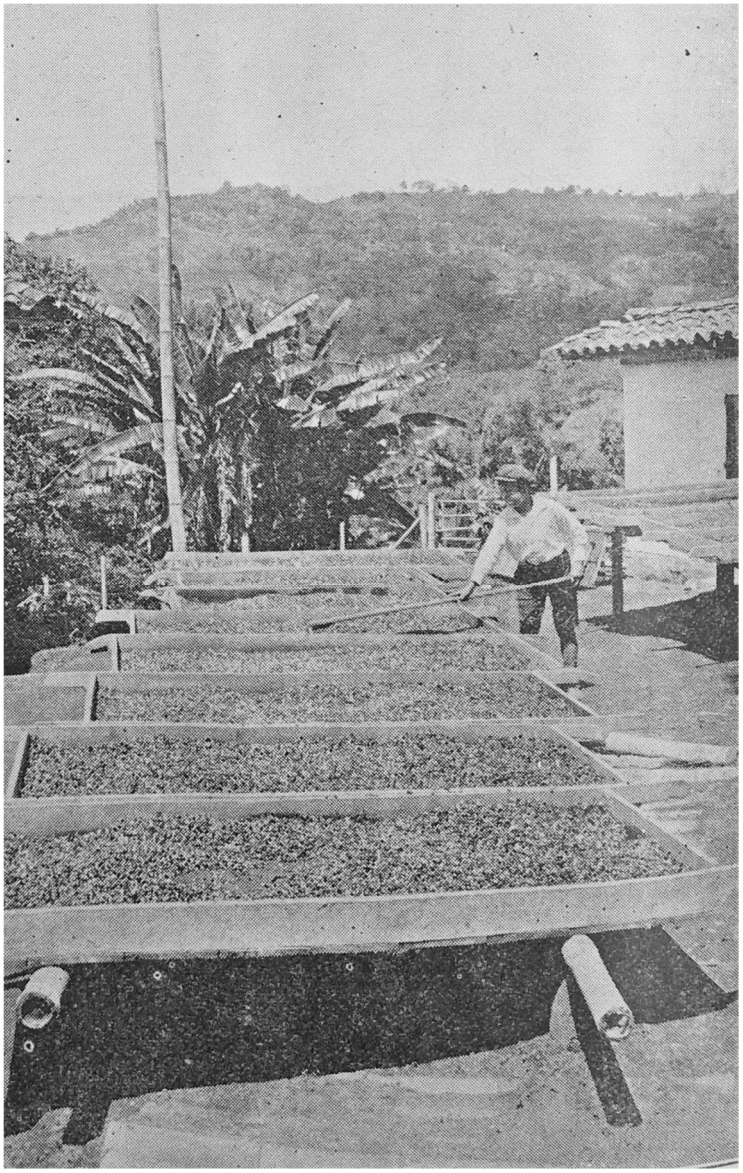
"Street vendors of coffee.
Many children are dedicated to the sale
coffee in houses, warehouses, etc., in the city."

Source: Monsalve (1927).

Figure 3B.3. Boy doing auxiliary work on a coffee farm, 1932.

Source: FEDECAFE (1932).

Figure 3B.4. Boy drying coffee, 1932.



Source: FEDECAFE (1932).

Figure 3B.5. Girls collecting coffee, 1932.

Source: FEDECAFE (1932).

Figure 3B.6. Payday on a coffee plantation, 1920s.

Source: Roselius (192?).

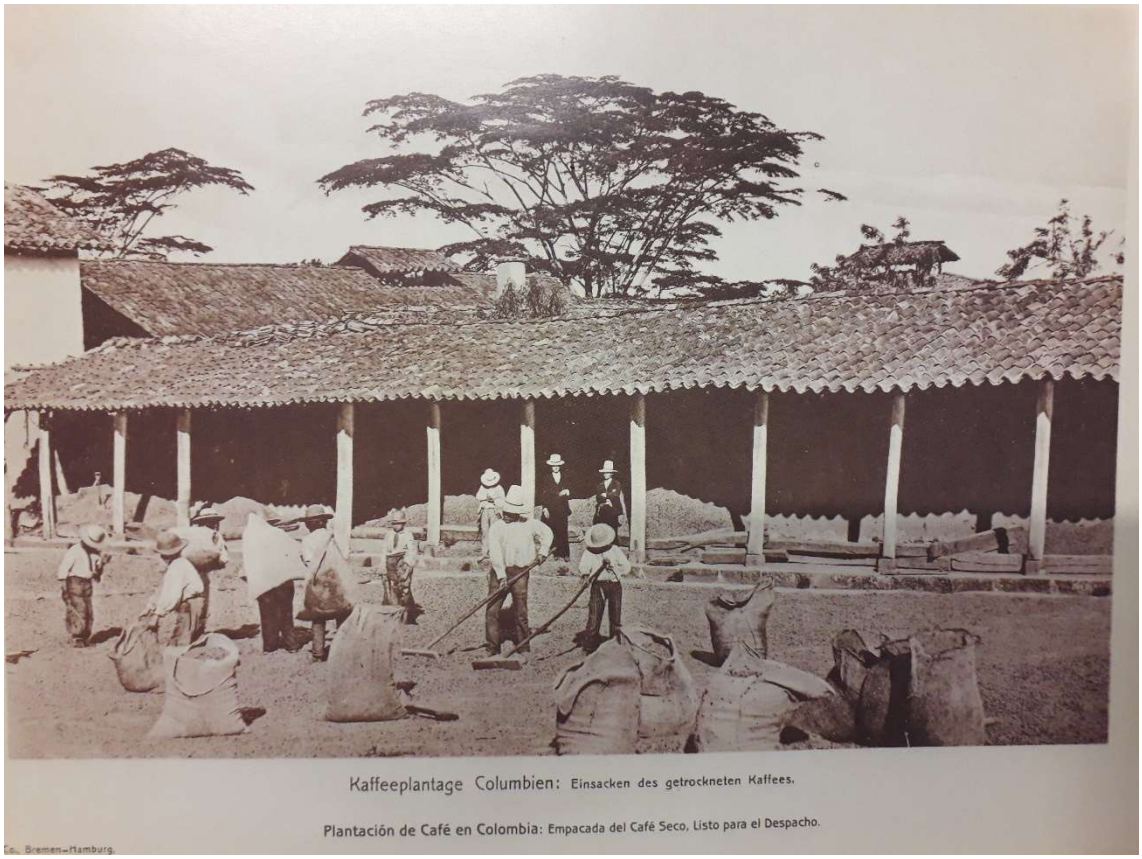
Figure 3B.7. Delivering the harvested cherries, 1920s.

Source: Roselius (192?).

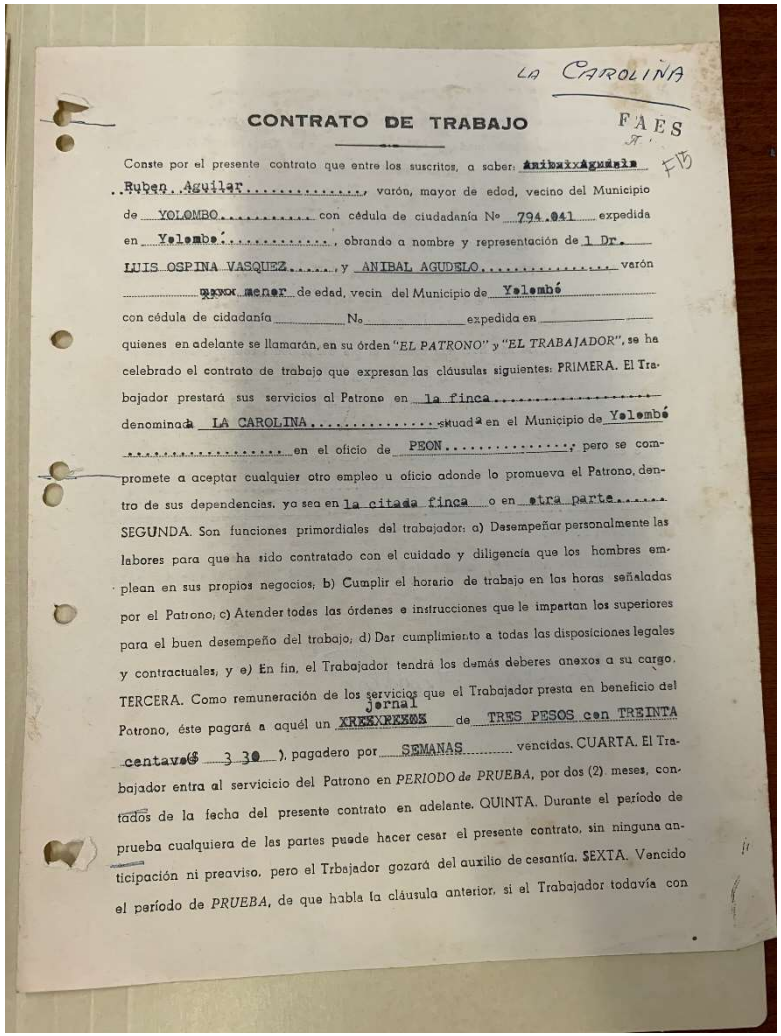
Figure 3B.8. Drying coffee, 1920s.

Source: Roselius (192?).

Figure 3B.9. Packed dry coffee, awaiting dispatch, 1920.



Source: Roselius (192?).

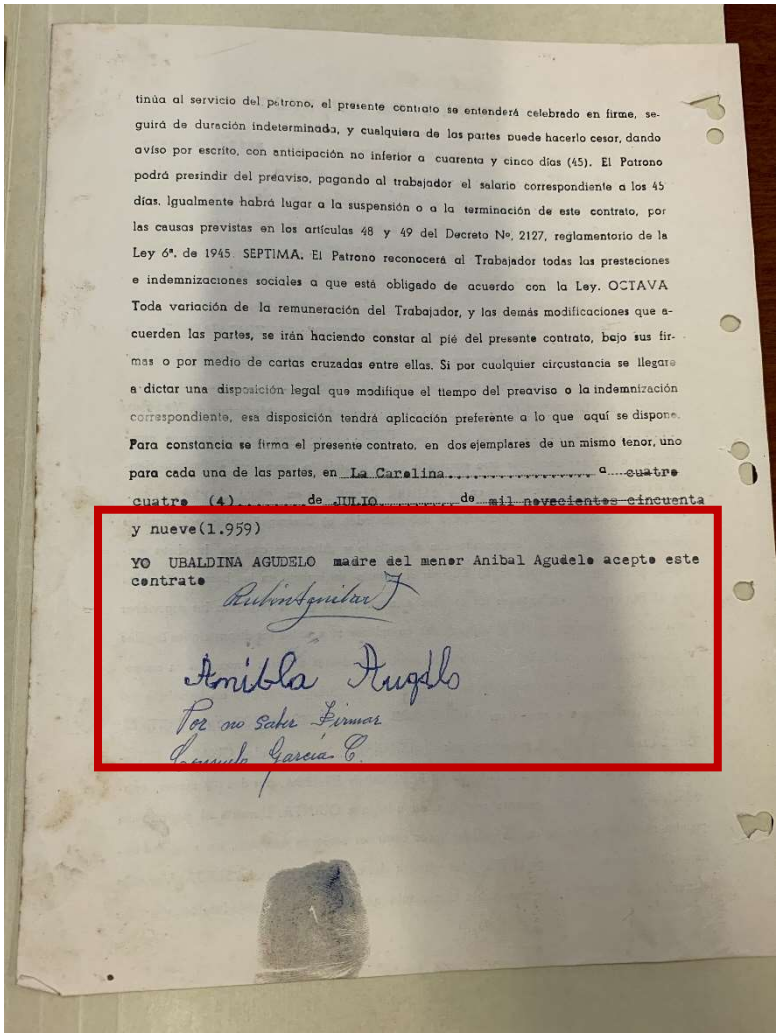


LA CAROLINA

CONTRATO DE TRABAJO

FAES

Conste por el presente contrato que entre los suscritos, a saber: ~~Anibal~~ Ruben Aguilar....., varón, mayor de edad, vecino del Municipio de YOLOMBO..... con cédula de ciudadanía Nº 794.041 expedida en Yolombó....., obrando a nombre y representación de 1 Dr. LUIS OSPINA VASQUEZ....., y ANIBAL AGUDELO..... varón ~~mayor~~ menor de edad, vecin del Municipio de Yolombó con cédula de cidadanía ..... No ..... expedida en ..... quienes en adelante se llamarán, en su órden "*EL PATRONO*" y "*EL TRABAJADOR*", se ha celebrado el contrato de trabajo que expresan las cláusulas siguientes: PRIMERA. El Trabajador prestará sus servicios al Patrono en la finca..... denominada LA CAROLINA..... situada en el Municipio de Yolombó ..... en el oficio de PEON.....; pero se compromete a aceptar cualquier otro empleo u oficio adonde lo promueva el Patrono, dentro de sus dependencias, ya sea en la citada finca o en otra parte..... SEGUNDA. Son funciones primordiales del trabajador: a) Desempeñar personalmente las labores para que ha sido contratado con el cuidado y diligencia que los hombres emplean en sus propios negocios; b) Cumplir el horario de trabajo en las horas señaladas por el Patrono; c) Atender todas las órdenes e instrucciones que le impartan los superiores para el buen desempeño del trabajo; d) Dar cumplimiento a todas las disposiciones legales y contractuales, y e) En fin, el Trabajador tendrá los demás deberes anexos a su cargo. TERCERA. Como remuneración de los servicios que el Trabajador presta en beneficio del Patrono, éste pagará a aquél un ~~XXXXXXXXX~~ Jornal de TRES PESOS con TREINTA centavos ($ 3.30), pagadero por SEMANAS..... vencidas. CUARTA. El Trabajador entra al servicicio del Patrono en *PERIODO de PRUEBA*, por dos (2) meses, contados de la fecha del presente contrato en adelante. QUINTA. Durante el período de prueba cualquiera de las partes puede hacer cesar el presente contrato, sin ninguna anticipación ni preaviso, pero el Trbajador gozará del auxilio de cesantía. SEXTA. Vencido el período de *PRUEBA*, de que habla la cláusula anterior, si el Trabajador todavía con



tinúa al servicio del patrono, el presente contrato se entenderá celebrado en firme, seguirá de duración indeterminada, y cualquiera de los partes puede hacerlo cesar, dando aviso por escrito, con anticipación no inferior a cuarenta y cinco días (45). El Patrono podrá presindir del preaviso, pagando al trabajador el salario correspondiente a los 45 días. Igualmente habrá lugar a la suspensión o a la terminación de este contrato, por las causas previstas en los artículas 48 y 49 del Decreto Nº. 2127, reglamentario de la Ley 6ª. de 1945. SEPTIMA. El Patrono reconocerá al Trabajador todas las presteciones e indemnizaciones sociales a que está obligado de acuerdo con la Ley. OCTAVA Toda variación de la remuneración del Trabajador, y las demás modificaciones que acuerden las partes, se irán haciendo constar al pié del presente contrato, bajo sus firmas o por medio de cartas cruzadas entre ellas. Si por cualquier circustancia se llegare a dictar una disposición legal que modifique el tiempo del preaviso o la indemnización correspondiente, esa disposición tendrá aplicación preferente a lo que aquí se dispone. Para constancia se firma el presente contrato, en dos ejemplares de un mismo tenor, uno para cada una de las partes, en La Carolina..... a cuatro cuatro (4)..... de JULIO..... de mil novecientos cincuenta y nueve(1.959)

YO UBALDINA AGUDELO madre del menor Anibal Agudelo acepto este contrato

Rubén Aguilar T.

Anibla Augdlo

Por no Saber Firmar

Consuelo García C.

Figure 3B.10. Contract with a minor to work as a labourer at the La Carolina coffee farm, 1959.

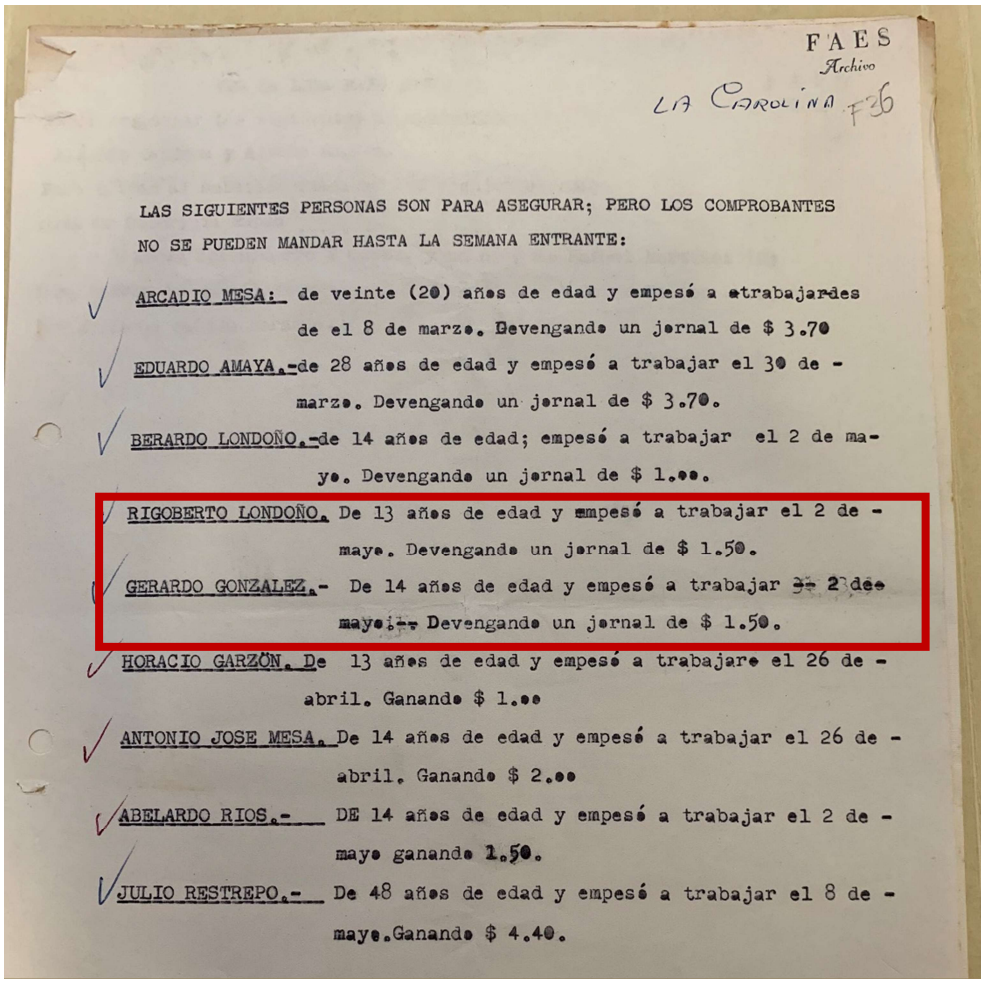
" UBALDINA AGUDELO, mother of the minor Anibal Agudelo, accept this contract.

Signature. Anibla Augdlo

For not knowing how to sign, Consuelo García C. signed"

Source: Documents from the private archive of Hacienda "La Carolina", 1943-1959.

Figure 3B.11. Labout agreements, La Carolina coffee farm, 1958-1959.



FAES
Archivo
LA CAROLINA F26

LAS SIGUIENTES PERSONAS SON PARA ASEGURAR; PERO LOS COMPROBANTES NO SE PUEDEN MANDAR HASTA LA SEMANA ENTRANTE:

ARCADIO MESA: de veinte (20) años de edad y empesé a etrabajardes de el 8 de marzo. Devengando un jornal de $ 3.70

EDUARDO AMAYA.-de 28 años de edad y empesé a trabajar el 30 de - marzo. Devengando un jornal de $ 3.70.

BERARDO LONDOÑO.-de 14 años de edad; empesé a trabajar el 2 de ma- yo. Devengando un jornal de $ 1.00.

RIGOBERTO LONDOÑO. De 13 años de edad y empesé a trabajar el 2 de - maye. Devengando un jornal de $ 1.50.

GERARDO GONZALEZ.- De 14 años de edad y empesé a trabajar ~~3~~ 2 dee maye.- Devengando un jornal de $ 1.50.

HORACIO GARZÓN. De 13 años de edad y empesé a trabajare el 26 de - abril. Ganando $ 1.00

ANTONIO JOSE MESA. De 14 años de edad y empesé a trabajar el 26 de - abril. Ganando $ 2.00

ABELARDO RIOS.- DE 14 años de edad y empesé a trabajar el 2 de - maye ganando 1.50.

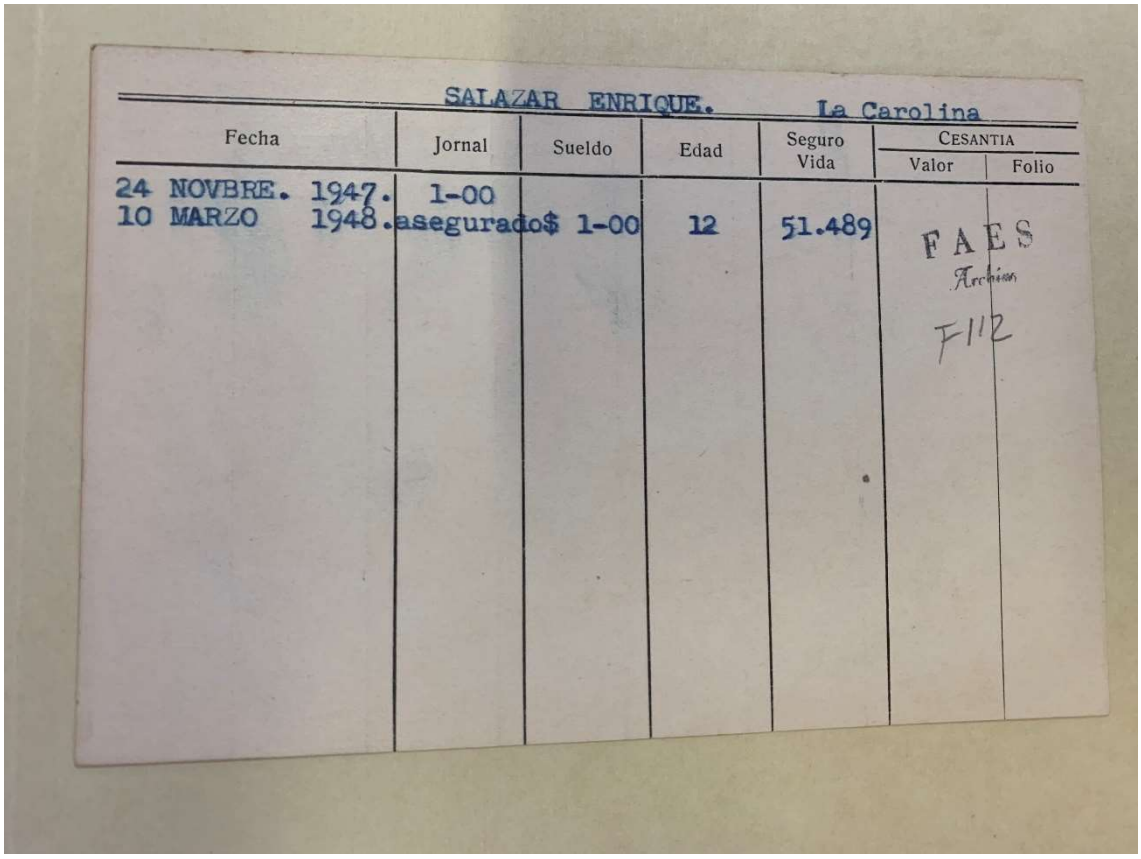
JULIO RESTREPO.- De 48 años de edad y empesé a trabajar el 8 de - maye.Ganando $ 4.40.

"The following people are to insure, but vouchers cannot be sent until next week:

RIGOBERTO LONDOÑO
***13-year-old** started work on May 2. He has earned a wage of $ 1.50.*
GERARDO GONZALEZ
***14-year-old** started work on May 2. He has earned a wage of $ 1.50."*

Source: Documents from the private archive of Hacienda "La Carolina", 1943-1959.

Figure 3B.12. Work card, La Carolina, 1958-1959.



SALAZAR ENRIQUE. La Carolina.

Date	*Daily wage*	*Monthly wage*	*Age*	*Life insurance*	*Layoff*
24th November. 1947	*$1.00*				
10th march. 1948	*$1.00*		*12*	*51.489*	

Source: Documents from the private archive of Hacienda "La Carolina", 1943-1959

Chapter 4

Neither God, nor Master, nor Husband: the impact of liberal reforms and feminist echoes on female education

4.1 Introduction

Female education has been described as a mechanism of economic growth (Schultz 2002). However, gender inequality in education persists in most developing countries. Kirdar *et al*. (2015) state that the harder educational barriers faced by women are associated with cultural factors more than the level of investment in education, factors that can be traced back to colonial institutions (Porta *et al*. 1998). Therefore, countries that have inherited better institutions invest more in human capital (Acemoglu *et al.* 2001). But why, despite the linking of Latin America's inherited institutions with conservative and paternalistic values, does the region have a narrower gender gap in education than other developing countries at the present day? (Frankema 2009b; Manzel and Baten 2009). Bértola and Ocampo (2012) suggest that the modern education system and the narrowing of the gender gap in education emerged as a consequence of two main processes: the creation of independent states, and the adoption of liberal reforms at the beginning of the twentieth century. Liberal reforms sought to improve democracy and promote gender equality. The more democratic institutions are, the more likely policies aimed at improving the status of women through educational development will be implemented (Beer 2009; Brown 2000; Cooray and Potrafke 2011).

Accordingly, this chapter seeks to improve understanding of how the liberal movements that emerged in several Latin American countries in the early twentieth century promoted the construction of more egalitarian mass education in the region, using Colombia as a case study. For this purpose, this chapter studies the impact on the educational gender gap of liberal legal reforms implemented in the early 1930s related to programmes of female education and the abolition of the marriage bar.[53] *The hypothesis*

[53] As we shall see later, the marriage bar refers to the practice of restricting the employment of married women.

is that the adoption of two liberal reforms improving the economic and social statuses of women were associated with a decrease in the gender gap in education through an emerging demand for education. The Colombian example supports Bértola and Ocampo's suggestion (2012) with reference to new empirical evidence.

Colombia's history shows us that, once the Republic had been established in the nineteenth century, an attempt was made to promote public education and create a nation-state project based on it. However, these efforts were not entirely successful, and women remained marginalized. By contrast, the twentieth century brought with it a more dynamic process in matters of education as part of modernizing processes within which educational reforms occupied a leading role (Luna and Villarreal 1994a).

Given the particular political bipartisanship between the Liberals and the -Conservatives that defined the political history of the country for almost two centuries, with long periods of government alternating between the parties, it is possible to conduct differentiated analyses of the respective policies they introduced. In this political context, in 1930, after 44 years of Conservative governments, the Liberal Party won the elections and began a process of government renewal and initiatives to industrialize and modernize the country. A main focus was on the reform of the educational system, partly due to the needs of this new economic project.

After independence, the country's paternalistic institutions limited the participation of women in the social, political and labour spheres. By the 1930s, the Liberals had come into office in the context of the economic depression that followed the global market crash of 1929. The new economic project involved strengthening the industrial fabric, which required more skilled labour. This initiative was aligned with reformist ideas supported by feminist movements. With the arrival of the Liberal Party, new spaces for a debate over women's rights were opened up. Among the first demands, the claim for economic independence within marriage, the right to manage their own property, and the right of equal access to education were all highlighted (Luna 2001).

Little is known about female education in Colombia from a historical perspective. In the nineteenth century, Zuluaga *et al.* (2004) argue, female education was always inferior to that of men in both quality and quantity, and women never had access to higher education. Moreover, Ramírez and Téllez (2007) show that throughout the century female primary enrollment was consistently four times less than male enrollment. During the first three decades of the twentieth century, conversely, the gender gap was reduced considerably in primary school, where the gender gap tends to disappear. In secondary school this did not happen, different patterns being observable depending on the type of educational training involved (Gaitán and Gómez 2017). However, there is not series disaggregated by gender at the departmental level that would allow the impact of liberal reforms on female education at a lower level to be analyzed.

As a consequence, a new historical database of enrollment rates in both primary and secondary school, disaggregated by gender and department during the first half of the twentieth century, has been created for this study. Based on the new series, the analyses are split into two parts. The first part consists of a descriptive analysis of the long-term evolution of female enrollment rates and compares it with male ones, both primary and secondary. The second part seeks to evaluate the impact of liberal reforms introduced in

1932 on the gender gap in education via a panel-data model for the period 1905-1958 for nineteen departments. The model includes a dummy variable for the period 1933-1958. Unfortunately, as there are few observations available for the secondary level before 1933, it was not possible to replicate the analysis for this educational level. The results suggest that there was a decrease in the gender gap after the relevant laws had been passed.

Two models have been estimated to test robustness. First, a falsification test was done using two placebos for the periods 1927-1932 and 1933-1937. As expected, the period 1927-1932 positively affects the gender gap, that is, it widens, while the period 1933-1937 is negative and significant, that is, it narrows. Therefore, it seems that the narrowing of the gender gap does not reflect the passage of time but the passage of laws.

The second robustness check involves lagging the dummy for one, three and five periods. The estimates show that the coefficient of the variable, despite remaining negative and significant when lagging the variable one, three, and five years, tends to zero. This means that as the years passed the gap became smaller, and therefore the impact of the laws tends to be less because the gap was already narrowing.

Regarding secondary education, descriptive analyses show that there was no clear decrease in the gender gap from the 1930s. On the contrary, different patterns depending on the level of training involved are observed. Unlike what it we observe in academic education, in vocational and teacher training there is a substantial increase in female enrollment rates after the granting of women's rights, this being higher with the teacher training.

The rest of this chapter proceeds as follows. Section 2 summarizes recent literature on the roots of gender segregation in education and the determinants of improvements to the gender balance. Section 3 sets out the historical and political contexts of the evolution of the educational system during the first half of the twentieth century in Colombia. Section 4 describes the sources used in the chapter and presents a descriptive analysis of the series constructed from them. Section 5 presents the empirical strategy and results. Section 6 sets out the main results. Section 7 suggests possible mechanisms whereby liberal reforms were able to generate improvements in female enrollment. Finally, Section 8 concludes.

4.2 The roots of gender segregation in education

Kirdar *et al.* (2015) state that the harder barriers to women's education are associated with cultural factors more than the level of the investment in education. Culture is defined by the identity and institutions of the colonial power (Porta *et al.* 1998). As a result, countries with a better inheritance of institutions invest more in human capital (Acemoglu *et al.* 2001). Good inherited institutions lead to greater investments in human capital, while bad institutions lead to the opposite. Accordingly, Fafunwa (1974) argues that the roots of gender discrimination can be found in colonial administrations. Mann (1991), writing about Lagos in Nigeria, explains that, through the establishment of an

elite under colonial conditions, the position of women was relegated to social activities. This circumstance, which was inherited by post-colonial governments, retained male education as the priority. In addition, Aderinto (2014) points out that, because of British colonization, several parts of Nigeria's interior were exposed to Western education through the activities of Christian missions in the mid-1850s. Although Western education represented a significant factor in social change, it also involved gender discrimination in that girls' enrollment in school remained very low during the colonial era. Likewise, girls' education emphasized home duties, needlework and home hygiene, which encouraged the disempowerment of women in virtually all the modern spheres of society, making gender inequality an official policy of the state.

As in Nigeria, the current gender inequality in education in some countries has historical roots closely linked to religion. In Italy, although it lacks a past as a colony, it does have strong Catholic traditions. Writing in this context, Bozzano (2017) suggests that culture, and in particular those values that are embodied in Catholic religious culture, plays a central role in shaping norms and beliefs about the role and involvement of women in society. Moreover, the author suggests that these cultural norms have been inherited from the past and therefore have a high degree of inertia that might affect a family's decision either to educate girls or to place a higher value on male offspring.

Although religion is usually associated with the gender gap in education, Becker and Woessmann (2008) demonstrated that, in the case of Protestantism in Prussia, the experience was diametrically the opposite. The authors used county- and town-level data from the first Prussian census of 1816 to show that the greater proportion of Protestants in the population led to a narrowing of the gender gap in basic education. The reason for this is that Martin Luther urged each town to have a girls' school so that girls would learn how to read the Gospel. The Protestant religion therefore became a driving force in the advancement of women's education.

Moreover, as is well known, women's education impacts on economic performance in many important ways, such as economic growth (Schultz 2002), health (Cutler *et al.* 2002), (Cooray and Potrafke 2011), fertility (Becker *et al.* 2013) and infant mortality (Klasen and Wink 2002). Conversely, several other works have demonstrated that religion, culture and conservative values, mostly inherited from the past, including colonial institutions, negatively influence the development of women's education. Thus, what kind of mechanisms can help change this rigidity of educational systems, which is so disadvantageous for women? To answer this, Cooray (2012) suggests that gender equality in education can only be achieved through changes in the political, social and economic spheres, that is, by transforming society in the direction of more democracy. The more democratic the institutions, the more policies aimed at improving the status of women through educational development can be implemented (Beer 2009; Brown 2000; Cooray and Potrafke 2011).

Moreover, democracy is not only a matter of the acquisition of political rights but of empowerment in the sense of "expanding the rights, resources, and capacity to make decisions and act independently in social, economic, and political spheres" (Inter-American Development Development Bank 2010, p. 3). Several works consider that the acquisition of political rights, such as votes for women, leads to considerable

improvements in total social spending (Aidt and Dallal 2008; Lott Jr and Kenny 1999) and in female educational outcomes (Brown 1999; Cooray 2012).

As Brown (2004) cautions, granting votes to women does not immediately create educational equality between the sexes. Nonetheless, it can affect the supply and demand for educational opportunities for women because it allows them to organize and express their views and preferences, thus pressing politicians to provide a minimum level of educational opportunity to voters.

In another direction, several works focus on the acquisition of economic rights as the main determinant improving female educational outcomes. Geddes *et al.* (2012) define economic rights as control over property and the freedom to enter into legally binding contracts, operate a business and dispose of its profits. The authors claim that granting such economic rights increases the incentive to invest in girls' human capital by improving expectations for better future earnings. The authors base their analysis on the enactment of laws to extend the rights of married women to control over their own separate property and their job earnings in the United States between 1850 and 1920. Their results show that the expansion of women's economic rights resulted in higher relative rates of school attendance by girls, with the most significant effect being on the 15-19 age group.

Linked to this process of granting economic and political rights, Goldin (2006) highlights other processes happening simultaneously that were more linked to the transformation of social perceptions of women and the demand for female labour in the United States throughout the twentieth century, showing how these changes affected the demand for education. The author focuses on social norms regarding the nature of women's work and explains that the introduction of women into the labour market was initially restricted to jobs considered "nice" by society, such as teachers and office workers. This initial insertion of women into the labour market promoted the emergence of new secondary-level educational institutions that increased the supply of potential female workers. Later, the creation of part-time work and the diffusion of household technologies facilitated the incorporation of married women into the labour market and prepared later generations to take up more highly qualified positions.

As for the Latin American experience, Bértola and Ocampo (2012) suggest that the education system from the colonial period to independence presented a high level of inequality regarding social status and gender due to the predominance of elitist education defined by Catholic values. The change in the educational system came with independence because it led to changes in educational institutions as a result of new ideas regarding the modernization of society through education (Miller 2003; Reimers 2006).

What did independence mean for women in the field of education? Chambers (2004), for instance, explains that, unlike what happened in the colonial era, the newly independent states faced the dilemma of providing better education for women without drawing them too far away from their traditional roles as wives and mothers. The author also emphasizes that, although women obtained better opportunities to study, these opportunities were restricted to the female elite. Conversely, the new legal system

denied certain benefits to poor women, such as social status, thus limiting their ability to free themselves from the paternalism that had been inherited from the colonial era. Those societies with high degrees of social inequality, such as those in the Caribbean that had inherited slave institutions, had suffered more social discrimination but less gender inequality in education, as Ellis (2003) explains. According to this author, slavery seems to have a leveling effect between the sexes because they both suffered the same repression through the slave system, still reflected today in a relatively low level of gender inequality in education.

Moreover, not only did the process of independence impact positively on education and gender inequality. Bértola and Ocampo (2012) also suggest that, as well as independence, liberal ideas at the beginning of the twentieth century allowed rapid progress in the creation of modern and secular educational systems, the gradual universalization of primary education, and the narrowing of the educational gap between men and women. Similar statements were provided by Mariscal and Sokoloff (2000), who find that, in the context of these liberal ideas, the extension of the franchise to women was associated with a growing trend in school attendance rates.

Aligned with the previous idea, Eterovic and Sweet (2014) suggest that the main improvements in education respond to the inclusion of marginalized populations in electoral systems, such as women, and they show that the introduction of women's right to vote led to an increase in enrollment in higher education in Latin American countries. Likewise, Frankema (2009), reflecting previous suggestions, points out that during the last quarter of the nineteenth century, there was a decisive movement towards mass education in some Latin American countries. By the beginning of the twentieth century, primary education had already expanded considerably in Latin America, and a comparatively equal gender distribution was in place from the end of the nineteenth century.

In the case of Colombia, gender segregation gender segregation has been neglected in the economic history of education. Ramirez and Salazar (2010) focus on the analysis of schooling rates during the nineteenth century, and they explain that, unlike other Latin American countries after independence, the expansion of mass schooling was meagre. In fact, at the end of the nineteenth century, fewer than 30% of school-age children attended school, and girls never exceeded 15% of enrolled students. Indeed, Colombia joined Ecuador and Guatemala as one of the countries with the lowest schooling rates in Latin America and the world at that time. As a reason for this, the authors suggest that the elites could not agree on how the population should be educated. Therefore, both civil wars and rivalry between church and state impeded the organization of the financing and the regulation of the educational system. Likewise, the authors suggest another possible explanation for the low development of education in Colombia, namely the moderate number of foreigners who migrated to the country, compared to what happened in Argentina, Chile and Uruguay. The idea behind this is that migrants not only have a higher level of education than those born in the country but that they also demanded a better education for their children. Finally, the narrowing of the gender education gap is only observed from the 1890s, perhaps as a result of the wars at the end of the century that caused an increase in female enrollment.

Moreover, López-Uribe and Castellanos (2017) focus on changes in female education as a result of changes in the labour market during the twentieth century, the major changes in female enrollment being observed in the 1920s and 1930s. In this period, Colombia began a process of industrialization that led to an increase in the demand for labour. According to the authors, changes in the country's economic structure led to the creation of more industries and more demand for skilled and unskilled workers, which in turn led to a new educational structure in girls' schools. This was possible thanks to new educational policies promoted in the 1930s in which women were allowed to follow the same educational curriculum as men and were given access to tertiary education. While the authors do not emphasize the role played by these educational policies, they do stress that modernizing the role of women in society opened up new spaces for women in different fields such as education and employment.

The historical literature on education in Colombia suggests that the main change in female education happened at the beginning of the twentieth century, and not earlier, after independence, as happened in most other Latin American countries. Thus, this work seeks to fill this gap based on international experience and focuses on how the acquisition of some economic and social rights for women in the 1930s was able to affect female educational outcomes.

4.3 Historical background

4.3.1 From the colonial past to the beginning of the emancipation of women

Colonial history defined the social, political, economic and legal conditions for women in Colombia until the early twentieth century. The role of women in society was confined to the domestic space (Condés 2002). Women were required to observe chastity, faithfulness, reserve and submission at the same time as being labeled irresponsible and unable to answer for themselves. For this reason, they were subject to male guardianship, especially by their fathers or husbands, and numerous civil, educational and economic restrictions were imposed on them (Serrano Galvis 2017). The few roles allowed to women were related to domestic servitude, so it was challenging to integrate them into industrial production or the labour market (Bermúdez 2008). One of the main barriers that women had in accessing the labour market and managing their assets was inherited from the Spanish civil code through the marriage bar or the need for the woman's father's permission in the case of women who were still single to sign employment contracts. This legal provision obliged a wife to ask her husband for permission to engage in any activities related to family assets, including decisions about her own assets or earnings (Condés 2002). The laws on marital authority and the incapacity of married women remained in force until the approval of Law 28 of 1932, which allowed both spouses the freedom to administer and dispose of the assets they acquired both before and after marriage (Gaviria *et al.* 2013).

The change in the legal status of women reflected a long process of social, political and economic transformation in the country, which triggered female empowerment and granted new rights to women. In political terms, in the transition between the nineteenth

and twentieth centuries, the national project in Colombia went through two divergent paths: liberalism and conservatism. As Suárez (2014) notes, throughout most of the nineteenth century until 1884, the liberal project led the country forward on the basis of the fundamental freedoms inspired by the French Revolution. By the 1880s, due to issues with the handling of agricultural exports, the Liberals' Conservative opponents came to power, where they remained until 1930. As Bushnell (1996, 232) explains, in Colombia, although there was no union between church and state, there was one between the Conservative Party and the Church. Therefore, in 1886, during the Conservative period, a new Constitution was introduced based on the principles of national unity, discipline and Catholic values. In 1887, the Conservatives not only failed to change the legal status of married women, they actually reinforced women's dependence on their husbands by passing Law 57 of 1887. This Law explicitly prohibited a married woman from exercising any profession or industry, such as school principal, schoolteacher, actress, obstetrician, innkeeper or nurse, without the authorization of her husband, which allowed her to undertake all acts and contracts.

Despite being antagonistic, the two projects shared the paternalism that had been inherited from colonial institutions. They both limited the role of women in society, establishing a "cultural order" that continued well into the twentieth century (Torres 2010). Indeed, the inclusion of women in the economic, social and finally the political spheres only begins in the first half of the twentieth century for two social groups: elite women, and working-class, women, as Reyes (1995) explains. On the one hand, the middle classes required women to assume childcare, home hygiene and food preparation, and to stress the importance of imposing hygienic habits. According to the author, the women of the urban elites not only had to fulfil these tasks in their own homes but also had to instruct the class of female workers that emerged as a social group in the cities where industrialization began. The female elite, together with priests and religious communities, dedicated themselves to organizing positions for workers in different cities, allowing wealthier women to emerge from the domestic space and take up prominent roles in their respective locations.

On the other hand, as the century progressed, the presence of women in new areas such as the theatre, movie theatres, tea rooms and even social clubs became more common, as seamstress services, washers, maids and babysitters were increasingly required. Many women migrated from rural areas to the big cities looking for domestic jobs in which many women did not even receive a salary for their services, and when they were paid, they were given 50% less than industrial workers (Luna and Villarreal 1994a). Apart from the insertion of women into these new domestic jobs, in the 1920s the Colombian economy grew, and foreign investments and coffee exports also increased, leading to a relative expansion of the manufacturing industry, which favoured increases in the number of workers and their organization, leading to significant social pressure. The emergence of new industries suggests an increase in the demand for labour, implying the inclusion of women in the factories (Luna and Villarreal 1994a). In Medellín in 1923, the city in which the industrialization process was at its most intense, 73% of the labour force were women, most of them young and single, since married women have practically forbidden entry into factory work (Reyes 1995).

Moreover, women workers were concentrated in certain industries only, such as cigarette and textile factories and making coffee-threshing machines, as shown in Table 4.1. In fact, in these three industries, the workers who were hired were mostly female. Women's salaries were lower than men's, the workday was more intense, and working conditions were very precarious (Luna 2004).

Table 4.1. Number of male and female workers by industry, 1936. of 1936.

	Male workers		Female workers		Total workers
		%		%	
Cigars and cigarettes	1,208	30%	2,761	70%	3,969
Yarn and textile factories	2,966	38%	4,764	62%	7,730
Coffee-threshing machines	437	12%	3,134	88%	3,571
Other industries	11,304	79%	2,926	21%	14,230
Total industries	**15,915**	**54%**	**13,585**	**46%**	**29,500**

Source: Colombian Yearbook for 1936.

Moreover, the poor working conditions of working women and the intellectual claims of urban elites converged in the emergence of an ideological movement to press for economic and social rights, including better education (Luna and Villarreal 1994a). On the one hand, the female elite demanded better education, taking advantage of the intellectual spaces to which, they had access, such as journals and magazines. Many women who received tertiary education in foreign countries had some influence in the political sphere through their husbands (Luna 2004). On the other hand, female workers also started claiming female emancipation, exerting strong pressure to improve their working conditions and salaries, with many demonstrations being staged in the industrialized regions (Luna and Villarreal 1994a).

In the 1920s, feminist movements were already a reality in the rest of Latin America and the world, spreading through a contagion effect (Bonilla 2007). This ideology had been established in Colombia thanks to several elite women who had travelled and studied in other countries (Luna 2001; Luna and Villarreal 1994a). By that time, many intellectual men and women among the liberal political elite began to participate in the feminist forums of the time. In 1928, for example, Enrique Olaya Herra, who became President of Colombia in 1930, attended the Inter-American Conference in Cuba, sensible of the realities for women in Colombia (Luna and Villarreal 1994a).

In the 1930s, feminist movements coincided with a period of sharp recessions in several Latin American countries after the global crisis of 1929. The validity of the agro-export model was questioned. As a result, Liberal governments implemented a policy of regulation and modernization based on national industry. The aim was to strengthen the domestic industry and reduce social differences (Forero 1995). The new regulatory policies implied that the state both allowed and protected the flourishing of organized and robust unionism that was capable of negotiating with employers over labour conditions and remuneration (Reyes and Saavedra 2005). As this project, called "The Revolution in Progress" (*La Revolución en Marcha*), required profound changes in

education and in economic, political and social programmes, it was necessary to improve the training of the workforce and of those who trained it (Gorroño Martínez 2003).

Women took advantage of this need to claim economic and social rights, especially in education. The women of the elite publicly supported the Olaya Herrera campaign, gave him strategic, organizational and financial support, which allowed him to win the elections. In return, women demanded real changes in their situation (Zapata-Hincapié 2019).

In 1930, President Olaya's first response to feminist claims was the holding of the IV International Women's Congress in the city of Bogotá. From this Congress, a project emerged to abolish the Law on the marriage bar led by Ofelia Uribe Costa, a suffragist leader of the time. This bill was passed in 1932, since when women have been allowed to freely dispose of their assets and have been able to sign contracts (Luna 2001). Once women obtained the right to manage their own incomes, the Colombian suffragists, again spearheaded by Ofelia Herrera, began a struggle for culture and higher education. In 1932 and 1933, Olaya Herrera's government approved several educational reforms that equated women's education with men's, and women were also granted access to tertiary education.

As in Colombia, other countries also reformed their paternalistic regimes during the first three decades of the twentieth century: Mexico in 1917, Chile in 1925 and Argentina in 1926 (Gómez Molina 2016). In Mexico and Argentina, the change in the law responded more to political interests, while Chile's experience is more similar to Colombia's. Although this does not mean that feminist ideas did not have a central role in legal changes in Chile, it was not the only force behind the reforms. By contrast, economic interests and the need for skilled labour outweighed feminist demands. This forced the incorporation of women into literature, the arts, industry, commerce and public administration, creating a need for schools for women's education, as well as granting them access to the universities (Gómez Molina 2016).

4.3.2 Female education and the main transformations and concerns of the education system

During the colonial era in Latin America, little attention was paid to women's education. The debate about whether or not to educate women and the type of instruction they should receive lasted throughout the nineteenth century and well into the twentieth (Londoño Vega 1994). Only elite women received a basic education enabling them to read, count, sew, weave, embroider and pray. After Independence, this regime slowly began to give way to the idea that women should be educated so they could bring up their children better (Ramírez and Salazar 2007). During the nineteenth century, female education focused on teaching grooming habits, good manners and a proper diet, while the little academic content girls received emphasized the learning of languages and literature, mainly with the aid of religious books and classical literature (García and Guerrero 2014). As a real exception, women were authorized to undertake teacher

training at the end of the nineteenth century, and in 1903 women's teaching schools were set up in departmental capitals (Atehortúa and Rojas 2005).

At the beginning of the twentieth century, Law 39 of 1903 and Decree 491 of 1904 defined the new characteristics of the education system. Public education was segregated by gender and organized by the Catholic Church in primary and secondary schools (Ramírez and Téllez 2007). Educational programmes were also segregated by gender. In female primary education, unlike boys, who received a full academic education, girls learned to embroider, cut and sew, as well as ideas about decoration and making cakes. Secondary school was divided into academic and vocational education (commerce, nursing and crafts,) and teacher training. Within the education system, women were denied access to academic secondary school and tertiary education. By the same token, in primary education, girls only learned the Spanish language, mathematics, history and geography at the most basic levels.

When it came to implementing education, the main cost was imposed on local government (departments), as was the responsibility of hiring teachers. The construction of schools was handed over to the municipalities. The central government merely undertook inspections, provided teaching materials and school supplies to primary schools, and funded a secondary school in each department, as indicated in chapter 2. As for secondary education, the central government financed one school for boys and one for girls in each department, except that if the central government lacked the resources to establish them, it was the departmental governments who assumed responsibility. In most cases, the central government prioritized the establishment of secondary schools for boys and not for girls (Helg 2001).

The state's lack of interest in the central government promoting female education resulted in fewer schools for girls, especially as far as secondary education was concerned. For this reason, female Catholic congregations dedicated themselves to promoting women's education in private schools. In general, the congregations offered a very undemanding Catholic primary and secondary education for young women from all local elites in the country.[54] There was also a special interest in promoting secondary education for women. According to the legislation, since 1910, all departments in Colombia were to have two teaching schools, one for boys and one for girls. In 1919, the 28 teacher training schools in the country had 1,228 students: 484 boys and 744 girls, mostly concentrated in the capitals of Antioquia, Boyacá and Bogotá.[55] At that time, teacher training institutions provided the most complete secondary education available, as women were allowed to follow a socially recognized profession that also represented one of the few possible job opportunities for women. Otherwise, their only options were marriage, sewing or entering a religious order (Helg 2001).

[54] See Williamson (1988).

[55] Ibid.

As explained above, thanks to pressure from elite women during President Olaya Herrera's term of office, Decrees 1487 and 1972 were approved in 1932 and 1933 respectively. These educational reforms provided that the contents of primary and secondary teaching had to be the same for boys and girls. Until then, the quality of girls' educational programmes was much lower than that for boys, with almost no scientific training.[56] As for female secondary education, from now on, the academic programme would have to extend to six years, as many years as for male education. In addition, Decree 227 of 1933 allowed women access to tertiary education. Finally, in 1936 the National Congress enacted Law 32, which prohibited all kinds of discrimination based on sex, race or religion when it came to entering educational establishments.

Although during the first years of the Liberal Republic there was significant legal interest in strengthening female education, the latter was affected by a reduction in the national education budget due in part to the economic recession, as described in Chapter 2. While in 1929 the ministry was responsible for 8.6% of the total costs, this fell to only 2% in 1933. After 1934 this percentage increased again, reaching levels of between 6% and 8%.[57] Another problem that education had to face at that time was the reduction in enrollment rates in primary education in some departments, especially among coffee-growers due to the use of child labour, as described in Chapter 3. Despite this, at the end of the Liberal Republic, in 1946, nearly half a million women were receiving an education (Herrera and Cortés 1999).

Since there are no empirical studies comparing the impact of the reforms on female education, this work is the first empirical study to relate the acquisition of such rights to educational outcomes.

4.4 Data and descriptive analysis

The main objective of this work is to prove that greater economic and social rights are associated with a narrowing of the gender gap in education. In order to meet this objective, annual data were collected on the number of students enrolled in primary and secondary education for the period 1905-1958. In constructing the series for enrolled students, as was done in Chapters I, data from the Yearbooks of the Ministry of Education (*Memorias del Ministerio de Educación*) from 1910 to 1958 and the Colombian Statistical Yearbooks of the National Administrative Department of Statistics (*Departamento Administrativo Nacional de Estadísitica*, hereafter DANE) were used. In estimating the number of children of school age, population censuses between 1905 and 1964 were used.[58] Enrollment data covered nineteen departments for primary and

[56] Law 39 of 1903 and Decree 491 of 1904.

[57] (Herrera 1993).

[58] For more details about the construction of these series, see Chapter 1.

secondary school since data for some departments were not available. All series were constructed on an annual basis.

Moreover, to provide internationally comparable data, I have adapted data on the Colombian education system in the first half of the twentieth century to the International Normalized Classification of Education (ISCED) of 2011 for both primary and secondary school.[59] Since secondary education had several programmes, educational levels were grouped into three categories: academic, vocational and teaching.[60]

Because of the change in territorial boundaries, I also follow the same criteria used in Chapter 1. On the one hand, I use the territorial order that existed in 1942 because this was what prevailed with slight changes between 1912-1954. On the other hand, in the case of a territory that was divided into two or more units, the largest territorial division was retained. Although during this period, there were different degrees of fiscal autonomy, all territorial divisions will be called "departments" to facilitate interpreting the analyses, since administrative differentiation is not a major theme of this work.[61]

The ages of the school population have been estimated at between five and fourteen years for primary schools and between fifteen and nineteen for secondary schools, using exponential population growth based on the Population Censuses of 1905, 1912, 1918, 1928, 1938, 1958 and 1964.

4.4.1 Analyzing the series

Figure 4.1 shows the enrollment rates in primary school for 1905-1958, disaggregated by gender and departments. Overall, a general decrease in the enrollment rates of girls and boys in primary school is observed between the early 1930s and the late 1940s, which could be related to the economic recession mentioned earlier. Despite this, the series also shows a relatively "small" gender gap in terms of enrollment during the first half of the twentieth century in most departments. However, as mentioned earlier, it should be emphasized that the content of female education was substantially different from that of male education, possibly giving a biased impression of female participation in the education system. As Helg (2001) explains, male establishments prepared children for high school and thus university. Female establishments, conversely, distributed certificates or diplomas that did not give young women the possibility of access to secondary education but only to basic education as teachers, seamstresses or

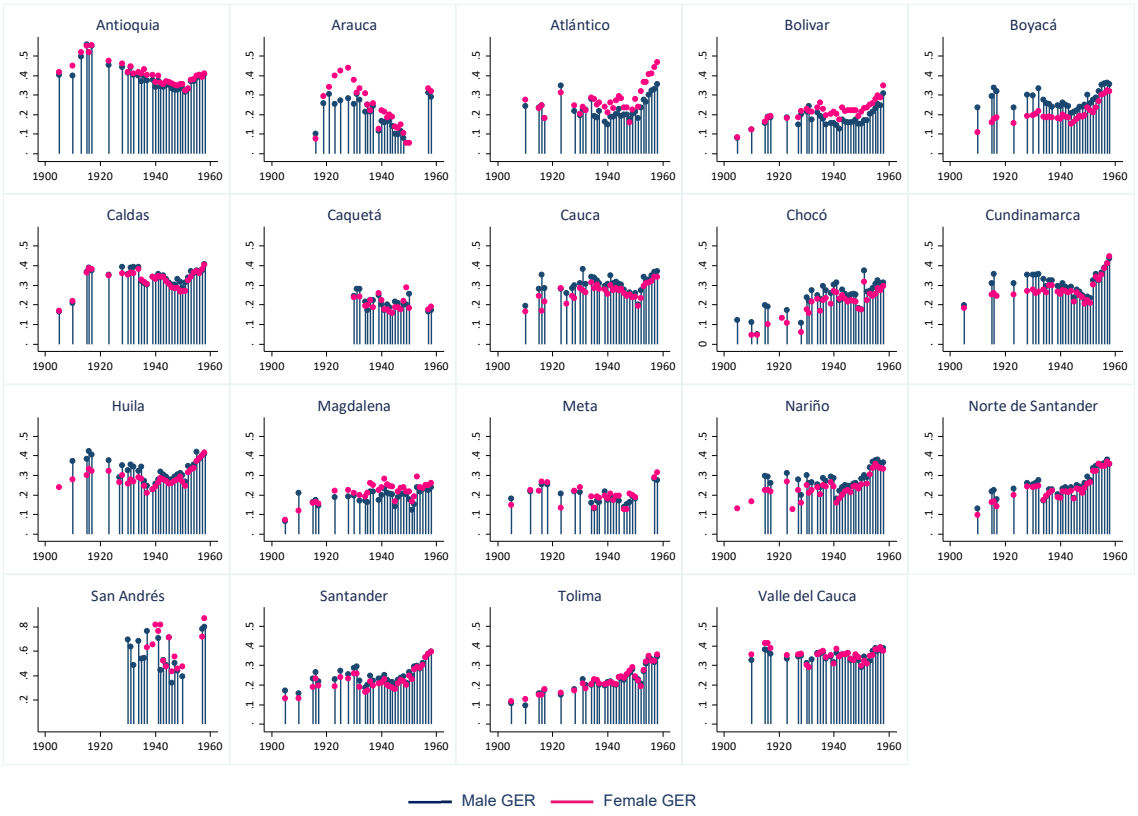
[59] More details in Chapter 1.

[60] Academic schools were divided into Schools of Sciences and Schools of Philosophy and Letters. Vocational secondary education was divided into three sections: Industrial Preparatory Section, Commerce Preparatory Section, and the Arts and Crafts School. Finally, teacher training aimed to train teachers in the basic knowledge required for teaching at the primary level.

[61] The Constitution of 1886 established the territorial organization that existed until 1991, when the country was organized territorially into departments and national territories. The latter lacked the capacity for self-government and were administered by the central government.

homemakers. Likewise, most schools for girls were run by private Catholic congregations and unlike boys' schools were not public schools but were where girls received religious instruction, as well as learning knitting, sewing and embroidery (Vos Obeso 1999). This situation is perfectly reflected in the case of Arauca, a mostly indigenous region, where the national government gave the church the responsibility for educating the local population. One plausible explanation for this can be found in the Yearbook of the Ministry of Education for 1920, which states that particular attention was given to the teaching of indigenous weavers to help boost a small local industry, this being an area of great female interest at the time[62].

Figure 4. 1.Male and female gross enrollment rates in primary school by department, 1905-1958.



Source: see text.

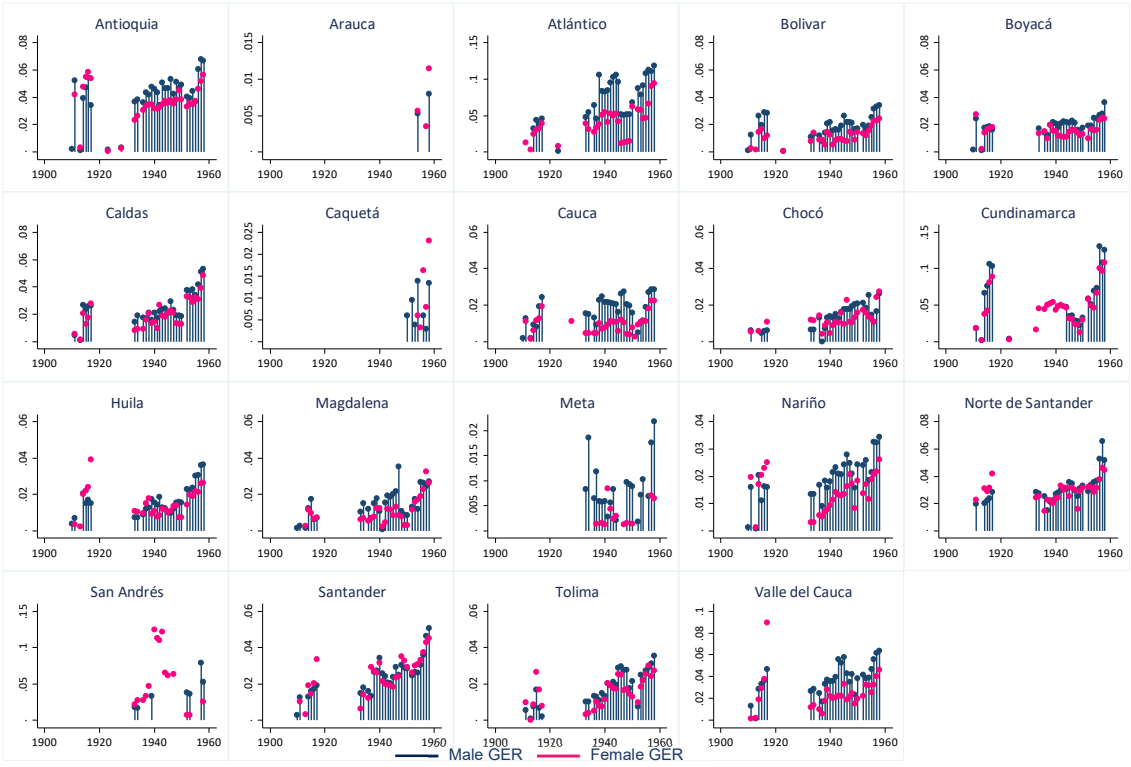
In addition, the departments located on the Caribbean coast, such as Atlántico, Bolívar, San Andrés and Magdalena, showed higher female enrollment rates compared to male rates in most of this period. No one historical reason was found to explain it, but as we have already seen, based on the relevant literature Ellis (2003) explains that, unlike the rest of Latin America, non-Hispanic Caribbean societies have lower gaps in education. The author attributes this to the fact that the differences between male and female slaves were lower in labour terms since Caribbean women worked and contributed to their families' incomes. Therefore, placing emphasis on the fact that the Colombian Caribbean has a strong slave heritage (Jaramillo 1989, 129), it is understandable that these

[62] Yearbook of the Ministry of Education 1920, p. 7.

departments followed a different pattern from the rest of the country, one more similar to the situation in Caribbean countries.

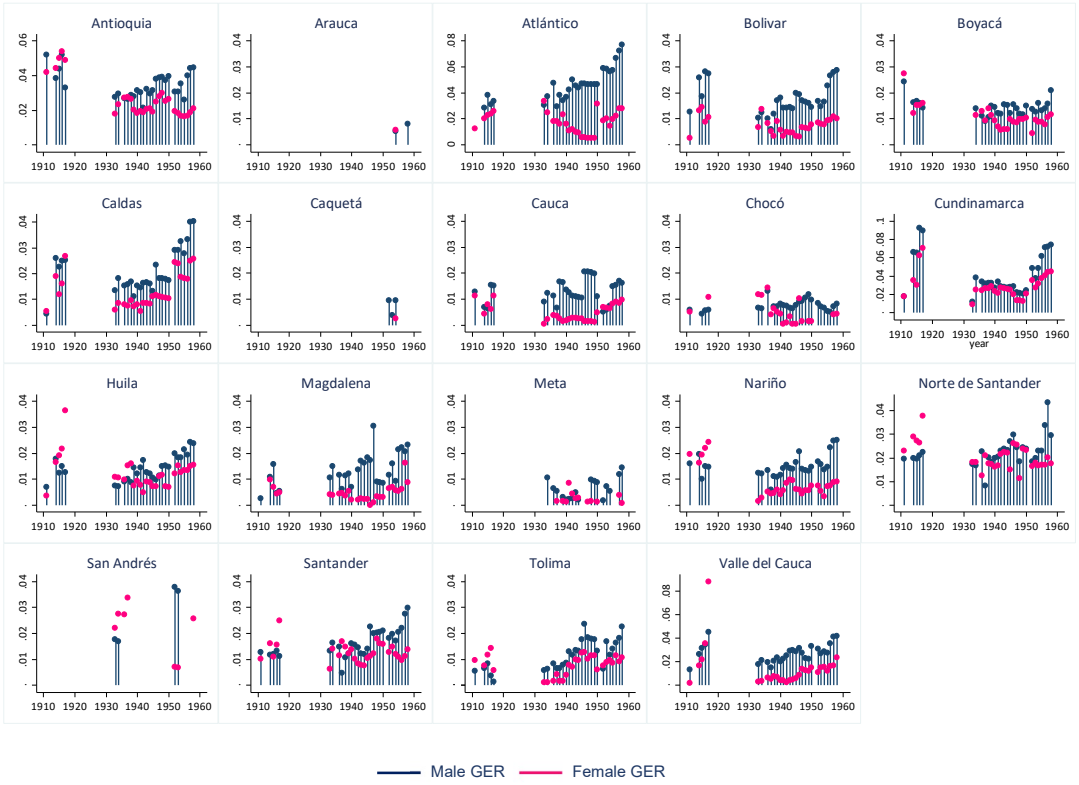
Regarding secondary education, Figure 4.2 gives male and female gross total enrollment rates by department for 1905-1958, including academic, vocational and teacher training programmes. The series show a sizeable general gender gap for the entire period in most departments, unlike what is observed in primary education. Likewise, from the 1930s, there is no clear decrease in the gender gap. If we analyze the gender gap in each of the educational programmes, the series show different patterns depending on the training programme. On the one hand, looking at figures relating to academic education, which is what gives access to tertiary education, we see that the gender gap is much higher and that it does not fall after the adoption of laws in favour of women (Figure 4.3). On the contrary, in most cases, this gap even increases in the first three decades of the century. On the other hand, focusing on the vocational and teaching enrollment rates in Figures 4.4 and 4.5, we see a substantial increase in female enrolment rates after the granting of female rights, which is especially high in the teacher training programme.

Figure 4.2. Male and female gross enrollment rates in secondary school bydepartment, 1905-1958.



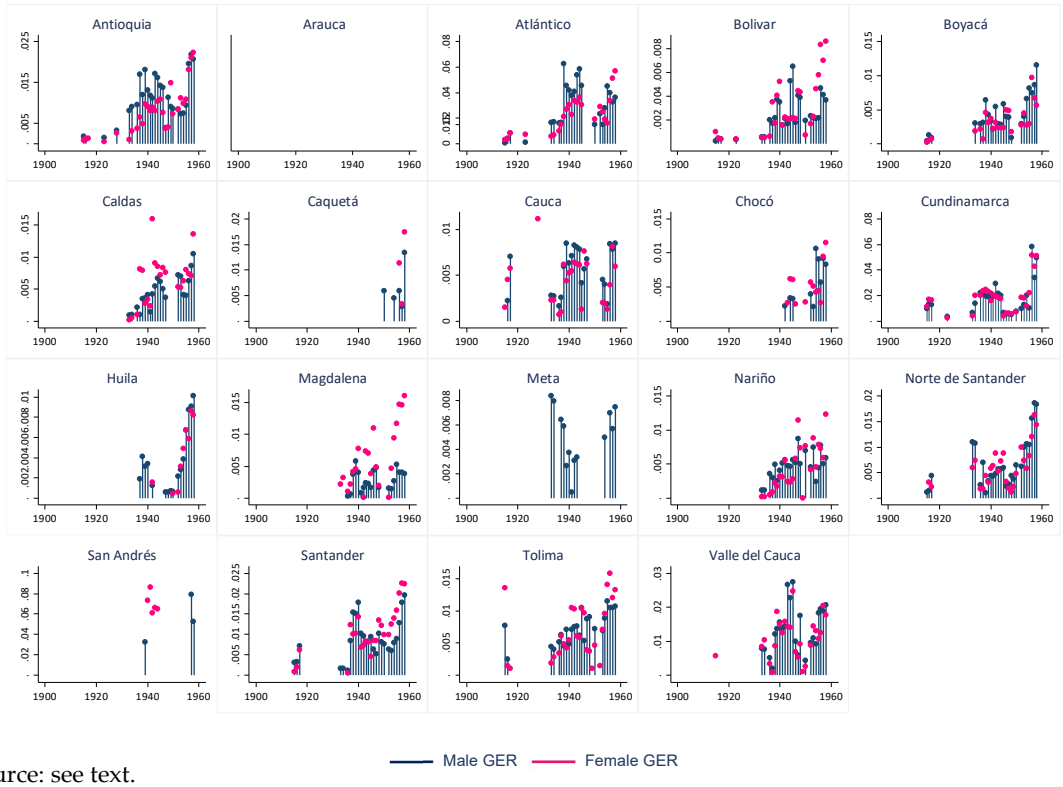
Source: see text.

Figure 4.3. Male and female gross enrollment rates in academic secondary school by department, 1905-1958.



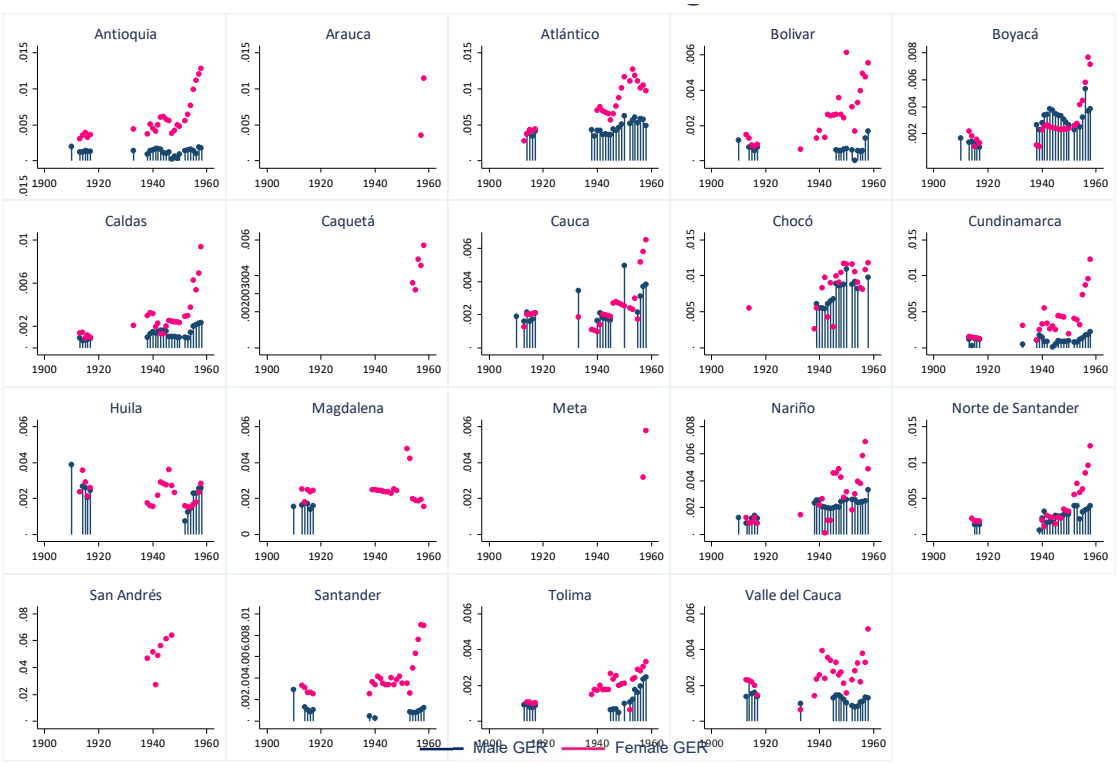
Source: see text.

Figure 4.4. Male and female gross enrollment rates in vocational secondary school by department, 1905-1958.



Source: see text.

Figure 4.5. Male and female gross enrollment rates in teacher training in secondary school by department, 1905-1958.



Source: see text.

From the above, we can make the following conclusions. First, although there was no significant increase in female enrollment in total secondary education, some changes are observed concerning educational programmes. Second, even though the change in educational legislation allowed women to access academic training, this change does not reflect an increase in female enrollment in this educational programme: on the contrary, there was a significant increase in non-academic programmes, especially in teacher training.

How is this possible, given that the law made it possible for women to carry out secondary studies on equal terms with men and women focused on non-academic training? Vos (1999) suggests that the law went in one direction and customs in another. Colombian society was highly resistant to change. Table 4.2 gives figures for the number of boys and girls who graduated from academic secondary education in 1934-1938. What we see is that, despite the new educational law allowing women access to this type of training, which also gave them access to university, the number of girls who graduated was infinitely fewer than the number of boys, reaching only 3% of the boys in the best year. This shows that there were other factors involved beyond the legal restrictions, for example, social, moral, or religious factors pushing women to choose this type of education.

Table 4.2. Students graduated from academic secondary school, 1934-1938.

	Men	Women
1934	256	
1935	649	
1936	539	1
1937	595	19
1938	434	9*
	2473	29

Source: Yearbook of the Ministry of Education for 1938. Note: * female students graduated by April 30.

Moreover, as the Catholic Church believed that men and women should study separately, they opposed co-education and mixed universities. As a result, clearly, society did not view women entering university and studying with men positively. This problem was identified in 1946 by the then education minister, Germán Arciniégas, who states in the Yearbooks of the Ministry of Education that many women were graduating from academic secondary education, but that only 10% had been given access to university. To solve this problem, universities for women, known as Senior Colleges, were created in which women could study professional careers recognized by society and did not have to go to mixed or conventional universities[63].

Finally, it should be emphasized that the increase in female teaching in secondary school could be understood as a form of female empowerment since teaching became a significant labour opportunity for women and has always been considered a respectable profession (Helg 2001). From the 1930s, we witness the feminization of the teaching profession. Gaitán and Gómez (2017) point out that between 1934 and 1958, the number of female teachers in primary education increased roughly fourfold, from 7,111 to 29,787. Likewise, although total feminization is not seen in work related to vocational training, a greater female presence can be observed in, for example, postal, telegraphic, telephone and clerical communications. According to population censuses, in 1938 women were 15.8% (1,089) of those working in the service sector, while in 1951 they were 27% (24,283) of the total number of workers.

4.5 Econometric analysis

To test the hypothesis that the granting of economic and educational rights to women is associated with a narrowing of the gender gap in education, I propose a panel-data regression as an empirical strategy. The dependent variable is the gap in enrollment rates (male enrollment rate minus female enrollment rate) for primary school due to a lack of data for secondary education in many departments before 1933. Also, male and female enrollment rates (hereafter GER) will be examined in order to understand the mechanisms behind the performance of the gap. The empirical model includes

[63] Yearbook of the Ministry of Education for Yearbook of the Ministry of Education for 1946, pp. 39-43.

department fixed effects to account for the fact that different departments are likely to have consistently different enrollment rates. Therefore the models I propose are as follows:

$$Male - Female\ GER_{it} = \beta X_{it} + \theta Law\ Indicator_{it} + trend_i + v_i + +\varepsilon_{it} \quad (4.1)$$

$$Female\ GER_{it} = \beta X_{it} + \theta Law\ Indicator_{it} + trend_i + v_i + +\varepsilon_{it} \quad (4.2)$$

$$Male\ GER_{it} = \beta X_{it} + \theta Law\ Indicator_{it} + trend_i + v_i + +\varepsilon_{it} \quad (4.3)$$

Where i=1,…, n indexes the department, and t = 1905, 1906,1907,…,1958. The term X_{it} is a vector of exogenous variables (controls, discussed below); $Law\ Indicator_{it}$ is a dummy variable from which laws related to the economic situation of women and changes in educational laws are passed. Although the education law was passed in 1932 and the laws about economic rights in 1933, I have decided to take 1933 as a reference year because of the special interest that educational changes generate for this work. The variables v_i indicates fixed spatial controls, and ε_{it} is a random error term. A $trend$ variable was also included for each department to control the growth of the GER over time, defined as $nT \times i$, where nT is the year (1904, 1905…1958) and i corresponds to every department.

Finally, it is expected that, although the post-1930 period is associated with a reduction in school enrollment rates in most departments, as shown in Chapter 2, the passage of the legislation would have attenuated female de-schooling, thus reducing the gender gap in primary education.

Regressions have been controlled by demographic variables such as the percentage of women of school age from five to fourteen years, as well as of men if applicable, and the total population based on the population censuses of 1928, 1938, 1958 and 1964. Exponential growth curves have been estimated based on four points in the years indicated for each department to obtain annual records of the school census.[64] Since most of the population by that time were rural dwellers (Ocampo 1999; p. 244), it is expected that higher population and lower enrollment rates due to population would be very scattered.[65]

A control related to fiscal autonomy was also included as a dummy variable where 1 corresponds to the territories that were allowed to collect and manage taxes. Some territories had a lot of autonomy from the beginning of the period, while others obtained

[64] More details about population estimates can be found in Chapters 1 and 2.

[65] Literacy rates and average educational attainment levels tend to be higher in urban areas than in rural areas (Williamson 1988).

it throughout the period.[66] It was not possible to include a control for urbanization since such information is not available for the period before 1928.

Finally, the regressions were also controlled by departmental educational expenditure, since, until the end of the 1950s, the most significant weight of funding was assumed by the departmental governments, as explained in Chapter 1. Because no price indexes have been created for this period, it was not possible to convert educational expenses from current to constant, so these expenses were estimated as a percentage of total revenues.

[66] The lack of full fiscal autonomy did not necessarily imply that a territory had no income or no decision-making capacity, only that the income depended on national transfers, as shown the departmental budgets in the statistical yearbooks.

Table 4.3.Summary statistics for regression variables.

Variables	Description	Obs	Mean	Std. Dev.	Min	Max
Female GER	Total girls enrolled in primary school divided by the total of girls aged 5-14.	598	.275	.138	.044	1.952
Male GER	Total boys enrolled in primary school divided by the total of boys aged 5-14.	594	.277	.098	.0473	.802
Male GER- female GER	Male minus female enrollment rate in primary school.	583	.006	.044	-.377	.186
Law indicator	Dummy variable equal to one for the period 1933-1958.	1026	.481	.499	0	1
Total population	Total population by department.	1020	429,480.2	402,088.2	1,647	2,145,912
% girls 5-14 yrs	Total girls aged 5-14 divided by the total of women.	1020	.237	.044	.065	.329
% boys 5-14 yrs	Total boys aged 5-14 divided by the total of men.	1020	.248	.039	.081	.332
Child dependency ratio	Total children aged 5-14 divided by the total population.	1020	.242	.0401	.073	.321
Ratio boy/girl 5-14 yrs	Total boys aged 5-14 divided by total girls aged 5-14.	1026	1.040	.057	.057	1.337
Fiscal autonomy	Dummy variable equal to one in departments with plenty of fiscal autonomy.	1350	.540	.498	0	1
% departmental educational expenditure/total revenues	Total departmental education expenditure divided by total revenues.	619	.788	10.829	.005	230.693

Source: see text.

4.6 Empirical strategy results

Table 4.4 gives the estimates of equations (4.1), (4.2) and (4.3) for female and male enrollment rates in primary school, as well as the gender gap. Models 1 and 2 show the impact of the granting of economic and educational rights in female and male GER respectively. Model 3 shows the impact of the Law Indicator on the gender gap in primary school.

Table 4.4. Panel data. Effects of the granting of economic and social rights to women on the gross male and female enrollment rates in primary school and on the gender gap, 1905-1958.

	(1)	(2)	(3)
VARIABLES	Female GER	Male GER	Gap in GER (Male-female GER)
Law indicator	-0.0328***	-0.0529***	-0.0205***
	(-3.878)	(0.00709)	(0.00268)
Trend	0.000186***	0.000214***	2.34e-05***
	(6.600)	(2.32e-05)	(8.79e-06)
Total population	2.13e-08	-2.41e-08	-6.09e-09
	(1.022)	(1.74e-08)	(7.01e-09)
% girls 5-14 yrs	0.0248		
	(0.114)		
% boys 5-14 yrs		0.418**	
		(0.178)	
Ratio boys/girls 5-14 yrs			-0.259***
			(0.0445)
Child dependency			-0.207***
			(0.0769)
Fiscal autonomy	0.0556**	0.0256	-0.0124
	(2.224)	(0.0213)	(0.00831)
% departmental educational expenditure/ total revenues	0.000230	0.000154	-2.06e-05
	(1.212)	(0.000157)	(5.91e-05)
Constant	-4.296***	-5.024***	-0.205
	(-6.441)	(0.555)	(0.210)
Regional fixed effects	✓	✓	✓
Observations	421	420	415
R-squared	0.199	0.257	0.370
Number of deparments	19	19	19
F	16.40	22.79	32.58

t-statistics in brackets
*** p<0.01, ** p<0.05, * p<0.1

The estimates, as expected, show that the Law Indicator is associated with a general decrease in enrollment rates for both women and men, probably because this coincides with the period of decline in the national education budget. Despite this, if we observe

the coefficient of the Law Indicator, the female GER model (1) is smaller than the male GER (2). This means that, although the period after the laws were passed had a less negative impact on the enrollment rate, it was much less on the female GER than on the male GER.

Regarding the narrowing of the gender gap in primary education, model 3 shows that the Law Indicator is negative and significant, indicating that, after the legislation was passed, the difference between the school enrollment rate of boys and that of girls is narrowed. According to the results, starting in 1933, the gap between boys and girls enrolled in primary education decreased by an average of 0.0205%. I interpret this by stating that, as expected, the granting of female rights should have a greater impact on the female demand for education because it only affects the expectations of future earnings by women, as Becker (1962) suggests.

Finally, different patterns are observed between the centre and the periphery of the country. Having department status is associated with higher female enrollment rates, or being a National Territory is associated with a disadvantage in terms of female education.

4.6.1 Robustness check

Two models have been estimated to test robustness. First, a falsification test has been estimated. Later, models with the Law Indicator variable lagged by several periods were also estimated. Both robustness checks are explained below.

First, a placebo was introduced to demonstrate that decreases in the gender gap in primary school are associated with the granting of economic and educational rights to women. For this purpose, a regression model was estimated replacing the Law Indicator for the period 1933-1958 with a "false" indicator or placebo for the period 1927-1932. At the same time, another placebo test was conducted for the period 1933-1937. The dependent variable is the *gender gap* in primary education, which includes the same controls as those used in previous models. The models are as follows:

$$Gender\ gap_{it} = \beta X_{it} + \theta Dummy\ 1927 - 1932_{it} + trend_i + v_i + u_t + \varepsilon_{it} \quad (4.4)$$

$$Gender\ gap_{it} = \beta X_{it} + \theta Dummy\ 1933 - 1937_{it} + trend_i + v_i + u_t + \varepsilon_{it} \quad (4.5)$$

where $Gender\ gap = Male\ GER - Female\ GER$.

The test involves demonstrating that the effect does not exist when it "should not" exist, so the dummy variable for the period 1927-1932 is expected to be positive. In other words, this period is associated with a greater gender gap in primary education, its narrowing responding to the passage of the relevant legislation. Conversely, it is expected that the dummy variable for the period 1933-1937 will be negative and significant as an initial response to the change in the economic and social status of women.

Table 5 provides estimates of equations (4.4) and (4.5) that are broadly similar to those reported in Table 4.5 As was expected, the dummy variable for the period 1927-1932 positively affects the gender gap in primary education, and the dummy variable 1933-1937 works as expected, since the coefficient is negative and significant. As a result, the decrease in the gender gap does not seem to respond to the passage of time but to the adoption of the relevant legislation.

Table 4.5. Robustness check. Effects of the granting of economic and social rights to women on the gender gap, 1905-1958.

VARIABLES	(1) Gap in GER (Male-female GER)	(2) Gap in GER (Male-female GER)
Dummy 1927-1932	0.0189***	
	(7.275)	
Dummy 1933-1937		-0.00877***
		(0.00249)
Trend	1.52e-05*	-1.82e-06
	(1.765)	(8.78e-06)
Total population	-1.03e-08	-1.92e-08**
	(-1.337)	(8.07e-09)
Ratio boys/girls 5-14 years	0.309***	0.354***
	(4.909)	(0.0660)
Child dependency	-0.210**	-0.260***
	(-2.475)	(0.0887)
Fiscal autonomy	-0.0140	-0.0181**
	(-1.610)	(0.00911)
% departmental educational expenditure/ total revenues	-1.38e-05	-4.01e-06
	(-0.228)	(6.32e-05)
Constant	-0.588***	-0.193
	(-2.645)	(0.228)
Regional fixed effects	✓	✓
Observations	415	415
R-squared	0.344	0.278
Number of departments	19	19
F	29.14	21.38

t-statistics in brackets
*** p<0.01, ** p<0.05, * p<0.1

The second robustness check involves lagging the variable Law Indicator for one, three and five periods. The objective of this check is to test the hypothesis that legislative approval has an immediate impact on reducing the gender gap because of the higher demand for female education, as observed in the previous results. The effect of passing laws is expected to have less impact after a few years in terms of the gender gap since it

will have been considerably reduced in the initial stages, so the coefficient of the lagged variable should tend to zero the further it lags. The models are as follows:

$$Gender\ gap_{it} = \beta X_{it} + \theta Law\ Indicator_{it+1} + trend_i + v_i + u_t + \varepsilon_{it} \quad (4.6)$$

$$Gender\ gap_{it} = \beta X_{it} + \theta Law\ Indicator_{it+3} + trend_i + v_i + u_t + \varepsilon_{it} \quad (4.7)$$

$$Gender\ gap_{it} = \beta X_{it} + \theta Law\ Indicator_{it+5} + trend_i + v_i + u_t + \varepsilon_{it} \quad (4.8)$$

Table 4.6 provides estimates for equations (4.6), (4.7), and (4.8), as reported in Table 4. As expected, the coefficient of the Law Indicator, despite remaining negative and significant with lagging variable one, three and five years, tends to zero. This means that, as expected, as the years passed, the gap became smaller. Also, both R-squared and F statistical are higher, the less lagged the variable. Therefore, the less lagged the Law Indicator, the better it explains the gender gap. Following the logic of the results obtained in Table 3, it can be deduced that, although there is a period of enrollment contraction in primary education from the 1930s, there was a higher enrollment of girls compared to boys[67].

Table 4.6. Robustness check. Effects of granting women economic and social rights on the gender gap lagged one, three and five years, 1905-1958.

VARIABLES	(1) Gap in GER (Male-female GER)	(2) Gap in GER (Male-female GER)	(3) Gap in GER (Male-female GER)
Law indicator *t+1*	-0.0205***		
	(0.00268)		
Law indicator *t+3*		-0.0198***	
		(0.00264)	
Law indicator *t+5*			-0.0111***
			(0.00278)
Trend	2.34e-05***	2.46e-05***	1.40e-05
	(8.79e-06)	(8.90e-06)	(9.47e-06)
Total population	-6.09e-09	-4.60e-09	-5.35e-09
	(7.01e-09)	(7.05e-09)	(7.47e-09)
Ratio boys/girls 5-14 yrs	-0.259***	-0.255***	-0.264***
	(0.0445)	(0.0447)	(0.0471)
Child dependency	-0.207***	-0.205***	-0.241***
	(0.0769)	(0.0772)	(0.0812)
Fiscal autonomy	-0.0124	-0.0131	-0.0145*
	(0.00831)	(0.00833)	(0.00873)
% departmental educational expenditure/ total revenues	-2.06e-05	-2.06e-05	-1.26e-05
	(5.91e-05)	(5.93e-05)	(6.21e-05)

[67] For the impact of lagged variables by gender, see Appendix 4A.

Constant	-0.205	-0.242	0.0297
	(0.210)	(0.213)	(0.229)
Regional fixed effects	✓	✓	✓
Observations	415	415	415
R-squared	0.370	0.366	0.303
Number of departments	19	19	19
F	32.58	32.08	24.19

t-statistics in brackets
*** p<0.01, ** p<0.05, * p<0.1

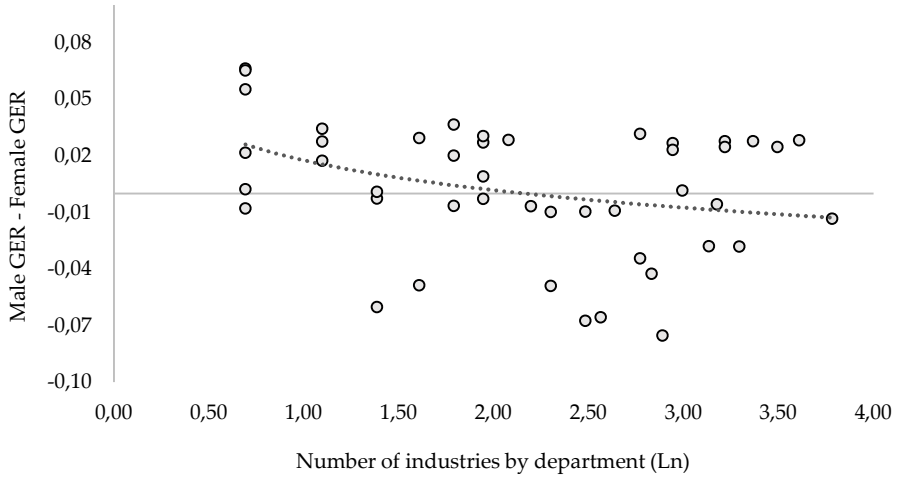
4.7 Explaining the mechanisms behind the improvement in female GER in primary education

Based on Becker (1962), the main mechanism that might increase the female GER in primary school may be linked to a change in the female demand for education, since a change in expectations of future incomes affects present decisions to invest in human capital.

In line with the previous idea, the first part of the explanation is related to the changes in the female demand for education that seems to have arisen in response to the structural change in the Colombian economy, just as happened in Chile. In the 1920s and 1930s, Colombia began a process of industrialization that led to an increase in the demand for labour. Despite this, women's education was insufficient to face the economic and social changes that this process brought with it (López-Uribe and Quintero 2017). In the 1930s, after the crisis of 1929, the Liberal Party won the elections. The new government decided to modernize the economy through industrial development and the potential of the internal market to overcome the crisis (Reyes Cárdenas and Saavedra Restrepo 2005). This situation required more qualified labour. As mentioned above, during the 1930s many industries opted for female labour (cigarette companies, textile mills, coffee-threshers), either because of the needs of the industry itself, or because women's wages were lower. This need, coupled with feminist pressures, therefore resulted in a change to women's economic and social status.

Until 1932, women's education was lower in quality than that of men. As a result, women had little expectation of being able to access more highly skilled jobs in the new industries, so they engaged in lower-skilled, lower-paid jobs. After the change in the education law, this barrier for women disappeared. Also, not only did the change in women's education seems to have stimulated the demand for education, they had acquired new rights to sign contracts and manage their own earnings with the abolition of the marital license. Figure 4.6 shows the correlation between the number of industries by department and the gender gap in primary education for selected years after the passing of the relevant legislation. What we observe in general terms is that the higher the number of industries, the smaller the gender gap.

Figure 4.6. Correlation between the number of industries and the gender gap in primary education, all departments included for the years 1936, 1937, 1938 and, 1943



Source: for educational data, see text. The information on the number of industries is from the Statistical Yearbooks for 1936, 1937, 1938, and 1943.

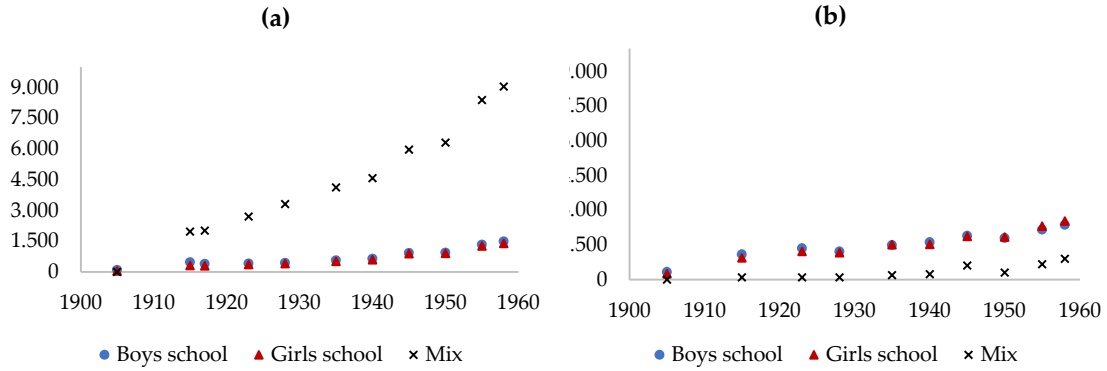
The second part of the explanation for the possible changes in the female demand for education emerges as a consequence of the previous process. While the enrollment rate tended to decrease between the 1930s and the mid-1940s in most departments, thereafter it began to increase much more than at the beginning of the century. Therefore, just as the increase in the demand for skilled workers could also motivate the demand for male education, so an increase in the demand for both male and female education would increase the demand for teachers to train them (López-Uribe and Quintero 2017). As explained above, as it was socially acceptable for women to be involved in the teaching profession, this profession would end up being one of the main spaces for female labour participation after the change in the law.

4.7.1 The mechanism for the incorporation of women in the educational system

Finally, it is crucial to understand the tool that allowed the integration of women into the educational system. For this purpose, I have analyzed the evolution of the supply of education through the construction of schools. Figure 4.7 gives figures for the growth in the number of primary schools for boys, girls and mixed in both rural and urban areas. The series shows that, although there was no significant increase in the number of girls' schools, there was substantial growth in mixed schools.

The above seems to indicate that women's access to the type of education that was previously the exclusive preserve of men was provided through the establishment of a mixed school model. Likewise, mixed schools spread much more in rural areas than in urban areas, where resources tend to be much less scarce.

Figure 4.7. Growth in the number of primary schools for boys, girls and mixed in rural (a) and urban (b) areas, 1915-1958.



Source: Yearbooks of the Ministry of Education for 1911, 1917, 1924 and 1932; and Statistical Yearbooks for 1940, 1945, 1950, 1955 and 1958.

4.8 Conclusions

This chapter has examined the effects of expanding women's economic and educational rights on the gender gap in education. I have focused on the 1930s in Colombia when the Liberal Party granted women the right to sign contracts and manage their assets, as well as guaranteeing an education of the same quality as that of men in both primary and secondary school. Using department-level panel data from 1905-1958, I estimate the effect of acts granting these rights on both male and female gross enrollment rates in primary school, as well on the difference between the male GER and the female GER. Because there are few observations for secondary education before 1932, it was not possible to replicate the analysis for this educational level, so a descriptive analysis was carried out instead.

The findings indicate that the period after the approval of the relevant laws is associated with a general decrease in enrollment rates for both men and women, probably because it coincides with the period of decline in the national education budget after the crisis of 1929. Despite this, we observed that the decrease in enrollment was smaller in the female GER than in the male GER. From the above, it can be deduced that, although the period after the approval of the laws is associated with a decrease in the primary-school enrollment rate, the passage of the laws might have attenuated the drop in the female GER, thus reducing the gender gap. I interpret this by stating, as expected, that the granting of female rights should have a more significant impact on the female demand for education because it only affects expectations of future earnings in women, as Becker (1962) suggests.

To check that the decrease of the gender gap in primary-school enrollment does not respond to the passage of time but to the adoption of laws, two robustness tests were carried out. First, a falsification test was done using two placebos for the periods 1927-1932 and 1933-1937. As expected, the placebo for the period 1927-1932 positively affects the gender gap. In contrast, the placebo for the period 1933-1945 works as expected, since

the coefficient is negative and significant. Therefore, the decrease in the gender gap does not seem to respond to the passage of time but to the adoption of the laws.

The second robustness check involves lagging the variable related to the passing of the laws for one, three and five periods. The estimates show that the coefficient of the variable, despite remaining negative and significant when lagging variables one, three and five years, tends to zero. This means that, as the years passed, the gap became smaller, and therefore the impact of the legislation tends to be less because the gap was already narrowing.

Regarding the effect on secondary education, descriptive analyses show no clear narrowing of the gender gap in total secondary school enrollments from the 1930s. On the contrary, different patterns depending on the type are observed. Concerning academic training, which is what gives access to tertiary education, we see that the gender gap does not decrease after the adoption of laws in favour of women. Regarding vocational and teacher training, there is a substantial increase in female enrollment rates after the granting of women's rights, this being even higher in the case of teacher training.

Overall, this work has shed light on how the most democratic institutions generate a greater accumulation of human capital in society. Likewise, the results obtained in this study corroborate the idea that the liberal reforms of the early twentieth century in Latin America contributed to the narrowing of the gender gap in education through the granting of rights to women, as suggested by Bértola and Ocampo (2012).

4.A Appendix 1.

Table 4A.1. Robustness check. Effects of granting women's economic and social rights on the gender gap in primary education lagged one, three and five years, 1905-1958.

VARIABLES	(1) Female GER	(2) Male GER	(3) Female GER	(4) Male GER	(5) Female GER	(6) Male GER
Law indicator *t+1*	-0.0328***	-0.0529***				
	(-3.878)	(0.00709)				
Law indicator *t+3*			-0.0345***	-0.0552***		
			(0.00829)	(0.00692)		
Law indicator *t+5*					-0.0388***	-0.0530***
					(0.00825)	(0.00699)
Trend	0.000186***	0.000214***	0.000192***	0.000224***	0.000202***	0.000227***
	(6.600)	(2.32e-05)	(2.84e-05)	(2.33e-05)	(2.87e-05)	(2.38e-05)
Total population	2.13e-08	-2.41e-08	2.44e-08	-2.01e-08	3.20e-08	-1.27e-08
	(1.022)	(1.74e-08)	(2.09e-08)	(1.73e-08)	(2.09e-08)	(1.76e-08)
% girls 5-14 yrs	0.0248		0.0457		0.0926	
	(0.114)		(0.217)		(0.217)	
% boys 5-14 yrs		0.418**		0.463***		0.496***
		(0.178)		(0.178)		(0.181)
Fiscal autonomy	0.0556**	0.0256	0.0543**	0.0232	0.0523**	0.0198
	(2.224)	(0.0213)	(0.0249)	(0.0211)	(0.0248)	(0.0213)
% departmental educational expenditure/ total revenues	0.000230	0.000154	0.000228	0.000151	0.000229	0.000157
	(1.212)	(0.000157)	(0.000189)	(0.000156)	(0.000188)	(0.000157)
Constant	-4.296***	-5.024***	-4.443***	-5.259***	-4.708***	-5.348***
	(-6.441)	(0.555)	(0.673)	(0.557)	(0.680)	(0.572)
Regional fixed effects						
Observations	421	420	421	420	421	420
R-squared	0.199	0.257	0.203	0.270	0.213	0.260
Number of departments	19	19	19	19	19	19
F	16.40	22.79	16.85	24.35	17.82	23.14

t-statistics in brackets

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

Conclusions

According to the Ministry of Education of Colombia, the national coverage rates for primary education were 91.11% in 2005 and 82.69% in 2017. Concerning secondary education, the coverage rates were 62.33% in 2005 and 71.66% in 2017. If, on the contrary, we look at the educational coverage ratios at the subnational level, according to data from the National Statistics Department, many departments on the periphery and in the rural areas of the country did not exceed 55% for primary and 25% for secondary in 2019.[68] When analyzing the male/female enrollment ratio, the statistics are more optimistic, since they range between 0.93 and 1.004 nationally and departmentally in both primary and secondary education.

This picture of educational coverage in Colombia today reflects several long-term historical processes in the economic, political and social spheres. These historical milestones had a direct and indirect impact on the supply of and demand for education, leading to consequences that could still be considered valid today. Therefore, this dissertation has focused on identifying the patterns and mechanisms that have brought us to where we are, learning about the decisions that were made and their implications for the accumulation of human capital.

The literature sees human capital as a fundamental determinant of economic growth (Mankiw *et al.* 1995). Goldin and Katz (2008) highlight the role of education in the development of a highly technological process that stimulated economic growth. Taking this into account, economic development in Latin America has been very uneven both between regions and within countries, especially in Colombia, which, according to the World Bank, ranks second in inequality after Brazil. Therefore, delving into the process of mass education allows us to identify some of the reasons why Latin America is one of the most unequal regions in the world, even more so than other developing regions such as East Asia and Sub-Saharan Africa (World Bank 2006).

Engerman and Sokoloff (2012) and Frankema (2009a) attribute the high levels of inequality to the path dependence of the colonial legacy. However, some authors have expressed doubts about the hypothesis of an early colonial heritage (Dobado-Gonzalez and García-Montero 2014). Williamson (2015) suggests that inequality in Latin America is actually a recent result since it was not very high after the conquest; indeed, it began during the first period of globalization and increased in the early twentieth century. Consequently, this dissertation has focused on the period 1900-1960, since this is when a decreasing trend in inequality can be observed internationally thanks to various labour and social welfare policies. However, Latin America did not take advantage of the so-

[68] According to DANE, the departments of Amazonas, Guanía, Vichada, Putumayo and Vaupés showed enrollment rates between 23% and 53% in primary education in 2019. In secondary education, the GER ranged between 25% and 60%.

called Great Leveling to reduce its inequalities (Lindert and Williamson 2016; Piketty 2014).

Based on the arguments presented here, this research has analyzed Colombia's performance in implementing specific policies such as the decentralization of education, changes in labour policies or their omission, and how these policies impacted on the expansion of mass education. In the same way, because Colombia is a very heterogeneous country with marked long-term regional inequalities (Bonet and Meisel Roca 1999; Galvis and Meisel Roca 2010), thinking about Colombia as a uniform entity would mean losing an essential aspect of the origins and causes of this educational backwardness. Hence, I have emphasized Colombia's regional inequality by offering new evidence on educational outcomes from a sub-national perspective. This has also allowed me to achieve a more complete analysis of the existing patterns that are often related to institutions and the colonial past, as Frankema points out.

Until now, previous historical investigations mainly focused on the whole nation, only a few of them taking regional inequalities into account, and still not including the peripheral regions of the country (Ramirez and Salazar 2010; Ramírez and Téllez 2007). Moreover, by way of contextualization, in the first place, I have analyzed the evolution of Colombian education during the first half of the twentieth century compared to the rest of Latin America and some developed countries. From this comparison, the main conclusions were that Colombia maintained high rates of illiteracy and low enrollment rates throughout the whole period, especially if we compare it with the countries of the southern cone, which show educational levels similar to the developed group of countries. Conversely, this is not observed in the analyzes by gender, since statistics from Colombia, as well as the rest of Latin America, on female participation in primary and secondary education were similar to those for the most advanced European economies.

During the first half of the twentieth century, Colombia experienced critical structural changes economically, politically, demographically and institutionally. Many of the causes of these changes stem from the Thousand Days War (1899-1902) that arose as a consequence of the political rivalry between the Liberal and Conservative parties. This war dismantled much of the transportation infrastructure and schools, increasing the dropout rate across the country (Ramírez and Téllez 2007). From the war, the Conservative Party arose victorious and remained in power until 1930.

Much of the reconstruction of the country was paid for by coffee exports, which allowed an accumulation of commercial capital that resulted in the emergence of new industries, services and population concentrations in some cities. As part of the country's reconstruction strategy, education became one of the main concerns of the Colombian state, the educational system being redefined in Law 39 of 1903 and Decree 491 of 1904. Under this legislation, education was organized into Pre-primary, Primary Lower-Secondary, Upper-Secondary, Post-secondary non-tertiary, Professional, and Tertiary education. Primary education was divided into rural and urban categories. Secondary school was disaggregated into three levels of training: academic, vocational and teacher training. In all cases schools were gender-segregated: women were denied access to tertiary education until the 1930s, and female education focused on social and household tasks.

To carry out the analyzes, I built long-term annual series for all territories for both primary and secondary education. I used the enrollment rates (GER) for both primary and secondary education between 1900 and 1958, disaggregated into the same categories into which the educational system was organized. Also, in order to provide internationally comparable data, I adapted data on the Colombian education system in the first half of the twentieth century to the International Normalized Classification of Education of 2011.

The first thing to highlight about the construction of the series is that there were significant regional differences in enrollment rates during the first half of the twentieth century. Overall, there were considerable differences in the enrollment rates between the centre and periphery of the country, which in the 1950s were much more marked in both primary and secondary education. These differences seem to have been associated with institutional, ethnographic and economic elements. Regarding primary education, we see that the territories where industrialization began, such as Antioquia, Caldas and Valle del Cauca, had higher coverage rates. Also, departments with a long tradition of coffee-growing show the highest enrollment rates in primary and secondary school. Conversely, the periphery, mainly populated by indigenous peoples, was far removed from the levels of the central area. Exceptionally, San Andrés and Chocó escape from the standards of the periphery. In both cases, these territories made a local effort to improve the coverage of mass education.

Concerning gender analysis, the series show more boys than girls enrolled in primary education in most territories except for the areas located on the Caribbean coast. This seems to be related to the fact that most Caribbean families are constituted as a free union from which men are absent, possibly increasing women's interest in educating their daughters. In the analysis of gender for secondary education, a single pattern is observed. The series show more female enrollment in the first decades of the twentieth century, a trend later reversed. The fact that there were more women than men enrolled in secondary education in the early decades is striking because women had been banned from having access to tertiary education. It is important to realize that women's educational programmes were not the same as those of men, as they tried to reinforce women's roles as mothers and housewives, instead of offering an education that allowed them to continue their post-secondary studies.

Due to the lack of state resources as a consequence of the civil war, the Conservative government chose to define a decentralized model of education financing in which the department governments had to meet the costs of primary education and partially of secondary education as well. By then, the country had been territorially organized into departments and national territories. The latter had the greatest presence of indigenous peoples and less fiscal and institutional autonomy. The previous structure was also transferred to the education financing model, in which the costs of education were entirely borne by the state (Helg 2001; Ramírez and Téllez 2007). Consequently, the financing of education was decentralized, and each department had to assume the full cost of primary education and the partial cost of secondary education. Also, the national territories were deprived of the ability to take decisions about the provision and quality

of education. Instead, this responsibility was given to the Catholic missions, which limited themselves to literacy and catechizing the indigenous population (Helg 2001).

Can it be said that the decentralized model was successful in expanding mass education? According to what we have seen in the course of this investigation, the correct answer would be "it depends". On the one hand, the results suggest that there is a high correlation between budgetary capacity and enrollment rates, which was highly beneficial for territories that had a large fiscal capacity, while conversely, those with small budgets invested less in education. Also, the national territories were largely forgotten by the central government when it came to investment in education, a fact that is widely reflected in the low enrollment rates. An argument about the state's oblivion has been raised by España-Eljaiek (2017, 2019), who suggests that the periphery of the country (that is, the national territories) did not receive any benefits from the first period of globalization or the coffee boom due to the discriminatory nature of colonial regimes. On the other hand, beyond the differences that the decentralized model might generate, it can be said that the national policy of decentralization managed to respond to a need to obtain financing in the context of a lack of resources after the great destruction inherited from the Thousand Days War.

Another aspect that characterized the first half of the twentieth century was the population concentration in large cities. This urbanization process is associated with higher enrollment rates in the regions that managed to respond to the growing urban demand for education, as was the case in Antioquia, Caldas, Valle del Cauca, Atlántico and Cundinamarca. Many of these departments were dedicated to coffee-growing, leading to higher enrollment rates in the long term (Ramírez and Téllez 2007). Despite this, primary enrollment rates in the coffee regions stagnated or declined in the 1930s. To interpret this short-term situation, I built a database of gross enrollment rates in primary education and literacy at the municipal level whose cut-off date was 1938 to analyze the relationship between coffee production and educational coverage in depth.

According to the literature, during commodity booms, families tend to withdraw children from school to contribute to the family income (Beegle *et al*. 2006; Bhaskar and Gupta 2012; Dammert 2008). Therefore, based on the previous idea, I established the following hypothesis: coffee production boosted child labour more than any other rural activity, consequently depressing educational outcomes in the short term.

However, due to the lack of data on child labour in this period, to conduct an empirical analysis, I used coffee-harvest months as a proxy of child labour. Also, I used non-coffee agrarian products to determine whether the said hypothesis can be extended to the structure of the rural economy in Colombia itself. Secondly, to improve the validity of the econometric results, the quantitative exercises were complemented with systematic qualitative evidence regarding the relationships between coffee, child labour and education.

The econometric results show, first, that more coffee cultivation negatively affected municipal GERs and literacy rates, especially the more rural the municipality was. Secondly, more harvest months reduce educational outcomes regardless of the level of local coffee production. And finally, the analyses showed that non-coffee products were not associated with poorer educational performance, unlike the case of coffee. These

quantitative results were validated by the qualitative analysis: that is, different and separate archival evidence shows that child labour was of structural significance in coffee-growing areas. This ended up depressing educational demand, since the school-age population participated in agrarian commodity production at the expense of school attendance.

So, was coffee good or bad for the accumulation of human capital in Colombia during the first half of the twentieth century? As in the case of the decentralization policy, the answer should be "it depends". It depends on whether we focus on the long term or the short term, as well as on the level of rurality of a territory. On the one hand, we see that in the long term, it is the coffee regions that show the higher enrollment rates. However, short-term analyzes at the municipal level show that coffee cultivation was associated with lower educational outcomes. In the same way, it can be affirmed that in contexts of commodity booms in countries of agricultural dependence, the rural population becomes vulnerable if there are no policies to control the use of child labour, since the opportunity costs between studying and working are very high.

Moreover, the coffee boom generated other synergies, such as the accumulation of commercial capital that encouraged the development of industries such as coffee threshing or manufacturing, as well as the emergence of services. Likewise, in other departments, an accumulation of commercial capital was being generated and new textile industries were emerging as in Atlántico, which implied a growing demand for labour (Meisel Roca 1989). At that time, women were not allowed to work without prior authorization from their husbands, or their fathers if single. In turn, women were not very qualified due to the limitations of educational programmes.

So how are we to account for the fact that, despite the paternalistic policies of the colonial heritage that segregated women in both education and the labour market, today Latin America, including Colombia, has a high gender parity in school enrollment rates? Bértola and Ocampo (2012) suggest that this narrowing of the gap arose in part from the adoption of the liberal reforms at the beginning of the twentieth century. In the case of Colombia, some of these policies were introduced in the 1930s, when the Liberals came to power and two legal reforms were implemented related to the equality of programmes and the abolition of the marriage bar. The central hypothesis suggested in this dissertation is that the adoption of these two liberal reforms improving the economic and social statuses of women was associated with a decrease in the gender gap in education through the increasing demand for education.

By the 1930s, feminist movements had arisen coinciding with a period of sharp recessions in several Latin American countries after the global crisis of 1929. The validity of the agro-export model was questioned. Consequently, Liberal governments implemented a policy of regulation and modernization based on the national industry. That project was called “The Revolution in Progress” (*La Revolución en Marcha*), which required profound changes in education and political and social changes. The emerging industry needed to improve the training of the workforce and of those who trained it (Gorroño Martínez 2003). Women took advantage of this need to claim economic and social rights, especially in education. With the arrival of the Liberal Party, new spaces for a debate over women's rights were opened up. In 1930, President Olaya responded

to feminist demands by approving legal reforms allowing women economic independence within marriage, the right to manage their property and the right to equal access to education (Luna 2001).

There is a consensus in the literature about the fact that the more democratic institutions are, the more likely policies aimed at improving the status of women through educational development will be implemented (Beer 2009; Brown 2000; Cooray and Potrafke 2011). Likewise, the experience of other Latin American countries such as Chile has shown that changes in the needs of the labour market can force improvements in the quality of education offered to women, as well as the freedom to sign employment contracts (Gómez Molina 2016).

Based on the above ideas, in this dissertation I have sought to test the hypothesis that the two liberal reforms that improved the economic and social situation of women are associated with a decrease in the gender gap in education by increasing female enrollment. To test the hypothesis, I used two strategies: a) descriptive analyzes of the long-term evolution of female enrollment rates compared with male rates in both primary and secondary schools; and b) a panel-data model using gross the enrollment rates in primary schools.

Overall, the findings indicate that, even though the period after the laws were passed was associated with an overall decline in enrollment rates in primary education due to the post-1929 crisis, the decline in enrollment was less for women than for men, thus reducing the gender gap. Likewise, different patterns are observed between the centre and the periphery of the country: having department status is associated with higher female enrollment rates, while being a national territory is associated with a disadvantage in terms of female education.

Besides, the results show that as the years passed the gap became smaller, reducing the impact of the legislation because the gap was already narrowing. Regarding the effect on secondary education, there was no apparent narrowing of the gender gap in total secondary school enrollments from the 1930s, but different patterns depending on the type of training are observed. Concerning academic training, the gender gap did not narrow after the adoption of laws in favour of women. Regarding vocational and teacher training, there was a substantial increase in female enrollment rates after the granting of women's rights, this being even higher in the case of teacher training.

Could one say that the labour reforms really contributed to the reduction of the gender gap and generally improved the quality of education for women? The expected answer should be a resounding yes, but again the answer is "it depends."

Regarding primary education, there is a positive correlation between the approval of laws and the decrease in the gender gap, probably due to an effect of future expectations. On the other hand, concerning secondary education, there was a still glass ceiling for women in academic training. Although there were substantial variations in the legislation that promoted the increase in female enrollment in secondary school, the design of the discourse of the Ministry of Education sought to push women to opt for non-professional education, especially teaching and commercial training. Therefore, the so-called liberal professions (doctors, lawyers, engineers, etc.) continued to be male-

dominated, and women were encouraged to dedicate themselves to jobs "socially better viewed", such as receptionists, telegraphers, or teachers.

In more general terms, this research has cast light on blind spots that had not so far been explored due to the lack of regional data. Likewise, this dissertation has opened up new little explored and sometimes sensitive debates within the literature, such as oblivion by the periphery, the untold story of the coffee boom and the need to reinforce inclusive policies at the gender level.

Due to certain limitations, such as lack of access to regional data for the post-1950s period, I have not been able to delve into issues that are also important in understanding the evolution of education, such as the impact of the "*La Violencia*" period and of forced displacement on the development of education. Future research should continue to link up the dots until a more complex vision of Colombian educational realities and the mechanisms that underlie the different realities can be achieved.

To conclude, in the same way that these lessons learned shed light on the redesign of educational policies in Colombia, they are also applicable to the rest of Latin American countries. UNICEF, in a recent study on education in Latin-American (Imchen and Ndem 2020), highlights that there are still specific issues that require particular attention. Overall, the report highlights the challenge of equity in education in many respects. The most important is related to how educational resources are distributed among the different segments of society. In other words, educational resources are focused on a few ones, leaving out the rural areas, a large number of girls and certain ethnic minorities. For all the above mentioned, it is evident that these debates are still present in Latin American society. The experience of Colombia allows us to affirm that the way resources are allocated, the high opportunity cost between studying and working that exists in rural areas, as well as the granting of civil and economic rights to women, can make the balance rotate one way or the other.

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